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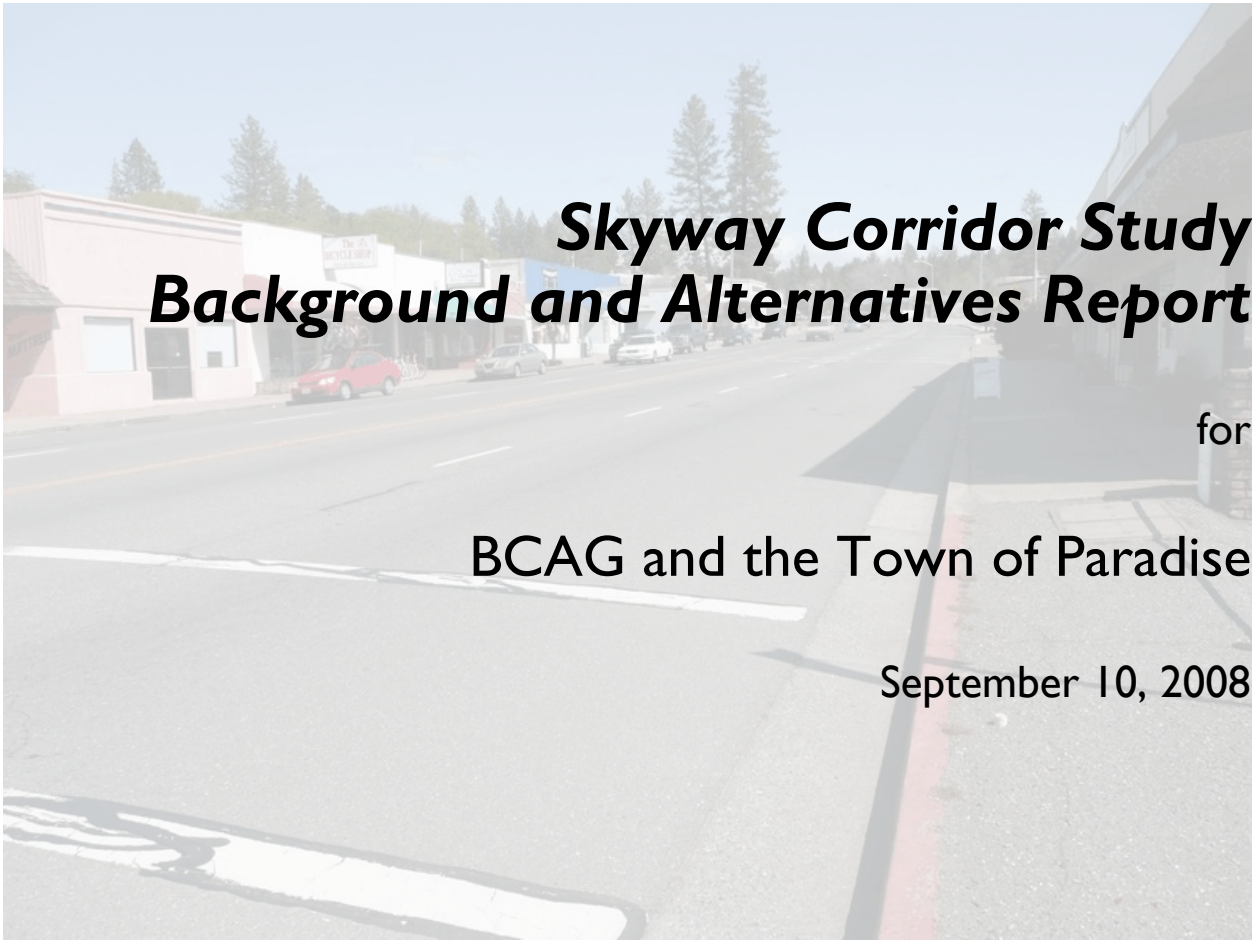

Skyway Corridor Study
Background and Alternatives Report

for

BCAG and the Town of Paradise

September 10, 2008

Background and Alternatives Report

Introduction

Skyway is the Town of Paradise's "Main Street." However, traffic conditions have forced Skyway to be less of a "Main Street" and more of an expressway. This situation has limited the Town's ability to realize its potential as a center of commercial and cultural activity. The 13,000 to 24,000 vehicles per day which currently travel on Skyway at speeds of 30 to 40 mph will not be going away and must be accounted for in any plan for Skyway. However, the traffic can be managed and drivers' behavior influenced so that the transportation network fits within the desired parameters of the community, rather than the opposite.

Critical traffic issues generated by high speeds are typical: traffic safety concerns, inability or unwillingness for pedestrians to cross the street, impacts to bicyclists, and significant difficulties for drivers on side streets trying to just access the corridor. The purpose of the Skyway Corridor Study is to develop measures which reduce travel speeds and are more conducive to downtown commercial activity while still balancing the capacity demands of 22,000 vehicles per day. Slower speeds do not necessarily mean reduced capacity. Properly managed, slow travel speeds can be created through a variety of measures while still providing the traffic flow needed. The following issues are intended to be addressed as part of the corridor plan:

- Speed of traffic
- Pedestrian safety
- Need to enhance downtown/attract shoppers
- Conflicts with through traffic
- Need for turn lanes
- Bicycle safety

This Background and Alternatives Report presents a summary of the existing background conditions which are currently experienced in the corridor, as well as several alternatives that could be implemented to improve various components of the corridor including speeds, access, parking supply, and pedestrian and bicycle circulation.

Study Area

The project study area consists of Skyway between Neal Road at the south end to Wagstaff Road at the north, which is a distance of approximately 2.8 miles. The following intersections are specifically detailed in the analysis.

