Parking Management Strategies

Background:

The growing interest nationwide in parking policies is linked to the emergence of smart growth and creation of more livable communities. Conventional parking policies are based on standards developed by the Institute of Transportation Engineers (ITE) that generally focus on setting a minimum number of parking spaces for various land uses. They assume that all trips to a location are made by automobile which can result in an oversupply of parking in urban settings and other locations where alternatives to driving exist and are used for many trips. The standards fail to recognize that different contexts may require different amounts of parking. Yet, many, if not most, cities and communities have simply incorporated the ITE standards into their zoning codes, copying what other communities have adopted, despite differences in their economic activity, population and other characteristics. [1]

The Lancaster County Planning Commission study, *Analysis of Regulatory Barriers to Affordable Housing*, found that the amount of parking required for various housing types (single family detached, two-family detached, two family semi-detached and multi-family housing units) doesn't match what is needed. Census data shows that the number of vehicles for renter-occupied housing units is .5 vehicles less than for owner-occupied housing units, yet municipal parking standards generally require more parking spaces for the renter occupied housing.

While conventional parking standards assure that every land use can accommodate the peak number of vehicles that might use the site, the standards come at a public cost. Oversupply of parking leads to "dead zones" of empty lots in the middle of what should be bustling commercial districts or an excess of parking at multi-family or attached housing which adds to the cost of housing, making it less affordable.

From a planner's perspective, a better match of parking supply to actual parking demand in a location would produce significant benefits such as:

- Reduced impervious surface area and storm water runoff;
- More land available, particularly in high-priced urban areas, to put into productive revenue-generating uses or public uses such as urban parks;
- Pedestrian-friendly design.

From a developer's perspective, benefits include:

- Minimized costs for parking construction: costs for surface lot parking range from $1,000-$5,000 per space, depending on the location. Parking in a garage is more expensive ranging from $7,000-$15,000 per space.
- Increased leasable space for development.

Along with a reexamination of the number of parking spaces that are supplied, some planners and developers are looking at standards for the design of parking garages and ways to make parking structures more compatible with the character of the communities in which they are located.

How to Use This Tool:

Parking demand is the outcome of supply, price and available travel choices. As cities and municipalities build more transit-oriented and mixed-use developments, they can adopt a variety of parking management strategies, including modifications to the traditional ITE parking standards in their zoning ordinances, to help support the vitality and attraction of alternative modes in those areas. Some popular and effective parking management techniques include the following:[2]

- Reduce Parking Requirements: Municipalities can reduce zoning requirements for parking from the ITE recommended standards, in certain areas, such as within a certain distance of a transit station, or in/near a mixed use development where non-motorized infrastructure enable trips to be made by driving alternatives. Parking can also be reduced for certain uses such as low-income and elderly housing units whose residents own fewer cars and depend more on alternative modes like transit and walking.
- Reserve Parking: Rather than build all the parking at once to meet future demand, reserve parking allows a developer to "bank" some land or maintain a landscaped area on the property that can be converted in the future to parking spaces if demand requires it.
- Unbundled Parking: Most apartment buildings and condominium complexes include the price of parking in the rent or purchase price of the unit, a practice known as bundled parking. This practice assumes that all residents have the same demand for parking and they all bear the cost through their rent or purchase. This practice fails to reward those who do not own a car and who provide social benefits by their non-auto travel choice. When parking is unbundled, the price of the parking space(s) is separated from the rent or purchase price and allows residents to pay only for the amount of parking that they need.
- Context-Sensitive Standards: Under this innovative parking policy, parking standards are set to fit into the context of a specific neighborhood or development. This concept is still in its early implementation. The challenge for planners is how to inject flexibility into the zoning codes while still providing developers with the certainty that they need.
- Parking Freezes or Setting Parking Maximums: A parking freeze sets the total amount of parking that is allowed in a particular district. It works best in urban areas with well developed transit systems. Some communities reverse the traditional practice of setting a parking minimum and set a parking maximum in their zoning ordinance, particularly for downtown or commercial areas.
- Installation of Bicycle and Pedestrian Facilities: One low-cost method of reducing parking demand is to provide bicycle and pedestrian facilities (secure bike parking, bike lanes, trails, sidewalks) to make non-motorized modes attractive and safe. An interconnected sidewalk network also makes it easier to allow for shared parking in an off-site garage or lot near the site.
- Employer Commuter Benefits: Employer commuter benefits such as subsidized transit passes or subsidies to those who carpool or vanpool and preferential parking for carpools/vanpools are also strategies that reduce parking demand.

