

6. SIDEWALKS AND GRADED AREAS

The elimination of unnecessary sidewalks in residential subdivisions has been espoused as a way of reducing development costs and lowering housing costs. The debate, of course, centers on which sidewalks can be considered unnecessary and therefore dispensable. There is general agreement that sidewalks in low-density developments with large frontages are less necessary than those in high-density developments with narrow frontages, although some authorities question requiring sidewalks even in the latter case.

As in so many other areas of subdivision control, sidewalk requirements are a matter for municipal authorities to discuss with the costs incurred weighed against the benefits received. The model ordinance has tried to present balanced sidewalk standards, although its authors must confess to a bias towards sidewalks in medium- and high-density developments as a place for children to play and adults to walk. Where sidewalks are required on one side of the street only, a graded area is required on the other, partly so that the right-of-way will be symmetrical on both sides of the cartway centerline, and partly so that if the need for a sidewalk arises in the future, there will be space for it.

c. The advantage of allowing flexible placement of sidewalks in conventional residential developments in order to preserve topographical or natural features is illustrated in the Reference section.

d. In planned-unit developments, in addition to the internal pedestrian system, it may be necessary to require sidewalks parallel to the street for access to schools, bus stops, shopping, or other facilities.

6. SIDEWALKS

a. *Sidewalks and/or graded areas shall be required depending on road classification and intensity of development in accordance with the requirements set forth in Exhibit 4.*

b. *Where sidewalks are optional, they may be required if close to pedestrian generators, to continue a walk on an existing street, to link areas, or depending on probable future development as indicated in applicable master plans.*

c. *In conventional developments, sidewalks shall be placed in the right-of-way, parallel to the street as shown in Exhibit 5, unless an exception has been permitted to preserve topographical or natural features or to provide visual interest, or unless the applicant shows that an alternative pedestrian system provides safe and convenient circulation. In commercial and in high-density residential areas, sidewalks may abut the curb.*

d. *In planned developments, sidewalks may be located away from the road system to link dwelling units with other dwelling units, the street, and on-site activity centers such as parking areas and recreational areas. They may also be required parallel to the street for safety and other reasons.*

e. *Pedestrian-way easements ten (10) feet wide may be required by the planning board through the center of blocks more than 600 feet long to provide circulation or access to schools, playgrounds, shopping, or other community facilities.*

f. *Sidewalks shall measure four (4) feet in width; wider widths may be necessary near pedestrian generators and employment centers. Where sidewalks abut the curb and cars overhang the sidewalk, widths shall be five (5) feet. The width of graded areas shall be the same as for sidewalks.*

g. Sidewalks and graded areas shall be constructed according to the specifications set forth in the Appendix.

7. BIKEWAYS

a. Separate bicycle paths shall be required only if such paths have been specified as part of a municipality's adopted master plan.

b. Bicycle lanes, where required, shall be placed in the outside lane of a roadway, adjacent to the curb or shoulder. When on-street parking is permitted, the bicycle lane shall be between the parking lane and the outer lane of moving vehicles. Lanes shall be delineated with markings, preferably striping. Raised reflectors or curbs shall not be used.

c. Bikeways shall be constructed according to the specifications set forth in the Appendix.

8. UTILITY AND SHADE TREE AREAS

a. Utilities and shade trees shall generally be located within the right-of-way on both sides of and parallel to the street as shown in Exhibit 5. Shade trees may also be placed outside the public right-of-way.

b. Utility and shade tree areas shall be planted with grass or ground cover, or treated with other suitable cover material.

9. RIGHT-OF-WAY

a. The right-of-way shall be measured from lot line to lot line and shall be sufficiently wide to contain the cartway, curbs, shoulders, sidewalks, graded areas, utilities, and shade trees (if they are placed within the right-of-way). Right-of-way requirements are shown in Exhibit 4 and displayed graphically in the street profiles in Exhibit 5.

b. The right-of-way width of a new street that is a continuation of an exist-

7. BIKEWAYS

The three types of bikeways are described in detail in the Reference section. The most important consideration in subdivision requirements for bikeways is that they be based on overall planning for an area. Some municipalities in the past have been known to extract elaborate bicycle path systems from developers as one of the costs of doing business in the town when there has been no regional bikeway plan. Bikeways should be part of a network, just like streets and sidewalks. A large subdivision could, however, support its own internal system of bike paths.