- Neal Road-Schmale Lane (existing traffic signal)
- Pearson Road (existing traffic signal)
- Foster Road (stop controlled on Foster Road approach)
- Fir Street (stop controlled on Fir Street approach)
- Elliott Road (existing traffic signal)
- Oliver Road (existing traffic signal)
- Maxwell Drive (existing traffic signal)
- Bille Road (existing traffic signal)
- Wagstaff Road (all-way stop, future traffic signal)

Within the study area, Skyway changes in characteristics, activity and personality as it climbs in elevation. (The study area is shown in Figure 1). The City of Paradise has indicated that there is a consistent right-of-way of 80 feet along the corridor. The actual pavement width (curb to curb, excluding sidewalks) varies from 28 feet to 70 feet within the study area. For the purposes of this analysis, the study area was divided into four segments:

Segment A from Neal Road to Pearson Road is the current gateway entry to town with a mix of old and new commercial uses and a wide five-lane streetscape with no parking, transitioning to a four-lane cross-section. The proliferation of narrow driveway curb cuts makes it visibly difficult for drivers to negotiate. The segment includes four travel lanes and a two-way left turn-lane. Sidewalks are generally five feet wide with some gaps which require pedestrians to walk along dirt paths.

Segment B from Pearson Road to Elliott Road is the downtown district. The traffic element that visually defines the downtown area is the on-street parking. Other visual cues are the historic businesses fronting directly on the sidewalk. Alternatives for this downtown segment need to balance the multiple goals of managing vehicular traffic, providing parking, enhancing pedestrian and bicycle circulation, and providing areas for future street beautification efforts (which will be determined during the forthcoming Downtown Streetscape process). Four traveling lanes are located throughout this section of roadway and sidewalks are consistent at five feet wide for pedestrian use with six uncontrolled pedestrian crosswalks located throughout the core downtown area.

Segment C from Elliott Road to Bille Road serves commercial, business, and park uses while also acting as a southbound gateway into downtown and a northbound gateway into to the more rustic environment ahead. This section is composed of four travel lanes and various left-turn pockets between Elliott Road and Center Street. Between Center Street to Bille Road, Skyway consists of four travel lanes and two way left turn lane. Sidewalks are generally continuous throughout the area. The combined presence of a wide streetscape and minimal parking activity contributes to the high speeds on this section of Skyway.

Segment D from Bille Road to Wagstaff Road is a two-lane roadway section with significant tree coverage that has its own mountainous feel. The wide right-of-way with mix of sidewalk sections and open culverts leaves this section open to diverse improvement options.

Existing Traffic Conditions

Traffic Counts

Traffic counts were collected for the a.m. and p.m. peak hours between April and May of 2008 for all study intersections. These existing peak hour traffic volumes are shown in Figure 2. In addition, daily traffic counts were collected on four segments along Skyway in proximity to Bille Road, Holiday Market, Honey Run Road, and Black Olive Drive. Existing daily traffic is currently estimated at 12,700 vehicles per day (vpd) north of Bille Road, 17,500 vpd north of Pearson Road in the downtown, and 23,500 vpd south of Pearson Road on the highest volume section in the study area.