- In-Lieu Parking Fees: As an alternative to providing on-site parking, a developer pays the municipality a set fee that is then used by the city or municipality to finance an off-site parking facility (municipal lot or garage) that can be used by the patrons and employees of the business or use.
- Parking Pricing: Probably the simplest way to reduce parking demand is to charge users directly for the cost of parking since a large supply of free parking encourages driving. Cost-based parking set to recover the cost of a parking space in a garage (or municipal lot) typically reduces demand by 10-30 percent. A 2000 survey of San Francisco commuters found that for commuters with free parking, only 4.8% use transit while among those without free parking, 42% commute by transit in the Bay Area.[4]

Discussion of parking policy needs to address the role played by on-street parking. On-street parking may not provide sufficient spaces to meet demand and can become part of the traffic problem if people are circling the streets looking for spaces. On the otherhand, on-street parking is a traffic calming strategy that helps reduce the speed of cars since it narrows the street width and encourages slower driving. Research shows that most vibrant downtowns have on-street parking.[3] Town centers with on-street parking combined with other desirable characteristics like sidewalks, mixed land uses and higher densities can have up to five times more pedestrians walking in the area than areas without these characteristics. On-street parking also spares considerable land from being consumed for surface parking lots. Medium-sized town centers can save an average of 2+ acres by providing on-street parking.

Designing parking structures to support the values of the community is also an appropriate issue to consider. Some basic considerations are:

- The architectural style, pattern, and scale of the immediate community should be respected.
- Parking garages should use existing buildings, where possible, and should be part of a mixed use structure, with retail, commercial, office, and/or residential uses, with retail as the primary use, on the ground floor.
- Design of garage entrances and exits should take into account the traffic flow on adjacent streets as well as their relationship to pedestrians and other transportation modes.
- Green infrastructure should be encouraged through green roofs or green walls
- Current and future garage users needs should be anticipated (auto size, auto sharing, bicycle/scooter spaces).
- Safety should be considered in the design, including proper lighting to control of glare, eliminate shadows and provide good visibility for wayfinding signs.

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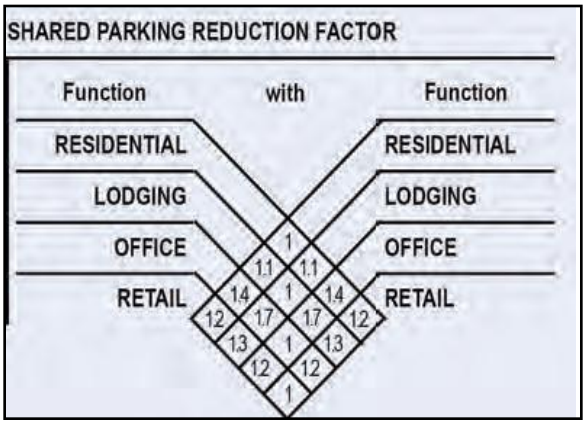
NATIONAL EXAMPLE: Parking Requirements for Form-Based Codes

Description:

The SmartCode is a model form-based development ordinance that promotes a sustainable urban pattern while protecting landscapes that are considered ecologically and culturally valuable. The SmartCode is a land use-based code based on zones ranging from the most rural environments to the most urban environments. The SmartCode contains modified parking requirements for the various zones. Table 4 shows the parking requirements for zones T-2-Rural, T-3-Suburban, T-4-General Urban, T-5-Urban Center and T-6-Urban Core and a comparison to traditional zoning code requirements.

