3.0 EXISTING CONDITIONS

3.1 Roadway Characteristics

The study area is an approximate 4.7 mile segment of US 287, known locally as South College Avenue, from Carpenter Road (LCR 32) to Swallow Road. The City classifies South College Avenue as a Major Arterial which includes such characteristics as three travel lanes in each direction, a 19-foot raised and landscaped median, 8-foot bike lanes, two 10-foot parkway buffers and 7-foot sidewalks.

South College Avenue is not constructed to this extent, however. The basic roadway characteristics of South College Avenue differ to the north and south of Harmony Road (SH 68). Between Harmony and Swallow Roads the corridor is extensively developed. There are three through lanes in each direction of travel and a raised median, with left turn and right turn deceleration lanes at numerous locations. Since a raised median exists in this area, numerous access points are restricted to only right-in/right-out (RIRO) or ¾ movements (no outbound left turns or cross traffic) in accordance with the existing US 287 Access Control Plan which was approved in 1989.

Sidewalks exist throughout most of this segment. Bike lanes do not exist on South College Avenue to the north of Harmony Road and cyclists are prohibited from riding on the street and must use the frontage roads, sidewalks or the parallel street system.

To the south of Harmony Road, the density of development decreases. This segment of South College Avenue is divided with two through lanes in each direction of travel. Left turn deceleration lanes are provided on South College Avenue at all public road intersections. Right turn deceleration lanes exist at most public intersections. At locations without a designated right turn lane, the shoulder area is typically used for right turn movements. Between Harmony and Carpenter Roads, the northbound and southbound directions are separated by a two-way left turn lane (14'-16') allowing full vehicle movements at most driveways and at public road intersections. Sidewalks are not continuous when provided; however, 10' shoulders offer emergency parking and are used as bike lanes. Curb and gutter exists along the outside edge of South College Avenue in most areas. Some elements of the existing Access Control Plan have been achieved due to recent development but other planned improvements are no longer feasible given recent land use decisions.

At several locations along South College Avenue, frontage roads parallel the highway. The frontage roads are two-way and exist at the following locations:

- North of Trilby Road to north of Skyway Drive - East Side
- Skyway Drive to north of Saturn Drive – West Side
- Smokey Street to north of Bueno Drive – East Side
- South of Cameron Drive to north of Coronado Court – West Side
- Fairway Lane to Palmer Drive/Mason Street – East Side
- Monroe Drive to Swallow Road – West Side (not continuous)

3.2 Traffic Control

Several types of traffic control exist along the corridor. Signalized, full movement, public street intersections exist at 13 locations, while there are 7 full movement, unsignalized accesses. There are also 4 restricted movement, unsignalized public street intersections with either ¾ and RIRO movements. There are also several private access locations with full and restricted movements.

3.3 Speed Limits

Two posted speed limits exist along South College Avenue as follows:

- 55 MPH – Carpenter Road (LCR 32) to Fairway Lane
- 40 MPH – Fairway Lane to Swallow Road

3.4 Functional Classification

Roadway segments are classified as a certain type based on the function that the roadway provides. Certain roadways are meant to provide for travel through an area and, therefore, mobility is the primary purpose. The primary purpose of some roadways, however, is to provide access to individual properties. Following is a description of the typical roadway functional classifications found in most communities:

Arterial roadways primarily provide mobility between two points. They can be two to six lanes wide, typically carrying significant traffic volumes at higher speeds and for longer distances. Access to abutting properties is a secondary function. An arterial functional classification is also typically divided into two sub-categories, major and minor arterials. As these classifications infer, roadway, laneage and right-of-way requirements and traffic volumes are typically greater for the major arterial classification. Parking is not allowed on Arterial streets.

A ***Collector*** roadway serves both access and mobility functions. A collector street is two lanes wide with speeds and traffic volumes less than an arterial street but greater than a local street. Major and minor collectors also differ in the laneage and right-of-way requirements, and traffic volume levels as their classifications imply. Minor collector streets allow on-street parking.

Local roadways serve primarily as a means of access to adjacent land uses, whether residential, business or community facilities. They are typically low speed, two or three lanes wide (with a center left turn lane) and carry relatively low traffic volumes. Local roadways allow on-street parking.

Access Circulators are either public or private minor roadways or alleys whose main purpose is to provide connectivity for passenger and service vehicles between other public facilities and private properties. These facilities are not intended to provide for through vehicle travel.

Frontage Roads are two-lane streets and can be public right-of-way, either local or state owned, serving for direct access to private property.

The City of Fort Collins has classified South College Avenue as a Major Arterial (6 lanes). As adjoining parcels re-develop, they will be required to provide sufficient right-of-way to construct the Major Arterial cross-section. The cross-section features include:

- 3 - 12 foot travel lanes in each direction
- 1 - 8 foot bike lane in each direction
- A 19 foot raised, landscaped median (7-foot median with a 12-foot left turn lane at major intersections)
- A seven foot sidewalk and a 10-foot parkway on both sides
- 141 feet of right-of-way (minimum)

The Transportation Commission of Colorado classifies South College Avenue as a Principal Arterial. This roadway has also been designated by the State Transportation Commission and the Federal Highway Administration as part of the National Highway System.

3.5 Access Category

The State Highway Access Code defines a system of eight classifications for all state highways (see Table 3-1). These include an array of classifications to define roadways by the function that the highway provides, by the type and number of access allowed and on the level of traffic the roadway carries. South College Avenue is classified as a Non-Rural Regional Highway (NR-A) between Carpenter Road (LCR 32) and Harmony Road, and as a Non-Rural Arterial (NR-B) between Harmony Road and Swallow Road.