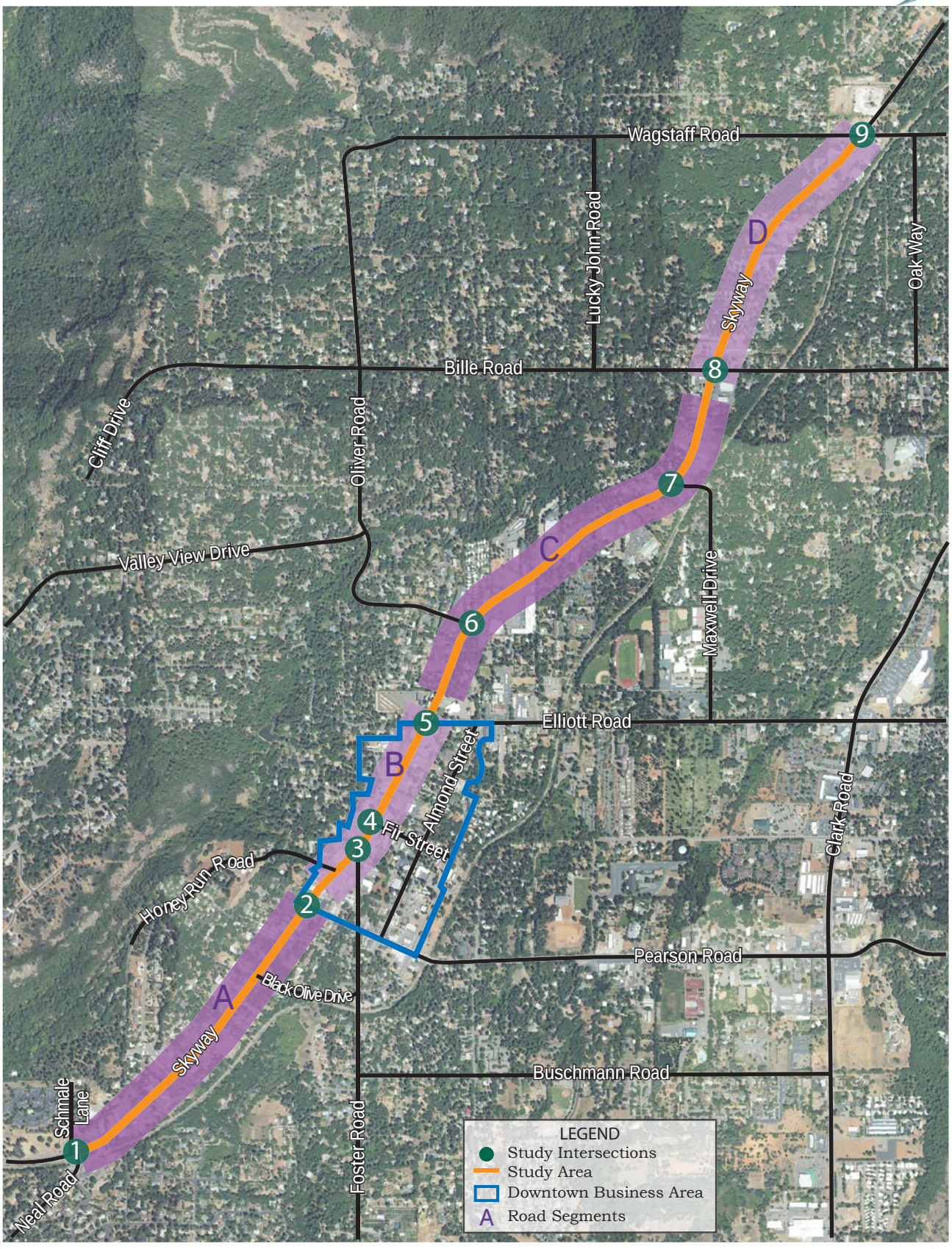

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Figure 1
Study Area

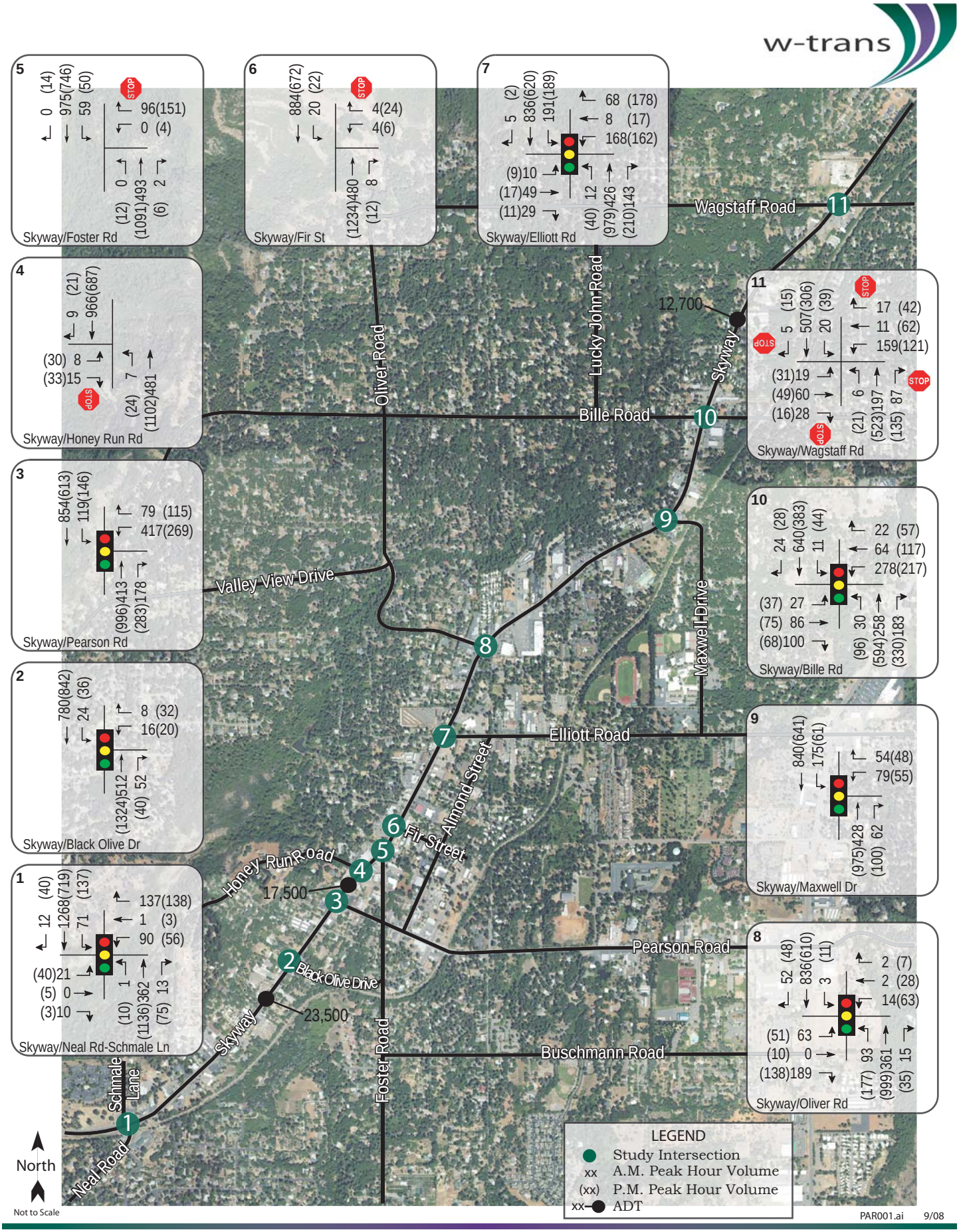

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Figure 2
Existing Traffic Volumes

Time and Delay Runs

Time and delay runs were conducted along the corridor in both directions on Skyway during the a.m., midday and p.m. weekly peak hour period in April of 2008. The purposes of these runs were to establish the travel time and overall speed for the entire corridor which can then be compared with alternatives. A handheld GPS unit was used which allows recording of vehicle position at numerous points along the corridor as well as at each of the study intersections. The data was compiled and analyzed to determine average travel times and to provide additional insight as to where delays are typically encountered along the corridor. The results are shown in Table 1 and 2 for the northbound and southbound directions, respectively.

