APPENDIX B

TRANSPORTATION

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MEMORANDUM

DATE: April 15, 2009

TO: Lynette Dias & Charity Wagner, RRM Design Group

FROM: Gordon Shaw, PE, LSC

SUBJECT: Truckee Railyard Project Additional Traffic Analyses

This memorandum presents additional analysis and discussion regarding traffic related issues associated with the Railyard Master Plan project in downtown Truckee. The capacity of the SR 267 bypass used in the Draft EIR analysis is first discussed. Next, a qualitative description of Level Of Service (LOS) E and F conditions is presented. Evaluations of the number of days and hours per year that SR 267 would not attain LOS standards are presented, along with parallel evaluations for the Bridge Street corridor. A potential fair-share methodology for improving roadway capacity over the Truckee River is then presented. Finally, the proportion of total future traffic volumes on various roadway elements that would be generated by the Railyard is presented.

Discussion of SR 267 Bypass Directional Roadway Capacity

Consistent with previous traffic studies conducted in the area (such as those prepared for Placer County regarding the Martis Valley General Plan and for the Town of Truckee regarding the General Plan), the capacity of the SR 267 "Bypass" section between I-80 and Brockway Road was based upon Highway Capacity Manual methodology for uninterrupted facilities. This approach reflects the fact that local studies (such as the Level of Service Criteria Study prepared for the Nevada County Transportation Commissions by Prism Engineering in 2001) have found that observed traffic volumes on rural highways in Nevada County are substantially greater than the capacity identified under the Rural Two-Lane Roadway methodology presented in the HCM. This methodology is based upon the assumption that drivers have an expectation to be able to pass slower drivers, which is not the common expectation for travel around the Truckee / Tahoe region during a peak summer day. The HCM Urban Streets

methodology is also not appropriate, as it requires the presence of traffic signals within the corridor segment, while the issue of the capacity of the 267 Bypass focuses on the segment between the existing traffic signals.

In the absence of a HCM methodology specifically applicable to the Bypass, the capacity has been estimated based upon a base volume from the HCM Freeway methodology. Thanks to the excellent design parameters of the Bypass (wide travel lanes and shoulders, absence of intersecting roadways or driveways), as well as absence of pedestrians and very low bicycle volumes, this roadway segment most closely functions as one freeway travel lane in each direction. As shown in Table A, attached, the capacity of this segment (LOS E/F boundary) as well as the LOS D capacity (LOS D/E boundary) was calculated as follows:

1. A base volume of 2,200 vehicles per hour per lane, per Chapter 13 of HCM 2000.

2. Per the factors identified in HCM, no factors need be applied to reflect limited lane width or shoulder width.

3. An adjustment is appropriate regarding the relatively high impact of trucks on traffic flow. Based upon Caltrans counts, and considering the period in which overall SR 267 highway is greatest (such as evenings and weekends), it is estimated that 3 percent of total traffic consists of trucks during peak traffic periods. This would equal 66 of the base 2,200 vehicles.

4. Per Table 23-8 of HCM 2000, a truck in rolling terrain has a Passenger Car Equivalence (PCE) of 2.5. Trucks therefore have equivalent impact of 165 vehicles. Subtracting the difference (165 minus 66) from the base volume of 2,200 yields 2,101 vehicles per hour per lane.

5. It is also appropriate to apply a "Peak Hour Factor" (PHF) to reflect variation in traffic levels within the hour. This is calculated by dividing the average 15-minute volume within the peak hour by the highest 15-minute volume. A review of peak summer PM peak-hour traffic counts indicates an observed PHF of 0.98. Multiplying 2,101 by this factor (0.98) yields 2,059 vehicles per hour per lane.

This value represents the upper end of LOS E / lower end of LOS F boundary. HCM 2000 indicates that LOS F conditions represent those conditions found when demand (traffic volume) equals or exceeds capacity. For instance, the two-lane Highway section of Chapter 12 – Highway Concepts states that *"LOS F represents heavily congested flow with traffic demand exceeding capacity"*. In addition, HCM 2000 also indicates that "*The highest volume attainable under LOS E defines the capacity of the highway"* (p 12-16). These definitions indicate that the LOS E/F boundary occurs when the volume/capacity ratio equals 1.0.

The Town of Truckee's LOS standard for roadways outside of the downtown area is LOS D (i.e., LOS E conditions do not attain the standard). It is therefore necessary to factor down the LOS E/F capacity to reflect the upper end of LOS D (the D/E boundary). LOS ranges are defined such that a 10 percent change in the Volume/Capacity (V/C) ratio reflects a full LOS. It is therefore appropriate to multiply the LOS E capacity by 0.90 to identify the LOS D maximum flow rate of 1,853. Rounding results in the final volume of 1,850.

Description of LOS E and LOS F Conditions

SR 267 Conditions

The best qualitative description of LOS E conditions that pertains to the 267 Bypass is provided in Chapter 13 of the HCM 2000:

> *"At its highest density value, LOS E describes operation at capacity. Operations at this level are volatile, because there are virtually no usable gaps in the traffic stream. Vehicles are closely spaced, leaving little room to maneuver within the traffic stream...Any disruptions of the traffic stream...can establish a disruption wave that propagates throughout the upstream traffic flow. At capacity the traffic stream has no ability to dissipate even the most minor disruption, and any incident can be expected to produce a serious breakdown with extensive queuing...the level of physical and psychological comfort afforded the driver is poor."*

LOS F conditions along a roadway occur when the approaching upstream volume exceeds the capacity, resulting in a breakdown in traffic flow. Stop-and-go traffic is generated, and traffic queues form back in the upstream direction. These queues continue to form so long as volume exceeds capacity.

Bridge Street Conditions (With Traffic Signals)

Traffic signals have been identified as the appropriate traffic control strategy for the key Bridge / DPR and Bridge / West River Street intersections in the future. LOS for signalized intersections is a function of the average driver delay, which is essentially the difference between the average time required to pass through a signalized intersection and the average time required if the signal were not there:

- LOS E occurs when the average delay exceeds 55 seconds per vehicle but does not exceed 80 seconds per vehicle. Drivers sometimes fail to pass through the intersection on their first available green indication.

- LOS F occurs when the average delay exceeds 80 seconds per vehicle. This condition is defined by HCM 2000 as "*considered unacceptable to most drivers.*"

LOS F typically indicates that most if not all drivers are not getting through the intersection on their first available green indication. LOS F can occur when long traffic signal cycle lengths (the total length of time from beginning of a green indication to the beginning of the next for a specific signal light) provided in order to best accommodate very high traffic volumes. More pertinent to Bridge Street, LOS F conditions can occur when specific movements need to be kept to short "green times" in order to avoid the queue blocking problems generated by closely-spaced signals.

Analysis of Periods That SR 267 Bypass Exceeds LOS Conditions Over the Course of the Year

Beyond the conclusion that peak traffic periods in the 2025 no project and 2025 plus project conditions would exceed the LOS D capacity of the SR 267 Bypass, it is useful in terms of understanding the extent of this traffic issue to evaluate the number of hours/days per year that this condition would occur, as well as the times of year that LOS would be exceeded. As the Bridge Street capacity will be reached first, after which traffic volumes will be diverted to the Bypass as an alternative route, it is appropriate to evaluate the total capacity of the two routes crossing the river (Bridge Street and the SR 267 Bypass) as an indicator of when the volumes on the Bypass will reach or exceed LOS standards. To conduct this analysis, pertinent traffic count data was collected to represent the variation in traffic activities for every hour of the year in each direction. This count data was then factored up to reflect future forecast conditions and compared against LOS threshold figures.

Fortunately, Caltrans maintains a permanent count station on SR 267 near the Town/County line (between Brockway Road and Airport Road). While limited count data is available for other roadways in Truckee, this count data was used as the most applicable to the variation in traffic activity on the Bypass. Hourly data for calendar year 2008 was obtained from Caltrans. For several intermittent days where the counter was not functioning, counts were estimated based upon the available good data closest in time, and the variation in directional counts observed on the same weekday for the prior and subsequent week.

Summer Analysis

The traffic analysis presented in the Railyard DEIR was calibrated against the fifth-highest traffic volumes occurring over the course of the summer. Therefore, the fifth-highest northbound traffic volume observed at the Caltrans count location during the summer was identified from the 2008 count data (934). Next, the total northbound summer volume over the Truckee River (on either Bridge Street or SR 267) was identified from Figure 4C-7 of the Railyard DEIR (2,977). Dividing the latter figure by the former yields a factor representing the ratio between the existing 5th highest northbound roadway volume at the Caltrans count location and the total northbound

volume crossing the Truckee River of 3.084. The 2008 summer northbound traffic volumes observed at the Caltrans count location were therefore multiplied by this factor to estimate the 2025 total northbound volume crossing the Truckee River on either Bridge Street or the 267 Bypass.

The resulting volumes were compared against a total summer northbound capacity over the Truckee River of 2,800 vehicles per hour, consisting of the 1,850 value discussed above on the Bypass plus the 950 vehicles per hour identified in the Railyard DEIR for the volume northbound across Bridge Street in 2025. This procedure conservatively assumed that any additional traffic volume over 2,800 results in exceedance of LOS standards (i.e., any volume over the volume estimated for the 5th highest volume would be added to the 267 Bypass volume rather than the Bridge Street volume).

Winter Analysis

As Truckee LOS standards apply to the summer only, the traffic analysis in the Railyard DEIR was limited to summer conditions only within Truckee, though winter analysis was conducted for the roadways within Placer County (as Placer County requires both winter and summer analysis). The traffic volume forecasts crossing the Truckee River used in the summer analysis, therefore, were not available to assess whether the Bypass capacity is exceeded in winter conditions. The Town of Truckee, moreover, has not developed a winter traffic model. It is therefore necessary to review other recent environmental documents for traffic volume data that can be used to define the ratio of volume over the Truckee River in comparison with volume at the Caltrans permanent count station.