Table 4: SmartCode Parking Requirements

	T-2: Rural T-3-Suburban	T-4: General Commercial	T-5-Urban Center T-6-Urban Core	Traditional Zoning Code Requirements
Residential	2.0/ dwelling unit	1.5/dwelling unit	1.0/ dwelling unit	2.0/dwelling unit
Lodging	1.0/bedroom	1.0/bedroom	1.0/ dwelling unit	1.0/bedroom
Office	3.0/ 1,000 sq. ft	3.0/ 1,000 sq. ft	2.0/ 1,000 sq. ft	3.3/1,000 sq. ft
Retail	4.0/ 1,000 sq. ft	4.0/ 1,000 sq. ft	3.0/1,000 sq. ft.	5.0/1,000 sq. ft



The SmartCode allows on-street parking to count in T-4, T-5 and T-6 zones toward the parking space requirements and exempts accessory units from counting toward density calculations in these zones. The SmartCode also addresses parking location and requires that parking be accessed by rear alleys or lanes. Finally, the SmartCode contains a shared parking provision that reduces the amount of parking that must be provided when two or more uses share a parking facility. Instead of requiring the sum of the maximum parking for each of the uses that will share the facility (e.g., 60 spaces for an office use + 40 spaces for a retail use=100 spaces), the SmartCode would apply a 1.2 factor to the sum (100 x 1.2=120 spaces) and then subtract the 20 extra spaces from the original total to require only 80 spaces for the shared facility. Different factors apply depending on the uses that are sharing the facility.

Website: http://www.transect.org/codes.html

STATE EXAMPLE: Pennsylvania Housing Research/Resource Center (PHRC)

Description:

In 2007, the Pennsylvania Housing Research/Resource Center (PHRC) published the Pennsylvania Standards for Residential Site Development which presents residential site development standards, including parking standards, to assist municipalities in updating their residential land development standards for sustainability. The new standards are only advisory, not mandatory but are written like an ordinance to make them easy for municipalities to adopt. The recommendations are based on a 1999 study that found a general lack of creativity in the design and development of residential land in the state due largely to a lack of flexibility in municipal zoning and subdivision ordinances. Where conventional residential parking standards require 2 spaces/dwelling unit, the PHRC recommendations show reduced parking requirements for certain dwelling types.

Housing Unit Type and Size	Parking Spaces/ Dwelling Unit
Single family, detached	2.0 spaces/du
Townhouse, duplex, quadplex	1.7 spaces/du
Apartments, condominiums	
3+ Bedrooms	1.4 spaces/du
1-2 Bedrooms	1.2 spaces/du
Efficiency	1.0 spaces/du

Website: http://www.engr.psu.edu/phrc/

CITY EXAMPLE: Portland, OR: Reduced Parking for Transit-served areas, provision of bicycle parking and for certain residential developments

Description:

The City of Portland, Oregon's zoning code incorporates a number of modifications to traditional parking requirements:

1. Transit-served areas and construction of transit plazas: there is no minimum parking requirement for sites located less than 500 ft. from a transit-served street with 20 minute peak hour service. The applicant must provide appropriate documentation. Another pro-transit provision allows construction of a transit plaza site to substitute for up to 10 % of required parking spaces for sites where at least 20 parking spaces are required and at least one street lot line abuts a transit- served street.

2. Bicycle parking: provision of bicycle parking can substitute for up to 25% of the required parking spaces. For every 5 non-required bicycle parking spaces that meet the bicycle parking standards, the required auto parking may be reduced by one space.

3. Reduced Parking for Certain Residential Developments: For qualifying elderly and low-income housing developments, parking requirements have been reduced. Of 115 affordable apartments at the Stadium Station Apartments where only one-third of the households own a car, the traditional standard of 2 spaces/dwelling unit is reduced to .6 spaces per unit for the 40 apartments that have been leased. At the Orenco Station and La Salle Apartments, the parking requirement has been reduced from 2 to 1.8 spaces per dwelling unit and the city provides a transit pass subsidy to the residents in these apartments.

4. Parking Maximums: the city has also set parking maximums for most areas. Areas that are zoned for more intense development or are easily reached by alternative modes have lower maximums than areas with less intense development and less frequent transit service.

Website: http://www.portlandonline.com/auditor/index.cfm?c=28197&a=53320 (pdf)

CITY EXAMPLE: City of Long Beach, CA: Shared Parking and In-Lieu Fees

Description:

The City of Long Beach has a Downtown Parking Management Plan that promotes small and large-scale urban development by allowing for shared parking and in-lieu fees. The types of projects eligible for these parking alternatives include non-residential new construction on lots less than 22,500 sq. ft., additions to existing buildings and renovation of historic buildings.

