



From: Todd Frisbie, City Traffic Engineer  
Kerry Childress, Multimodal Program Manager

To: Bret Waters, El Paso County Administrator  
Sunny Bryant, El Paso County Deputy Administrator

Date: July 29, 2024

Re: Proposed Road Diet to South Cascade Ave

### Overview

South Cascade Avenue between Colorado Avenue and West Fountain Boulevard is a candidate to be restriped as a road diet to include a buffered bicycle lane along the corridor. This will improve multi-modal safety and provide connectivity with the existing bike lanes north of Colorado Avenue, as detailed in the City’s Bike Master Plan. Efforts will be completed by City crews using bicycle tax and City General Funds.

### Project Details

South Cascade Avenue is part of the City of Colorado Springs’s Vision Network (Colorado Springs Bike Master Plan) and Experience Downtown Master Plan. The plans detail that providing bike facilities on S Cascade Ave is an important connection for multi-modal transportation through downtown. The following attributes make S Cascade Ave a good road diet candidate:

#### *Existing Daily Volumes*

Weekday and weekend traffic volumes were collected on S Cascade Ave in June 2022. Table 1 provides the locations and volumes. As shown, weekday traffic volumes on S Cascade Ave between Colorado Ave and Fountain Blvd are between 7,650 vehicles per day (vpd) on the north end and 3,800 vpd on the south end. Weekend volumes were lower at all count locations with volumes varying between 4,500 vpd and 2,650 vpd.

The capacity for a two-lane roadway is 15,000 vehicles per day; four-lane roadways with volumes below this threshold have excess capacity and the removal of a travel lane has very little impact on speed, delay, or operations at intersections. The hourly volumes are less than 400 vehicles per hour per lane (vphpl) at all count locations. This is well below the maximum threshold for a single lane roadway.

*Table 1. S Cascade Ave Daily Traffic Volumes*

Location	Daily Traffic Volumes	
	Weekday	Weekend
South of Colorado Ave	7,650	4,500
North of Cimarron St	6,300	4,000
South of Moreno Ave	3,800	2,650

*Existing Bike Volume Data*

Site visits observed a high number of pedestrian activity in the corridor. Existing conditions bicycle volume counts on the corridor were collected on March 15, 2022 (winter) to be as follows:

*Table 2. S Cascade Ave Peak Hour Bicycle Volumes*

Intersection Location	Weekday Bicycle Volumes	
	Weekday AM Peak	Weekday PM Peak
Cascade/Rio Grand	9	14
Cascade/Moreno	23	46
Cascade/Cimarron St	14	15
Cascade/Costilla St	21	24
Cascade/Vermijo Ave	177	158
Cascade/Colorado	51	52

*The City Bike Master Plan & Connectivity*

The City Bike Master Plan’s priority is to provide a network of safe and connected multi-modal facilities in Downtown Colorado Springs with clearly defined routes and connections to trails. Cascade Avenue is part of the high priority bicycle network and Vision Plan of the Bike Master Plan. Providing buffered bike lanes on S Cascade Ave will increase safety and provide bike connectivity between the residential areas (Mill Street/Las Vegas neighborhood), trails, and several downtown destinations in the vicinity, such as Weidner Field and the Olympic Museum. The map in Figure 1 shows the project area (bolded green corridor), existing bike facilities (highlighted in green) and existing urban trails from the vision network of the City’s Bike Master Plan.



*Figure 1. Area Bike Facility Network*

*Experience Downtown*

The Downtown Development Authority of Colorado Springs published Experience Downtown, a plan detailing goals, action steps and recommended Master Plan strategies to benefit the growth, prosperity and high quality of life in Downtown Colorado Springs. Experience Downtown states all street types in the city center must have safe and comfortable access for walking and biking. Pedestrian and bicycle connectivity measures are encouraged on every street type, including complete sidewalks and bike facilities. Where possible, space in streets and intersections that is not needed for the efficient movement of automobiles should be reclaimed to create safer environments for pedestrians, bicyclists, and transit riders. This enhanced connectivity supports both healthy living and multi-modal transportation goals. The plan places an emphasis on urban and neighborhood greenways, signature streets and pedestrian priority streets. Urban and neighborhood greenways are designated routes designed to slow automobile traffic and create safe street environments for pedestrian and bicyclist movements. Cascade Avenue is designated in the plan as a neighborhood greenway.

**Level of Service**

Peak hour traffic volumes were collected in March 2022 at all the major intersections within the study area. An operational analysis was completed using Synchro for existing conditions during the AM and PM peak hours. An analysis of proposed conditions was also completed with signal timings being optimized for the geometry changes.

Table 3 provides the existing and proposed levels of service for the signalized intersections. Table 4 provides the levels of service for each movement at the study intersections. As shown, the signalized intersections are anticipated to continue operating at LOS D or better with the proposed geometry improvements. Additionally, all movements at both the signalized and unsignalized intersections are anticipated to operate at LOS D or better. The City considers LOS D to be acceptable traffic operations.

