

BIKE PARKING GUIDELINES

CITY OF ALEXANDRIA, VIRGINIA

RULES AND REGULATIONS ESTABLISHING DIMENSIONAL EQUIPMENT STANDARDS FOR BICYCLE PARKING AREAS

2024 UPDATE

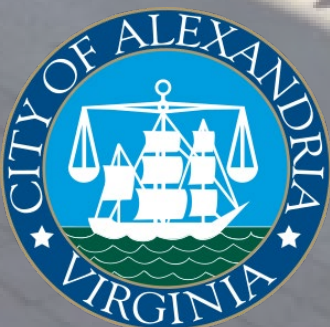


Table of Contents

Introduction	3
Overview	4
Class 1: Long-Term	5
Long-Term Parking Requirements	6
Approvable Long-Term Specifications	7
Class 2 & 3: Short-Term	8
Approvable Short-Term Bike Racks	9
Short-Term Bike Rack Locations	10
Plan Requirements: Long-Term	11
Plan Requirements: Short-Term	12
Appendices	
Appendix A: City Policy	13
Appendix B: Bike Rack Specifications	14
Appendix C: Vendor List	15
Contact Information	16

INTRODUCTION

The guide is designed to inform developers, planners, and engineers about how to best provide bicycle parking access to destinations in Alexandria. This guide defines general bike parking designs, standards, and principles for both short-term and long-term parking. Convenient, plentiful bicycle parking encourages the use of bicycles for transportation as an alternative to car trips.

New developments and uses shall provide, at no charge to the user, secure bicycle storage facilities. Class 1 and Class 2 facilities shall be highly visible to the intended users and protected from rain within a structure shown on the site plan.

OBJECTIVES FOR BICYCLE PARKING GUIDELINES

1

To provide information on number of required racks, approved rack designs and to ensure racks meet public needs.

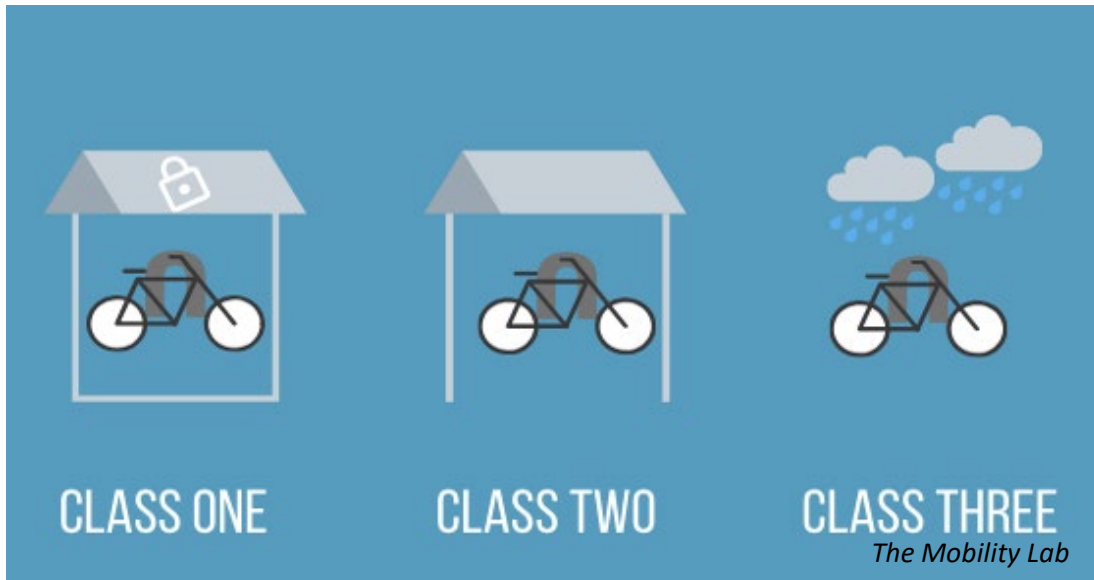
2

To encourage the use of bicycles for transportation.

3

To provide convenient bicycle access to employment, commercial, and residential uses, and other travel destinations.

OVERVIEW



BICYCLE PARKING CLASSIFICATIONS

Long-Term

Short-Term

CLASS I

CLASS II

CLASS III

Class 1 bike parking is intended for long-term, residential storage or office parking. Such facilities consist of a cage or room where entry is controlled via locking mechanism (combination, key, fob, etc.) and where the bicycles are protected from inclement weather and theft.

Bicycles parked in Class 2 facilities are protected from the elements, whether in a garage or under a covered shelter but are not in an enclosed, locked room or cage. Class 2 bike parking is often found near elevators or stairwells and count towards short-term, visitor bike parking.

Class 3 bicycle parking provides light security for short-term parking. Such facilities are uncovered and shall be installed in the public right-of-way, or on private sites in conformance with setback requirements. Placement shall allow for visual monitoring by people within the building and people entering the building.

