

Table 8-1

Parking and Loading Requirements

	<u>Use</u>	<u>Minimum Parking Requirements</u>	<u>Minimum Loading Requirements</u>
1.	Airport	One space per four seats for waiting passengers; and one space per two employees on the shift of maximum employment	Two loading spaces; 12 feet x 60 feet
2.	%Assisted living facility	%0.5 spaces per bed	One loading space; 12 feet x 30 feet
3.	Automobile rental facility	One space per employee; 2.5 spaces per 1,000 sq. ft. of enclosed floor area; and 0.33 spaces per 1,000 sq. ft. of open lot vehicle storage area	One loading space; 12 feet x 30 feet
4.	Automobile repair facility, major and minor	One space per employee but not fewer than five employee parking spaces; two spaces per service bay; and five spaces per 1,000 sq. ft. of floor area of accessory retail, but no fewer than five spaces	One loading space; 12 feet x 30 feet
5.	Automobile sales facility	One space per employee; 2.5 spaces per 1,000 sq. ft. of enclosed floor area; 0.33 spaces per 1,000 sq. ft. of open lot vehicle storage area; and two spaces per service bay	One loading space; 12 feet x 30 feet
6.	Bank	Four spaces per 1,000 sq. ft. of floor area	One loading space; 12 feet x 30 feet
7.	Boat sales, rental and repair facility	One space per employee; and 0.33 spaces per 1,000 sq. ft. of open lot area devoted to the sale and display of merchandise	One loading space; 12 feet x 60 feet
8.	Building materials yard or facility	One space per 1,000 sq. ft. of floor area; and one space per facility vehicle	One loading space; 12 feet x 30 feet
9.	Bus garage	One space per two bus parking spaces	One loading space; 12 feet x 60 feet
10.	Business support services	2.5 spaces per 1,000 sq. ft. of floor area	One loading space; 12 feet x 30 feet
11.	Car wash (full service)	One space per two employees; and one per vacuum	One loading space; 12 feet x 30 feet
12.	Car wash (self service)	One space per employee; and one per vacuum	One loading space; 12 feet x 30 feet
13.	Class A, B, or D recycling facility	One space per 1,000 sq. ft. of floor area; and one space per facility vehicle	One loading space (12 feet x 60 feet) for structures up to and including 40,000 sq. ft.; two loading spaces (12 feet x 60 feet) for structures over 40,000 sq. ft. and up to and including 100,000 sq. ft.; and one loading space (12 feet x 60 feet) per additional 100,000 sq. ft. over 100,000 sq. ft.
14.	Commercial off-street parking	One space per employee	Not required
15.	Commercial recreation, indoor (see also "swimming pool")	Three spaces per 1,000 sq. ft. of floor area; 10 spaces per basketball court; and four spaces per tennis or similar court	One loading space; 12 feet x 30 feet
16.	Commercial recreation, outdoor (see also "swimming pool")	Three spaces per 1,000 sq. ft. of field area; 10 spaces per basketball court; and four spaces per tennis or similar court	One loading space; 12 feet x 30 feet
17.	Community residence or shelter	0.5 spaces per bedroom; and one space per employee on the shift of maximum employment	One loading space; 12 feet x 30 feet
18.	Construction equipment sales, rental, and repair	0.33 spaces per 1,000 sq. ft. of open lot area; and one space per employee	One loading space; 12 feet x 60 feet
19.	Contractor's yard or facility	One space per 1,000 sq. ft. of floor area; and one space per facility vehicle	One loading space; 12 feet x 30 feet
20.	Convention center	2.5 spaces per 1,000 sq. ft. of floor area	Four loading spaces; 12 feet x 60 feet
21.	Cultural facilities	2.5 spaces per 1,000 sq. ft. of floor area or one space per four seats, whichever is greater	One loading space (12 feet x 60 feet) for structures up to and including 100,000 sq. ft.; and one additional loading space (12 feet x 60 feet) per additional 100,000 sq. ft. over 100,000 sq. ft.

