



Interesting Patterns but No Change in Parking Dimensions

Car Sales 2012

By: Mary S. Smith, P.E. / Walker Parking Consultants



Since 1983, Walker has been evaluating vehicle size trends using Automotive News sales data and the Parking Consultant's Council classification system, and periodically publishing information about the impact of vehicle sizes on parking dimensions. While the size of a "compact" as labeled by the car industry has changed over time, the classification of vehicles in this analysis is consistent over time, resulting in more rational decisions on parking dimensions.

While media, particularly those with environmental bias, continue to tout particular sales trends, from a parking perspective the average size of vehicles still is not changing much, nor is there a significant reduction in the size of the 85th percentile vehicle (in the range from smallest to largest) which is used for the "design vehicle" for parking purposes. Therefore there is not any reason to change recommended parking dimensions at this time.

Yes, Electric Vehicle (EV) sales doubled in the first six months of 2013 as compared to 2012, but in 2013 EVs represented only 1.23% of the car market, and are still only $\frac{1}{2}$ of 1% of the light vehicles sold for personal transportation (including cars, pickups, crossovers, SUV and vans.) Yes SUV sales continue to decline in market share, but crossovers continue to gain market share, faster than any other segment.

Overall sales still have not returned to the pre-recession level of 2007 (16.2 million vehicles), much less the peak sales of just over 17 million vehicles, which occurred in 2004. Sales were definitely improved in 2012 to 14.3 million, as compared to 12.6 million in 2011, and the 2009 low of 10.4 million. Car sales seem to have regained stability with five full years at just over 50% of the market, after having steadily declined from 58% in 1996 to 47% 2003 and hovering under 50% for several years.

Figure 1 presents the change in market share for the various segments of the light vehicle market. For those unfamiliar with the term, crossovers are vehicles that have SUV characteristics such as four wheel drive but are built on car platforms as com-

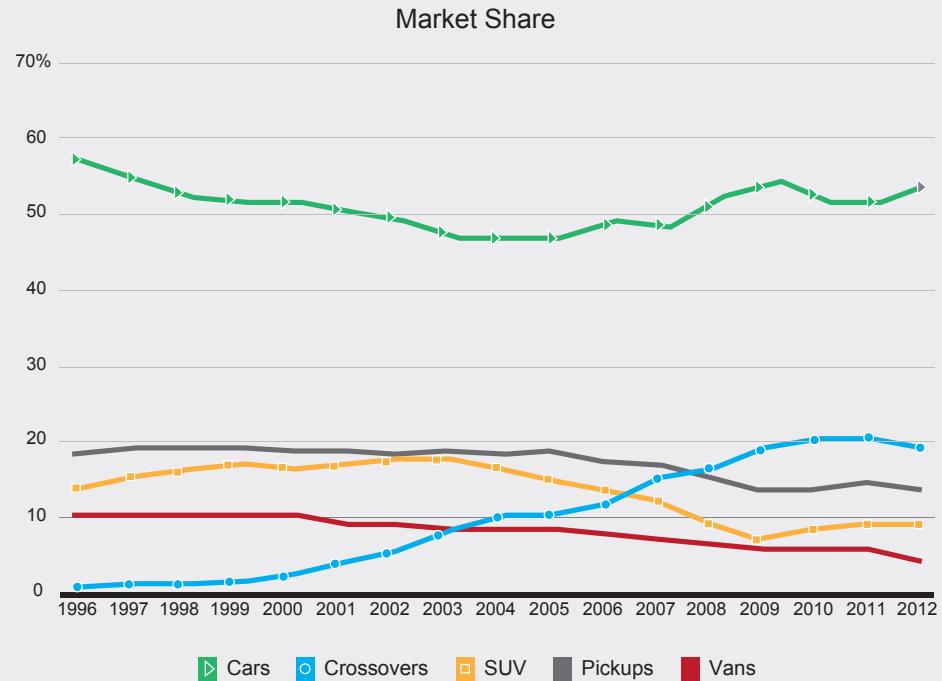


pared to SUVs that are built on pickup truck platforms. The manufacturers convinced US regulators to classify crossovers as light trucks; it was a brilliant move because crossovers are allowed to have much lower fuel efficiency than cars, while making the fuel efficiency of the manufacturer's overall light truck sales much better. Crossovers tend to be wide, but much shorter and more fuel efficient than the stereotypical SUV and continue to grow in market share.