CLASS 1: LONG-TERM

Long-term storage for bicycles consists of a cage or room where entry is controlled via locking mechanism (combination, key, fob, etc.) and where the bicycles are protected from inclement weather. Long-term storage could be in a garage, lockable ground floor room or some other agreed upon location. A ground floor room has the advantage of cleaner facilities, fewer conflicts with automobiles and easier access to the outside. To maximize parking capacity of a bike room, providers often combine the use of ground mounted bike racks and wall mounted/vertical bike racks. Long-term bicycle parking is most appropriately used for residential storage or office parking.



Dero Bike Racks

CLASS 1 LONG-TERM PARKING REQUIREMENTS



Central St Giles - Google HQ, Cycle-Works

GENERAL REQUIREMENTS

- A fully enclosed room (block, concrete, or studs with drywall) or cage covered by industrial grade expanded metal mesh or welded wire mesh
- Protection from weather
- Ability to lock bikes to racks within the enclosure
- Uses heavy duty, cipher, or electronic lock on the entrance
- At least 30% of bicycle parking must be horizontal and at floor level

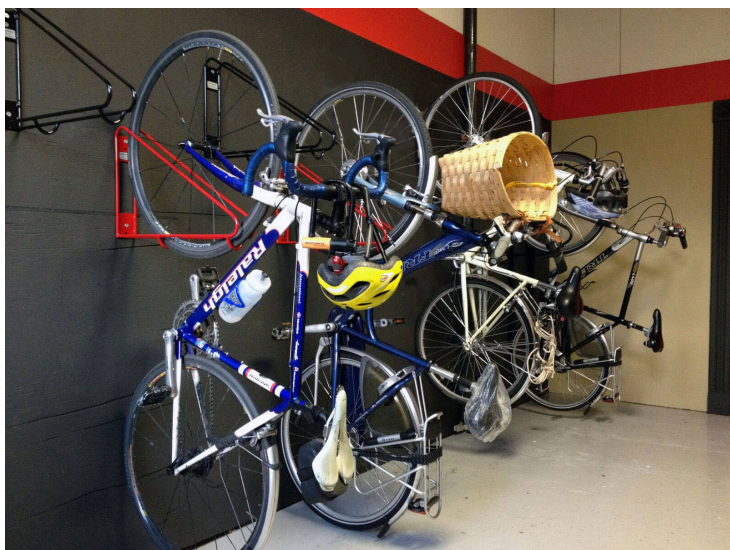
LOCATION REQUIREMENTS

Preferred

- Fully enclosed ground floor room with direct sidewalk access
Clean, efficient, highly secure, less conflict with cars

Additional Options

- Fully enclosed room in garage
Discrete, highly secure; can conflict with cars and be less inviting for users
- Bike lockers
Secure; not space-efficient, and if placed outdoors, riders are not protected from weather



CycleSafe Bike Wall Rack

If parking areas are located in a garage, they should be visible by a parking attendant booth or a visitor/customer entrance. Include wayfinding for bicycle parking as well as vehicular (i.e., bike symbol on a 'P →' parking sign).

APPROVABLE LONG-TERM OPTIONS & SPECIFICATIONS

1. STANDARD SINGLE LEVEL RACKS



A minimum 30 percent of required bicycle parking spaces shall allow for the bicycles to be placed horizontally on the floor or ground, without being suspended.

5 ft

RECOMMENDED
AISLE WIDTH

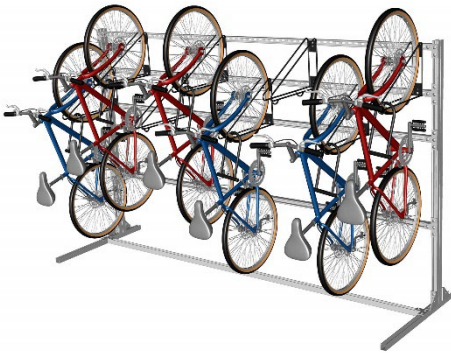
8 ft

DISTANCE BETWEEN
END-TO-END U RACKS

3 ft

MINIMUM SPACING
BETWEEN BIKE RACKS

2. VERTICAL RACKS ON WALLS



CyleSafe WallRack Stand

Racks can be used in combination with on-ground parking to increase amount of parking. They must be securely bolted to the building, and it must be possible to lock the bike frame and one wheel with a standard U-lock.

5 ft

RECOMMENDED
AISLE WIDTH

6 ft

DISTANCE FROM
RACKS/WALL TO WALKWAY

See specific
manufacturer's
specs

VERTICAL CLEARANCE

3. "DOUBLE DECKER" RACKS



CyleSafe Hi-Density Bike Rack

These can create safety concerns that are not obvious to on-ground parking and requires maintenance for moving parts. Double-decker racks are required to offer a device that assists in lifting bikes to second level.