A review of recent traffic studies indicates that the most recent data is provided in The Northside Draft EIR (PMC, December 2005). The existing winter PM peak-hour ratio of northbound traffic volume on the bypass (north of Brockway Road) to the volume south of Brockway Road (at the Caltrans count location) was identified. In addition, the ratio of existing northbound volume to the 2025-plus-project northbound volume on the bypass was identified as shown in Tables 4.C-3 and 4.C-17 of the Railyard DEIR. Multiplying these two ratios together yields a factor reflecting the ratio of existing northbound winter volume at the Caltrans count station to the future-plus-project northbound volume on the bypass. A similar factor was also developed for future-no-project conditions, using the no-project future winter volumes shown in Table 4.C-13 of the Railyard DEIR.

Conclusions

Table B presents a summary of the hours per year that LOS on the Bypass would be E or F for 2025 no-project conditions, while Table C presents the same information reflecting plus-project conditions. Overall, conclusions of this analysis can be summarized as follows:

- For **no project 2025** conditions, LOS standards would be exceeded a total of 9 hours per year, occurring over a total of 7 days between roughly the 4th of July and mid-August. Of these hours, 6 hours would have LOS E and 3 hours would have LOS F. These hours vary between 10 AM and 5 PM (with most occurring in the 3 PM and 4 PM hours), and occur on Wednesday, Thursday, Friday and Sunday. The worst day would be the Sunday after 4th of July (depending on how the 4th falls within the week), where 2 hours of LOS F conditions would occur.

- For **plus project 2025** conditions, the number of hours exceeding LOS standards would grow to 14 hours per year. The maximum number of hours of exceedance per day would remain at 2. The period of the year in which LOS standards would be exceeded would still be between the 4th of July and mid-August, and the hours of congestion would still be between 10 AM and 5 PM, with the majority in the 3 PM and 4 PM hours. Days of the week with at least 1 hour of congestion would consist of Sunday, Monday, Wednesday, Thursday and Friday.

- In both no-project and plus-project conditions, no periods were identified in which *southbound* traffic would exceed capacity.

- For LOS E conditions, delays to individual drivers would vary depending on specific events and fluctuations over the course of the hour. Average delays would be expected on the order of 5 to 10 minutes.

- For LOS F conditions, extensive queues would form. The worst-case condition would occur the Sunday after the 4th of July when 2 hours of LOS F condition would occur (under either scenario). Comparing the total demand versus capacity, the maximum queue length for **no project** conditions would be on the order of 1.6 miles, while **plus project** conditions would result in a queue up to 2.7 miles long. Considering typical travel speeds within a congested queue of 3 miles per hour, the maximum delay would be on the order of 35 minutes under **no project** conditions, and 55 minutes under **plus project** conditions. Beyond this one day per year when visitors are leaving the area after the 4th of July, the worst queue would be roughly 0.2 miles for no project conditions and 0.7 miles for plus project conditions.

It should be noted that this analysis assumes that no drivers change their driving behavior to avoid the delays. In reality, it can be expected that many drivers (particularly residents aware of traffic conditions) will strive to avoid periods of congestion, such as by choosing to make their trips before or after the typical times of congestion. This tends to limit the degree to which capacity is exceeded, though it is important to note that poor conditions would still remain. However, quantifying any such reduction in demand is largely a matter of conjecture.

Analysis of Periods That Bridge Street Intersections at Donner Pass Road and West River Street Exceed LOS Conditions Over the Course of the Year

A similar analysis of the hours/days of LOS exceedance was conducted for the Bridge Street corridor, specifically for the Bridge Street / Donner Pass Road and Bridge Street / West River Street intersections that are forecast to provide LOS F conditions in 2025 (with signals) under both no-project and plus-project conditions. This analysis differs in that LOS is a function of total traffic volumes through the two closely-spaced intersections. Rather than a directional volume, the total two-way volume on Bridge Street between the two intersections (crossing the tracks) is evaluated, as the best single indicator of overall traffic through the corridor. Also, as the pertinent LOS standard in the downtown area is LOS E, only LOS F conditions are identified as exceeding LOS standards.

For the downtown area, the best source of data regarding variation in traffic activity throughout the year is provided by the SR 267 Caltrans data. However, one week of hourly traffic count data is available (as collected by Town of Truckee staff) for Donner Pass Road and West River Street west of Bridge Street. This data was reviewed to identify adjustment factors by day of week and by hour of day appropriate for the downtown area. These factors, as well as existing observed Bridge Street traffic volumes on the 5th-highest summer PM peak-hour, were used to estimate existing hourly volumes crossing the railroad tracks for every hour of the year. The volumes for each hour of the year for the various future scenarios were then estimated by factoring these existing volumes by the ratio of future to existing volumes crossing the tracks for the existing-plus-project, 2025-no-project and 2025-plus-project conditions.

The corresponding hourly Bridge Street traffic volumes that just meet the LOS E/F threshold were identified using the Synchro/Simtraffic simulation model also used in the Draft EIR traffic analysis. This analysis included the traffic volumes that were defined in the full traffic analysis to be diverted out of the study intersections due to poor LOS F conditions (as these volumes will not begin to divert until LOS F conditions are reached). The total hourly 2-way volume crossing the tracks that corresponds to this LOS E/F boundary was then identified to equal 1,355. In comparing this volume with the existing no project and 2025 plus project volumes shown in the DEIR, this indicates that roughly 25 percent of future total growth in traffic volumes (including Railyard traffic) could be accommodated before the 5th-highest PM peak-hour volume exceeds LOS F.

This value can then be compared with the value for the various hours of the year, in order to identify those hours with volume exceeding this level and thus resulting in LOS F conditions. No hours of LOS F were identified for existing no-project conditions. The specific hours of LOS F for existing plus project, 2025 no project, and 2025 plus project conditions are presented in Tables D, E and F, respectively. Note that all hours of all

days of the year were evaluated for each scenario, though only those days with LOS F conditions are shown in these tables for the sake of simplicity. A review of these tables indicates the following:

- For **existing plus project** conditions, LOS F conditions would occur during a total of 9 hours per year, occurring on a total of 4 days. Note that this is consistent with the finding in the Draft EIR that LOS F conditions would not occur during the LOS design period, as Town of Truckee standards are applied to the PM peak hour in the day with the 5th highest peak hour. Two of these LOS F hours would occur in winter (on a busy day just after New Years), while the remainder would occur in summer. Five of these hours would occur on a busy day around the 4th of July period. This analysis generally indicates that LOS F conditions under this scenario would be limited to relatively few peak periods across the year.

- **2025 no project** conditions would be roughly comparable to 2008 plus project conditions. LOS F conditions would occur during 10 hours per year, all occurring on the same days as under the previous scenario.

- **2025 plus project** conditions would substantially expand the number of hours and days per year in which LOS F conditions would occur along Bridge Street. At least one hour of LOS F conditions would occur on 63 days per year: 50 days between mid-June and early October, and 13 days between mid-December and the end of March. In total, LOS F conditions would occur 199 hours per year. Up to 11 hours of LOS F conditions would occur on July 3rd (from 8:00 AM through 7:00 PM), though there are 14 other days per year in both summer and winter when 5 to 7 hours of LOS F conditions would occur. From August 4th to August 16th, at least 2 hours of congestion would occur every day.

A comparison of the hours of the year where LOS failure on SR 267 and LOS failure on Bridge Street occur (i.e. comparing Table B with Table E and comparing Table C with Table F) indicates that almost all of the hours in which failure is forecast for capacity crossing the Truckee River are *also* hours in which the Bridge Street LOS fails. This reflects that the Bridge Street capacity will generally be reached first, with excess traffic then diverting to the 267 Bypass until (at peak times) the total capacity is exceeded. There are just a few hours per year, such as at the end of the 4th of July weekend, when total river crossing capacity is identified as being exceeded but Bridge Street capacity is not. This is a result of the differing (and limited) data sets applied to the two analyses, and is the best estimate that can be made based on this limited available data without making the analysis even more complicated than it already is. In addition, a methodology that attempts to blend the data sources would not change the general conclusions of these analyses.

For hours of the year in which the volume just slightly exceeds the LOS F standard, the traffic delay experienced by any one driver would be limited to 2-5 minutes, depending greatly on what specific movements the driver is making and whether their travel path takes them through both intersections. (To avoid queue blocking problems, signal timing will need to be set to give preference to some movements over others.) Examples of the delays experienced by drivers on some typical travel paths are as follows:

- A driver traveling to the Railyard project from the south along Bridge Street would first incur a 20 second delay while making a northbound through movement at the Bridge / West River Street intersection. The northbound right turn movement at the Bridge / Donner Pass Road intersection would result in a delay of 28 seconds. The total delays northbound through these two intersections would therefore be less than one minute.

- A driver traveling towards the Railyard from West River Street would have a very different experience. The eastbound left turning movement from West River Street to Bridge Street during the peak hour on days with high traffic activity could have roughly four minutes of delay. Including the delays for the right turn movement from Bridge to Donner Pass Road, overall delays would be almost five minutes.

Moreover, there are some values shown in Table F that substantially exceed the capacity of the corridor. The greatest estimated future volume exceeds the capacity by 52 percent, while even the 10^{th}-highest hour exceeds the capacity by 23 percent. Note that much of this additional traffic is forecast to divert out of the downtown area, or to use other streets (such as Jibboom Street) to avoid traffic delays. However, traffic volumes delays will still grow over the design period values at these highest values. As a result, individual drivers making the worst movements on the absolute peak traffic days could experience delays on the order of up to 10 minutes.

Future Railyard Proportionate Impact on Traffic Volumes

To gain additional insight as to how the Railyard project would impact traffic conditions, the proportion of total future-plus-project traffic volumes on key roadway segments and at key intersections that is generated by Railyard land uses was calculated. The results of this comparison is presented in Tables G and H (for intersections and roadway segments, respectively) and depicted graphically in the attached figure.

