

Memorandum Department of Planning & Development Services



To: Planning and Public Works Committee
From: Justin Wyse, Director of Planning and Development Services
Date: July 19, 2018
RE: Parking Stall Width Analysis

*Forward to PPW
for review & discussion
7/16/2018*

As requested, Staff has provided an analysis of the City's requirements for parking stall sizes following discussion at the City Council regarding the desire to ensure the City's standards remain appropriate. The topic was raised following an article in the Wall Street Journal citing concern about parking stall size. The article noted during discussion at City Council was in reference to the City of Los Angeles, California. In researching the parking stall standards for the City of Los Angeles, parking spaces are required to be a minimum of 8' 4" wide. For comparison, the City of Chesterfield requires all passenger vehicle spaces to be 9' wide.

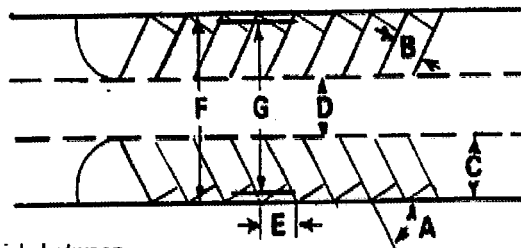
Chesterfield Parking Stall Requirements

Parking stall requirements are determined by the angle of the parking stall design, as shown below. For 90 degree angle parking, the standard parking stall is required to be 9 feet wide by 19 feet.

PARKING TABLE

A	B	C	D	E	F	G
45°	9.0'	19.7'	12.5'	12.7'	51.9'	45.6
60°	9.0'	21.0'	17.5'	10.5'	59.5'	55.0
90°	9.0'	19.0'	22.0'	9.0'	60.0'	—

- A parking angle
- B stall width
- C 19' min. stall to curb
- D* aisle width
- E curb length per car
- F curb to curb
- G center to center width of double row with aisle between



*Additional width may be required where the aisle serves as the principal means of access to on-site buildings or structures.

Analysis

The Institute of Transportation Engineers (ITE) has discussed parking stall design extensively across multiple publications over the years and notes that recommended parking space dimensions have varied during the past 40 years to adapt to the passenger vehicle fleet. Larger vehicles from the 1960s transitioned during the next 20 years to smaller vehicles post-oil embargo, followed by a re-emergence of larger vehicles led by the sports utility vehicle boom in the 1990s. Gasoline prices spiked approximately ten years ago, but prices have declined and the vehicle fleet again appears to be increasing.

During periods where the size of vehicles sold was decreasing, many communities developed standards to permit a combination of standard and compact space requirements. After a decade of the development of mixed-parking supplies (standard and compact spaces) and the emergence of mini-vans and sport utility vehicles, several designer concerns arose, including how to keep small cars in small spaces and larger vehicles in larger spaces, and whether mixed-space design provides adequate customer service to patrons. As a result, most designs migrated back to a single parking space size in parking facilities during the past 10 years (usually 8.5 ft. or 9 ft. by 18 ft.).

The design vehicle for parking facility dimensions is based on research conducted from manufacturing data for the U.S. vehicle fleet. The 85th-percentile dimensions for length and width are used for parking space geometrics. A vehicle measuring 6 ft. 7 inches wide by 17 ft. 1 inch long represents the current design vehicle used for parking space dimensions. The American Association of State Highway and Transportation Officials' (AASHTO) design vehicle (7 ft. by 19 ft.) which has not changed in more than 30 years, is used for geometric considerations in parking design, such as ramps and roadways.

The selection of parking dimensions should consider user characteristics. Parking turnover frequency, shopper loading needs, use of shopping carts, desired door-opening clearance (which range between 20 and 27 inches), driver comfort/ease in maneuvering (for example, needs of elderly drivers in a medical building venue) and need for efficiency (additional spaces) are all considerations. Another consideration is customer service. Borrowing a Level of Service (LOS) concept from the Highway Capacity Manual (HCM), the range of space widths can be rated from A to D. The most common widths range from 8.5 to 9 ft., with the 9-ft. width representing LOS A conditions. The table on the next page highlights recommended parking stall widths and lengths by ITE.

Parking Space Dimensions			
Typical Parking Characteristics	Level of Service	Width	Length
Attendant / valet parking	-	7 ft. 6 inches to 8 ft. 0 inches	17 ft.
Self-serve, low turnover (e.g. employees, parking-and-ride, students)	C / D	8 ft. 3 inches to 8 ft. 6 inches	18 ft.
Self-serve, medium turnover (e.g. office visitor, regional center retail, theater, church, long-term airport parking)	B / C	8 ft. 6 inches to 8 ft. 9 inches	18 ft.
Self-serve, high turnover / visitor / customer (e.g. community retail, medical center visitors, fast food, bank)	A / B	8 ft. 9 inches to 9 ft. 0 inches	18 ft.

In addition to national standards, it is important to look at how nearby municipalities require parking stall design as many users cross municipal boundaries routinely within their daily travels. Consistency in size makes it easier for users to navigate. The table below shows code required width for 90 degree parking stalls.

City	Parking Stall Width
Chesterfield	9'
St. Louis County	9'
Creve Coeur	9'
Maryland Heights	9'
Ellisville	9'; 8' for parallel parking

Recommendation

After reviewing the City of Chesterfield's current requirements, national best practices, and reviewing existing conditions, Staff recommends that no changes be made to the parking stall size requirements. The City's current standards adequately balance the variety of parking facilities in town without unnecessarily increasing the amount of land required to be devoted to parking facilities.