Table 3-1 Access Categories

<table>
<tr><td colspan="2">F-W Interstate System, Freeway Facilities</td></tr>
<tr><td colspan="2">E-X Expressway, Major Bypass</td></tr>
<tr><td>Rural</td><td>Non-Rural</td></tr>
<tr><td>R-A Regional Highway</td><td>NR-A Regional Highway</td></tr>
<tr><td rowspan="2">R-B Rural Highway</td><td>NR-B Arterial</td></tr>
<tr><td>NR-C Arterial</td></tr>
<tr><td colspan="2">F-R Frontage Roads (both urban and rural)</td></tr>
</table>

The major features of the NR-A classification are as follows:

Access Granting Criteria:	"...one access shall be granted per parcel if reasonable access cannot be obtained from the local street or road system." (Section 3.10 (2))
Desired Signal Spacing:	One-half mile intersection spacing for all public roadways and other accesses that will be full movement, or have the potential for signalization with good signal progression of 35% efficiency or better, or existing signal progression not degraded. (Section 3.10 (3))
Additional Access:	Inbound left turns (¾movement) may be allowed if the addition of left turns would improve operations at an adjacent full-movement intersection, meet design criteria, and operational or safety problems would not occur. Left turns would be prohibited if a non-traversable median is already established. (Section 3.10 (5)) "Additional right turn only access shall be allowed where required acceleration and deceleration lanes can be provided, would relieve an identified congestion condition on the local street or road system, would not be detrimental to the safety and operation of the highway, …and the additional access would not knowingly cause a hardship to an adjacent property or interfere with the location, planning and operation of the general street system." (Section 3.10 (6))

The major features of the NR-B classification are as follows:

Access Granting Criteria:	"...one access shall be granted to each parcel, if it does not create safety or operational problems. The access will provide, as a minimum, for right turns only. The access may have left turns in (¾ movement) if the addition of left turns will improve operation at an adjacent full movement intersection and meet appropriate design standards, unless significant operational or safety problems would occur" (Section 3.11 (2))
Desired Signal Spacing:	One-half mile with good signal progression of 30% efficiency or better, or existing signal progression is not degraded. (Section 3.11 (2))
Additional Access:	"Additional right-turn-only access shall be allowed where required auxiliary lanes can be provided. Additional right-turn-only access may be allowed when it would relieve an identified congestion condition on the local street or road system which cannot be improved, and the parcel size or trip generation potential requires additional access to maintain good highway traffic and land use design." (Section 3.11 (3))

3.6 Existing Access Inventory

Access points along the corridor are public streets or private accesses for shopping centers and clusters of retail establishments. A few private driveways exist that serve only a single family dwelling or an individual business. Following is a summary of the access types along the corridor:

Public Road Signalized Intersection (PRS) - Public road signalized intersections are at-grade, full movement public road intersections with a traffic signal. The PRS accesses along South College Avenue, from south to north are:

- Carpenter Road (LCR 32)
- Trilby Road
- Skyway Drive
- Cameron Drive / Fossil Creek Parkway
- Harmony Road (SH 68)
- Kensington Drive
- Troutman Parkway
- Boardwalk Drive
- Bockman Drive
- Horsetooth Road
- Monroe Drive
- Foothills Parkway
- Swallow Road

Public Road Unsignalized Intersection (PRU) - Public road unsignalized intersections are at-grade, full or partial movement, public road intersections with stop control on the minor street approaches. The PRU accesses along South College Avenue, from south to north, are:

- Victoria Drive (RIRO) (east side only)
- Triangle Drive (west side only) (to be signalized with future additional development)
- Saturn Drive
- Smokey Street (east side only)
- Crestridge Street (west side only)
- Bueno Drive (east side only)
- Fairway Lane
- Mason Street/Palmer Drive
- Pavillion Lane (¾ access) (east side only)
- Colboard Drive (RIRO) (west side only)
- Creger Drive (¾ access) (west side only)

Driveway Access (DA) - Driveway accesses are full or partial movement highway accesses serving numerous types of private properties. Along South College Avenue, some driveway accesses serve major traffic generators such as shopping centers. These types of driveway accesses along the South College Avenue corridor occur mostly to the north of Harmony Road. A driveway access can also be a drop curb or other highway access that serves a business or a single family dwelling along the highway and typically does not have acceleration/ deceleration lanes. There are a total of 63 driveway accesses along South College Avenue.

Based on the above classifications of access points, accesses along the corridor are approximately distributed as follows:

- 13 public road intersections with signals (14.9%)
- 11 unsignalized public road intersections (12.7%)
- 63 driveway and field accesses (72.4%)

A detailed listing of each access point along South College Avenue between Carpenter Road and Swallow Road is included in Appendix A.

3.7 Traffic Volumes

Traffic volume data, including vehicle turning movements and Average Daily Traffic (ADT), were provided by the City of Fort Collins. Most turning movements at the signalized intersections were recorded as part of the city-wide traffic signal timing project conducted in 1998. Turning movements at unsignalized intersections and at private driveways were recorded primarily in December of 1999 with a few recorded in August of 1999. ADT volumes on the approaches of each major intersection were recorded primarily between June and August of 1999. Figures 3-1, 3-2 and 3-3 illustrate the ADT, and AM and PM peak hour turning movements along the corridor.

As can be seen on these figures, ADT volumes in the northbound direction range from a low of approximately 13,900 vehicles per day (vpd) to the south of Carpenter Road to a high of almost 23,000 vpd approaching Foothills Parkway. In the southbound direction, ADT ranges from a high of 23,300 vpd approaching Horsetooth Road to a low of just over 11,100 vpd to the north of Skyway Drive. Peak hour traffic volumes are generally higher in the northbound direction during the AM peak hour and in the southbound direction during the PM peak hour. Observation of the corridor also indicates that Saturday Mid-Day traffic volumes may be similar to weekday peak hour volumes.

There are only two turning movements along the corridor that currently experience a relatively high traffic volume and, therefore, may require additional turn lanes. These movements are the southbound left turn at Boardwalk Drive and the northbound left turn at Horsetooth Road.