Note that these figures do not reflect the *total* impact of the Railyard project on future traffic volumes. In addition to the traffic volumes added to regional roadway generated by the Railyard project's increase in land use, the proposed project will also (1) construct a new roadway (Donner Pass Road Extension) that will divert some existing traffic and future non-Railyard traffic off of existing roadways, and (2) result in

increased traffic congestion (particularly at Bridge / DPR and Bridge/ West River Street) that will cause other drivers not bound to or from the Railyard to divert off of the downtown roadway system to other route alternatives (most notably the SR 267 Bypass).

Table A: Updated Capacity Analysis for Two-Lane Facilities in Nevada County

Based upon HCM 2000 factors for Uninterrupted Roadways and SR 267-Specific Characteristics

Peak-Hour Capacity of Freeway per Lane	2,200	vehicles per hour per lane (Chapter 13, HCM 2000)
Lane Width	12	feet
Shoulder Width	6	feet
Lane Width Adjustment	1.0	
Percent Trucks	3%	Caltrans counts
Number of Trucks per Hour	66	trucks per hour
Passenger Car Equivalents per Truck	2.5	for rolling terrain (Table 23-8 HCM 2000)
Passenger Car Equivalents Generated by Trucks	165	passenger cars
Capacity with Reduction for Trucks	2,101	vehicles per hour per lane
Peak Hour Factor	0.98	Counts conducted 6/12/2005 4-6 PM
LOS E Capacity	2,059	vehicles per hour per lane
LOS D Capacity (90 percent of LOS E)	1,853	vehicles per hour per lane
Rounded to Nearest 10	1,850	vehicles per hour per lane

MV SR 267 Capacity.xls

TABLE B: 2025 Northbound Total Hourly Traffic Volume Crossing Truckee River on 267 and Bridge Street -- No Railyard Project Condition

All Days With At Least 1 Hour of LOS E or F

= LOS E

= LOS F

Capacity at LOS D/E Boundary on SR 267	2800
Capacity at LOS E/F Boundary on SR 267	3006

Date	Day of Week	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	Total Hours
Total Volume on Bridge Street + SR 267 Over the Truckee River													
6-Jul	Sunday	2217	3212	3147	2393	2148	2102	2040	2096	1882	1876	1677	2
9-Jul	Wednesday	1311	1476	1736	1535	1637	1950	2297	2799	2465	1553	843	0
23-Jul	Wednesday	1336	1621	1863	1767	1702	2077	2508	2896	2452	1593	1042	1
28-Jul	Monday	1677	1897	1959	1953	1919	2136	2781	2576	2201	1314	809	0
30-Jul	Wednesday	1556	1624	1705	1801	1767	1987	2536	2843	2279	1531	902	1
4-Aug	Monday	1807	2021	1891	1938	1872	2117	2778	2598	2148	1423	970	0
6-Aug	Wednesday	1649	2003	1993	1876	1773	2294	2561	2880	2337	1528	868	1
7-Aug	Thursday	1572	1981	2012	2105	1956	2213	2849	3044	2582	1739	1079	2
8-Aug	Friday	1835	2151	2365	2437	2031	2570	2905	2731	2567	1659	1200	1
13-Aug	Wednesday	1420	1618	2024	1872	1677	2164	2666	2775	2325	1804	921	0
14-Aug	Thursday	1556	1866	1922	1913	1931	2006	2601	2886	2443	1677	905	1
												Total	9

TABLE C: 2025 Northbound Total Hourly Traffic Volume Crossing Truckee River on 267 and Bridge Street -- Plus Railyard Project Condition

All Days With At Least 1 Hour of LOS E or F

= LOS E

= LOS F

Capacity at LOS D/E Boundary on SR 267	2800
Capacity at LOS E/F Boundary on SR 267	3006

Date	Day of Week	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	Total Hours
Total Volume on Bridge Street + SR 267 Over the Truckee River													
6-Jul	Sunday	2291	3320	3253	2474	2221	2173	2109	2166	1945	1939	1734	2
9-Jul	Wednesday	1356	1525	1795	1586	1692	2016	2375	2894	2548	1605	872	1
23-Jul	Wednesday	1381	1676	1926	1827	1759	2147	2592	2993	2535	1647	1077	1
28-Jul	Monday	1734	1961	2025	2019	1984	2208	2874	2663	2275	1359	836	1
30-Jul	Wednesday	1609	1679	1762	1862	1827	2054	2621	2939	2355	1583	933	1
4-Aug	Monday	1868	2089	1955	2003	1936	2189	2871	2685	2221	1471	1003	1
6-Aug	Wednesday	1705	2070	2061	1939	1833	2371	2647	2977	2416	1580	897	1
7-Aug	Thursday	1625	2048	2080	2176	2022	2288	2945	3147	2669	1798	1115	2
8-Aug	Friday	1897	2224	2445	2519	2099	2657	3003	2823	2653	1714	1240	2
13-Aug	Wednesday	1468	1673	2093	1936	1734	2237	2756	2868	2403	1865	952	1
14-Aug	Thursday	1609	1929	1987	1977	1996	2073	2689	2983	2525	1734	936	1
												Total	14

TABLE D: 2008 Plus Project Total Hourly Traffic Volume On Bridge Street Crossing the Railroad

All Days With At Least 1 Hour of LOS F = LOS F

Capacity at LOS E/F Boundary on Bridge St 1355

Date	Day of Week	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	Total Hours
Total Volume on Bridge Street Over the Rail Road Tracks											
Wednesday	2-Jan	1024	1071	1313	1198	1180	1231	1369	1397	1059	2
Thursday	3-Jul	1165	1239	1443	1312	1397	1552	1661	1435	1127	5
Thursday	7-Aug	1005	1068	1244	1132	1205	1338	1432	1237	972	1
Thursday	14-Aug	955	1016	1183	1076	1145	1272	1361	1176	924	1
										Total	9

TABLE E: 2025 No Project Total Hourly Traffic Volume on Bridge Street Crossing the Railroad

All Days With At Least 1 Hour of LOS F = LOS F

Capacity at LOS E/F Boundary on Bridge St 1355

Date	Day of Week	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	Total Hours
Total Volume on Bridge Street Over the Rail Road Tracks											
Wednesday	2-Jan	1043	1091	1337	1219	1202	1254	1393	1422	1078	2
Thursday	3-Jul	1187	1261	1469	1336	1422	1580	1691	1461	1147	5
Thursday	7-Aug	1023	1088	1267	1152	1226	1362	1458	1260	989	2
Thursday	14-Aug	973	1034	1205	1095	1166	1295	1386	1198	941	1
										Grand Total	10

TABLE F: 2025 Total Hourly Traffic Volume Crossing the Railroad at Bridge Street -- Includes Railyard Project Condition