Table 1
Northbound Travel Time and Delay

Location	Travel Time *			Delay *		
	AM	Midday	PM	AM	Midday	PM
Pearson Rd	94.3	100.3	74.7	16.0	22.3	5.0
Elliott Rd	81.7	72.3	71.0	32.7	24.0	22.0
Michael Ln	34.0	35.3	36.3	10.3	11.3	12.7
Maxwell Dr	65.3	63.3	70.3	9.3	7.7	15.3
Bille Rd	45.3	44.7	38.7	18.7	18.3	11.7
Wagstaff Rd	79.0	140.0	91.3	17.0	78.7	36.3
Total (secs)	399.6	455.7	382.3	103.7	162.3	103.0
Total (min)	6.6	7.5	6.3	1.7	2.7	1.7
Speed (mph)	25.5	22.4	26.6			

Notes: * Travel time and delay measured in average seconds per vehicle
Shading shows worst delay

Table 2
Southbound Travel Time and Delay

Location	Travel Time *			Delay *		
	AM	Midday	PM	AM	Midday	PM
Wagstaff Rd	182.0	40.3	96.7	152.0	11.0	33.7
Bille Rd	97.3	74.3	26.7	34.7	12.7	0.7
Maxwell Ln	41.0	32.7	75.3	15.0	6.0	19.3
Michael Ln	67.0	69.0	28.0	11.0	13.3	3.3
Elliott Rd	33.0	31.7	50.0	9.0	7.7	2.7
Pearson Rd	73.0	60.3	48.7	24.7	12.3	1.0
Total (secs)	493.3	308.3	325.3	246.3	63.0	60.7
Total (min)	8.20	5.13	5.41	4.10	1.05	1.0
Speed (mph)	20.5	32.7	31.1			

Notes: * Travel time and delay measured in average seconds per vehicle
Shading shows worst delay

Northbound Travel Time

Travel time was the longest during the midday peak at 455.7 seconds (7.5 minutes, 22.4 mph) and the fastest travel time was experienced during the p.m. peak at 26.6 mph. The longest delays occurred at Elliott Road during the a.m. peak hour and at Wagstaff Road during the midday and p.m. peak. The delays at Wagstaff Road represent one-third to one-half of the total delay in the corridor. The longest overall delay for the northbound corridor was seen during the midday peak. Note that the delays experienced at Wagstaff Road were recorded when the all-way stop controls were still in place. Conditions have likely improved significantly since the recent installation of a traffic signal.

Southbound Travel Time

Travel time delay was the longest during the a.m. peak at 493.3 seconds (8.2 minutes, 20.5 mph) and the fastest travel time was experienced during the midday peak in the southbound direction (308.3 seconds, 5.13 minutes, 32.7 mph). The longest delays occurred at Wagstaff Road during the a.m. which accounted for 60 percent of the delay for the entire corridor. The longest overall delay for the Skyway corridor was seen during the a.m. peak.

Speed Surveys

Vehicle speed surveys were conducted using road counters for a 24-hour period in April 2008 in both the northbound and southbound directions at Honey Run Road and Black Olive Drive. The average speed in both the north and southbound direction was found to be 32 miles per hour (mph). The recorded 85th percentile speed was 37 mph for the northbound direction and 34 mph for the southbound.

Parking

Parking along Skyway is permitted along various areas throughout the corridor. Although minimal in some areas between Neal Road and Pearson, on-street parking is consistent along the core downtown area which runs from Pearson Road to Elliott Road. This section was noted to have some peak parking usage during the shopping periods, but parking activity generally appears to be low to moderate given the downtown nature of the street. A public parking lot was noted on the north-east corner with Birch Street Road. Elliott Road to Maxwell Road also has on-street parking frontage. The eastern section between Bille Road and Wagstaff Road does not have on-street parking.

Collision Data

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records for 1998 through 2006 obtained from the California Highway Patrol and published in their SWITRS reports. As presented in Table 3, the calculated collision rates in the study area were compared to average collision rates for similar facilities statewide, as indicated in *Accident Data on California State Highways*, California Department of Transportation. The table also displays ratios of the calculated collision rates in comparison with statewide average collision rates, where a ratio over 1.0 to 1.25 suggests that there may be safety issues which need to be addressed. The significance of these collisions was considered when determining the appropriateness of various roadway and intersection improvements on the corridor. Copies of the spreadsheets showing the derivation of the collision rates are provided in the technical appendix. The investigation revealed the following issues:

- The most significant collision rates at signalized intersections have been at Bille Road and Elliott Road where the collision rates were 1.37 to 1.47 higher than the Statewide Average for similar facilities.

- The most significant collision rates at the stop controlled intersections have been at Black Olive Drive, Foster Road, and Fir Street where the collision rates were 2.50 to 1.83 higher than the Statewide Average for similar facilities. All three of these intersections are located where there is no center two-way left-turn lane which can generally assist side street vehicles when turning onto an arterial.

- There has been an average of 2.3 collisions per year since 1998 involving pedestrians.

- There has been an average of 1.4 collisions per year since 1998 involving bicyclists.

Table 3
Collision Rates at the Study Intersections

Study Intersection	Number of Collisions (1998 – 2006)	Calculated Collision Rate (c/mve)	Statewide Avg Collision Rate (c/mve)	Ratio
1. Black Olive	29	0.35	0.14	2.50
2. Foster Rd	16	0.29	0.14	2.07
3. Fir St	15	0.33	0.18	1.83
4. Bille Rd	30	0.63	0.43	1.47
5. Elliott Rd	32	0.59	0.43	1.37
6. Honey Run-Birch St	21	0.46	0.41	1.12
7. Oliver Rd	18	0.39	0.43	0.91
8. Pearson Rd	13	0.22	0.28	0.79
9. Wagstaff Rd	9	0.29	0.41	0.71
10. Neal-Scmale Ln	12	0.22	0.43	0.51

Note: c/mve = collisions per million vehicles entering

Intersection Operating Conditions

Signalized intersections in the corridor are generally operating at LOS C or better during both peak hours. The all-way stop at Wagstaff Road present at the time of data collection is operating at LOS D. A summary of these results is shown in Table 4, and copies of the calculations are provided in the technical appendix.