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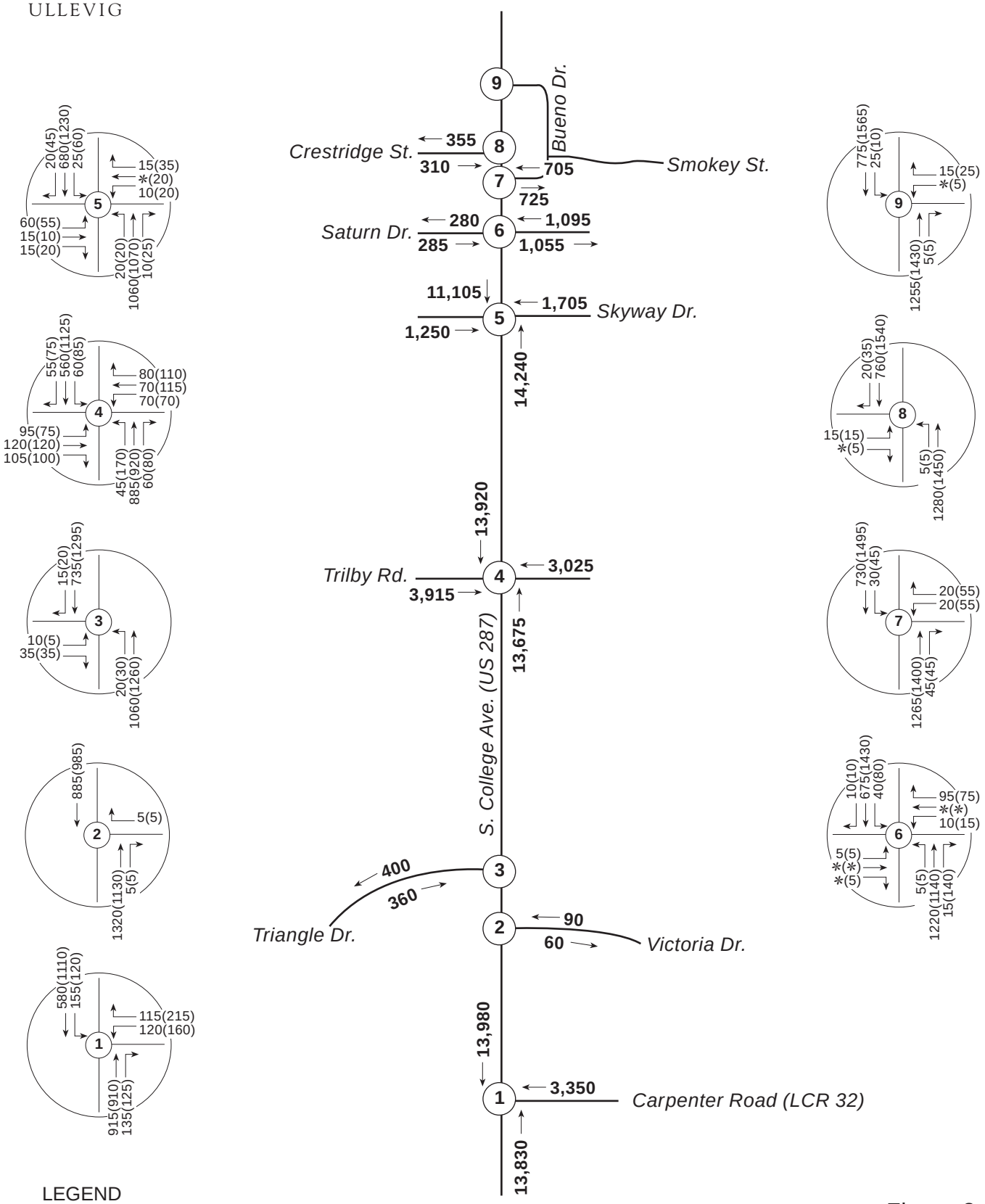


LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

* = Less Than 5 Vehicles Per Hour

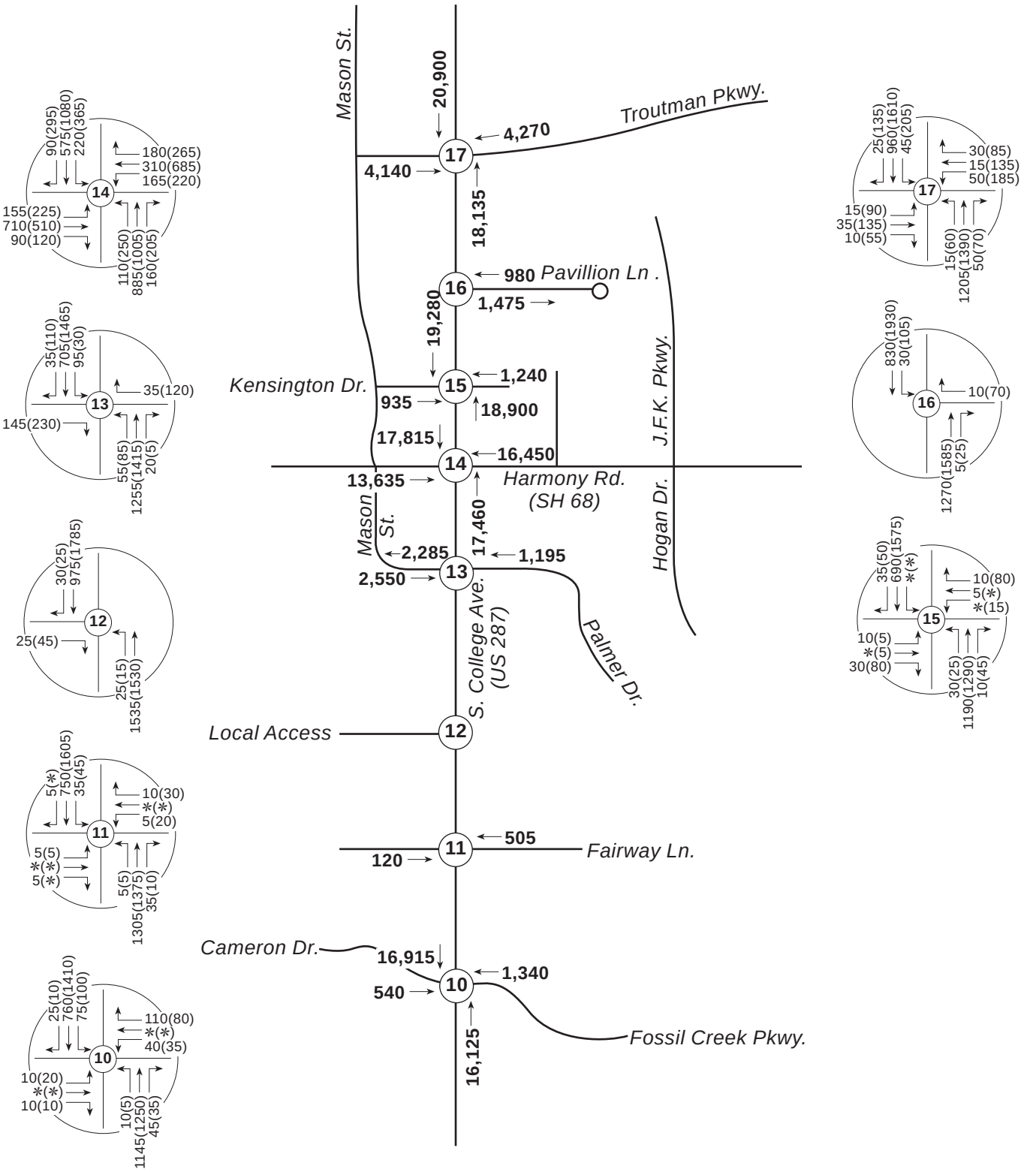
Figure 3-1

Existing Traffic Volumes -

Carpenter Road (LCR 32) to Bueno Dr.