	<u>Use</u>	<u>Minimum Parking Requirements</u>	<u>Minimum Loading Requirements</u>
22.	Day care facility	One space per employee; one space per facility vehicle; and one space per 10 children or other persons requiring care	One loading space; 12 feet x 30 feet
23.	Disaster recovery facility	1.25 spaces per 1,000 sq. ft. of floor area	Two loading spaces; 12 feet x 60 feet
24.	Dwelling, single family	Two spaces per unit	Not required
25.	Dwelling, two family	Two spaces per unit	Not required
26.	Dwelling, multiple family	One space per unit for units restricted as affordable in accordance with N.J.A.C. 5:80-26; two spaces per unit for all other units; and one visitor space per four units	Not required, except when greater than four stories: one loading space; 12 feet x 30 feet
27.	Essential public services	One space per employee on the shift of maximum employment; and one space per facility vehicle	One loading space; 12 feet x 30 feet
28.	Fuel service station	One space per employee, but not fewer than five employee parking spaces; five spaces per 1,000 sq. ft. of floor area of accessory retail, but not fewer than five spaces; and two spaces per service bay	One loading space; 12 feet x 30 feet
29.	Funeral home and mortuary	One space per four seats or 20 spaces per 1,000 sq. ft. of public assembly area, whichever is greater; one space per employee; and one space per facility vehicle	One loading space; 12 feet x 30 feet
30.	Health care center	Two spaces per examination or treatment room; and one space per employee (including doctors and staff)	One loading space; 12 feet x 30 feet
31.	Heavy industry	One space per 1,000 sq. ft.	Two loading spaces (12 feet x 60 feet) for structures up to and including 40,000 sq. ft.; three loading spaces (12 feet x 60 feet) for structures over 40,000 sq. ft. and up to and including 100,000 sq. ft.; and one loading space (12 feet x 60 feet) per additional 100,000 sq. ft. over 100,000 sq. ft.
32.	Heliport	One space per 1,000 sq. ft. of exterior operational area	Not required
33.	Helistop, commercial	Five spaces	Not required
34.	Helistop	Two spaces	Not required
35.	Hospital	Two per bed; and one space per two employees	One loading space (12 feet x 60 feet) per 100,000 sq. ft. of floor area
36.	Hotel and motel	One space per guest room; and such other spaces for accessory uses as required herein	Hotel, full service: One loading space; 12 feet by 60 feet; Hotel, limited service: one loading space; 12 feet by 30 feet
37.	House of worship	One space per five persons in the main place of worship, based on maximum occupancy as determined by the NJ UCC	One loading space; 12 feet x 30 feet
38.	Institutional use	Cumulative parking requirement per use	One loading space; 12 feet x 30 feet
39.	Intermodal facility	One space per 25,000 sq. ft. of lot area used for intermodal operations; and cumulative parking requirement per additional use	Two loading spaces (12 feet x 60 feet) for structures up to and including 40,000 sq. ft.; three loading spaces (12 feet x 60 feet) for structures over 40,000 sq. ft. and up to and including 100,000 sq. ft.; and one loading space (12 feet x 60 feet) per additional 100,000 sq. ft. over 100,000 sq. ft.
40.	Kennel	One space per employee; one space per facility vehicle; and one space per 10 animals	One loading space; 12 feet x 30 feet