8. UTILITY AND SHADE TREE AREAS

Placement of utility lines is usually determined by the utility company—some prefer placement under the cartway, others in a strip within the right-of-way and parallel to the street. The former placement is less convenient for maintenance or replacement of obsolete systems, but local companies will generally set the policy.

Placement of shade trees is another one of those issues about which there is some debate. After decades of requiring shade trees within the right-of-way, there has been a trend in recent years to place them on private property where they become the responsibility of the homeowner. Again, each municipality has to determine its own preference for placement: trees planted within the right-of-way and next to the cartway will eventually form a canopy over the street, but their roots may also buckle the sidewalk if the planting strip is not wide enough. Trees planted on private property will save the municipality maintenance responsibilities, but the street will not be shaded as effectively. In addition, some mechanism enforcing maintenance by the homeowner may be required.

9. RIGHT-OF-WAY

Since excessive right-of-way requirements raise development costs, right-of-way dimensions should be the minimum necessary to contain all required street components. It seems logical that one would simply add up the required components to find the right-of-way dimensions for each street in the street hierarchy. Some standardization and rounding off are necessary, however, in order to avoid a multiplicity of right-of-way requirements. The right-of-way dimensions set forth in this ordinance, like those for the cartway, are somewhat narrower than those required by some municipali-

ties. They are, however, adequate and comport with national recommendations.

10. STREET GRADE AND INTERSECTIONS

As with the other sections, the guiding principle is cost-efficient performance standards.

11. PAVEMENT SECTION

The thickness of the pavement should be adequate for the level of usage placed on the pavement, the strength properties of the subgrade supporting the surface, and the type of pavement. The text accompanying the Appendix explains these considerations in greater detail. The main concern in setting standards is that excessive pavement requirements be avoided. Developers in New Jersey like to refer to the pavement section requirements of some municipalities for minor residential access streets that exceed the requirements for airport jet landing strips. Clearly, such requirements are excessive for the purpose and raise costs unnecessarily.

12. LIGHTING

Municipal street light requirements should be sensitive to the street hierarchy and character of the area. Roads that carry greater traffic volumes and have wider rights-of-way and cartways need better lighting. Commercial areas—especially those with heavy nighttime traffic—need more lighting than residential areas. The standards recommended by the Illuminating Engineering Society (IES) (see Exhibit A-8) are intended to guide municipalities in situations where the utility company does not provide a lighting plan.

ing street shall in no case be continued at a width less than that of the existing street.

c. The right-of-way shall reflect future development as indicated by the master plan.

10. STREET GRADE AND INTERSECTIONS

Street grade and intersection requirements are specified in the Appendix.

11. PAVEMENT SECTION

a. Street pavement thickness shall vary by street hierarchy, subgrade properties, and pavement type.

b. Pavement design for residential access streets, subcollectors, and collectors shall conform to the specifications shown in the Appendix.

12. LIGHTING

a. Lighting shall be provided in accordance with a plan designed by the utility company, or using as a guideline the standards set forth by the IES Lighting Handbook shown in the Appendix, Exhibit A-8.

b. Lighting for safety shall be provided at intersections, along walkways, at entryways, between buildings, and in parking areas.

c. Spacing of standards shall be equal to approximately four times the height of the standard.

d. The maximum height of standards shall not exceed the maximum building height permitted, or 25 feet, whichever is less.

e. The height and shielding of lighting standards shall provide proper lighting without hazard to drivers or nuisance to residents, and the design of lighting standards shall be of a type appropriate to the development and the municipality.

f. Spotlights, if used, shall be placed on standards pointing toward the build-

ing and positioned so as not to blind the residents, rather than on the buildings and directed outwards which creates dark shadows adjacent to the buildings.

13. UNDERGROUND WIRING

a. All electric, telephone, television, and other communication lines, both main and service connections, servicing new developments shall be provided by underground wiring within easements or dedicated public rights-of-way, installed in accordance with the prevailing standards and practices of the utility or other companies providing such services.

b. Lots that abut existing easements or public rights-of-way where overhead electric or telephone distribution supply lines and service connections have previously been installed may be supplied with electric and telephone service from those overhead lines, but the service connections from the utilities' overhead lines shall be installed underground. In the case of existing overhead utilities, should a road widening, or an extension of service, or other such condition occur as a result of the subdivision and necessitate the replacement or relocation of such utilities, such replacement or relocation shall be underground.

c. Where overhead lines are permitted as the exception, the placement and alignment of poles shall be designed to lessen the visual impact of overhead lines. Alignments and pole locations shall be carefully routed to avoid locations along horizons; clearing swaths through treed areas shall be avoided by selective cutting and a staggered alignment; trees shall be planted in open areas and at key locations to minimize the view of the poles and the alignments; and alignments shall follow rear lot lines and other alignments.