North

FELSBURG HOLT & ULLEVIG



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

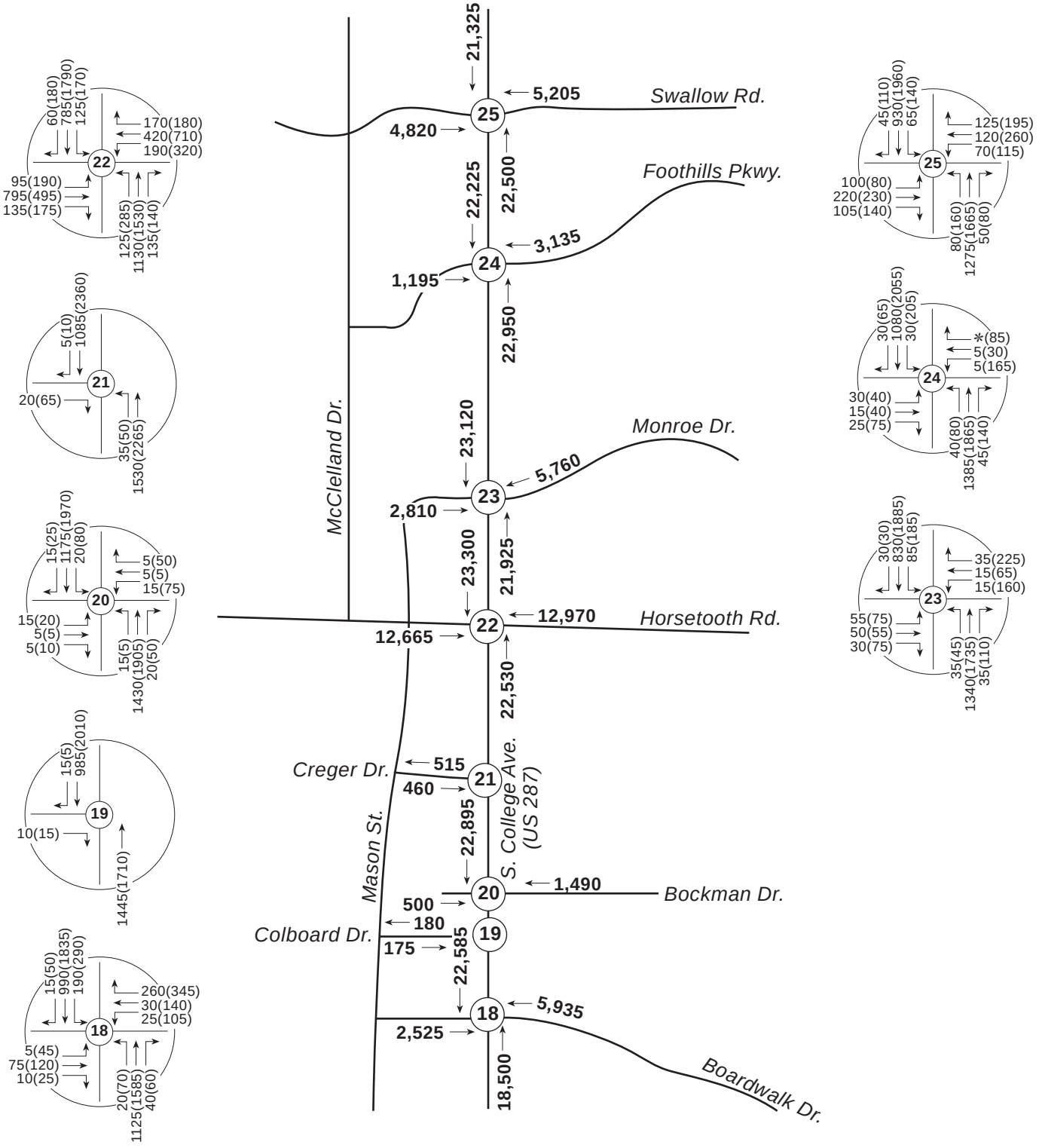
* = Less Than 5 Vehicles Per Hour

Figure 3-2

Existing Traffic Volumes - Cameron Drive / Fossil Creek Parkway to Troutman Parkway

North

FELSBURG HOLT & ULLEVIG



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXXX = Average Daily Traffic Volumes

Figure 3-3

Existing Traffic Volumes - Boardwalk Drive to Swallow Road

North

3.8 Signal Timing

SYNCHRO intersection analysis files were obtained from the City to ensure that the most current signal timing information was used in the analysis of intersection operations. Table 3-2 documents the cycle length, phasing and signal timing of the signalized intersections along the corridor.

It is recognized that the number of seconds of green indication that is provided to a movement can vary from cycle to cycle depending upon demand, an attribute of actuated signal control that strives to maximize service and minimize vehicle delay. The signal timing shown in Table 3-2 represents the maximum time provided to each movement although it may not be met in each cycle. Any extra time is reallocated to the major street through movements.

As can be seen in Table 3-2, the cycle length at some intersections exceed the normal range of cycle lengths for state highways (60-120 seconds); however, these cycle lengths are currently being used to maximize intersection capacity.

Table 3-2 Traffic Signal Operating Parameters

Intersection	Time Period	Cycle Length (sec's.)	Signal Phasing/Timing (sec's.)[1]							
			NB/SB Left	SB Overlap	NB/SB Thru	NB Overlap	EB/W B Left	WB Overlap	EB/WB Thru	EB Overlap
Carpenter Road (LCR 32)	AM	126	-	20	72	-	-	34[2]	-	-
	PM	126	-	20	72	-	-	34[2]	-	-
Trilby Road	AM	133	22	-	72	-	-	-	39	-
	PM	120	13	-	52	6	-	-	49	-
Skyway Drive	AM	132	25	-	72	-	-	-	35	-
	PM	120	13	-	75	-	-	-	32	-
Cameron Dr./ Fossil Creek Pkwy	AM	118	17	-	64	-	-	-	37	-
	PM	90	11	1	46	-	-		32	-
Harmony Road	AM	115	12	3	43	-	-	19	22	16
	PM	130	-	25	27	17	19	4	38	-
Troutman Parkway	AM	115	13	-	54	-	13	-	35	-
	PM	130	11	16	51	-	11	8	33	-
Boardwalk Drive	AM	115	13	13	56	-	-	-	33	-
	PM	130	13	25	59	-	-	-	33	-
Bockman Drive	AM	115	-	-	82	-	-	-	33	-
	PM	130	-	-	99	-	-	-	31	-
Horsetooth Road	AM	115	11	-	47	-	-	15	29	13
	PM	130	21	-	54	2	18	1	34	-
Monroe Drive	AM	115	13	3	69	-	-	-	30	-
	PM	130	11	14	65	-	-	-	40	-
Foothills Parkway	AM	115	-	13	48	13	-	13	-	28
	PM	130	-	17	55	17	-	15	-	26
Swallow Road	AM	115	11	-	61	2	11	-	30	-
	PM	130	12	6	59	-	11	10	32	-

1 Timing includes seconds of yellow and all-red which varies from 5-9 seconds.
2 Westbound left/right phase from the minor street approach.