This trend is more obvious when one looks at the change in sales in certain key periods:

Change in sales	1996 to 04	04 to 07	07 to 09	09 to 012	07 to 12
Cars	-9%	-1%	-28%	36%	-3%
Crossovers	2404%	46%	-18%	39%	14%
SUV	41%	-30%	-63%	69%	-38%
Pickups	52%	-18%	-49%	47%	-25%
Vans	-11%	-18%	-47%	15%	-39%
All Vehicles	13%	-5%	-36%	38%	-12%

Figure 1: Market Share by Vehicle Type



Crossover sales grew rapidly from their first introduction in 1996 to 2007, dropped off less in the recession-induced sales contraction period (2007 to 2009) and are the only vehicle type to have gained sales overall, and thus significant market share, from 2007 to 2012. Car sales are nearly back, but SUV and van sales remain more than 1/3 less than 2007 sales, and pickups are still 25% less than 2007 levels.



Figure 2 presents the percentage of small vehicles sold in the US since 1996. The first crossovers were small vehicles, but less than 10% are small today. Meanwhile, sales of small SUVs have increased through the recession and recovery so that today, more SUVs are classified as small than crossovers. This is probably in anticipation of new fuel efficiency standards that are forcing significant improvement in light trucks.

Figure 2: Small Vehicle Sales

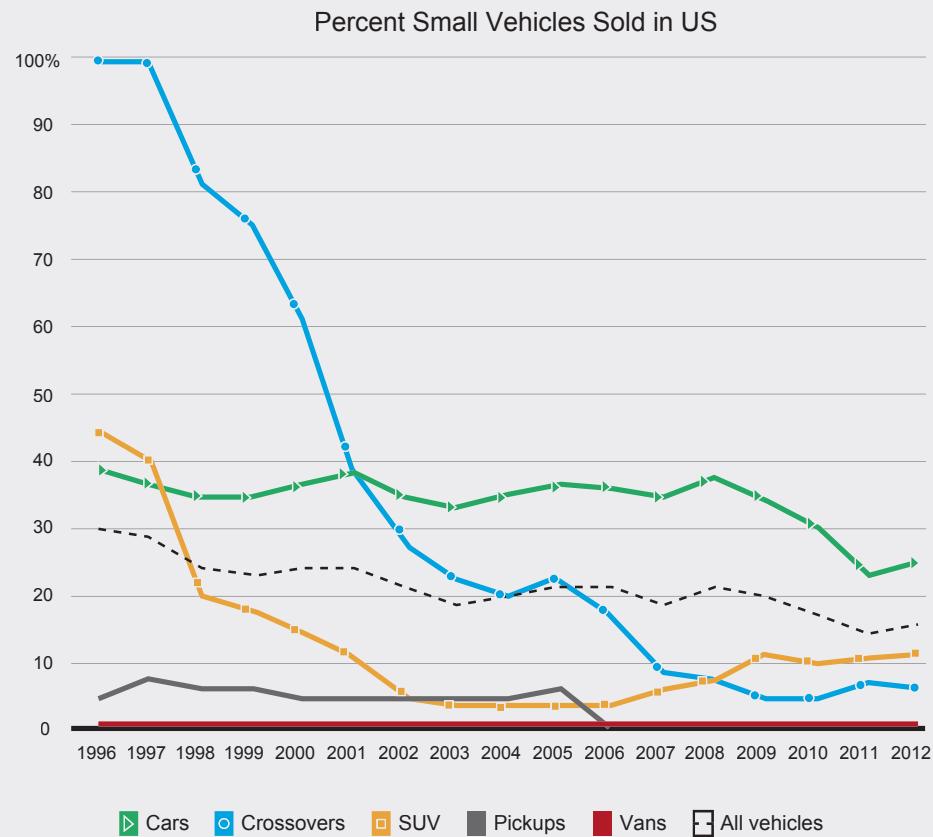
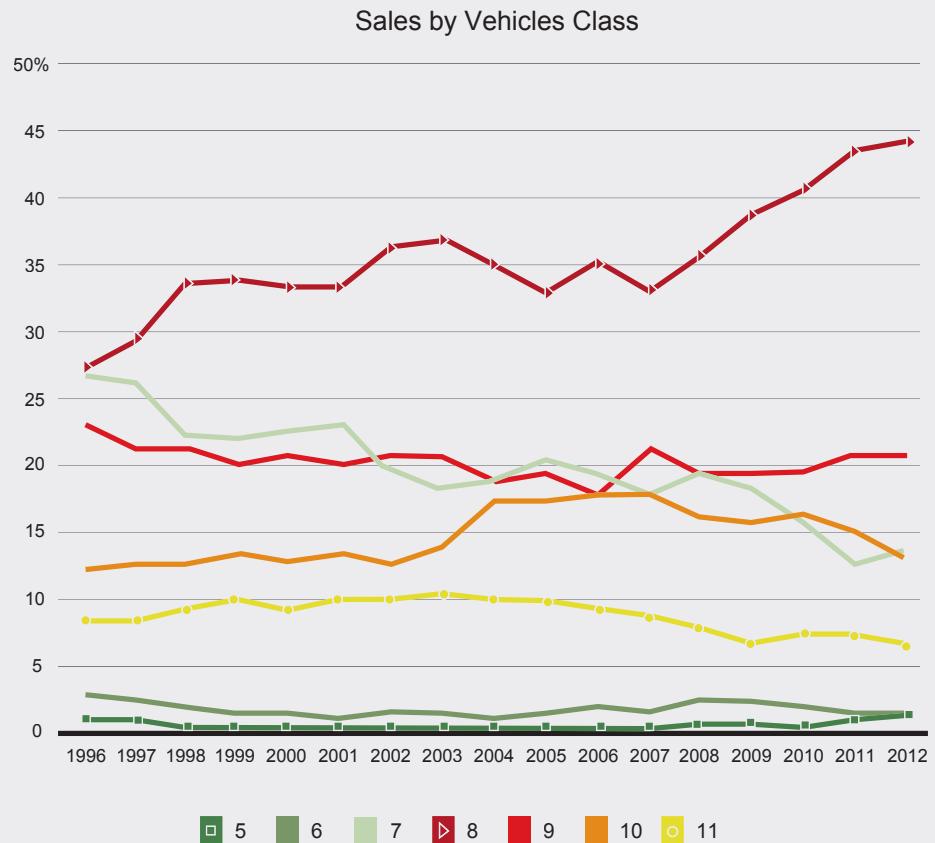


Figure 3 presents the sales of vehicles by class, with the three small classes (5, 6 and 7) in green, and the four large classes (8, 9, 10 and 11) in shades of red to yellow. The sales of the largest class 11 vehicles as well as class 10 vehicles are definitely down from pre-recession levels, but the biggest change has been a shift from class 7 to 8. Thus, the percentage cars that qualify as small has declined in the last five years, specifically because manufacturers have “inched” vehicles larger as they improved fuel efficiency. For example, the Toyota Corolla grew 1” in width and 6” in length from 2010 to 2012¹ and moved across the PCC-defined border between small (class 7 and smaller) and large (class 8 and larger.) For interest, the Nissan Leaf is classified as a Class 7 small car at 5'10” by 14'7” while the Chevy Volt is classified as Class 8 or large at 5'10” by 14'9”.