Table 4
Summary of Existing Intersection Level of Service Calculations

Intersection	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
Neal-Schmale Ln	14.3	C	18.9	B
Pearson Rd	16.6	B	22.7	C
Elliott Rd	20.3	C	33.7	C
Oliver St	18.4	B	16.1	B
Maxwell Dr	13.2	B	16.7	B
Bille Rd	28.0	C	29.3	C
Wagstaff Rd				
All-Way Stop	*19.6*	*C*	*31.6*	*D*
Signalized		*B*		*B*

Notes: Delay is measured in average seconds per vehicle, LOS = Level of Service

The uncontrolled intersections along the corridor have side streets which are operating with delays in the LOS E to F range during the p.m. peak hour including delays which average near 50 seconds.

Future Traffic Conditions

Traffic Volume Projections

Future traffic volumes were developed from the updated traffic model maintained by BCAG that was completed in early 2008. Traffic model runs for base and future projections (year 2006 and year 2035) were analyzed to develop the increment of traffic growth that is expected to occur in the future. This incremental growth was then added to recent traffic volumes collected at the study intersections using the "Furness" procedure. The resulting 2035 traffic volumes for the study area are shown in Figure 3. Future 2035 daily traffic is estimated at 16,700 vehicles per day (vpd) north of Bille Road, 21,600 vpd north of Pearson Road in the downtown, and 32,400 vpd south of Pearson Road on the highest volume section in the study area.

Intersection Operating Conditions

With future traffic volumes, signalized intersections in the corridor would be expected to operate at a LOS D or better during both peak hours. A summary of these conditions are shown in Table 5. The uncontrolled intersections along the corridor would experience increasing delay to the side streets in the LOS F range during the p.m. peak hour including delays which exceed 120 seconds in some cases. A copy of the level of service calculation sheets is provided in the technical appendix.

Table 5
Summary of Future Intersection Level of Service Calculations

Intersection	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
Neal-Schmale Ln	21.3	B	22.9	C
Pearson Rd	25.3	C	37.1	D
Elliott Rd	21.9	C	43.5	D
Oliver St	18.1	B	16.6	B
Maxwell Dr	13.6	B	14.4	B
Bille Rd	32.8	C	30.9	C
Wagstaff Rd	19.4	B	20.0	B