All Days With At Least 1 Hour of LOS F
= LOS F

Capacity at LOS E/F Boundary on Bridge St 1355

Date	Day of Week	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	Total Hours
Total Volume on Bridge Street Over the Rail Road Tracks													
Wednesday	2-Jan	1154	1168	1277	1336	1637	1493	1471	1535	1706	1741	1320	6
Thursday	3-Jan	1012	1002	1042	1108	1291	1174	1250	1388	1485	1283	1008	2
Saturday	19-Jan	853	1146	1273	1369	1363	1248	1229	1166	1187	1072	1069	2
Saturday	16-Feb	901	1209	1344	1445	1439	1318	1297	1231	1254	1132	1129	2
Sunday	17-Feb	742	1092	1355	1388	1421	1412	1279	1348	1324	1148	929	3
Monday	18-Feb	1174	1187	1198	1322	1470	1442	1341	1359	1381	1324	1076	4
Thursday	27-Mar	967	957	996	1058	1233	1121	1194	1326	1419	1226	963	1
Thursday	19-Jun	984	974	1014	1078	1256	1142	1216	1350	1445	1249	980	1
Thursday	26-Jun	926	917	954	1014	1182	1075	1144	1271	1360	1175	923	1
Wednesday	2-Jul	1049	1061	1161	1214	1487	1357	1337	1395	1551	1583	1200	5
Thursday	3-Jul	1410	1396	1453	1544	1799	1636	1742	1934	2070	1789	1405	11
Saturday	5-Jul	923	1239	1377	1481	1475	1350	1329	1261	1285	1160	1157	3
Sunday	6-Jul	718	1056	1311	1344	1375	1366	1238	1304	1282	1111	899	2
Monday	7-Jul	1169	1182	1193	1317	1464	1436	1336	1354	1375	1318	1071	3
Wednesday	9-Jul	945	956	1046	1094	1340	1223	1205	1257	1397	1426	1081	2
Thursday	10-Jul	999	989	1029	1094	1274	1159	1234	1370	1466	1267	995	2
Wednesday	16-Jul	958	969	1060	1109	1358	1239	1221	1274	1416	1446	1096	3
Thursday	17-Jul	1068	1057	1100	1169	1362	1239	1319	1464	1567	1354	1063	3
Friday	18-Jul	1087	1190	1212	1357	1421	1346	1302	1310	1237	1391	1098	3
Monday	21-Jul	1101	1113	1123	1240	1378	1352	1257	1274	1294	1241	1009	1
Wednesday	23-Jul	1008	1020	1115	1166	1429	1303	1285	1340	1490	1520	1152	3
Thursday	24-Jul	1126	1114	1160	1233	1436	1306	1390	1544	1652	1428	1121	5
Friday	25-Jul	1117	1223	1245	1395	1460	1383	1337	1346	1271	1429	1128	4
Saturday	26-Jul	886	1190	1322	1422	1416	1296	1276	1211	1233	1114	1111	2
Monday	28-Jul	1137	1149	1160	1280	1424	1396	1299	1316	1337	1282	1042	2
Tuesday	29-Jul	1047	1065	1079	1164	1281	1192	1122	1293	1362	1321	997	1
Wednesday	30-Jul	1002	1014	1109	1160	1421	1297	1278	1333	1482	1513	1147	3
Thursday	31-Jul	1128	1116	1162	1235	1439	1308	1393	1547	1655	1430	1123	5
Friday	1-Aug	1098	1202	1224	1371	1435	1359	1314	1323	1249	1405	1109	4
Saturday	2-Aug	872	1171	1300	1399	1393	1275	1255	1191	1213	1096	1093	2
Monday	4-Aug	1178	1190	1201	1326	1474	1446	1345	1363	1384	1328	1079	4
Tuesday	5-Aug	1083	1102	1117	1205	1325	1234	1161	1338	1410	1367	1032	2
Wednesday	6-Aug	1062	1075	1176	1229	1506	1374	1355	1413	1571	1603	1215	5
Thursday	7-Aug	1216	1204	1253	1332	1551	1411	1502	1668	1785	1543	1211	6
Friday	8-Aug	1203	1317	1341	1502	1572	1489	1440	1449	1368	1539	1215	7
Saturday	9-Aug	964	1294	1437	1546	1540	1410	1388	1317	1341	1211	1208	5
Sunday	10-Aug	739	1087	1349	1382	1415	1405	1273	1342	1319	1143	925	3
Monday	11-Aug	1173	1186	1197	1321	1469	1441	1340	1358	1380	1323	1075	4
Tuesday	12-Aug	1079	1098	1113	1201	1320	1229	1157	1333	1404	1362	1028	2
Wednesday	13-Aug	1054	1066	1166	1219	1494	1363	1343	1401	1558	1590	1205	5
Thursday	14-Aug	1156	1145	1191	1266	1475	1341	1428	1586	1697	1467	1152	5
Friday	15-Aug	1124	1230	1252	1403	1468	1391	1345	1354	1278	1438	1135	4
Saturday	16-Aug	859	1153	1281	1378	1372	1256	1237	1173	1195	1079	1076	2
Monday	18-Aug	1091	1103	1113	1228	1366	1340	1246	1263	1283	1230	1000	1
Wednesday	20-Aug	982	994	1087	1136	1392	1270	1252	1306	1452	1482	1123	3
Thursday	21-Aug	1059	1049	1091	1160	1352	1229	1308	1453	1555	1344	1055	2
Friday	22-Aug	1047	1146	1167	1307	1368	1296	1253	1261	1191	1340	1058	1
Wednesday	27-Aug	912	923	1009	1055	1293	1179	1162	1213	1348	1376	1043	1
Thursday	28-Aug	1016	1006	1046	1112	1296	1178	1254	1393	1491	1288	1012	2
Friday	29-Aug	1102	1207	1228	1376	1440	1364	1319	1327	1254	1410	1113	4
Saturday	30-Aug	857	1151	1278	1375	1369	1253	1234	1171	1193	1077	1074	2
Thursday	4-Sep	964	955	993	1056	1230	1119	1191	1322	1415	1223	960	1
Wednesday	10-Sep	918	928	1015	1062	1301	1187	1170	1220	1356	1385	1049	2
Thursday	11-Sep	980	970	1010	1073	1250	1137	1210	1344	1439	1243	976	1
Thursday	18-Sep	954	944	983	1045	1217	1107	1178	1308	1400	1210	950	1
Thursday	25-Sep	925	916	953	1013	1180	1073	1142	1269	1358	1173	921	1
Thursday	2-Oct	947	938	976	1037	1208	1099	1170	1299	1390	1201	943	1
Sunday	21-Dec	766	1127	1398	1433	1467	1457	1320	1391	1367	1185	959	6
Saturday	27-Dec	987	1325	1472	1584	1577	1444	1421	1348	1374	1240	1237	6
Sunday	28-Dec	800	1176	1460	1496	1531	1521	1378	1452	1427	1237	1001	7
Monday	29-Dec	1170	1183	1194	1318	1465	1437	1337	1355	1376	1319	1072	3
Tuesday	30-Dec	1107	1126	1141	1231	1354	1260	1186	1367	1440	1396	1054	3
Wednesday	31-Dec	1079	1092	1194	1249	1530	1396	1376	1435	1595	1628	1234	6
												Grand Total	199

TABLE G : 2025 Plus Project Intersection Volumes Generated by Railyard

Summer PM Peak-Hour Volumes

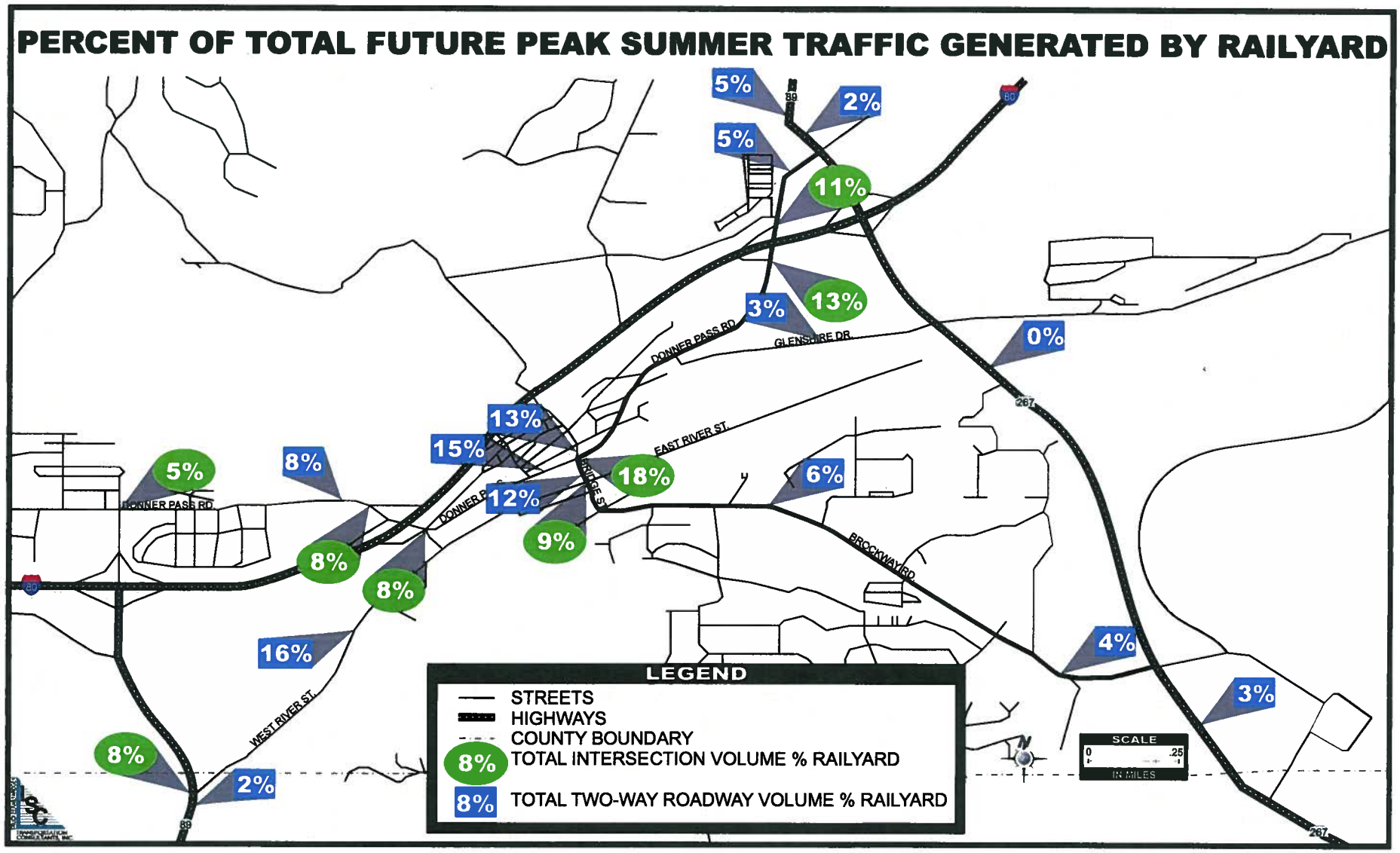
Intersection	Traffic Volume To/From Railyard Land Uses	Total 2025 Plus Project Traffic Volumes	Percent of Total 2025 Plus Project Traffic Volumes T/From Railyard
SR 89 South / West River Street	127	2292	6%
West River Street / McIver Crossing	145	1341	11%
Donner Pass Road / McIver Crossing	141	1616	9%
Donner Pass Road / I-80 Central Interchange Ramps WB Off Ramp	101	1289	8%
Donner Pass Road / I-80 Central Ramps EB Off Ramp / High St	113	1331	8%
Donner Pass Road / Spring Street	144	1297	11%
Donner Pass Road / Bridge Street	397	2195	18%
Bridge Street / Church Street	162	1113	15%
Bridge St/ Jibboom Street-High Street	4	1556	0%
Donner Pass Road / Church Street	7	757	1%
Donner Pass Road / I-80 Eastern Interchange Ramps EB Off Ramp	272	2015	13%
Donner Pass Road / I-80 Eastern Interchange Ramps WB On Ramp	206	1922	11%
Donner Pass Road / Pioneer Trail	218	2812	8%
SR 89 North / Donner Pass Road	107	3542	3%
SR 89 North / SR 267 / I-80 Ramps EB Ramps	34	4186	1%
SR 89 North / SR 267 / I-80 Ramps WB Ramps	70	3576	2%
Bridge Street / West River Street	242	2565	9%
Brockway Road / Palisades Drive	119	2361	5%
Brockway Road / Martis Valley Road	104	2230	5%
SR 267 / Brockway Road / Soaring Way	93	5103	2%
SR 267 / Airport Road / Schaffer Mill Road	81	3113	3%
SR 267 / Northstar Drive	60	2488	2%
SR 267 / SR 28	24	3057	1%
SR 89 South / DPR / Frates	146	3043	5%