3.9 Capacity Analyses

The AM and PM peak hour turning movements shown on Figures 3-1, 3-2 and 3-3 were used to evaluate traffic flow characteristics at signalized and unsignalized intersections along the South College Avenue corridor. SYNCHRO analysis methods, which takes into account the effects of signal actuation and coordination, were used to develop a Level of Service (LOS) for each signalized intersection. At unsignalized intersections, the analysis methods documented in the 1994 Highway Capacity Manual (TRB Special Report 209), updated 1997, were used to develop LOS for specific movements.

Level of Service is a qualitative assessment of traffic flow characteristics described by a letter designation ranging from LOS A (essentially uninterrupted flow) to LOS F (a breakdown of traffic flow with excessive congestion and delay). LOS D or better is generally considered to be acceptable for peak period conditions in urban areas and is used by the City of Fort Collins as a guidepost for evaluating the operation of an intersection (City of Fort Collins Multimodal Level of Service Manual). LOS D is also the accepted guidepost for CDOT and Larimer County.

At signalized intersections, more than 80 seconds of total delay per vehicle characterizes LOS F conditions and is typically indicative of traffic demand exceeding intersection capacity. At stop-controlled intersections, LOS F results for a specific movement when more than 50 seconds of total delay per vehicle occurs. It is not uncommon for left turns and through movements from the stop-controlled approaches to operate at LOS F even if left turn and through movements are relatively low and do not meet Manual On Uniform Traffic Control Devices (MUTCD) traffic signalization warrants. Table 3-3 describes level of service delay criteria for both signalized and unsignalized intersections.

Signalized Intersections

Existing lane geometry (illustrated on Figures 3-4, 3-5 and 3-6) and the signal timing parameters were used to estimate peak hour LOS for the signalized and unsignalized intersections. The results of the analyses are also summarized on these figures. As can be seen, all signalized intersections currently operate at LOS D or better during both the AM and PM peak hour. Table 3-4 summarizes the AM and PM peak hour levels of service. The close proximity of the frontage roads could influence the operational efficiency of the intersections.

The Kensington Drive intersection was not signalized when traffic volumes were recorded for this project and when capacity analyses were conducted. As a result, this intersection has been left out of the signalized intersection analyses.

Table 3-3 Level of Service Criteria

Two-Way Stop Controlled (TWSC) Intersections

Level of Service	Delay Range (sec/veh)
A	≤ 10.0
B	>10.0 and ≤15.0
C	>15.0 and ≤25.0
D	>25.0 and ≤35.0
E	>35.0 and ≤50.0
F	> 50.0
Adapted from: *Highway Capacity Manual*, TRB Special Report 209, 3rd Edition, 1997.	

Signalized Intersections

Level of Service	Control Delay (sec/veh)	Qualitative Description
A	≤ 10.0	Good progression, short cycles, very few vehicle-stops.
B	>10.0 and ≤20.0	Good progression, and/or short cycle lengths, more vehicle-stops.
C	>20.0 and ≤35.0	Fair progression and/or longer cycle lengths, some individual cycle failures, many vehicle-stops
D	>35.0 and ≤55.0	Noticeable congestion and cycle failures, unfavorable progression, high v/c ratios, several stops.
E	>55.0 and ≤80.0	Limit of acceptable delay, poor progression, long cycles, high v/c ratios, frequent cycle failures.
F	> 80.0	Delay is unacceptable to most drivers, volume exceeds capacity, breakdown of traffic flow.
Adapted from: *Highway Capacity Manual*, TRB Special Report 209, 3rd Edition, 1997.		

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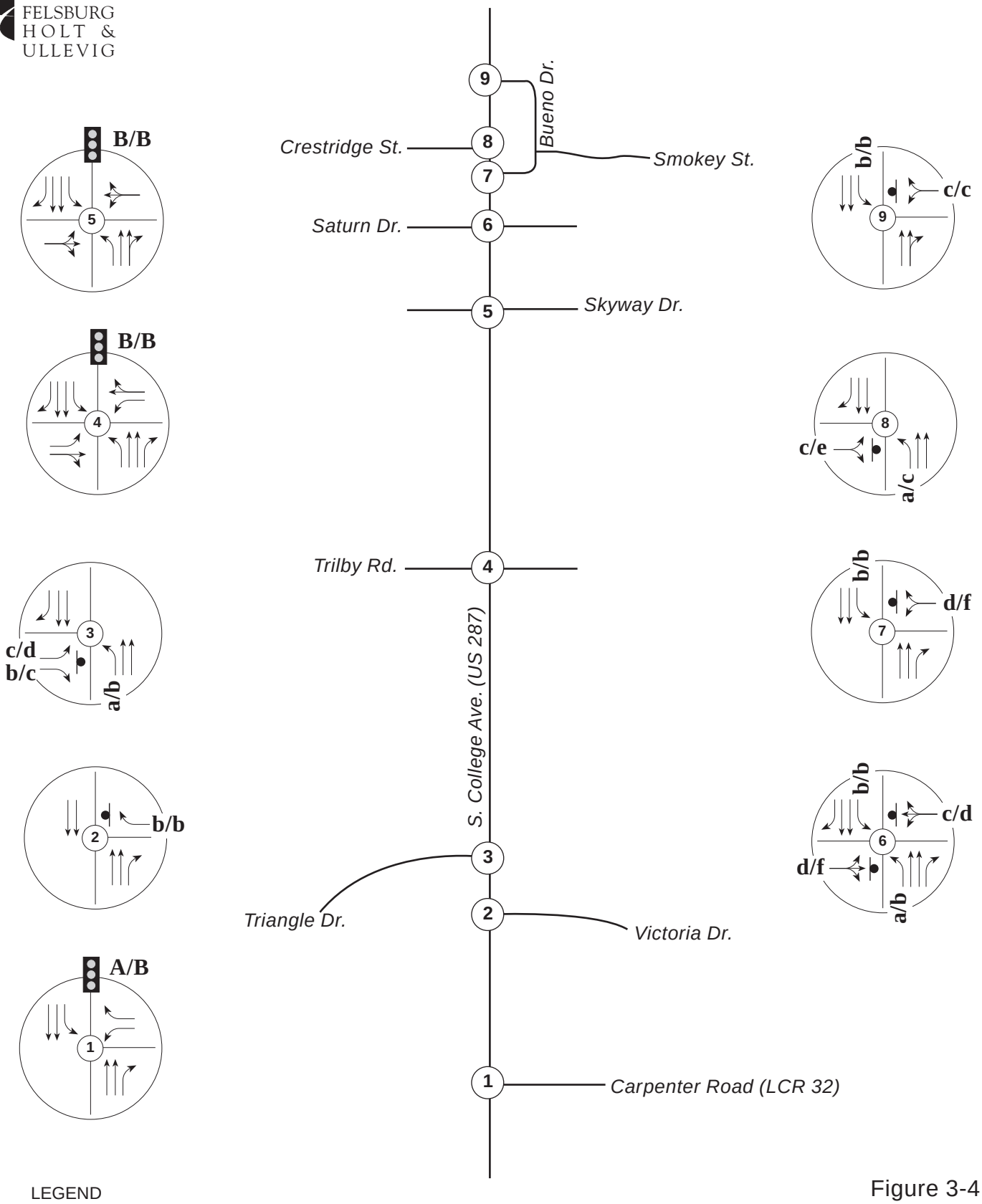