Notes: Delay is measured in average seconds per vehicle, LOS = Level of Service

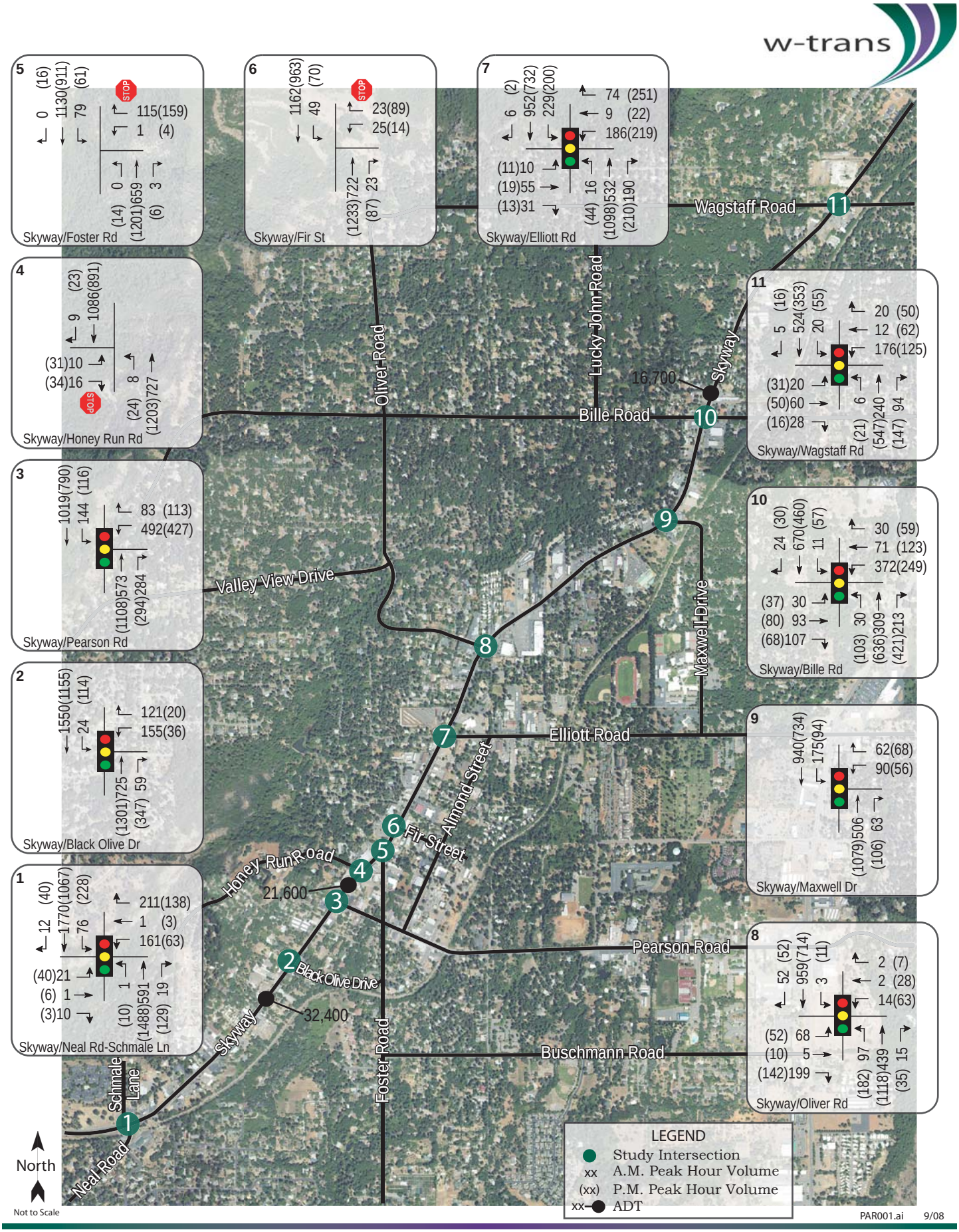

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Figure 3
Future Year 2035 Traffic Volumes

Stakeholder Interviews

Following is a summary of the issues and solutions discussed during the Stakeholder Interviews.

Greatest Concern or Opportunity that can come out of this effort:

- Increase Pedestrian Safety- very difficult/dangerous to cross Skyway.
- Slow Traffic Speeds – Skyway is uses as a freeway corridor to Chico and Magalia.
- Sidewalks are too narrow and aren't continuous throughout downtown.
- Lack of pedestrian connections to and through downtown.
- Not safe to bike on Skyway.
- Entice drivers to engage surroundings and acknowledge downtown Paradise.
- Parking is an issue, difficult/unsafe to park on the street and not enough parking in convenient locations.
- Smother less congested traffic flow.
- Keep businesses in Paradise (pedestrian-friendly streetscape can help achieve that).
- Need a distinctive element/character that defines the downtown area.
- Increase foot traffic by enhancing pedestrian-orientation.
- Need more landscaping.
- Infrastructure (mainly lack of wastewater system) a major issue.
- Consider redirecting traffic off of Skyway and/or establish downtown along parallel streets (i.e. Almond Street).

Potential Solutions

- Incorporate consistent large leaf trees at street edge to soften appearance of downtown and provide much needed shade along the sidewalks.
- To encourage pedestrian activity, connect and widen sidewalks and provide a landscape, furniture, and pedestrian lighting zone. If can't fit landscaping on the sidewalks consider introducing them on the street at the edge of the curb to define parallel parking areas
- Narrow the perception of motorist to encourage them to reduce speeds. This can be accomplished by:

    ◇ Reducing the lanes from 5 to 3 lanes with a south and north bound lane and center turn lane/median with parallel (or 45-degree diagonal if possible) parking lanes on both sides of the street.
    ◇ Bulb-outs at pedestrian crosswalks to shorten the crossing distance and heighten awareness. If raised medians are built, they can also act as a pedestrian refuge while crossing.
    ◇ Add bike lanes on Skyway that connect back to the trail along the railroad tracks and anticipated traffic coming off Honey Run (particularly during the Wildflower Race).

- To help give the Downtown an identity the notion of establishing a community gathering space (i.e. a town green/square) was supported. A viable location for that is at the triangle between Birch St., Foster St., and Skyway. There's also potential to locate it off of Birch St. near Cedar St. but it would lose its potential gateway presence and wouldn't be surrounded by buildings/businesses which is a key aspect of an urban plaza.

Proposed Alternatives

Based on analysis of the base traffic conditions, input received during the stakeholder interviews and discussions with City staff, three alternatives and one sub-alternative were developed for the Skyway Corridor. Each of the four sections of Skyway, A through D, contain different recommendations under the alternatives rather than one consistent cross-section geometry for the road from one end to the other. The total cross-section for the alternatives was based on the allotted city right-of-way of 80 feet throughout the Skyway corridor. The key components of each alternative are summarized below and in Table 6. Exhibits showing sketch-level layouts for representative areas on each segment are included in Appendix A.

Alternative 1 – Three Lanes Downtown

Segment A (Neal-Schmale Lane to Pearson Road)

- maintains 5-foot sidewalks
- adds 5-foot bike lanes
- narrows the five travel lanes from 14-feet to 12-feet

Segment B (Pearson Road to Elliott Road in downtown)

- widens the sidewalks from 5-feet to 10.5-feet
- maintains 8-foot on-street parallel parking
- adds 5-foot bike lanes
- reduces lanes from four 13 to 14-foot lanes to two 11-foot through lanes
- adds an 11-foot, center two-way left-turn lane
- opens the potential for intermittent landscaped medians in the center lane area
- restricts Foster Street to right-turn movements in and out only
- plans for a public gathering space on the triangular parcel adjacent to Foster Street

Section C (Elliott Road to Bille Road)

- maintains 5-foot sidewalks
- adds 5-foot bike lanes
- narrows the five travel lanes from 14-feet to 12-feet
- adds a center two-way left-turn lane where currently missing
- eliminates on-street parking

Segment D (Bille Road to Wagstaff Road)

- adds 5-foot bike lanes
- maintains the two 12-foot travel lanes
- suggests ultimate creation of a 10-foot asphalt path for pedestrians
- provides the opportunity to maintain tree coverage adjacent to road

Alternative 1A – Three Lanes Downtown with Traffic Signals at Black Olive and Fir

- adds traffic signal at the Black Olive Drive intersection

- adds traffic signal at the Fir Street intersection
- implements coordinated signal timing between Elliott Road and Black Olive Drive
- additional signals may help regulate speeds and could potentially improve safety at two of the top three highest-collision locations on Skyway

Alternative 2 – Two Lanes and 45-degree diagonal Parking Downtown

Segment A (Neal-Schmale Lane to Pearson Road)

- widens the sidewalks to 10-feet
- narrows the five travel lanes from 14-feet to 12-feet

