

# TRENDS AFFECTING THE PLANNING AND DESIGN OF PARKING FACILITIES

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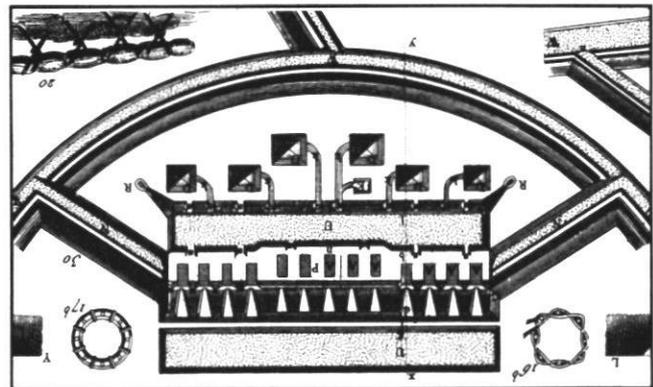
Over the last decade, significant changes in transportation, including the energy crisis, smaller vehicles, and the cost of traveling by private vehicle, have affected the planning and design of parking facilities. Construction and financing costs have made it necessary to develop realistic parking standards based on current trends. These standards should satisfy the requirements of communities as well as land developers.

One way to develop more realistic parking standards is to identify trends and interpret them in order to establish guidelines for planning and designing facilities. Over the past three and a half years, Barton-Aschman Associates, Inc. has conducted a number of surveys designed to document trends affecting the planning and design of parking facilities. These surveys involved parking analyses of various types of developments including mixed-use combinations, video camera surveillance of the ways in which people park in facilities with different parking stall dimensions, and studies of parking facility operations.

The surveys indicated at least three major trends:

- 1) The automotive industry is manufacturing smaller, lighter, and more energy efficient vehicles.
- 2) Changes in the demand for parking space have occurred at most land-uses over the last decade.
- 3) An increasing number of developments involve certain combinations of land-uses, which significantly affect the number of parking spaces required.

While data on the number of vehicles produced and sold are available and have been used in the past to determine



automotive trends, Barton-Aschman felt that a better barometer would be to survey major parking facilities. The surveys were conducted at various office developments and two regional shopping centers located in the suburban metropolitan area of Chicago. The data gathered described the make, model and year of the parked vehicles.

The resulting breakdown by group class is shown in the table. The data suggest that the size of parking stalls can be reduced. In order to determine if the "downsizing" of parking spaces is practical, data from an on-going study of a major regional shopping center located in a south-west suburb of Chicago were utilized.

The local community and the developer of the property allowed three prime parking bays to be restriped as follows: one full bay of stalls eight feet wide, one full bay of eight-foot three-inch stalls, one full bay of eight-foot six-inch stalls, and the remaining bays at the nine-foot stall width, which is in accordance with the local zoning codes. No signs were posted to indicate that the research bays were smaller than the normal nine-foot stalls. Also hairpin striping (double stripe) was used, maintaining the same vehicle parking area of six feet six inches for each of the stalls.

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**TABLE**

Vehicle Classification

Vehicle Type	Land-Use			
	Retail		Office	
Compact cars	34%	(4,321)	49%	(1,882)
Intermediate cars	44%	(5,620)	38%	(1,460)
Full size cars	22%	(2,756)	13%	(499)
<b>Totals</b>	100%	(12,697)	100%	(3,841)

The data gathered from this survey are vehicle-type by class (standard, mid-size, or compact), the number of maneuvers a driver needs to park and unpark the vehicle, the ease with which persons could enter and exit the vehicle, and how the vehicle was parked within the particular striped parking stall.

The evaluation of drivers who parked their vehicles within the various stall widths provided enough information for a recommendation on the appropriate stall widths to be used for high turnover developments. Based on a review of the video recorded data, stall widths of nine feet and eight feet six inches will allow all drivers to park and unpark a vehicle within the striped stall with sufficient space between vehicles to enter or exit easily.

Because of the relatively small differences in observations for the nine-foot and eight-foot six-inch widths, Barton-Aschman recommends that eight feet six inches be used to provide optimum space utilization. Stall widths of less than eight feet six inches are not appropriate for high turnover parking. However, both of the smaller stall widths would be appropriate for low turnover (employee) type parking areas.

As a result of development trends, land-uses are being combined in ways that significantly affect the number of

parking spaces needed. Because of different time patterns for activities or synergistic relationships between land-uses, the number of spaces required by combined development projects can be significantly less than would be required if the facilities were developed individually. This change needs to be reflected in parking standards. The capital cost implications are substantial. Operational strategies to make shared parking work in a practical sense are also needed.

**Summary**

The surveys and analyses of Barton-Aschman over the past decade have revealed some definite trends affecting the planning and design of parking facilities. Results of these studies support the need for some major revisions in current parking requirements with respect to:

- 1) *Parking space size* as it relates to specific users such as employees and patrons can be reduced.
- 2) *Unit parking demands* for most land-uses are less than those generally accepted by lenders and zoning officials, although there appears to be no consensus of zoning requirements.
- 3) *Shared parking* offers a definite potential for further reduction in both parking space area and cost.