TABLE H: 2025 Plus Project Roadway Volumes Generated by Railyard

Summer PM Peak-Hour Volumes

Roadway Segments	Traffic Volume To/From Railyard Land Uses		Total 2025 Plus Project Traffic Volumes		Percent of Total 2025 Plus Project Traffic Volumes T/From Railyard	
	2-Way	Pk Dir	2-Way	Pk Dir	2-Way	Pk Dir
DPR just West of SR 89 South	128	67	1,831	976	7%	7%
West River St East of SR 89 South	127	66	799	411	16%	16%
SR 89 South of West River St	40	19	1,915	969	2%	2%
SR 89 North of West River St	87	45	1,870	935	5%	5%
DPR West/North of Central I-80 Interchange	100	58	1,232	713	8%	8%
McIver Undercrossing	28	13	614	317	5%	4%
Bridge St North of DPR	159	69	1,082	543	15%	13%
DPR West of Bridge St	155	78	893	513	17%	15%
West River St west of Bridge St.	119	56	1,074	614	11%	9%
Bridge St South of DPR	242	116	1,788	968	14%	12%
Brockway Rd East of Palisades Rd	113	55	1,818	909	6%	6%
Glenshire Dr East of DPR	66	34	1,374	934	5%	4%
DPR North of Pioneer Trail	149	72	2,334	1,323	6%	5%
Pioneer Trail West of DPR	32	16	1,501	797	2%	2%
SR 89 North, North of DPR	37	19	1,544	848	2%	2%
SR 267 South of I-80	0	0	3,659	1,930	0%	0%
Brockway Rd West of SR 267	93	48	2,249	1,229	4%	4%
SR 267 at Nevada/Placer County Line	84	41	3,080	1,616	3%	3%
Airport Rd East of SR 267	17	8	394	204	4%	4%
Schaffer Mill Rd West of SR 267	2	1	710	423	0%	0%
SR 267 between Airport Rd and Northstar Dr	62	30	2,247	1,125	3%	3%
Northstar Dr West of SR 267	35	17	1,109	715	3%	2%
SR 267 over Brockway Summit	24	12	1,406	717	2%	2%
SR 28 West of SR 267	10	5	2,175	1,135	0%	0%
SR 28 East of SR 267	14	7	2,524	1,295	1%	1%

PERCENT OF TOTAL FUTURE PEAK SUMMER TRAFFIC GENERATED BY RAILYARD



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MEMORANDUM

DATE: November 3, 2008

TO: Lynette Dias & Charity Wagner, RRM Design Group

FROM: Gordon Shaw, LSC

SUBJECT: Traffic Conditions With Truckee Railyard Project Assuming No Change From Existing Donner Pass Road Alignment

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As part of the proposed Truckee Railyard project, the applicant proposes to change the alignment of Donner Pass Road east of Bridge Street from its current alignment (a curve to the north) to a four-way intersection with a newly constructed Donner Pass Road Extension. Specifically, under the proposed alignment Donner Pass Road would form the west and north approaches to this new four-way intersection, Donner Pass Road Extension would form the east approach (as part of a new connection to Glenshire Drive) and a parking access drive would form the south approach.

An alternative to this layout would maintain the existing Donner Pass Road alignment. Donner Pass Road Extension would intersect existing Donner Pass Road at a new T intersection, with Donner Pass Road forming the top of the T and Donner Pass Road Extension forming the base of the T. This memo presents an evaluation of this alternative roadway alignment with the proposed realignment assessed in the base traffic analysis. This analysis focuses on the 2025 “plus project” condition.

The key change in traffic patterns generated by the “Maintain Existing Donner Pass Road” alignment from those identified for the proposed alignment is that the “Maintain Existing Donner Pass Road” alignment would shift the route of those wishing to travel between Glenshire Drive east of the Railyard and downtown Truckee. For instance, a driver traveling between Glenshire and Downtown Truckee under the proposed alignment would tend to turn left off of Glenshire Drive onto Donner Pass Road Extension in order to avoid the long delay turning left from Glenshire Drive onto Donner Pass Road as they would have little delay at the Donner Pass Road/Donner Pass Road Extension intersection. Under the “Maintain Donner Pass Road” alignment, this driver

would still avoid the Glenshire Drive/Donner Pass Road delay, but would be faced with the left-turn delay from Donner Pass Road Extension to Donner Pass Road and thus would be less likely to use Donner Pass Road Extension and more likely to use Donner Pass Road. This same shift (a higher proportion of traffic using Donner Pass Road rather than Donner Pass Road Extension under the "Maintain Existing Donner Pass Road" alignment) would also occur in the eastbound direction, as drivers bound for Glenshire Drive would be provided with less delay on the existing Donner Pass Road route than they would with the proposed reconfiguration.

An initial review of the relative travel times associated with the two roadway options indicates that the extent of the change in travel time is sufficient to result in a change in traffic patterns in the immediate vicinity of the Railyard project, but is not sufficiently large enough to noticeably change traffic activity further from the project. Traffic congestion at the Donner Pass Road/Bridge and Bridge/West River Street intersections will meter traffic through the downtown area and result in the diversion of traffic away from downtown (under either roadway option), resulting in no changes in volumes in other areas. Any possible significant impacts of this alternative are therefore confined to the area between the Donner Pass Road/Donner Pass Road Extension intersection on the west and the Donner Pass Road Extension/Glenshire Drive intersection on the east.

The first step in the analysis was to identify the change in traffic volumes that would be associated with the "Maintain Existing Donner Pass Road Alignment" versus the proposed realignment. Considering the relative travel times under the two roadway options, it was determined that only traffic to and from Glenshire Drive would shift due to the realignment. Traffic between Donner Pass Road east of Glenshire Drive and downtown would use Donner Pass Road west of Glenshire Drive under either roadway alternative, and thus would not be impacted by the change in alignment.

Based upon the forecast traffic patterns and the relative travel times under the two roadway options, the vehicles per hour that would shift from Donner Pass Road Extension to Donner Pass Road were determined to be 31 in the eastbound direction and 6 in the westbound direction. This shift was used to adjust the 2025 plus project volumes at the following impacted intersections:

- Donner Pass Road/Donner Pass Road Extension,
- Donner Pass Road/Church Street,
- Donner Pass Road/Keiser Street,
- Donner Pass Road/Glenshire, and
- Glenshire/ Donner Pass Road Extension.

The resulting intersection volumes, assuming maintaining the existing Donner Pass Road alignment, are presented in Table A.

These new volumes were then entered into the Traffix 7.9 traffic analysis program and used to determine the LOS of each of the five study intersections. The results of the LOS analysis assuming the "Maintain Existing Donner Pass Road Alignment" are presented in Table B and can be summarized as follows:

- The Donner Pass Road/Donner Pass Road Extension intersection provides a LOS of B as an unsignalized T intersection controlled by a Stop sign on the Donner Pass Road Extension approach. A two-way center left-turn lane (similar to the center turn lane on Donner Pass Road in the Gateway area) would be needed on Donner Pass Road to the west of this intersection to allow left-turning drivers to make a two-stage movement from Donner Pass Road Extension to Donner Pass Road.

- The Donner Pass Road/Church Street intersection provides a LOS of C as an unsignalized four-leg intersection controlled by Stop signs on the east and west approaches and separate left and through/right lanes on the east and west approaches.

- The Donner Pass Road/Keiser Street intersection provides a LOS of C as an unsignalized T intersection, with no change from the configuration (Stop sign on the Keiser Street approach).

- The Donner Pass Road/Glenshire Drive intersection provides poor (LOS F) conditions for the left-turn movement from Glenshire Drive to Donner Pass Road, but this movement would not generate sufficient delay to exceed the Town's 4-hour of delay standard.

- The Glenshire Drive/Donner Pass Road Extension intersection provides a LOS of E with no change from the T configuration (with a Stop sign on the Donner Pass Road Extension approach) assumed for the proposed alignment.

By increasing the volume of vehicles now remaining on Donner Pass Road rather than being diverted by Donner Pass Road Extension, the LOS of the four intersections along Donner Pass Road degrade slightly, as presented in Table B. Though the delays at each intersection are slightly higher, they still attain the LOS standards set forth by the Town of Truckee. The intersection of Glenshire Drive/Donner Pass Road Extension experiences a slight decrease in delay times. This is due to the slight decrease of vehicles using Donner Pass Road Extension on their way to and from Glenshire. Overall, however, the "Maintain Existing Donner Pass Road" roadway alignment does not change the findings regarding significant impacts from those identified for the 2025 plus project condition with the proposed realignment.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #10 DPR / Church

Average Delay (sec/veh): 13.0 Worst Case Level Of Service: C[19.3]

Street Name:	DPR						Church					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0	0 0	0 0	1! 0	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	34	104	0	81	68	16	24	134	8	18	167	140
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	34	104	0	81	68	16	24	134	8	18	167	140
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	36	109	0	85	72	17	25	141	8	19	176	147
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	36	109	0	85	72	17	25	141	8	19	176	147
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	6.5	6.2	7.1	6.5	6.2
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	88	xxxx	xxxxx	109	xxxx	xxxxx	593	432	80	506	440	109
Potent Cap.:	1520	xxxx	xxxxx	1493	xxxx	xxxxx	420	520	986	480	514	950
Move Cap.:	1520	xxxx	xxxxx	1493	xxxx	xxxxx	237	477	986	345	472	950
Volume/Cap:	0.02	xxxx	xxxx	0.06	xxxx	xxxx	0.11	0.30	0.01	0.05	0.37	0.16
Level Of Service Module:												
2Way95thQ:	0.1	xxxx	xxxxx	0.2	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.4	xxxx	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	425	xxxxx	xxxx	587	xxxxx
SharedQueue:	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	2.0	xxxxx	xxxxx	3.7	xxxxx
Shrd ConDel:	7.4	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	19.2	xxxxx	xxxxx	19.3	xxxxx
Shared LOS:	A	*	*	*	*	*	*	C	*	*	C	*
ApproachDel:	xxxxxx			xxxxxx			19.2			19.3		
ApproachLOS:	*			*			C			C		