Segment B (Pearson Road to Elliott Road in downtown)

- widens the sidewalks from 5-feet to 10-feet
- adds 17-foot 45-degree diagonal parking between Honey Run Road to Fir Street
- reduces lanes from four 13 to 14-foot lanes to two 13-foot through lanes
- adds an 11-foot, center two-way left-turn lane, south of Honey Run and north of Fir Street
- closes Foster Street at Skyway which would be a cul-de-sac turnaround
- adds 45-degree diagonal parking on Foster Street
- plans for a public gathering space on the larger triangular area created by the Foster Street closer

Section C (Elliott Road to Bille Road)

- maintains 5-foot sidewalks
- adds 5-foot bike lanes
- reduces lanes from four 13 to 14-foot lanes to two 12-foot through lanes
- adds a 12-foot, center two-way left-turn lane
- maintains and widens the parallel parking areas

Segment D (Bille Road to Wagstaff Road)

- adds 5-foot bike lanes
- maintains the two 12-foot travel lanes
- add a 12-foot center two-way left-turn lane
- suggests ultimate creation of a 10-foot asphalt path for pedestrians
- provides the opportunity to maintain tree coverage adjacent to road

Alternative 3 – One Lane Southbound Downtown

Segment A (Neal-Schmale Lane to Pearson Road)

- (same as Alternative 1)

Segment B (Pearson Road to Elliott Road in downtown)

- widens the sidewalks from 5-feet to 11-feet

- maintains 8-foot on-street parallel parking
- reduces the southbound lanes from two 14-foot lanes to one 11-foot travel lane
- adds a 10-foot, center two-way left-turn lane
- narrows the two northbound lanes to an average of 10.5 feet
- opens the potential for intermittent landscaped medians in the center lane area
- restricts Foster Street to right-turn movements in and out only
- plans for a public gathering space on the triangular parcel adjacent to Foster Street

Section C (Elliott Road to Bille Road)

- Widens the sidewalks to 10.5 feet
- adds 5-foot bike lanes
- narrows the travel lanes from four lanes to two 11-foot lanes
- adds a center two-way left-turn lane where currently missing
- maintains parallel parking

Segment D (Bille Road to Wagstaff Road)

- (same as Alternative 1)

Table 6
Alternative Cross-section Details (feet)

Alternative	sidewalk	park	bike	travel	center	travel	bike	park	sidewalk	Total
Segment A – Neal Lane to Pearson Road										
1	5	-	5	2 x 12	12	2 x 12	5	-	5	80
2	10	-	-	2 x 12	12	2 x 12	-	-	10	80
3	5	-	5	2 x 12	12	2 x 12	5	-	5	80
Segment B – Pearson Road to Elliott Road										
1	10.5	8 (p)	5	11	11	11	5	8 (p)	10.5	80
2	10	17 (d)	-	13	-	13	-	17 (d)	10	80
3	11	8 (p)	-	11	10	2 x 10.5	-	8 (p)	11	80
Segment C – Elliott Road to Bille Road										
1	5	-	5	2 x 12	12	2 x 12	5	-	5	80
2	5	12 (p)	5	12	12	12	5	12 (p)	5	80
3	10.5	8 (p)	5	11	11	11	5	8 (p)	10.5	80
Segment D – Bille Road to Wagstaff Road										
1	up to 23	-	5	12	-	12	5	-	up to 23	80
2	up to 17	-	5	12	12	12	5	-	up to 17	80
3	up to 23	-	5	12	-	12	5	-	up to 23	80

Notes: (p) = parallel parking, (d) = 45 degree diagonal parking

Operational Conditions with Alternatives

Each of the alternatives was tested to determine potential impacts to vehicle travel speeds on Skyway using the SIMTRAFFIC software application. SIMTRAFFIC is an extension of SYNCHRO that creates simulations representing the traffic network including interactions among numerous signalized and unsignalized intersections. SIMTRAFFIC has the capability to simulate the time required for drivers to travel along a corridor, taking factors such as signal timing, distances between intersections, turn lane storage lengths, and queue blockages between intersections into account. The application also includes adjustment factors for lane widths and the presence of adjacent parking activity. Because each SIMTRAFFIC run randomly "seeds" the roadway network with different vehicle positions and driver types, five separate runs were conducted when determining travel times for each corridor to obtain an average running speed. All scenarios assume that the traffic signal at Wagstaff Road is operational.

It is important to distinguish that the average "running speeds" produced by the program include the delays experienced while drivers are stopped at traffic signals; therefore, while examination of midblock speeds may suggest that drivers are proceeding at 35 to 40 miles per hour, the average speed on the segment including delays may in actuality be closer to 20 mph. The *Highway Capacity Manual* includes criteria for establishing a Level of Service (LOS) based on average travel speeds. Applying the "Class III Arterial" criteria to Skyway would be appropriate given the Town's desire to achieve typical free-flow travel speeds of approximately 35 mph. A summary of the LOS thresholds by speed is shown in Table 7.

Table 7
Arterial Class III Level of Service Criteria

Level of Service	Average Travel Speed (mph)
A	≥ 30
B	≥ 24
C	≥ 18
D	≥ 14
E	≥ 10
F	< 10

Reference: *Highway Capacity Manual,* Transportation Research Board, 2000

Many communities including Paradise strive for LOS D or better operation on the vehicle travel network. Some communities have begun to reconsider their vehicular LOS criteria in their downtown areas, recognizing that vehicle throughput and higher speeds can actually be detrimental to a downtown's vitality and higher emphasis on pedestrian circulation. The many competing circulation needs in a downtown can often be balanced with LOS D operation, but can sometimes still work effectively with vehicle circulation operating at LOS E. LOS F operation is generally undesirable given the potential for "gridlock" to develop and side impacts to other transportation modes as well as emergency response providers.