	<u>Use</u>	<u>Minimum Parking Requirements</u>	<u>Minimum Loading Requirements</u>
68.	Swimming pool, public or swim club, private	One space per 38 sq. ft. of water surface area, or 15 spaces per site acre, whichever is greater	One loading space; 12 feet x 30 feet
69.	Taxi and limousine service	One space per facility vehicle; and 2.5 spaces per 1,000 sq. ft. of enclosed floor area	One loading space; 12 feet x 30 feet
70.	Truck rental facility	One space per employee; 2.5 spaces per 1,000 sq. ft. of enclosed floor area; and 0.33 spaces per 1,000 sq. ft. of open lot vehicle storage area	One loading space; 12 feet x 60 feet
71.	Truck repair facility	One space per employee but not fewer than five employee parking spaces; two spaces per service bay; and five spaces per 1,000 sq. ft. of floor area of accessory retail, but no fewer than five spaces	One loading space; 12 feet x 30 feet
72.	Truck sales	One space per employee; 2.5 spaces per 1,000 sq. ft. of enclosed floor area; 0.33 spaces per 1,000 sq. ft. of open lot vehicle storage area; and two spaces per service bay	One loading space; 12 feet x 60 feet
73.	Truck stop	Cumulative parking requirement per use	One loading space; 12 feet x 60 feet
74.	Truck terminal	One space per loading door or one space per employee on the shift of maximum employment, whichever is greater; and one space per facility vehicle	One loading space; 12 feet x 60 feet
75.	Truck wash (full-service)	One space per two employees; and one per vacuum	One loading space; 12 feet x 30 feet
76.	Truck wash (self-service)	One space per employee; and one per vacuum	One loading space; 12 feet x 30 feet
77.	Veterinary facility	Two spaces per examination or treatment room; and one space per employee (including doctors and staff)	One loading space; 12 feet x 30 feet
78.	Warehouse and distribution facility	One space per 1,500 sq. ft. of floor area	Two loading spaces (12 feet x 60 feet) for structures up to and including 40,000 sq. ft.; three loading spaces (12 feet x 60 feet) for structures over 40,000 sq. ft. and up to and including 100,000 sq. ft.; and one loading space (12 feet x 60 feet) per additional 100,000 sq. ft. over 100,000 sq. ft.
79.	Wholesale establishment	One space per 1,500 sq. ft. of floor area	Two loading spaces (12 feet x 60 feet) for structures up to and including 40,000 sq. ft.; three loading spaces (12 feet x 60 feet) for structures over 40,000 sq. ft. and up to and including 100,000 sq. ft.; and one loading space (12 feet x 60 feet) per additional 100,000 sq. ft. over 100,000 sq. ft.

(b) Minimum parking and loading requirements for uses not listed in this section shall be provided in accordance with the determination of the NJMC.

Administrative correction.

See: 36 N.J.R. 1955(a).

Amended by R.2007 d.57, effective February 5, 2007.

See: 38 N.J.R. 3762(a), 39 N.J.R. 548(a).

In Table 8-1, Use 26, under "Minimum Parking Requirements", substituted "One space per unit for units restricted as affordable in accordance with N.J.A.C. 5:80-26; two" for "Two" and inserted "for all other units".

Amended by R.2009 d.40, effective January 20, 2009.

See: 40 N.J.R. 4696(a), 41 N.J.R. 624(b).

In Table 8-1, inserted "care" in the "Use" column of entry 30, substituted "25,000 sq. ft. of lot area used for intermodal operations; and cumulative parking requirement per additional use" for "1,000 sq. ft." in the "Minimum Parking Requirements" column of line entry 39, added new entries 40, 50, and 77, recodified former entries 40 through 48 as 41 through 49, recodified former entries 49 through 74 as 51 through 76, and recodified former entries 75 and 76 as 78 and 79.

19:4-8.5 Line-of-sight triangle

(a) Line-of-sight triangles shall be provided in accordance with established American Association of State Highway and

Transportation Officials (AASHTO) design recommendations for intersection sight distances/sight triangles as found in the AASHTO manual, "A Policy on Geometric Design of Highways and Streets," Fifth Edition, 2004, incorporated herein by reference, as amended and supplemented, and shall be indicated on the site plan.

(b) Line-of-sight triangles shall be provided at the intersection of a driveway and a street or other public ROW, or at the intersection of two or more streets or public ROWs.

(c) Unless more stringent requirements are provided in these regulations, at the intersection of two or more streets or the intersection of a driveway and one or more streets, no hedge, planting, fence, screening or wall higher than 30 inches above curb level, nor any obstruction to a motorist's line of vision, other than a post not exceeding one foot in diameter, shall be permitted on any property within the line-of-sight triangle.