¹ Toyota Corolla: 2007-2010 5'9” by 14'9”; 2011 (transitional): 5'9” by 15’; 2012 5'10” by 15'3”



Figure 3: Sales by PCC Size Classification

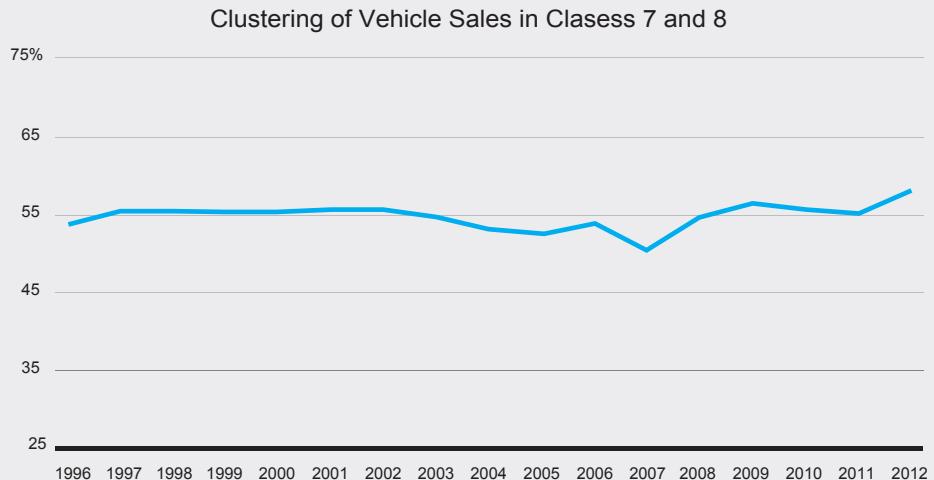


As vehicles are clustered around the border between the PCC definition of small and large, it further muddies the understanding by users of what is a small or compact car. More importantly, it makes it nearly impossible to enforce usage of small car only stalls. More than 1/3 of the vehicles sold today are up to 6" wider and/or up to 1' longer than appropriate to be parked in the traditional small car only stall of 7'6" by 16"; these can get into small car only stalls, but reduce the level of comfort for those who rightfully should use the stalls. Moreover, as it has long been recommended that the provision of small car only stalls be no more than $\frac{3}{4}$ of the population (which is only about 15% of vehicles sold in 2012), small car only stalls should not exceed 12% of a parking lot capacity.

Figure 4 presents the percentage of cars that are in classes 7 and 8, clustered around the border. Aside from a dip in 2007, there really is not a significant change in the percentage of vehicles that are in classes 7 and 8 over this 14 year period, despite all the other changes in vehicle sales!



Figure 4: Clustering of sales around the small/large border



The other sales issue we look very closely at is the 85th percentile vehicle in the range from smallest to largest, as this is the established standard for a “design vehicle” for parking design. It is interesting to note that not only is this the standard proposed by this author in 1983 and then adopted by the PCC, but has also been adopted in other countries, such as Qatar.

The 85th percentile vehicle has bounced around within a small range from 1996 through 2008, with 17'1" +/- 1" length, and a fairly consistent 6'7" +/- ½" in width. The length jumped 3" in 2010, held for a year then dropped back to 17'1" again in 2012. In 2009, the 85th percentile vehicle lost an inch of width, gained it back in 2010, held steady in 2011 then dropped back again in 2012. In sum, there is yet no reason to change design vehicles, and in turn parking dimensions, including those recommended by the PCC in the 2010 publication Recommended Parking Geometrics. The recommended design vehicle remains 6'7" by 17'1".

Author Biography



Mary S. Smith, P.E. is a Senior Vice President and Director of Parking Consulting for Walker Parking Consultants and is located in the Indianapolis, Indiana office. She has been with Walker since 1975 and is widely acknowledged as one of the leading parking planners and functional designers in the world. She is co-author of **PARKING STRUCTURES: Planning, Design, Construction, Maintenance and Repair**. She can be contacted at mary.smith@walkerparking.com.