In order to promote redevelop-ment of a downtown site that had been difficult to develop, the city allowed the Embassy Suites at the D'Orsey Promenade, which included a 162-room hotel with 35,000 sq.ft. of retail, to share parking between the hotel and retail space. The city reduced the retail parking requirement to 3 spaces/ 1,000 sq. ft. and the availability of valet parking at the hotel allowed the city to reduce the hotel parking requirement by 31% (from 162 parking spaces for 162 rooms to 113 spaces). Even with the reduced parking, it would still cost $3.5 million to build the parking garage which was too much for the developer. The city offered the developer an in-lieu fee of $3,000 per space for 56 spaces plus $50 per space to cover parking maintenance costs. These savings improved the financial return on the project significantly and allowed it to move forward. The hotel will generate approximately $300,000 annually in additional property tax revenues for the city and the city will receive revenues from the state's 8.25% sales tax and 10% hotel tax.

Website:

http://library.municode.com/HTML/16115/level4/VOII_TIT21ZO_CH21.41OREPALOREDIVIIPARE.html#VOII_TIT21ZO_CH21.41OREPALORE_DIVIIPARE_21.41.222OTEPA

LOCAL EXAMPLE: City of Lancaster, Shared Parking and Flexibility in Parking Requirements

Description:

The City of Lancaster zoning ordinance, under Article 8, Off-Street Parking, provides for joint use (shared) parking facilities. The provision enables two or more uses occupying contiguous lots to meet their required parking through a common parking facility as long as the number of spaces is not less than the sum of spaces required for each use individually except as provided under sec. 088, Flexibility in Parking Requirements. Under the flexible parking requirement, the Zoning Hearing Board may approve, as a special exception, a reduction in the number of off-street parking spaces for non-residential uses if:

- the applicant submits written documentation in the form of a parking study or other documentation that the number of spaces to be provided will be sufficient to meet the needs of their employees and customers.
- The applicant proves that one or more of the following conditions will exist: 1) parking will be shared by different uses that clearly have different peak hours of use; 2) there is more than sufficient on-street parking for current demand and demand from the proposed use during all hours of the day and week; 3) the applicant will subsidize public transit use for its employees provided that transit is conveniently available or provide carpooling or vanpooling benefits; 4) there is an existing public parking garage or lot that routinely has an adequate number of spaces available and is within 400 feet walking distance from a pedestrian entrance to the use.

For certain residential zones (R2, R3, R4, RO and MU), the city zoning code also has a flexible option that provides for reasonable adjustments to parking standards in certain circumstances. Off-street parking may be provided through private or commonly-owned and maintained areas but cannot be sold, rented or leased to remove any of the parking spaces. For housing complexes for the elderly or handicapped, the minimum number of off-street required parking spaces may be reduced since these individuals tend to own fewer cars, but it may not be reduced to less than 1 parking space for every two dwellings.

Website: http://ecode360.com/8122957

LOCAL EXAMPLE: East Petersburg Borough, Shared Parking and Reserved Parking

Description:

East Petersburg Borough's zoning ordinance allows for shared parking and reserved parking as special exceptions. The shared parking provision allows an applicant to demonstrate that a reduced number of parking spaces is justified because more than one principal use will share the same parking. The applicant must prove that the parking has been designed to encourage shared use and that long-term agreements ensure that the parking will continue to be shared in the future. Another parking provision in the zoning ordinance on reserved parking allows the

Zoning Hearing Board to require that a portion of the required parking be met through reservation of an area for future parking demand. The Board may require that it be reserved for a certain number of years. The owner must agree to provide additional parking in the future if the Borough determines that it is needed. Reserved parking must be maintained as a landscaped area.

Website: http://www.co.lancaster.pa.us/east_petersburg/lib/east_petersburg/art6parking.pdf (pdf)

LOCAL EXAMPLE: Warwick Township, Joint (Shared) Parking

Description:

The Warwick Township zoning ordinance has provisions to reduce required parking spaces for joint (shared) parking facilities. In commercial centers over 3 acres and in shopping centers over 2 acres in size, joint parking lots may be permitted which can reduce the total number of parking spaces required by a maximum of 20%. Thus, the joint lot would be required to provide at least 80% of the sum of spaces required by the center's uses. When it can be conclusively demonstrated that one or more uses will generate demand for parking at a time when the other use(s) are not in operation, the total number of spaces can be reduced by: 1) the number of spaces required to serve the use with the most demand, or 2) 20% of the number of parking spaces needed to serve the use generating lower demand.