(d) Property within the line-of-sight triangles shall be maintained, trimmed and/or cleared of any material that could obstruct vision within the line-of-sight triangle.

Amended by R.2009 d.40, effective January 20, 2009.

See: 40 N.J.R. 4696(a), 41 N.J.R. 624(b).

In (a), substituted "Fifth Edition, 2004" for "Fourth Edition, 2001".

19:4-8.6 Drainage

(a) General requirements for drainage are as follows:

1. Drainage plans shall be signed and sealed by a New Jersey-licensed professional engineer or other professional authorized to prepare drainage plans.

2. All vehicular use areas shall be drained so as to direct surface water runoff to a stormwater drainage system for eventual subsurface or stream disposal. Conveyance via vegetated channels is acceptable but shall be supported with calculations verifying stability during peak flows.

3. A watershed runoff hydrograph that displays and compares the peak discharge rate and volume shall be prepared for both pre-and post-development conditions. Runoff volume calculations shall be used to determine the sizing of detention facilities, if necessary.

4. The receiving stormwater drainage system (pipe flow or open channel flow) shall be analyzed to ensure that it has the additional capacity necessary to handle any increase in stormwater flow during the 25-year design storm. The analysis shall include all upstream and downstream runoff peak contributions, estimated per N.J.A.C. 19:4-8.6(b)3, to a downstream point established by the NJMC. If the receiving stormwater drainage system is at or over capacity, or is not analyzed, detention and/or infiltration facilities shall be provided in order to maintain site runoff peak flow at pre-development levels.

5. The size of the drainage area shall include on-site and off-site lands contributing stormwater to the discharge

point. Additionally, the pre-development drainage patterns of any off-site contributions shall be maintained unless a compensatory system is provided, which, at a minimum, maintains the pre-development on-site capacity to carry neighboring stormwater runoff peak flow during the 25-year storm.

6. An operation and maintenance manual for stormwater drainage systems, including stormwater quality measures, shall be provided to ensure proper function and operation of the system and in a manner consistent with N.J.A.C. 7:8, the Stormwater Management Rules. The operation and maintenance manual shall be updated as necessary. Updates shall be provided to the NJMC.

(b) Design requirements for drainage are as follows:

1. The applicant shall provide information sufficient for the NJMC to determine compliance with the applicable sections of N.J.A.C. 7:8, the Stormwater Management Rules. With regard to water quality, proposed development and redevelopment that may introduce petroleum hydrocarbons to runoff water shall install stormwater management measures that target and remove such pollutants.

2. All drainage systems shall be designed for a 25-year storm event. The magnitude of the 25-year rainfall depth and/or rainfall intensity specific to each site shall be developed from the "Precipitation-Frequency Atlas of the United States," National Oceanic and Atmospheric Administration (NOAA) Atlas 14, Volume 2, Version 2, incorporated herein by reference, as amended and supplemented. This document is available from the NOAA National Weather Service, Office of Hydrologic Development, Hydro-meteorological Design Studies Center, Bldg. SSMC2 W/OHD13, 1325 East-West Highway, Silver Spring, MD 20910-3283, or online at http://hdsc.nws.noaa.gov/hdsc/pfds/orb/nj_pfds.html. An outline of the above document, specific to New Jersey, is available from the National Resources Conservation Service (NRCS) New Jersey State Office (NJSO). This outline, NJ Bulletin No. NJ210-4-1, dated September 8, 2004, incorporated herein by reference, as amended and supplemented, is available through the NRCS New Jersey State Office, 220 Davidson Avenue, 4th Floor, Somerset, New Jersey 08873, or online at www.state.nj.us/dep/damsafety/nrcs_24hour_rainfall.pdf. Per N.J.A.C. 7:8, the Stormwater Management Rules, properties within the District and outside the FEMA Special Flood Hazard Area (SFHA) may be required to meet water quality control requirements for events greater than the 25-year event. Additionally, the water quality design storm shall be developed pursuant to N.J.A.C. 7:8-5.5.