13. UNDERGROUND WIRING

The placement of wiring—overhead or underground—varies among municipalities, with many local ordinances requiring new developments to place wiring underground. In addition, some states have a policy of requiring underground wiring in all new developments.

c. This provision allows for the possibility that overhead lines may be permitted as an exception—to lower development costs in order to provide affordable housing, for example.

14. SIGNS

State regulations generally govern the design and placement of traffic control signs. Street name signs and site information signs in planned developments are generally regulated by municipalities. Some municipalities have elaborate requirements as well for commercial signs. Since this ordinance is primarily concerned with residential development, commercial sign regulations are not covered here.

F. Off-Street Parking

Before the 1970s, subdivision and site plan ordinances did not contain off-street parking standards. The growth of cluster and multifamily residential developments, which often do not have garages or driveways attached to individual units, has led to a need to include parking standards with other subdivision requirements.

1. NUMBER OF SPACES

a. This performance standard sets forth the objective of the quantitative standards that are usually specified in ordinances: to supply an adequate number of parking spaces to accommodate need. Need is determined by comparing demand (based on such factors in residential developments, for example, as dwelling unit type, household characteristics, and availability of mass transit) with existing parking (available on-street parking, or possibly, nearby nonresidential parking that can be shared).

b. This provision presents a quantitative standard for the number of parking spaces required for residential developments. Parking requirements are based on vehicle ownership by housing unit, information that is available for each state from the Bureau of the Census, Public Use Sample. One parking space for each vehicle, plus visitor parking (.5 spaces per unit), yield the total parking requirement. Calculated in this fashion, the parking standard varies by housing type and size. Since the vehicle ownership figures used in this model ordinance apply to New Jersey, the parking standards are presented to illustrate the method. They should be adjusted on a state-by-state basis to reflect the applicable ownership figures.

c. Parking standards for nonresidential developments are presented as a guideline, primarily because there is no authorita-

d. Year-round screening of any utility apparatus appearing above the surface of the ground, other than utility poles, shall be required.

14. SIGNS

a. Design and placement of traffic signs shall follow state regulations or the requirements specified in the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the U.S. Department of Transportation.

b. At least two street name signs shall be placed at each four-way street intersection, and one at each "T" intersection. Signs shall be installed under light standards and free of visual obstruction. The design of street name signs shall be consistent, of a style appropriate to the community, and of a uniform size and color.

c. Site information signs in planned developments shall follow a design theme that is related and complementary to other elements of the overall site design.

F. Off-Street Parking

1. NUMBER OF SPACES

a. An adequate number of off-street parking spaces shall be required in all developments to accommodate residents and visitors.

b. For residential developments, off-street parking shall be provided as set forth in Exhibit 6.

c. For nonresidential developments, the parking standards shown in Exhibit 7 shall be used as a guideline.

EXHIBIT 6

OFF-STREET PARKING REQUIREMENTS ¹
FOR RESIDENTIAL LAND USES

Housing Unit Type and Size ²	Off-Street Parking Requirements	Housing Unit Type and Size	Off-Street Parking Requirements
<i>Single-Family Detached</i>		<i>High-Rise</i>	
2 Bedroom	1.5	Studio	.8
3 Bedroom	2.0	1 Bedroom	1.3
4 Bedroom	2.5	2 Bedroom	1.9
5 Bedroom	3.0	<i>Mobile Home</i>	
<i>Garden Apartment</i>		1 Bedroom	1.8
1 Bedroom	1.8	2 Bedroom	2.0
2 Bedroom	2.0		
3 Bedroom	2.1		
<i>Townhouse</i>			
1 Bedroom	1.8		
2 Bedroom	2.3		
3 Bedroom	2.4		

Notes:

1. When determination of the number of parking spaces required by this exhibit results in a requirement of a fractional space, any fraction of one-half or less may be disregarded, while a fraction in excess of one-half shall be counted as one parking space.

2. Requirements for attached units include provision for guest parking.

Source: See Reference section.

