

A study of pedestrian infrastructure and vulnerable populations

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Sidewalks and trails make up a vital component of a region’s transportation network. The Denver region’s combined pedestrian network encompasses over 7,300 miles of sidewalks and trails. The quality of the region’s infrastructure is critical to quality of life and access to opportunity for the roughly 3 million residents of the region, but it may not be equitably serving all populations. Former Streetsblog national editor Angie Schmitt, in her 2020 book *Right of Way* that examines pedestrian deaths in the U.S., writes that, “people who have overlapping marginalized identities — an older black man who lives in a low-income neighborhood, for example — will be the most vulnerable.”

This study of pedestrian infrastructure and vulnerable populations asked, “What is the current state of pedestrian infrastructure in the Denver region relative to vulnerable populations?” Insufficient pedestrian facilities were indicated by sidewalks with a width less than 5 feet and that were within 2 feet of the road (for example, lacking a buffer between the sidewalk and traffic). The following vulnerable populations were considered:

- Percent of individuals with a disability.
- Percent of individuals age 5-plus and classified as language challenged.
- Percent of minority individuals including Hispanic and Latino.
- Percent of total households with no vehicle available.
- Percent of people age 65-plus.
- Percent of total households below poverty.
- Percent of people age 5 to 7.

The study’s author analyzed DRCOG’s planimetric sidewalk data by running summary statistics for sidewalk width for sidewalks within 2 feet of the edge of pavement (for example, the road) across the seven vulnerable populations above the regional average. A walkshed of 3/4 mile representing a 15-minute walk (based on an average walking speed of 3 miles per hour) was generated for each census tract based on centroids created for each tract. The analysis found that walksheds created for census tracts with **vulnerable populations above the regional average consistently had inferior sidewalk infrastructure** compared to those at or below the regional average based on the metric described above.

More than Regional Average	Sidewalk within 2 feet of EOP			Sidewalk more than 2 feet from EOP	Total	Percent Walkshed within 3/4 mi buffer
	3 Feet or less wide	Between 3 and 5 feet wide	5 Feet or greater wide			
Percent of Persons with a Disability	10	19	1	73		40
Percent of Persons 5 and Over Classified as Language Challenged	10	18	1	73		41
Percent of Minority Persons Including Hispanic and Latino	10	17	1	77		40
Percent of Total Households with No Vehicle Available	9	15	1	77		45
Percent of People (Males and Females) Aged 65 and Over	9	18	1	76		36
Percent of Total Households Below Poverty	10	16	1	75		42
Percent of People (Males and Females) Aged 5 to 17	7	15	1	81		35
Combined Vulnerable Census Tract Walksheds	9	17	1	76	103	40
At or below Regional Average						
Percent of Persons with a Disability	5	12	1	86		35
Percent of Persons 5 and Over Classified as Language Challenged	6	14	1	83		36
Percent of Minority Persons Including Hispanic and Latino	6	14	1	82		36
Percent of Total Households with No Vehicle Available	6	15	1	82		33
Percent of People (Males and Females) Aged 65 and Over	6	13	1	83		39
Percent of Total Households Below Poverty	6	14	1	83		35
Percent of People (Males and Females) Aged 5 to 17	7	15	1	80		40
Combined Non-Vulnerable Census Tract Walksheds	6	14	1	83	104	36

Figure 1: Summed totals surpass 100% due to rounding, but numbers across categories are consistent.

On average, 24% of sidewalks in walksheds affecting vulnerable populations were located within 2 feet of the road compared to 17% in walksheds where vulnerable populations were not above the regional average. The discrepancy appears to be mostly accounted for in higher percentages of sidewalks that are not only within 2 feet of the road but that are also 3 feet wide or less.

Planners could leverage similar analysis throughout the metro area to identify insufficient walksheds that affect vulnerable populations. An example walkshed is shown below.

Sidewalk within 2 feet of EOP		
3 Feet or less wide	Between 3 and 5 feet wide	5 Feet or greater wide
33	32	1

Sidewalk more than 2 feet from EOP		Percent Walkshed
Total	in 3/4 mi buffer	
34	100	72