LEGEND

X/X	=	AM/PM Peak Hour Signalized Level of Service
x/x	=	AM/PM Peak Hour Unsignalized Level of Service
	=	Stop Sign
	=	Traffic Signal

North

Figure 3-4

Existing Intersection Geometry and Levels of Service - Carpenter Road (LCR 32) to Bueno Drive

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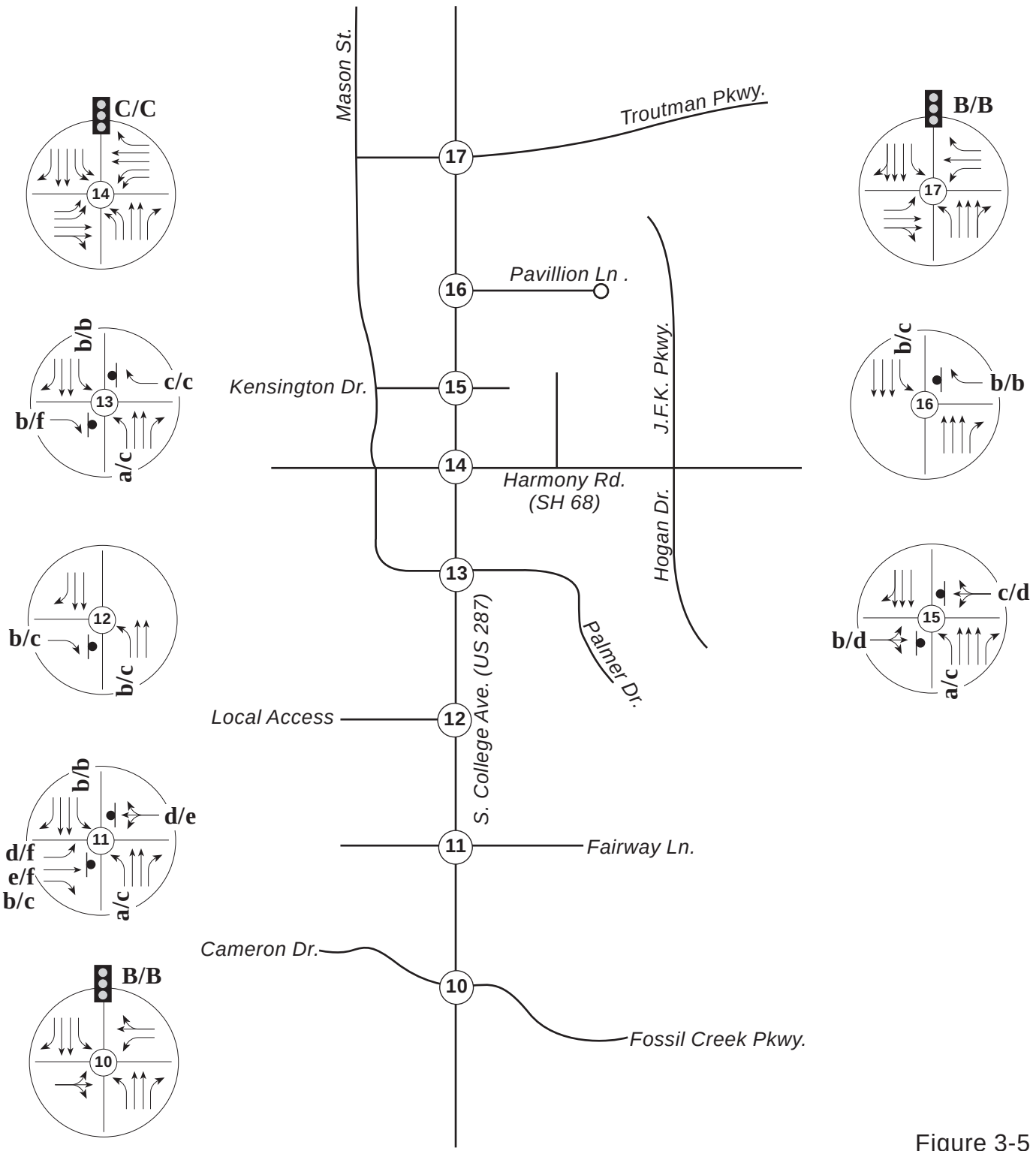

LEGEND

X/X	=	AM/PM Peak Hour Signalized Level of Service
x/x	=	AM/PM Peak Hour Unsignalized Level of Service
●	=	Stop Sign
	=	Traffic Signal

Figure 3-5

Existing Intersection Geometry and Levels of Service - Cameron Drive / Fossil Creek Parkway to Troutman Parkway