EXHIBIT 7

GUIDELINES FOR OFF-STREET PARKING REQUIREMENTS
FOR NONRESIDENTIAL LAND USES

Nonresidential Land Use	Required Off-Street Parking Spaces Per Indicated Area
Assembly operations	1 per 800 sq.ft. GFA
Bar	1 per 2 seats
Bowling alley	4 per alley
Car wash	10 per washing lane
Church/Synagogue	1 per 3 seats
Fiduciary institutions	1 per 300 sq.ft. GFA
Finishing operations	1 per 800 sq.ft. GFA
Hotel	7 per guest room plus 10 per 1,000 sq.ft. GFA
Industrial	1 per 800 sq.ft. GFA
Library	1 per 300 sq.ft. GFA
Manufacturing	1 per 800 sq.ft. GFA
Medical center	1 per 250 sq.ft. GFA
Neighborhood convenience center	
Under 400,000 sq.ft. GLA	4 per 1,000 sq.ft. GLA
Nightclub	1 per 3 seats
Offices	
Under 49,999 sq.ft. GFA	4.5 per 1,000 sq.ft. GFA
50,000-99,999 sq.ft. GFA	4 per 1,000 sq.ft. GFA
100,000+ sq.ft. GFA	3.5 per 1,000 sq.ft. GFA
Receiving	1 per 5,000 sq.ft. GFA
Research	1 per 1,000 sq.ft. GFA
Restaurant	1 per 3 seats
Quick-food establishments	1 per 30 sq.ft. GFA
Retail store	1 per 200 sq.ft. GFA
Schools	
Elementary	2 per classroom; but not less than 1 per teacher & staff
Intermediate	1.5 per classroom; but not less than 1 per teacher & staff
Secondary	2.5 per classroom; but not less than 1 per teacher & staff
Service station	4 per bay & work area
Shipping	1 per 5,000 sq.ft. GFA
Shopping center	
Under 400,000 sq.ft. GLA	4 per 1,000 sq.ft. GLA
400,000-599,999 sq.ft. GLA	4.5 per 1,000 sq.ft. GLA
600,000+ sq.ft. GLA	5 per 1,000 sq.ft. GLA
Storage areas	1 per 5,000 sq.ft. GLA
Theater	1 per 3 seats
In shopping center	1 per 4 seats
Warehouse	1 per 5,000 sq.ft. GFA

Notes: GFA = Gross floor area
GLA = Gross leasable area
Source: See Reference section.

d. *Alternative off-street parking standards to those shown in Exhibit 6 and Exhibit 7 shall be accepted if the applicant demonstrates that such standards better reflect local conditions.*

e. *A one-car garage and driveway combination shall count as 1.75 off-street parking spaces, provided the driveway measures a minimum of 25 feet in length between the face of the garage door and the sidewalk, or 30 feet to the curbline. A two-car garage and driveway combination shall count as 3.5 off-street parking spaces, provided the minimum width of the driveway is 20 feet and its minimum length is as specified above for a one-car garage.*

f. *For mixed-use developments, a shared parking approach to the provision of off-street parking shall be permitted.*

g. *Where the total number of off-street parking spaces required are not immediately required for a particular use, a staged development plan may be permitted requiring that only a portion of the parking area, but not less than sixty-five percent (65%) of the required spaces, be completed initially, subject to the following regulations:*

1) *The site plan shall clearly indicate both that portion of the parking area to be paved initially and the total parking needed to provide the number of spaces required.*

2) *The site plan shall provide for adequate drainage of both the partial and total parking areas.*

3) *The portion of the parking area not to be paved initially shall be landscaped with a ground cover to prevent erosion. The ground cover shall be appropriate for soil conditions, water availability, and the environment.*

4) *The applicant shall post separate performance guarantees, in addition to the performance guarantees*

tive, reliable source on which to base them. Unfortunately, there has been little research on the parking needs for many land uses, and even the standards of the Institute of Transportation Engineers (ITE) are often based on as few as one or two observations.

d. Because some of the parking requirements offered as guidelines are informed estimates at best, the model ordinance permits alternative parking requirements to be used. In addition, factors such as household characteristics, availability of mass transit, urban versus suburban location, and existing parking can also affect the number of parking spaces that should be required for a development. The burden of proof is, however, on the applicant to show that the alternative requirements better reflect local needs.