*Table 3. Signalized Intersection Levels of Service*

Intersection	Existing		Proposed	
	AM	PM	AM	PM
Colorado	C	C	C	D
Vermijo	A	A	A	B
Costilla	B	B	B	B
Cimarron	A	B	B	B

*Table 4. Intersection Detailed Levels of Service*

Intersection	Existing		Proposed	
	AM	PM	AM	PM
<b>Colorado</b>				
EBL	B	C	B	D
EBT/EBR	C	C	C	C
WBL	B	B	B	C
WBT/WBR	C	C	C	D
NBL	C	D	C	C
NBT/NBR	D	E	D	D
SBL	C	C	C	B
SBT	C	C	C	C
SBR	A	A	B	A
<b>Vermijo</b>				
EBL/EBT/EBR	C	B	C	B
WBL/WBT/WBR	B	A	B	A
NBL	A	A	A	A
NBT/NBR	A	A	A	B
SBL	A	A	A	A
SBT/SBR	A	A	A	A
<b>Costilla</b>				
EBL	C	C	C	C
EBT	C	C	C	C
EBR	A	A	A	A
WBL	C	C	C	C
WBT/WBR	B	A	B	A
NBL	B	C	B	B
NBT	B	C	C	C
NBR	A	B	-	-
SBL	A	A	A	A
SBT/SBR	A	A	A	A
<b>Cimarron</b>				
EBL	A	A	A	A
EBT/EBR	A	A	A	A
WBL	A	A	A	A
WBT/WBR	A	A	A	A
NBL	D	D	D	D
NBT	D	D	D	D
NBR	A	B	A	B
SBL	C	D	C	D
SBT	C	D	C	D
SBR	B	A	B	A
<b>Moreno</b>				
EBL/EBT/EBR	B	B	A	A
WBL/WBT/WBR	A	B	A	A
NBL	A	A	A	A
SBL	A	A	A	A

### Benefits of a Road Diet

When roadways are road dieted, there are many benefits for all modes of travel. The anticipated benefits of multi-modal traffic on S Cascade Ave include:

- Reduced vehicle speeds and speed differentials therefore reducing vehicle interactions/conflicts
- Reduced frequency and severity of crashes
- Providing a safer dedicated space for cyclists with increased visibility
- Decreased vulnerability for pedestrians crossing (less lanes of vehicular traffic to cross)
- Advancing the City’s Bike Master Plan and providing connectivity
- With this project, there will be no loss in existing parking

### North Cascade Avenue Road Diet Impacts

A similar restriping effort was completed in 2018 on Cascade Avenue between Bijou Street and Jackson Street. This segment of Cascade Ave was restriped to remove a through lane in each direction and install a buffered bike lane. Volumes and crash data have been compared for the period before and after these improvements.

Table 5 provides the daily volumes at two locations on the restriped corridor for 2018 prior to the restriping and 2022. As shown, volumes have increased slightly since the restriping. It cannot be assumed that volumes increased due to the restriping, but this does indicate that volume levels below 15,000 are not impacted due to lane reductions.

*Table 5. Cascade – Bijou to Jackson Daily Volumes*

Location	Daily Volume	
	2018	2022
North of Uintah	8,900	9,600
North of Fontanero	7,100	7,300

Speeds were collected before and after the similar restriping on Cascade Avenue between Bijou St and Jackson St. Table 6 illustrates the average speeds and the 85<sup>th</sup> percentile speeds, the speed that 85 percent of traffic is traveling at or below, for periods in January 2018 (before) and September 2022 (after the northern restriping project). Vehicles speeds decreased with the new roadway configuration.

*Table 6. Cascade – Bijou to Jackson Speed Data Collection*

Location	Collected Speed Data			
	2018		2022	
	Average Speed	85 <sup>th</sup> Percentile Speed	Average Speed	85 <sup>th</sup> Percentile Speed
North of Fontanero	39.2	44.3	-	-
South of Fontanero	38.5	43.7	-	-
North of Jefferson St	-	-	30.1	33.8
North of Columbia St	-	-	31.1	35.0

Crashes for the four-year period before (2014-2017) and the four-year period after (2019-2022) the improvements were compared. Table 7 provides the crash reduction on the corridor that occurred for property damage only (PDO) and injury crashes at non-intersections and intersections. It should be noted that the after period includes the COVID-19 pandemic which affected volumes, crashes, and crash reporting. However, the crash reductions found on Cascade exceeded overall citywide crash reductions over the same period. As shown, the overall crashes along the corridor dropped by approximately one-third with the biggest reductions in unsignalized intersection and non-intersection crashes.

*Table 7. Cascade – Bijou to Jackson Restriping Crash Reduction*

Roadway	Severity	Non-Intersection	Intersection/Access			All Crashes
			Unsignalized	Signalized	Total	
Cascade	PDO	43%	60%	19%	29%	32%
	Injury	75%	56%	-8%	18%	27%
	<b>Total</b>	<b>50%</b>	<b>58%</b>	<b>12%</b>	<b>26%</b>	<b>31%</b>