Website: http://www.ecode360.com/11667570

LOCAL EXAMPLE: Lititz Borough, TNDO District Parking Requirements

Description:

Lititz Borough has a Traditional Neighborhood Development Overlay District (TNDO) in its zoning ordinance that allows for higher density and higher intensity mixed-use development designed according to Form-Based Code regulations to ensure that building design maintains the borough's traditional character and function. The TNDO includes the following parking standards: 1) off-street parking spaces along the street frontage of a lot are counted toward the minimum number of parking spaces required for the use; 2) off-street parking may be located within 600 feet of the lot containing the use for which the parking is required; and 3) non-residential off-street parking must be located to the side or rear of the building and accessed from alleys unless it is impossible to access the site that way. For structured parking, the first floor

must have retail stores, service shops or offices and the architecture of the parking garage must be consistent with the character of the neighborhood.

Lititz also has a Downtown Overlay District in its zoning that allows for reduced parking for businesses in the district as an incentive to business activity. Within the Downtown Overlay District (sec. 307 of the ordinance), only 30% of the required parking must be provided for buildings with 20,000 sq. ft. or greater gross floor area; only 20% of the required parking must be provided for restaurants and facilities with liquor licenses and only 10% of the required parking for all other uses within the district. The Lititz Borough Master Plan, a 15-20 year build out plan for the borough, envisions short-term parking strategies such as consolidating smaller surface parking lots into a few large lots to gain efficiency of use and circulation and long-term strategies that include construction of a parking garage, with retail shops on the ground floor, that will enable the surface lots along Lititz Run to be removed and the land converted into a greenway.

Website:

http://www.co.lancaster.pa.us/lititz/cwp/view.asp?A=725&Q=570216

http://www.venturelititz.com/masterplan.php

LOCAL EXAMPLE: Lititz Borough Form-Based Code and Parking Requirements

Description:

The Lititz Borough Form-Based Code Regulations (Article VII) of the municipality's zoning code contains graphic provisions for the location of parking as well as for off-street parking facility design. The standards require that parking structures shall have first floor retail stores, service shops or offices, as liner shops. Deck parking facilities shall be architecturally consistent to emulate the character of the neighborhood and the design shall be consistent with the lot diagram in the code, particularly in the Borough's Neighborhood Storefront Area and Traditional Neighborhood Development Overlay District (TNDO).

Contact: Sue Ann Barry, Borough Manager,
717-626-2044 or sbarry@lititzborough.org

Website: http://www.co.lancaster.pa.us/lititz/

LOCAL EXAMPLE: Millersville Borough, TNDO District, Flexibility in On-Street Parking

Description:

The zoning ordinance of Millersville Borough provides for flexibility in parking requirements. As a special exception, an applicant may prove to the Zoning Hearing Board that the minimum number of required off-street parking spaces should be modified because:

- parking will be shared with another use that will reduce the total amount of parking needed because the uses have different peak times of parking needs and there is a legally guaranteed method to ensure that the parking will continue to be available during all the years that the use is in operation, and

- the parking demand for a use is unusually low because of a characteristic of the use.

Millersville Borough also has a Traditional Neighborhood Development Overlay District (TNDO), sec. 308 of the zoning code, that provides an optional set of development standards that allow a higher density and wider range of uses than would otherwise be allowed in return for a higher level of site design and preservation of common open space. Within the TNDO, the code provides for Parking Incentives that allow on-street parking to be counted towards off-street parking requirements. An applicant may meet a maximum of 50% of the off-street parking space requirements for each dwelling unit by counting on-street spaces.

Website: http://www.ecode360.com/9657120

LOCAL EXAMPLE: West Lampeter Township, Neighborhood Design Option

Description:

The Neighborhood Design Option provides for a nominal amount of off-street parking for commercial uses.