3. Runoff estimation:

i. The Rational Method, utilizing the rational formula listed in Figure 8-2 below, shall be used for the sizing of storm sewer systems only. The antecedent precipitation factor (Ca) shall be used with the Rational Method, as shown in the Standards for Soil Erosion and

Sediment Control in New Jersey at N.J.A.C. 2:90-1.3, incorporated herein by reference, as amended and supplemented. For the sizing of volume-based stormwater systems and for comparing pre- and post-construction peak flows, the National Resources Conservation Service's (NRCS), Technical Release No. 55 (TR-55), "Urban Hydrology for Small Watersheds," incorporated herein by reference, as amended and supplemented, or equivalent approved by the NJMC, shall be used. A copy may be obtained from the NRCS New Jersey State Office, 220 Davidson Avenue, 4th floor, Somerset, New Jersey 08873, or online at the NRCS website, <http://www.wcc.nrcs.usda.gov/hydro/hydro-tools-models-tr55.html>; and

Figure 8-2

Rational Formula

$$Q = ciA$$

where:

- Q = Peak flow in cubic feet per second (cfs)
- c = Runoff coefficient (weighted) x the antecedent precipitation factor
- i = Rainfall intensity in inches per hour (in/hr)
- A = Drainage area in acres (ac)

ii. The runoff coefficients (c) listed in Table 8-2 below shall be used in the rational formula:

Table 8-2
Coefficient of Runoff Values

Land Use	Description	Hydrologic Soils Group				
		A	B	C	D	
Cultivated Land:	Without conservation treatment	0.49	0.67	0.81	0.88	
	With conservation treatment	0.27	0.43	0.61	0.67	
Pasture: Grassland or Range Land Meadow	Poor condition	0.38	0.63	0.78	0.84	
	Fair condition	-----	0.25	0.51	0.65	
	Good condition	-----	-----	0.41	0.61	
Wood or Forest Land:	Poor cover; thin stand, no mulch	-----	0.34	0.59	0.70	
	Good cover	-----	-----	0.45	0.59	
Open Space: Lawns, Parks, Golf Courses, etc.)	Poor Condition (grass cover < 50 percent)	-----	0.65	0.70	0.85	
	Fair Condition (grass cover 50 percent to 75 percent)	-----	0.45	0.63	0.74	
	Good Condition (grass cover > 75 percent)	-----	0.25	0.51	0.65	
Commercial and Business Areas: Industrial Districts:	85 percent impervious	0.84	0.90	0.93	0.96	
	72 percent impervious	0.67	0.81	0.88	0.92	
Residential:						
Average Lot Size (acres):	Average percent impervious:					
	1/8	65	0.59	0.76	0.86	0.90
	1/4	38	0.29	0.55	0.70	0.80
	1/3	30	-----	0.49	0.67	0.78
	1/2	25	-----	0.45	0.65	0.76
1	20	-----	0.41	0.63	0.74	
Impervious Areas:	Parking lots, roofs, driveways, etc.	0.99	0.99	0.99	0.99	
	Paved Streets and roads	0.99	0.99	0.99	0.99	
	Gravel Streets and roads	0.57	0.76	0.84	0.88	
	Dirt Streets and roads	0.49	0.69	0.80	0.84	

Note: Hydrologic Soil Groups texture descriptions are the following:

- A Sand, loamy sand, or sandy loam
- B Silt loam or loam
- C Sandy clay loam
- D Clay loam, silty clay loam, sandy clay, silty clay, or clay.

iii. The time of concentration (Tc) used shall be calculated using the NRCS TR-55 methodology or other method approved on a case-by-case basis by the NJMC.

The time of concentration shall have a sheet flow component of no greater than 150 feet on paved surfaces. Vegetated surfaces shall have a sheet flow component no

greater than 100 feet. The minimum time of concentration shall be six minutes.