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #11 DPR / Keiser

Average Delay (sec/veh): 5.0 Worst Case Level Of Service: C[17.4]

Street Name:	DPR						Keiser					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 1	0	0 0	0 0	1 0	0	0 0	1! 0	0	0 0	0 0	0
Volume Module:												
Base Vol:	3	258	0	0	161	130	221	0	3	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	3	258	0	0	161	130	221	0	3	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	3	272	0	0	169	137	233	0	3	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	3	272	0	0	169	137	233	0	3	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	306	xxxx	xxxxx	xxxx	xxxx	xxxxx	516	516	238	xxxx	xxxx	xxxxx
Potent Cap.:	1266	xxxx	xxxxx	xxxx	xxxx	xxxxx	523	466	806	xxxx	xxxx	xxxxx
Move Cap.:	1266	xxxx	xxxxx	xxxx	xxxx	xxxxx	522	465	806	xxxx	xxxx	xxxxx
Volume/Cap:	0.00	xxxx	xxxx	xxxx	xxxx	xxxx	0.45	0.00	0.00	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	524	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	2.3	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	7.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	17.4	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	A	*	*	*	*	*	*	C	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			17.4			xxxxxx		
ApproachLOS:	*			*			C			*		

Note: Queue reported is the number of cars per lane.

TABLE A: 2025 Plus Project PM Peak-Hour Intersection Volumes -- Maintaining Existing Donner Pass Road Alignment

Intersection	NB			SB			EB			WB		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
DPR / DPR Extension- Four Way												
10 Donner Pass Road / Church Street	34	73	0	81	62	16	24	134	8	18	167	140
11 Donner Pass Road / Keiser Street	3	227	0	0	155	130	221	0	3	0	0	0
12 Donner Pass Road / Glenshire Drive	81	0	326	0	0	0	0	351	192	522	203	0
26 DPR / DPR Extension	8	3	1	0	16	50	165	178	21	1	144	20
27 DPR Extension / Glenshire	35	0	135	0	0	0	0	799	32	63	377	0
Maintain Existing DPR Alignment												
10 Donner Pass Road / Church Street	34	104	0	81	68	16	24	134	8	18	167	140
11 Donner Pass Road / Keiser Street	3	258	0	0	161	130	221	0	3	0	0	0
12 Donner Pass Road / Glenshire Drive	87	0	326	0	0	0	0	351	223	522	203	0
26 DPR / DPR Extension	146	0	23	0	0	0	0	196	168	17	56	0
27 DPR Extension / Glenshire	35	0	104	0	0	0	0	830	32	57	383	0

Source: LSC Transportation Consultants, Inc.

Table B: Truckee Railyard Plus Project 2025 PM Peak Hour LOS

A Comparison Between Two DPR / DPR Extension Alignments

	Intersection	Control Type	Four-Way DPR / DPR Extension				Maintaining DPR Alignment			
			Total Intersection		Worst Movement		Total Intersection		Worst Movement	
			Delay sec/veh	LOS	Delay sec/veh	LOS	Delay sec/veh	LOS	Delay sec/veh	LOS
10	Donner Pass Road / Church Street	Unsignalized	12.7	B	17.9	C	13.0	B	19.3	C
11	Donner Pass Road / Keiser Street	Unsignalized	5.0	A	16.3	C	5.0	A	17.4	C
12	Donner Pass Road / Glenshire Drive	Unsignalized	13.4	B	103.7	F[1]	15.7	B	156.7	F[1]
26	DPR / DPR Extension	Unsignalized	4.4	A	8.7	A	3.4	A	11.7	B
27	Glenshire Dr / DPR Extension	Unsignalized	4.8	A	36.8	E	3.8	A	35.1	E

Bold indicates LOS standard exceeded

Note 1: As no more than 4 vehicle-hours of delay were found on any traffic movement, this intersection still attains LOS standard.

Source: LSC Transportation Consultants, Inc.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #12 DPR / Glenshire

Average Delay (sec/veh): 15.7 Worst Case Level Of Service: E[48.4]

Street Name:	Glenshire								DPR							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	1	0	0	0 1	0	0	0	0 0	0	0	0	1 0	1	0	1	0 0
Volume Module:																
Base Vol:	87		0	326	0		0	0	0		351	223	522		203	0
Growth Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	87		0	326	0		0	0	0		351	223	522		203	0
User Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95
PHF Volume:	92		0	343	0		0	0	0		369	235	549		214	0
Reduct Vol:	0		0	0	0		0	0	0		0	0	0		0	0
FinalVolume:	92		0	343	0		0	0	0		369	235	549		214	0
Critical Gap Module:																
Critical Gp:	6.4	xxxx		6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx		
FollowUpTim:	3.5	xxxx		3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx		
Capacity Module:																
Cnflict Vol:	1799	xxxx		487	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		604	xxxx	xxxxx		
Potent Cap.:	89	xxxx		585	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		983	xxxx	xxxxx		
Move Cap.:	50	xxxx		585	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		983	xxxx	xxxxx		
Total Cap:	97		86	xxxxx	0		0	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		
Volume/Cap:	0.95	xxxx		0.59	xxxx	xxxx		xxxx	xxxx	xxxx		xxxx	0.56	xxxx		xxxx
Level Of Service Module:																
2Way95thQ:	5.5	xxxx		3.8	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		3.6	xxxx	xxxxx		
Control Del:	156.7	xxxx		19.5	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		13.2	xxxx	xxxxx		
LOS by Move:	F	*		C	*	*	*	*	*	*		B	*	*		
Movement:	LT -	LTR -		RT	LT -	LTR -		RT	LT -	LTR -		RT	LT -	LTR -		RT
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		*	*	*		*	*	*		*	*	*	
ApproachDel:	48.4				xxxxxx				xxxxxx				xxxxxx			
ApproachLOS:	E				*				*				*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #27 DPR / DPR Extension

Average Delay (sec/veh): 3.4 Worst Case Level Of Service: B[11.4]

Street Name:	DPR Extension								DPR							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	1	0	0	0 1	0	0	0	0 0	0	0	1	0 1	1	0	1	0 0
Volume Module:																
Base Vol:	146		0	23	0		0	0	0		196	168	17		56	0
Growth Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
Initial Bse:	146		0	23	0		0	0	0		196	168	17		56	0
User Adj:	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00
PHF Adj:	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95	0.95	0.95		0.95
PHF Volume:	154		0	24	0		0	0	0		206	177	18		59	0
Reduct Vol:	0		0	0	0		0	0	0		0	0	0		0	0
FinalVolume:	154		0	24	0		0	0	0		206	177	18		59	0
Critical Gap Module:																
Critical Gp:	6.4	xxxx		6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx		
FollowUpTim:	3.5	xxxx		3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx		
Capacity Module:																
Cnflict Vol:	301	xxxx		206	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		383	xxxx	xxxxx		
Potent Cap.:	695	xxxx		839	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		1186	xxxx	xxxxx		
Move Cap.:	687	xxxx		839	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		1186	xxxx	xxxxx		
Volume/Cap:	0.22	xxxx		0.03	xxxx	xxxx		xxxx	xxxx	xxxx		0.02	xxxx	xxxx		
Level Of Service Module:																
2Way95thQ:	0.9	xxxx		0.1	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		0.0	xxxx	xxxxx		
Control Del:	11.7	xxxx		9.4	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		8.1	xxxx	xxxxx		
LOS by Move:	B	*		A	*	*	*	*	*	*		A	*	*		
Movement:	LT -	LTR -		RT	LT -	LTR -		RT	LT -	LTR -		RT	LT -	LTR -		RT
Shared Cap.:	xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx		xxxx	xxxx	xxxxx	
SharedQueue:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shrd ConDel:	xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx		xxxxx	xxxx	xxxxx	
Shared LOS:	*	*	*		*	*	*		*	*	*		*	*	*	
ApproachDel:	11.4				xxxxxx				xxxxxx				xxxxxx			
ApproachLOS:	B				*				*				*			

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #27 Glenshire / DPR Extension

Average Delay (sec/veh): 3.8 Worst Case Level Of Service: E[35.1]

Street Name:	DPR Extension								Glenshire							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
Control:	Stop Sign				Stop Sign				Uncontrolled				Uncontrolled			
Rights:	Include				Include				Include				Include			
Lanes:	0	0	1! 0	0	0	0	0	0 0	0	0	1	0 1	1	0	1	0 0
Volume Module:																
Base Vol:	35	0	104	0	0	0	0	830	32	57	383	0				
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Initial Bse:	35	0	104	0	0	0	0	830	32	57	383	0				
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95				
PHF Volume:	37	0	109	0	0	0	0	874	34	60	403	0				
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0				
FinalVolume:	37	0	109	0	0	0	0	874	34	60	403	0				
Critical Gap Module:																
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx				
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx				
Capacity Module:																
Cnflict Vol:	1397	1397	874	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	907	xxxx	xxxxx				
Potent Cap.:	157	142	352	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	758	xxxx	xxxxx				
Move Cap.:	147	131	352	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	758	xxxx	xxxxx				
Volume/Cap:	0.25	0.00	0.31	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.08	xxxx	xxxx				
Level Of Service Module:																
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx				
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	10.2	xxxx	xxxxx				
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*				
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT						
Shared Cap.:	xxxx	261	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx				
SharedQueue:	xxxxx	3.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Shrd ConDel:	xxxxx	35.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx				
Shared LOS:	*	E	*	*	*	*	*	*	*	*	*	*				
ApproachDel:	35.1			xxxxxx			xxxxxx			xxxxxx						
ApproachLOS:	E			*			*			*						

Note: Queue reported is the number of cars per lane.