North

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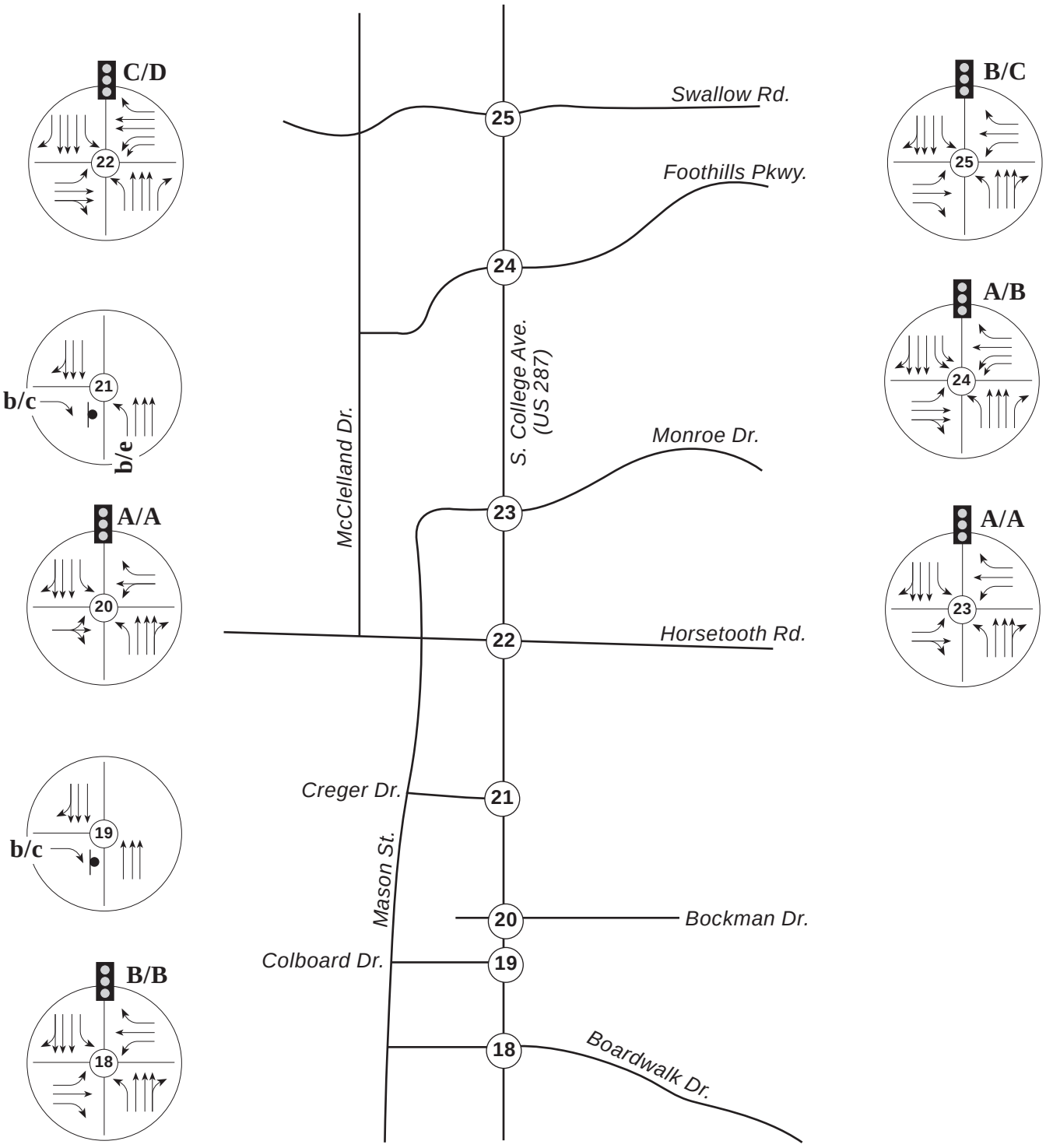

LEGEND

X/X	=	AM/PM Peak Hour Signalized Level of Service
x/x	=	AM/PM Peak Hour Unsignalized Level of Service
●	=	Stop Sign
	=	Traffic Signal

Figure 3-6

Existing Intersection Geometry and Levels of Service - Boardwalk Drive to Swallow Road

North

Table 3-4 Signalized Intersections – Existing LOS Summary

Intersection	Existing Levels of Service	
	AM Peak Hour	PM Peak Hour
Carpenter Road (LCR 32)	A	B
Trilby Road	B	B
Skyway Drive	B	B
Cameron Drive/Fossil Creek Parkway	B	B
Harmony Road (SH 68)	C	C
Troutman Parkway	B	B
Boardwalk Drive	B	B
Bockman Drive	A	A
Horsetooth Road	C	D
Monroe Drive	A	A
Foothills Parkway	A	B
Swallow Road	B	C

Unsignalized Intersections

Since the northbound and southbound directions of South College Avenue are separated by a two-way left turn lane between Carpenter Road and Harmony Road (except between Victoria and Triangle Drives), the LOS analyses assumed that motorists on the minor street approach could cross part of the major street (South College Avenue) first, then pause in the two-way left turn lane and wait for an opening in traffic on the other approach. When this assumption is incorporated into the intersection analyses, it can contribute to increased capacity for left and through movements from the minor street approach. Some critical movements still operate at LOS E or F; however:

- Saturn Drive – eastbound left/through/right during the PM peak hour (LOS F).
- Smokey Street – westbound left/right during the PM peak hour (LOS F).
- Crestridge Street – eastbound left/right during the PM peak hour (LOS E).
- Fairway Lane – eastbound through during the AM peak hour (LOS E); eastbound left and through (LOS F) and westbound left/through/right (LOS E) during the PM peak hour.
- Mason Street/Palmer Drive – eastbound right during the PM peak hour (LOS F).
- Creger Drive – northbound left during the PM peak hour (LOS E).

3.10 Existing Progression Analyses

Progression analyses of existing conditions were based on information provided by the City of Fort Collins. The analyses were conducted using SYNCHRO and the City's signal timing plans and offsets for South College Avenue between Harmony Road and Swallow Road. Traffic signals to the south of Harmony Road were not considered in the analysis since these signals are not coordinated with the traffic signals to the north of Harmony Road.

In the AM peak hour, progression analyses indicate that a northbound progression bandwidth of 22 seconds and a southbound progression bandwidth of 18 seconds can be achieved with a 115 second cycle length. During the PM peak hour, progression analyses with a 130 second cycle length indicate that a northbound progression bandwidth of 27 seconds and a southbound progression bandwidth of 30 seconds can be achieved. The resulting efficiency in the AM peak hour is 17.4% and in the PM peak hour is 21.9%, considerably less than the desirable bandwidth efficiency (30%) noted in the Code for a highway with a NR-B classification. Refer to the South College Avenue (US 287) Access Control Plan Update Traffic Analysis Report for additional information on the progression analyses.

3.11 Accident History

Accident data between January of 1997 and June of 1999 for South College Avenue between Carpenter Road (LCR 32) and Swallow Road was compiled from the City of Fort Collins and CDOT data bases. During this 30 month period, 738 accidents were reported along South College Avenue. Of the reported accidents, 183 (24.8%) had at least one injury, while the remaining 555 accidents (75.2%) involved property damage only. A 25% injury rate is below the statewide average for this type of state highway. As a comparison, however, North College Avenue (US 287 also) and Jefferson Street/Riverside Avenue (SH 14) have injury rates of about 12%, approximately ½ the rate along South College Avenue. There were no fatalities. See Figure 3-7.