4. Stormwater drainage collection system design requirements are as follows:

i. The design of pipes and conduits shall use Manning's equation, listed in Figure 8-3 below, to determine capacity.

Figure 8-3

Manning's Equation

$$Q = (1.486/n)AR^{2/3} S^{1/2}$$

where:

- Q = Flow, cubic feet per second (cfs)
- n = Manning's roughness coefficient
- A = Cross-sectional area of flow in square feet (sf)
- R = Hydraulic radius in feet, $R=A/P$, where P is the wetted perimeter, measured in feet and defined as the length of the line of contact between the flowing water and the channel (ft)
- S = Slope of energy grade in feet per foot (ft/ft)

ii. Pipe sizes shall be determined using the design runoff, conduit entrance conditions and hydraulic capacity. No stormwater systems may be designed to function under a pressure condition unless justified by the design professional and approved by the NJMC.

iii. Design velocities in pipes shall be a minimum of two feet per second, or as otherwise approved on a case-by-case basis by the NJMC, to allow for self-cleaning and a maximum of 15 feet per second to prevent scouring of pipes, manholes, and inlets and erosion at points of discharge.

iv. The materials used in the construction of storm sewers shall be reinforced concrete, ductile iron, corrugated polyethylene, or other as approved by NJMC. Corrugated metal and steel shall not be permitted. Should existing corrugated metal or steel pipes be incorporated into a proposed system, their condition shall be verified.

v. The Manning's roughness coefficient "n" for circular cross section, nonporous concrete pipe shall be 0.013. Other cross sections or pipe materials shall have commensurate friction factors.

vi. All transitions in pipe slopes, junctions and changes in pipe sizes shall be confined to manholes, catch basins, or other accessible structures designed for one or more of these purposes. Additionally, all manhole, catch basin, and other pipe connections to structures shall be equipped with flexible, water-tight joints.

vii. Where a drainage system discharges to a tidal waterway, tide gates, constructed of cast iron or other corrosion-proof material, shall be provided at every discharge point. Additionally, the backwater condition generated by the mean high water (MHW) tide shall be

considered in the drainage calculations associated with tidally influenced areas. Data on the tide elevations throughout the District is available from the NJMC.

viii. Where a drainage system discharges to grade or into a stream, ditch or other body of water, a concrete headwall with wing-walls and a rip-rap apron pad, or other as approved by the NJMC, shall be constructed. The apron pad and/or scour hole design shall consider the tailwater elevation to be equal to the mean low water (MLW) elevation if tidally influenced. Additionally, where maximum velocities exceed the allowable velocities for soil stability, as determined in the Standards for Soil Erosion and Sediment Control in New Jersey, N.J.A.C. 2:90, scour control shall be provided.

ix. Roof runoff shall be conveyed via roof leaders to a stormwater collection system, where feasible. Should direct connection to a stormwater collection system be impractical, roof leaders shall first discharge to stable, vegetated areas, where feasible, and then be directed to a stormwater collection system.

x. Roof leaders and their respective receiving systems shall be sized to pass a minimum rainfall intensity per N.J.A.C. 5:23-3.15(b)12ii of the Uniform Construction Code (UCC), or the design storm intensity, whichever is greater.

xi. All concrete pipes shall be minimum ASTM Class III unless loading conditions require stronger pipe.

xii. The minimum depth of cover over the concrete pipe shall be in accordance with Table 8-3 below:

Table 8-3
Minimum Depth of Coverage over Concrete Pipe

Pipe Diameter (in inches)	ASTM Class Pipe	Minimum Cover (surface to top of pipe in inches)
12	III	17
	IV	12
	V	7
15	III	16
	IV	11
	V	7
18	III	16
	IV	10
	V	6
24	III	15
	IV	6
	V	6
30	III	10
	IV	6
	V	6
36 and above	III	6
	IV	6

xiii. The minimum depth of cover for ductile iron, polyvinyl chloride (PVC), and high-density polyethylene