Walkable Street Design

This document provides a comparison of four design manuals based on various elements that impact pedestrian comfort. It is important to note that none of these manuals are required – they are guidelines. It is up to the individual designer's judgment, the context, and desired outcome of the street in question. It is also important to recognize that each manual has a bias. SUDAS and ASHATTO are suited toward auto-centric design solutions, while ITE and NACTO are more suited for designing pedestrian-oriented streets. For the sake of comparison, this document focuses on design standards for arterial streets.

Prevalent Design Manuals

SUDAS: The Statewide Urban Design manual was developed to create uniform urban design standards and specifications in Iowa. This document focuses on Chapter Five which covers street design guidelines.

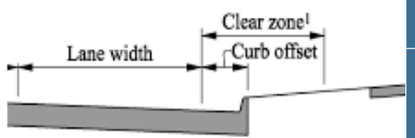
AASHTO Green Book: Most commonly used national guidelines produced by the American Association of State Highway and Transportation Officials.

ITE Designing a Walkable Urban Thoroughfare: The Institute of Transportation Engineers produced a context sensitive guide for walkable, urban communities.

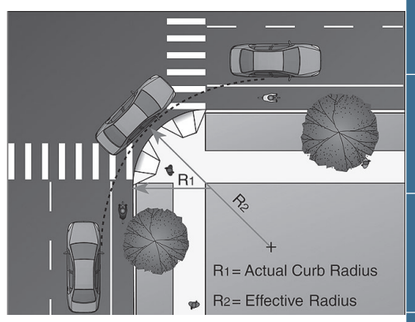
NACTO Urban Street Design Guide: An overview of the principles that cities are using to make their streets safe and inviting for people walking, shopping, parking, and driving in an urban context.

Produced by: DES MOINES AREA MPO METROPOLITAN PLANNING ORGANIZATION

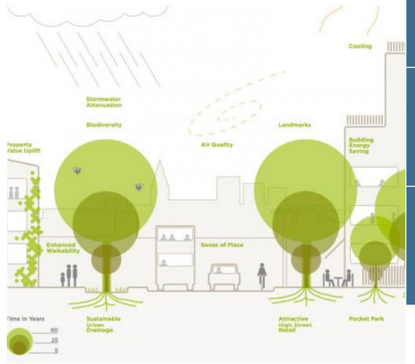
Curb Offset and Clear Zone



Curb Radius



Street Trees



		Auto-Oriented				Pedestrian-Oriented
		SUDAS		AASHTO	ITE	NACTO
	Potential Impacts	Preferred	Acceptable*			
Minimum Lane Width	Travel lanes over 10 feet encourage cars to drive faster and increases the distance pedestrians have to cross the street	12 feet	11 feet	10 feet	10 feet	10 feet
Curb Offset	A curb offset increases the effective lane width and encourages speeding	3 feet	2 feet	1 – 2 feet	N/A	N/A
Clear Zone (40 mph or less)	Clear zones in urban setting can prevent street trees, cafe seating and other amenities that help create an inviting pedestrian environment.	10 feet	7 feet	Encourages the use of a reduced clear zone in urban areas	Not used on low-speed urban thoroughfares (35 mph or less)	Recommends not using minimum setback requirements for clear zone
Minimum Curb Radius	A larger radius increases the turning speed of cars at the intersection may make it less safe for pedestrians and bicyclists	**25 feet****		Based on the largest design vehicle that will use the facility frequently	5 feet	10 feet is recommended and should rarely exceed 15 feet
Design Speed	A design speed that's higher than the posted speed encourages speeding	Design speed ≥ 5 mph over posted speed	Design speed may equal posted speed	Recommends using a design speed that fits the surrounding context	Design speed = target speed	Design speed = posted speed
On-Street Parking	On-street parking provides a buffer between people walking and car on travel lanes. This buffer helps create a comfortable environment for the pedestrian	Not allowed on arterial streets	Allowed	Allowed depending on context	Highly encouraged depending on context	Highly encouraged depending on context
Minimum Parking Lane Width	Wider parking lanes take up valuable space and increases the crossing distance for pedestrians	Not allowed on arterial streets	10 feet	8 feet	7 – 8 feet	7 - 9 feet
Street Trees	Street trees create welcoming spaces, buffer pedestrians from car traffic, and reduces speeding	Design criteria discourages the use of trees in public right-of-way		Doesn't discuss street trees in any detail	Encourages use of street trees along all streets with pedestrian accommodation	Encourages the use of street trees along all streets with pedestrian accommodation

Sources

Minimum Lane Width

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2. "Clear Zone – A Synthesis of Practice and an Evaluation of the Benefits of Meting the 10 ft Clear Zone Goal on Urban Streets," Center for Transportation Research and Education, 2008.
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1. Fitzpatrick K. and Schneider IV W.H. (2005). Turn Speeds and Crashes within Right-turn Lane, Texas Transportation Institute, Report 0-4365-4.

Design Speed

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On-Street Parking

1. Fehr and Peers, Attachment C: Advantages and Disadvantages of On-Street Parking <http://www.redmond.gov/common/pages/UserFile.aspx?fileId=172967>

Street Trees

1. Dumbaugh, Eric, "Safe Streets, Livable Streets," Journal of the American Planning Association, Vol. 71, No. 3, 2005.
2. Burden, D., (2006), Urban Street Trees, https://www.michigan.gov/documents/dnr/22_benefits_208084_7.pdf

* Includes 5M-1 Complete Streets

** Based on Table 5M-1.01: Preferred Elements for Completes Streets for an Arterial in a commercial setting. This seemed the most appropriate standard since this document was developed with a focus on mixed-use use commercial corridors and specifically Downtown Des Moines.