e. By not allowing full credit for each parking space in a garage and driveway, the ordinance recognizes that many garages are used to store assorted large objects almost as often as vehicles. It does assume, however, that most garages and driveways will be available for parking vehicles under the stipulated conditions (i.e., when the driveway length is such that parking in the driveway will generally occur).

f. The methodology outlined in the Urban Land Institute and Barton Aschman Associates' publication, *Shared Parking* (Urban Land Institute, 1984), is a recognized approach that can be used to calculate the number of parking spaces required for mixed-use developments.

g. Permitting a staged development plan when not all the parking spaces are needed immediately allows cost savings and decreases runoff—at least initially. It is also possible that in practice not all of the parking spaces originally required will be necessary. This provision provides the flexibility to determine after a period of 18 months whether the parking area already provided is sufficient to meet the needs of the development. The provision also includes safeguards to protect the community in case a developer defaults on building the remainder of the spaces if it is determined that they are necessary.

2. SIZE OF SPACES

As the size of cars has decreased, so has the required size of parking spaces, especially in residential developments. Nine-foot widths are adequate, and if curbs are used as bumpers, up to two feet of a vehicle will overhang the curb, making stalls 18 feet in length long enough. Some authorities recommend setting aside a separate area in the lot for compact cars with spaces measuring 7½ feet in width by 15 feet in length. Other authorities comment that these separate areas do not work well in practice and are often filled with full-size cars. The decision of whether to provide separate areas is one of the many policy issues that municipalities must resolve for themselves.

required under Article Five, Section J, which shall reflect the cost of installing the additional parking facilities necessary to provide the total number of parking spaces required.

5) *In lieu of a permanent certificate of occupancy, a temporary certificate of occupancy shall be issued for a period of two (2) years. Prior to the expiration of the two-year period, the applicant may either install the additional parking shown on the site plan and apply for issuance of a permanent certificate of occupancy, or apply to the planning board after the use has been in operation a minimum of eighteen (18) months for a determination as to whether or not the initial parking area provided is adequate. If the planning board determines that the parking facility is adequate as originally constructed, the performance guarantees shall be released and a permanent certificate of occupancy issued. If, however, the planning board determines that the partial off-street parking area is not adequate, the applicant shall be required to install the additional parking facilities in accordance with the terms of the performance guarantees prior to issuance of a permanent certificate of occupancy.*

6) *Any change of use on a site for which the planning board may have approved a partial paving of off-street parking areas to a use which requires more parking spaces than are provided on the site shall require submission of a new site plan.*

2. SIZE OF SPACES

Each off-street parking space shall measure nine (9) feet in width by eighteen (18) feet in length. Parking spaces for the physically handicapped shall measure twelve (12) feet in width.

3. PARKING AREAS

a. *Off-street parking areas shall be oriented to and within a reasonable walking distance of the buildings they are designed to serve.*

b. *Access to parking areas shall be designed so as not to obstruct free flow of traffic. There shall be adequate provision for ingress to and egress from all parking spaces to ensure ease of mobility, ample clearance, and safety of vehicles and pedestrians.*

c. *The width of all aisles providing direct access to individual parking stalls shall be in accordance with the requirements specified below. Only one-way traffic shall be permitted in aisles serving single-row parking spaces placed at an angle other than ninety degrees.*

Parking Angle (degrees)	Aisle Width (feet)
30	12
45	13
60	18
90	24

d. *Where sidewalks occur in parking areas, parked vehicles shall not overhang the sidewalk unless an additional one (1) foot is provided in order to accommodate such overhang.*

e. *Parking areas shall be suitably landscaped to minimize noise, glare, and other nuisance characteristics as well as to improve the environment of the site and surrounding area. Large parking lots shall be broken down into sections as appropriate for the type and size of the development. Sections shall be separated by landscaped dividing strips, berms, and similar elements.*

3. PARKING AREAS

a. A "reasonable walking distance" between parking areas and buildings can be defined in various ways. The Reference section presents standards from the national literature. There is general agreement that 200–250 feet is the maximum reasonable distance for residents to walk and 300 feet the distance for guests.

b. Rather than include detailed diagrams of acceptable parking lot entrance and exit design, the model ordinance substitutes a performance standard on the presumption that the planning board engineer will determine the safety of the site plan design.

e. No precise standard can be specified for the size of the sections; that will depend on factors that must be decided on a case-by-case basis. Further landscaping requirements for parking lots are detailed in Section D.6.