The amount of parking for commercial uses shall be one parking space for each 350 square feet of gross floor area. The parking shall be provided either on the neighborhood/commercial center lot or in designated on-street or off-street parking areas within 500 feet of the neighborhood/commercial center buildings or by a combination thereof. As part of the conditional use process, the Board of Supervisors may reduce the amount of required off-street parking for principal nonresidential uses by up to 10% if three or more principal nonresidential uses will share the same parking area. Where necessary, parking requirements may be met through the provision of off-street parking compounds. Not more than 50% of the required parking should be provided by means of off-street parking lots. When required to accommodate the parking requirements of any specific use, off-street parking lots shall be located to the side or rear of the buildings they are intended to serve.

In addition, Article VI, Parking Requirements allows for reduction of parking requirements as a special exception as follows:

Reserved area for additional parking: the Zoning Hearing Board may require that a portion of the required parking be met through reservation of an area for future parking. The Board may require the reservation for a certain number of years or an indefinite period corresponding to the years the buildings are in use. Such reservation shall be in a form acceptable to the Zoning Hearing Board Solicitor that legally binds current and future owners of the land to keep the reserved parking area in open space and then to provide the additional parking if the Township determines it is necessary. A deed restriction is recommended.

If approved, the applicant shall present a site plan to the Zoning Officer that shows the layout that will be used for the additional parking if the parking is required to be provided in the future. The site plan shall show that the additional parking is integrated with the overall traffic access and pedestrian access for the site and that the additional parking will be able to meet Township requirements. The additional parking that is reserved under this subsection shall be required to be kept as landscaped open area until such time as the Zoning Hearing Board decision may authorize the land's release from the restriction or until the Township may require that the land be developed as parking. The Zoning Officer shall periodically review the sufficiency of the parking that is provided. If the Zoning Officer in the future determines that the reserved parking is needed to meet actual demand, he/she shall provide written notice to the property owner. The property owner shall then have one year to develop the reserved area into off-street parking in compliance with this chapter.

Contact:

Dee Dee McGuire, Township Manager, 717-464-3731 or deedee@westlampeter.com

Websites:

Zoning Ordinance: http://www.ecode360.com/?custId=WE2002&guid=11695610
Township Website: http://www.westlampeter.com

LOCAL EXAMPLE: Rapho Township (Mixed Use Commercial Zone Section 214.10.6)

Description:

Rapho Township provides for a reduced amount of parking for nonresidential uses with shared parking and a nominal amount of parking for residential uses as follows:

- All uses, excluding commercial day-care, hotel, motel, and residential uses, shall be provided with a minimum of four parking spaces per one thousand square feet of gross floor area, and a maximum number of five parking spaces per one thousand square feet of

gross floor area. Gross square floor area of liner shops shall not be included in the overall gross floor area to establish the required number of parking spaces.

- Residential units shall be provided with at least two parking spaces for each dwelling unit.
- The required number of parking spaces may be provided in common parking areas, garages, deck parking, and on-street parking.
- Shared parking may be provided at a reduced rate of 3.3 parking spaces per one thousand square feet of gross floor area for non-residential buildings.

Parking spaces along streets and access drives may be used to meet parking requirements.

Contact: Sara Gibson, Township Manager,
717-665-3827 or manager@raphotownship.com

Websites:
Zoning Ordinance: http://www.raphotownship.com/rapho/cwp/view.asp?A=5&Q=468163
Township Website: http://www.raphotownship.com

CITY EXAMPLE: Paramas, New Jersey, Bergen Town Center Parking Garage Design

Description:

The Bergen Town Center Garage in Paramus, NJ was awarded the Pennsylvania Parking Association's 2010 Parking Design & Innovation Award Award of Merit for new design of more than 1,000 spaces. The five-level, 1500-car parking garage is a mixed-use parking structure, providing parking in the middle of a mall, with retail flanking three sides. The grade level of the parking facility includes 95,000 sq. ft. of retail and mall space

Footnotes:
1. Delaware Valley Regional Planning Commission (DVRPC), "The Automobile at Rest," 2008.
2. Ibid.
3. Ibid.
4. Hill, Elizabeth; Long, Rebecca, California Legislative Analysts Office, "Commuter's Dilemma: Extra Cash or Free Parking?"