Table 3-5 presents a summary of accident types along South College Avenue during this period. The predominant types of accidents were rear-end (53.0%) and 90° angle (26.9%) collisions. Other common accident types were side-swipes (11.0%) and collisions with objects (5.2%). Accidents involving pedestrians or bicyclists accounted for 1.5% of the total number of accidents. Table 3-5 also shows that head-on accidents accounted for about 0.4% of all corridor accidents.

A graphical depiction of the recent accident history is included in Appendix B.

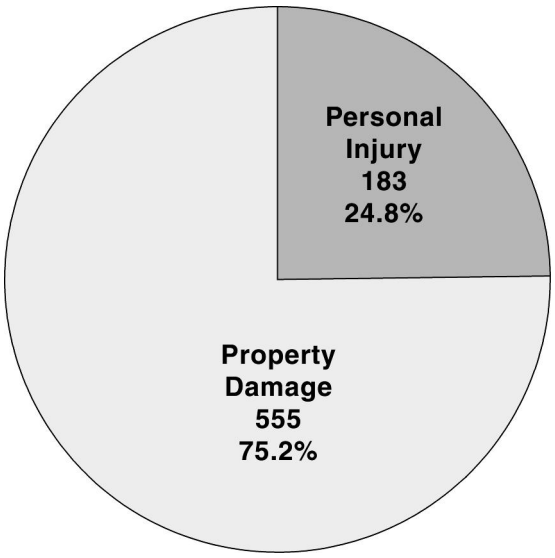

Figure 3-7 Corridor Accidents by Severity (January 1997 to June 1999)

Table 3-5 Corridor Accidents by Type (1/97 – 6/99)

Accident Type	Number of Accidents	Percent Per Type
Rear-End	391	53.0%
90°Angle	199	26.9%
Side-Swipe	81	11.0%
Object	38	5.2%
Bicycle	8	1.1%
Head-on	3	0.4%
Pedestrian	3	0.4%
Other	15	2.0%
Total	738	100.0%

The accident data also indicated that approximately 80 percent of all corridor accidents between January 1997 and June 1999 occurred at public road intersections. Most of these accidents occurred at signalized intersections along the corridor which is typical for urban conditions. Several mid-block locations showed a higher level of accident frequency than at other mid-block locations. These include:

- The 6700 to 6600 block – south of Trilby Road
- The 6500 to 6400 block – north of Trilby Road
- The 4900 to 4700 block – south of Palmer Drive/Mason Street
- The 4500 to 4300 block - between Harmony Road and Troutman Parkway
- The 4200 to 4000 block - between Troutman Parkway and Boardwalk Drive
- The 3700 to 3600 block - between Bockman Drive and Horsetooth Road
- The 3400 to 3100 block – between Monroe Drive and Foothills Parkway
- The 3100 to 3000 block – between Foothills Parkway and Swallow Road

The accident frequency along South College Avenue was compared to the average accident rates for all other state highways with the same roadway classification. South College Avenue is classified as a Federal Aid Primary (Urban) highway by the Colorado Department of Transportation and is divided into seven analysis sections as shown in Table 3-6. These data were examined for a ten year period and it was found that, between Carpenter Road and Troutman Parkway, accidents occur at rates that are lower than the statewide average. Between Troutman Parkway and Horsetooth Road, accidents occur at a rate that is slightly higher than the statewide average. To the north of Horsetooth Road, the accident rate is more than twice the statewide average.

Table 3-6 Accident Rate[1] Comparison - South College Ave. versus Statewide Average for Federal Aid (Urban) Highway

Year	Total Number of Accidents-Statewide	Statewide Accident Rate	South College Avenue Accident Rate						
			LCR 32 to Ft. Collins City Limit	Ft. Collins City Limit to Trilby	Trilby to Fairway	Fairway to Harmony	Harmony to Troutman	Troutman to Horse-tooth	Horse-tooth to Drake
1997	16,337	3.16	1.28	0.51	2.37	2.00	2.17	4.27	9.56
1996	16,204	3.17	0.78	0.87	1.62	1.04	1.95	3.04	9.27
1993	13,871	3.09	0.86	1.11	1.26	0.92	1.39	5.42	7.56
1992	12,966	3.00	0.40	1.07	2.16	0.31	1.71	4.17	5.24
1991	11,950	3.04	0.57	0.85	1.29	0.77	1.32	4.05	5.35
1990	12,004	3.17	0.43	0.71	1.47	1.35	1.69	3.45	7.98
1989	12,301	3.46	0.76	0.75	1.47	0.73	1.39	3.00	6.23
1988	13,802	4.03	0.16	0.46	1.24	0.75	1.21	4.24	9.76
1987	14,293	4.16	1.08	0.46	1.45	0.72	1.04	3.04	8.68
1986	14,910	4.41	0.14	0.70	1.02	1.04	1.13	4.90	6.72
Average Accident Rates		3.47	0.65	0.75	1.54	0.96	1.50	3.96	7.64

[1] The accident rate is calculated by dividing the number of accidents by the vehicle miles of travel occurring along a particular highway section. The rate represents the average anticipated number of accidents per million miles of vehicle travel.

3.12 Vehicle Classification

The CDOT publication, 1996 Traffic Volume Report, was examined to identify the level of single unit (RV's, delivery trucks) and semi-truck volume along the corridor. These data indicate that the average percentage of single unit and semi-trucks along South College Avenue is:

- Single Unit = 2.4%
- Semi-Truck = 0.7%

3.13 Arterial Street Analysis

While the qualitative analyses of signalized intersections offer insight into the operation of specific locations along the corridor, it is important to quantify the effectiveness of an access control plan for the corridor as a whole. The Highway Capacity Manual documents a procedure that evaluates operational conditions of a roadway segment, thereby providing indices of relative operational changes if traffic signals are added or removed. The results of the analyses are provided in a level of service assessment based on the average travel speed along a corridor segment. Since the segment of South College Avenue between Harmony Road and Swallow Road is already constructed to the Major Arterial Street cross-section and access changes in this area are relatively minor, only the segment between Carpenter Road and Harmony Road was evaluated in this analysis. Current conditions indicate that this segment of roadway operates at LOS C in the northbound direction (average travel speed = 31.5 mph) during both the AM and PM peak hours. The southbound direction of travel operates at LOS B during both peak hours with an average travel speed range of 35.1 mph (PM) to 36.0 mph (AM).