TABLE _: Town of Truckee Traffic Impact Fee Projects

Street / Intersection	Segment	Description of Improvement
Truckee Intersections		
Donner Pass Road / Cold Stream Road / I-80 EB Ramps		Construct 2-Lane Roundabout
Donner Pass Road / I-80 WB Ramps (West Interchange)		Construct Roundabout or Equivalent Improvements
Donner Pass Road / SR 89 South		Construct 2-Lane Roundabout
West River Street / McIver Crossing		Construct 1-Lane Roundabout
Donner Pass Road / Bridge Street		Construct 1-Lane Roundabout or Equivalent Improvements
Bridge Street / West River Street		Construct 2-Lane Roundabout or Equivalent Improvements
Donner Pass Road / I-80 EB Off Ramp (Eastern Interchange)		Construct 1-Lane Roundabout
Donner Pass Road / Pioneer Trail		Construct 1-Lane Roundabout
SR 267 / I-80 WB Ramps		Construct 2-Lane Roundabout
SR 267 / I-80 EB Ramps		Construct 2-Lane Roundabout
SR 267 / Brockway Road		Construct Roundabout or Equivalent Improvements
Donner Pass Road / Glenshire Drive		Extend DPR from Bridge Street to Glenshire Dr. East of DPR
Glenshire Road / Dorchester Road (West)		Intersection Improvements
Glenshire Road / Olympic Boulevard		Intersection Improvements
SR 89 North / Rainbow Road		Intersection Improvements
SR 89 North / Alder Creek Road		Intersection Improvements
Brockway Road / Reynolds Way		Intersection Improvements
Truckee Roadways		
SR 89 / UPRR Undercrossing (Mousehole)		Provide 2 additional travel lanes, bike lanes, sidewalks
Pioneer Trail & Bridge Street Extensions		2 Travel Lanes from Pioneer Commerce Center to Northwoods Blvd. and from Jibboom St. to Pioneer Trail
Downtown Rail Crossing Improvements(3)		Provide Improvements to Bridge Street Crossing or Eastern Underpass between Rail Yard and East River St.
SR 267	Brockway to Placer County Line	Widen to 4 Lanes
Glenshire Road	Donner Pass Road to Sommerset Dr.	Add Shoulders
West River Street	All	Add Shoulders
Donner Pass Road	Along Donner Lake	Add Shoulders

Source: Town of Truckee

Existing summer No Project Fri Jan 16, 2009 14:22:17

Truckee RailYard

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #8 Bridge and Church

Average Delay (sec/veh): 3.2 Worst Case Level Of Service: B[10.7]

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Uncontrolled						Uncontrolled						Stop Sign						Stop Sign					
Rights:	Include						Include						Include						Include					
Lanes:	0	0	0	1	0		0	1	0	0	0		0	0	1!	0	0		0	0	1!	0	0	
Volume Module:																								
Base Vol:	0	141		18			13	106		0			15		5		10		15		0		68	
Growth Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:	0	141		18			13	106		0			15		5		10		15		0		68	
User Adj:	1.00	1.00		1.00			1.00	1.00		1.00			1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:	0.95	0.95		0.95			0.95	0.95		0.95			0.95		0.95		0.95		0.95		0.95		0.95	
PHF Volume:	0	148		19			14	112		0			16		5		11		16		0		72	
Reduct Vol:	0	0		0			0	0		0			0		0		0		0		0		0	
FinalVolume:	0	148		19			14	112		0			16		5		11		16		0		72	
Critical Gap Module:																								
Critical Gp:	xxxxx	xxxx	xxxxx				4.1	xxxx	xxxxx				7.1		6.5		6.2		7.1		6.5		6.2	
FollowUpTim:	xxxxx	xxxx	xxxxx				2.2	xxxx	xxxxx				3.5		4.0		3.3		3.5		4.0		3.3	
Capacity Module:																								
Cnflict Vol:	xxxx	xxxx	xxxxx				167	xxxx	xxxxx				333		306		112		305		297		158	
Potent Cap.:	xxxx	xxxx	xxxxx				1423	xxxx	xxxxx				625		611		947		652		618		893	
Move Cap.:	xxxx	xxxx	xxxxx				1423	xxxx	xxxxx				570		605		947		635		612		893	
Volume/Cap:	xxxx	xxxx	xxxx				0.01	xxxx	xxxx				0.03		0.01		0.01		0.02		0.00		0.08	
Level Of Service Module:																								
2Way95thQ:	xxxx	xxxx	xxxxx				0.0	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx				7.6	xxxx	xxxxx				xxxxx	xxxx	xxxxx				xxxxx	xxxx	xxxxx			
LOS by Move:	*	*	*				A	*	*				*	*	*				*	*	*			
Movement:	LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT		LT	-	LTR	-	RT	
Shared Cap.:	xxxx	xxxx	xxxxx				xxxx	xxxx	xxxxx				xxxx		665	xxxxx			xxxx		832	xxxxx		
SharedQueue:	xxxxx	xxxx	xxxxx				0.0	xxxx	xxxxx				xxxxx		0.1	xxxxx			xxxxx		0.4	xxxxx		
Shrd ConDel:	xxxxx	xxxx	xxxxx				7.6	xxxx	xxxxx				xxxxx		10.7	xxxxx			xxxxx		9.8	xxxxx		
Shared LOS:	*	*	*				A	*	*				*		B	*			*		A	*		
ApproachDel:	xxxxxx						xxxxxx						10.7						9.8					
ApproachLOS:	*						*						B						A					

Note: Queue reported is the number of cars per lane.

Existing summer No Project Fri Jan 16, 2009 14:22:17

Truckee RailYard

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #9 Jiboom and Bridge

Average Delay (sec/veh): xxx Worst Case Level Of Service: B[xxx]

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Volume Module:												
Base Vol:	189	11	23	11	12	4	1	112	100	12	44	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	189	11	23	11	12	4	1	112	100	12	44	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	199	12	24	12	13	4	1	118	105	13	46	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	199	12	24	12	13	4	1	118	105	13	46	8

3: Jibboom & High /Bridge Performance by movement

Due to the three way stop configuration of this intersection, it can not be analysized in Traffix. The following data is from a synchro sim traffic simulation. Ran five times and averaged.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Delay / Veh (s)	16.9	13.5	11.5	10.1	4.7	4.0	5.4	2.9	5.3	7.7	2.3		9.4

Truckee RailYard

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #18 SR 267 Bypass/I-80 WB

Cycle (sec):	60	Critical Vol./Cap.(X):	0.603
Loss Time (sec):	12 (Y+R=4.0 sec)	Average Delay (sec/veh):	16.1
Optimal Cycle:	OPTIMIZED	Level Of Service:	B

Street Name:	SR 89 North						I-80 Westbound					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 0	0	0 0	1 0	1	0 0	0 0	0	0 1	0 0	1
Volume Module:												
Base Vol:	293	392	0	0	383	54	0	0	0	162	1	106
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	293	392	0	0	383	54	0	0	0	162	1	106
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	308	413	0	0	403	57	0	0	0	171	1	112
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	308	413	0	0	403	57	0	0	0	171	1	112
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	308	413	0	0	403	57	0	0	0	171	1	112
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	1.00	1.00	0.85	1.00	1.00	1.00	0.91	0.91	0.85
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.99	0.01	1.00
Final Sat.:	1805	1900	0	0	1900	1615	0	0	0	1718	11	1615
Capacity Analysis Module:												
Vol/Sat:	0.17	0.22	0.00	0.00	0.21	0.04	0.00	0.00	0.00	0.10	0.10	0.07
Crit Moves:	****				****					****		
Green/Cycle:	0.28	0.64	0.00	0.00	0.35	0.35	0.00	0.00	0.00	0.16	0.16	0.16
Volume/Cap:	0.60	0.34	0.00	0.00	0.60	0.10	0.00	0.00	0.00	0.60	0.60	0.42
Delay/Veh:	20.6	5.3	0.0	0.0	17.5	13.1	0.0	0.0	0.0	26.9	26.9	23.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	20.6	5.3	0.0	0.0	17.5	13.1	0.0	0.0	0.0	26.9	26.9	23.6
LOS by Move:	C	A	A	A	B	B	A	A	A	C	C	C
HCM2kAvgQ:	6	4	0	0	7	1	0	0	0	4	4	2

Note: Queue reported is the number of cars per lane.

Truckee RailYard

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #20 Brockway Road/Palisades Drive

Cycle (sec):	60	Critical Vol./Cap.(X):	0.702
Loss Time (sec):	12 (Y+R=4.0 sec)	Average Delay (sec/veh):	17.0
Optimal Cycle:	OPTIMIZED	Level Of Service:	B

Street Name:	Brockway Road						Palisades Drive					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0	0 1	0	0 0	0 0	0	0 1	0 1	1 0	1	0 0
Volume Module:												
Base Vol:	236	0	126	0	0	0	0	533	310	220	475	0
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Initial Bse:	236	0	126	0	0	0	0	533	310	220	475	0
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.95 0.95	0.95		0.95 0.95	0.95		0.95 0.95	0.95		0.95 0.95	0.95	
PHF Volume:	248	0	133	0	0	0	0	561	326	232	500	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	248	0	133	0	0	0	0	561	326	232	500	0
PCE Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
MLF Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
FinalVolume:	248	0	133	0	0	0	0	561	326	232	500	0
Saturation Flow Module:												
Sat/Lane:	1900 1900	1900		1900 1900	1900		1900 1900	1900		1900 1900	1900	
Adjustment:	0.95 1.00	0.85		1.00 1.00	1.00		1.00 1.00	0.85		0.95 1.00	1.00	
Lanes:	1.00 0.00	1.00		0.00 0.00	0.00		0.00 1.00	1.00		1.00 1.00	0.00	
Final Sat.:	1805	0	1615	0	0	0	0	1900	1615	1805	1900	0
Capacity Analysis Module:												
Vol/Sat:	0.14 0.00	0.08		0.00 0.00	0.00		0.00 0.30	0.20		0.13 0.26	0.00	
Crit Moves:	****							****			****	
Green/Cycle:	0.20 0.00	0.20		0.00 0.00	0.00		0.00 0.42	0.42		0.18 0.60	0.00	
Volume/Cap:	0.70 0.00	0.42		0.00 0.00	0.00		0.00 0.70	0.48		0.70 0.44	0.00	
Delay/Veh:	28.7 0.0	22.0		0.0 0.0	0.0		0.0 17.1	13.1		29.6 6.7	0.0	
User DelAdj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
AdjDel/Veh:	28.7 0.0	22.0		0.0 0.0	0.0		0.0 17.1	13.1		29.6 6.7	0.0	
LOS by Move:	C	A	C	A	A	A	A	B	B	C	A	A
HCM2kAvgQ:	6	0	3	0	0	0	0	10	5	6	5	0

Note: Queue reported is the number of cars per lane.