All four segments of Skyway are currently operating with average speeds in the 20 to 30 mph range, which translates to LOS C or better operation. With future traffic volumes and no changes to the roadway network, average travel speeds are shown to generally drop slightly, but still remain in the LOS C or better

range. The projected average vehicle speeds by corridor segment are summarized in Table 8 for existing and future conditions with no changes to the corridor.

Table 8
Skyway Corridor Average Vehicle Speeds with No Project

	Existing Conditions		Future 2035 (No Project)	
	NB	**SB**	**NB**	**SB**
Segment 1 – Neal to Pearson				
AM Peak Hour	28	31	27	30
PM Peak Hour	26	31	24	30
Segment 2 – Pearson to Elliott				
AM Peak Hour	23	24	23	24
PM Peak Hour	21	26	20	24
Segment 3 – Elliott to Bille				
AM Peak Hour	25	26	24	26
PM Peak Hour	22	25	22	24
Segment 4 – Bille to Wagstaff				
AM Peak Hour	29	26	28	25
PM Peak Hour	28	27	28	27

Notes: NB = Northbound, SB = Southbound, Results are expressed in miles per hour (mph)

Each of the three alternatives would result in notable drops to average travel speeds, with Alternatives 1 and 2 operating near the LOS D/E threshold in various segments of the corridor. With Alternative 1, the northbound corridor segment between Neal and Pearson is projected to have a 15 mph average speed during the p.m. peak hour. With the addition of traffic signals at Black Olive Drive and Fir Street to Alternative 1 (referred to as Alternative 1A), the 15 mph average speed on segment 1 would improve to 18 mph, and all segments would operate at LOS D or better. The two new signals would be coordinated with existing signals at Pearson and Elliott, and would help regulate traffic progression through downtown. As with many coordinated signal systems, however, delays would increase over "no project" levels where drivers encounter the first signal in the coordinated series.

In Alternative 2, the northbound segment of Skyway between Neal and Pearson is projected to have a 15 mph average speed during the p.m. peak hour. Southbound traffic on the downtown segment between Pearson and Elliott would also be expected to operate at an average speed of 15 mph during the p.m. peak hour. Average travel speeds on segments 3 and 4 between Elliott and Wagstaff are also expected to decrease somewhat though would remain within the LOS C range.

As would be expected, Alternative 3, which reconfigured the downtown Skyway segment to include one travel lane in the southbound direction and two travel lanes in the northbound direction, would result in lower southbound speeds through downtown. Average southbound speeds would drop by approximately 3

mph during the a.m. peak hour and 8 mph during the p.m. peak hour, though would still remain in the LOS D range. Changes to average speeds on the remaining three segments are projected to drop modestly by 1 to 3 mph during both peak hours.

The projected year 2035 average vehicle speeds for each alternative are summarized in Table 9, with copies of the calculations provided in the technical appendix.

Table 9
Skyway Corridor Average Vehicle Speeds

	Future (No change)		Future + Alt 1		Future + Alt 1A		Future + Alt 2		Future + Alt 3	
	NB	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**
Segment 1 – Neal to Pearson										
AM Peak Hour	27	30	23	30	24	28	24	30	26	30
PM Peak Hour	24	30	15	31	18	30	15	32	24	31
Segment 2 – Pearson to Elliott										
AM Peak Hour	23	24	21	20	19	20	22	18	21	21
PM Peak Hour	20	24	19	23	17	18	17	15	17	16
Segment 3 – Elliott to Bille										
AM Peak Hour	24	26	24	24	25	24	23	22	23	22
PM Peak Hour	22	24	22	25	23	25	22	24	21	22
Segment 4 – Bille to Wagstaff										
AM Peak Hour	28	25	28	25	30	25	31	24	29	22
PM Peak Hour	28	27	28	26	27	26	28	26	28	25

Notes: NB = Northbound, SB = Southbound, Results are expressed in miles per hour (mph)
Shaded results represent operation near the LOS D/E threshold

In order to gauge the differences to average travel times among alternatives, the relative changes between Future "no change" conditions were compared to each of the alternatives. The results are summarized in Table 10.

Table 10
Changes to Average Vehicle Speeds by Alternative

	Future + Alt 1		Future + Alt 1A		Future + Alt 2		Future + Alt 3	
	NB	**SB**	**NB**	**SB**	**NB**	**SB**	**NB**	**SB**
Segment 1 – Neal to Pearson								
AM Peak Hour	-4	0	-3	-2	-3	0	-1	0
PM Peak Hour	-9	1	-6	0	-9	2	0	1
Segment 2 – Pearson to Elliott								
AM Peak Hour	-2	-4	-4	-4	-1	-6	-2	-3
PM Peak Hour	-1	-1	-3	-6	-3	-9	-3	-8
Segment 3 – Elliott to Bille								
AM Peak Hour	0	-2	1	-2	-1	-4	-1	-4
PM Peak Hour	0	1	1	1	0	-1	-1	-2
Segment 4 – Bille to Wagstaff								
AM Peak Hour	0	0	2	0	3	-1	1	-3
PM Peak Hour	0	-1	-1	-1	0	-1	0	-2

Notes: NB = Northbound, SB = Southbound, Results are expressed in miles per hour (mph)

Other Issues to Resolve

In addition to the selected streetscape geometrics and public space amenities in the corridor, following is a list of issues which would need to be resolved following the upcoming workshop.

- Honey Run Road/Birch Street offset intersection treatments
- Use and encouragement of Almond Street as a bypass route
- Operational constraints at Skyway/Pearson Road and Skyway/Elliott Road under some alternatives
- Pedestrian safety/crosswalk modifications