Truckee RailYard

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #22 SR 267/Brockway Road/Joerger Drive

Cycle (sec):	90	Critical Vol./Cap.(X):	0.978
Loss Time (sec):	12 (Y+R=4.0 sec)	Average Delay (sec/veh):	53.0
Optimal Cycle: OPTIMIZED		Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	0	1 0	1 0	1	0 1	0	1 0	0 1	0 0	1! 0
Volume Module:												
Base Vol:	291	807	12	55	374	120	148	48	356	18	76	120
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	291	807	12	55	374	120	148	48	356	18	76	120
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	306	849	13	58	394	126	156	51	375	19	80	126
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	306	849	13	58	394	126	156	51	375	19	80	126
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	306	849	13	58	394	126	156	51	375	19	80	126
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	0.95	1.00	0.85	0.96	0.96	0.85	0.92	0.92	0.92
Lanes:	1.00	0.99	0.01	1.00	1.00	1.00	0.76	0.24	1.00	0.08	0.36	0.56
Final Sat.:	1805	1868	28	1805	1900	1615	1383	449	1615	147	621	981
Capacity Analysis Module:												
Vol/Sat:	0.17	0.45	0.45	0.03	0.21	0.08	0.11	0.11	0.23	0.13	0.13	0.13
Crit Moves:		****		****					****	****		
Green/Cycle:	0.22	0.46	0.46	0.03	0.27	0.27	0.24	0.24	0.24	0.13	0.13	0.13
Volume/Cap:	0.76	0.98	0.98	0.98	0.76	0.29	0.47	0.47	0.98	0.98	0.98	0.98
Delay/Veh:	40.7	48.5	48.5	152.3	36.3	26.1	30.3	30.3	74.1	91.8	91.8	91.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	40.7	48.5	48.5	152.3	36.3	26.1	30.3	30.3	74.1	91.8	91.8	91.8
LOS by Move:	D	D	D	F	D	C	C	C	E	F	F	F
HCM2kAvgQ:	10	30	30	4	12	3	5	5	16	11	11	11

Note: Queue reported is the number of cars per lane.

Truckee RailYard

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #23 SR 267/Airport Road/Schaffer Mill Road

Cycle (sec):	85	Critical Vol./Cap.(X):	0.835
Loss Time (sec):	16 (Y+R=4.0 sec)	Average Delay (sec/veh):	29.8
Optimal Cycle:	OPTIMIZED	Level Of Service:	C

Street Name:	SR 267							Airport Road/Schaffer Mill Road							
Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Split Phase					Split Phase				
Rights:	Include					Include					Include					Include				
Min. Green:	0	0	0			0	0	0			0	0	0			0	0	0		
Lanes:	1	0	0	1	0	1	0	1	0	1	0	1	0	0	1	0	1	0	0	1
Volume Module:																				
Base Vol:	21	743		34		72	638		47		165		9		35	44		5		155
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	21	743		34		72	638		47		165		9		35	44		5		155
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95		0.95		0.95	0.95		0.95		0.95
PHF Volume:	22	782		36		76	672		49		174		9		37	46		5		163
Reduct Vol:	0	0		0		0	0		0		0		0		0	0		0		0
Reduced Vol:	22	782		36		76	672		49		174		9		37	46		5		163
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
FinalVolume:	22	782		36		76	672		49		174		9		37	46		5		163
Saturation Flow Module:																				
Sat/Lane:	1900	1900		1900		1900	1900		1900		1900		1900		1900	1900		1900		1900
Adjustment:	0.95	0.99		0.99		0.95	1.00		0.85		0.96		0.96		0.85	0.96		0.96		0.85
Lanes:	1.00	0.96		0.04		1.00	1.00		1.00		0.95		0.05		1.00	0.90		0.10		1.00
Final Sat.:	1805	1804		83		1805	1900		1615		1721		94		1615	1633		186		1615
Capacity Analysis Module:																				
Vol/Sat:	0.01	0.43		0.43		0.04	0.35		0.03		0.10		0.10		0.02	0.03		0.03		0.10
Crit Moves:		****				****					****									****
Green/Cycle:	0.02	0.52		0.52		0.05	0.55		0.55		0.12		0.12		0.12	0.12		0.12		0.12
Volume/Cap:	0.64	0.83		0.83		0.83	0.64		0.06		0.83		0.83		0.19	0.23		0.23		0.83
Delay/Veh:	75.9	23.6		23.6		85.6	14.6		8.9		59.7		59.7		34.1	34.3		34.3		62.0
User DelAdj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
AdjDel/Veh:	75.9	23.6		23.6		85.6	14.6		8.9		59.7		59.7		34.1	34.3		34.3		62.0
LOS by Move:	E	C		C		F	B		A		E		E		C	C		C		E
HCM2kAvgQ:	2	21		21		4	13		1		7		7		1	1		1		7

Note: Queue reported is the number of cars per lane.

Existing summer No Project Fri Jan 23, 2009 09:19:32

Truckee RailYard

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #24 267 / Northstar Dr

Cycle (sec):	60	Critical Vol./Cap.(X):	0.562
Loss Time (sec):	12 (Y+R=4.0 sec)	Average Delay (sec/veh):	10.9
Optimal Cycle:	OPTIMIZED	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 0	0	0 0	1 0	1	2 0	0 0	1	0 0	0 0	0
Volume Module:												
Base Vol:	56	561	0	0	624	93	237	0	75	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	56	561	0	0	624	93	237	0	75	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	59	591	0	0	657	98	249	0	79	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	59	591	0	0	657	98	249	0	79	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	59	591	0	0	657	98	249	0	79	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	1.00	1.00	1.00	0.85	0.92	1.00	0.85	1.00	1.00	1.00
Lanes:	1.00	1.00	0.00	0.00	1.00	1.00	2.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	1805	1900	0	0	1900	1615	3502	0	1615	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.03	0.31	0.00	0.00	0.35	0.06	0.07	0.00	0.05	0.00	0.00	0.00
Crit Moves:	****				****		****					
Green/Cycle:	0.06	0.67	0.00	0.00	0.62	0.62	0.13	0.00	0.13	0.00	0.00	0.00
Volume/Cap:	0.56	0.46	0.00	0.00	0.56	0.10	0.56	0.00	0.39	0.00	0.00	0.00
Delay/Veh:	34.3	4.9	0.0	0.0	7.4	4.8	26.3	0.0	25.3	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	34.3	4.9	0.0	0.0	7.4	4.8	26.3	0.0	25.3	0.0	0.0	0.0
LOS by Move:	C	A	A	A	A	A	C	A	C	A	A	A
HCM2kAvgQ:	2	6	0	0	8	1	3	0	2	0	0	0

Note: Queue reported is the number of cars per lane.

Existing summer No Project Fri Jan 23, 2009 09:28:43

Truckee RailYard

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #25 SR 28/SR 267

Cycle (sec):	85	Critical Vol./Cap.(X):	0.908
Loss Time (sec):	16 (Y+R=4.0 sec)	Average Delay (sec/veh):	35.8
Optimal Cycle:	OPTIMIZED	Level Of Service:	D

Street Name:	SR 267						SR 28					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	6	0	0	6	0	0
Lanes:	0 0	1! 0	0	0 1	0 0	1	1 0	1 1	0	1 0	1 1	0
Volume Module:												
Base Vol:	1	0	2	402	1	259	190	765	1	2	704	368
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1	0	2	402	1	259	190	765	1	2	704	368
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	1	0	2	423	1	273	200	805	1	2	741	387
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	0	2	423	1	273	200	805	1	2	741	387
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	0	2	423	1	273	200	805	1	2	741	387
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.85	1.00	0.85	0.71	0.71	0.85	0.95	1.00	1.00	0.95	0.95	0.95
Lanes:	0.33	0.00	0.67	0.99	0.01	1.00	1.00	1.99	0.01	1.00	1.31	0.69
Final Sat.:	541	0	1082	1349	3	1615	1805	3795	5	1805	2368	1238
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.31	0.31	0.17	0.11	0.21	0.21	0.00	0.31	0.31
Crit Moves:					****		****				****	
Green/Cycle:	0.35	0.00	0.35	0.35	0.35	0.35	0.12	0.35	0.35	0.12	0.34	0.34
Volume/Cap:	0.01	0.00	0.01	0.91	0.91	0.49	0.91	0.61	0.61	0.01	0.91	0.91
Delay/Veh:	18.3	0.0	18.3	48.0	48.0	22.6	73.4	23.6	23.6	33.2	36.5	36.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.3	0.0	18.3	48.0	48.0	22.6	73.4	23.6	23.6	33.2	36.5	36.5
LOS by Move:	B	A	B	D	D	C	E	C	C	C	D	D
HCM2kAvgQ:	0	0	0	15	15	6	9	9	9	0	18	18

Note: Queue reported is the number of cars per lane.