7 ft

RECOMMENDED
AISLE WIDTH

See specific
manufacturer's
specs

VERTICAL CLEARANCE

CLASS 2 & 3: SHORT-TERM

Bicycles parked in a Class 2, short-term facility are protected from elements, whether in a garage or under a covered shelter but not in a fully enclosed locked room or cage. If parking areas are in a garage, they should be visible by a parking attendant booth or a visitor or customer entrance.

The standard bicycle rack for short-term or visitor parking is the “inverted-U” style rack. These racks are designed to accommodate two bicycles and should be installed outside of the building. The specifications of the inverted-U racks and bicycle parking rack placement are described below.



APPROVABLE SHORT-TERM BIKE RACKS

1. STANDARD INVERTED-U BIKE

- Once installed, shall measure 36" high by 18-24" wide
- Rack shall be coated with a Thermoplastic (polyethylene copolymer based) powder coating (polyarmor)
- Racks shall be flange mounted on concrete or set in concrete (depending on conditions)
- The expansion anchor is to be carbon steel mushroom head
- Any departure of baseplate from grade by more than 3/8" shall require separation to be filled with high-strength epoxy non-shrinking ground and made level.



Photo Credit: Sam Kittner, Mobility Lab



City of Alexandria

2. ALTERNATIVE (NON-INVERTED-U) BIKE RACKS

Other bicycle parking devices may be approved for use if they provide for:

- Supporting the bicycle frame at two locations (not just the wheel)
- Allowing both the frame and at least one wheel to be locked to the rack (without requiring that the lock be placed near the bicycle chain)
- Allowing the use of either a cable or "u-type" lock
- Bicycles which are equipped with water bottle cages
- Bicycles which are not equipped with kickstands
- All types and sizes of bicycles including various types and sizes of frames, wheel sizes, and tire widths

Wave-type racks **may not** be installed as they are commonly used "broadside," which decreases the availability of bike parking

SHORT-TERM BIKE RACK LOCATIONS

GENERAL REQUIREMENTS

- Racks should be placed within 50 feet of the building entrances
- Racks should allow for visual monitoring by people within the building and/or people entering the building
- Placement of bicycle racks should minimize conflicts with pedestrians and motorized traffic
- Bicycle parking should be on concrete

2 ft

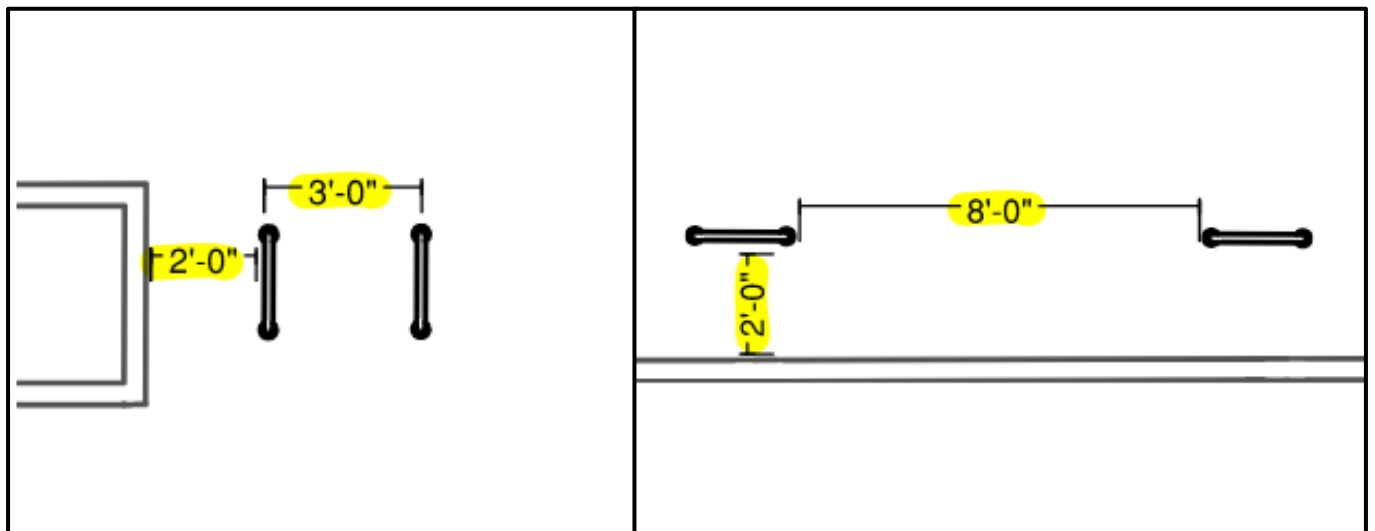
FROM ANY
OBSTRUCTION

3 ft

PERPENDICULAR ON-CENTER
DISTANCE BETWEEN PARALLEL
OR ANGLED RACKS

8 ft

DISTANCE BETWEEN
END-TO-END U-RACKS



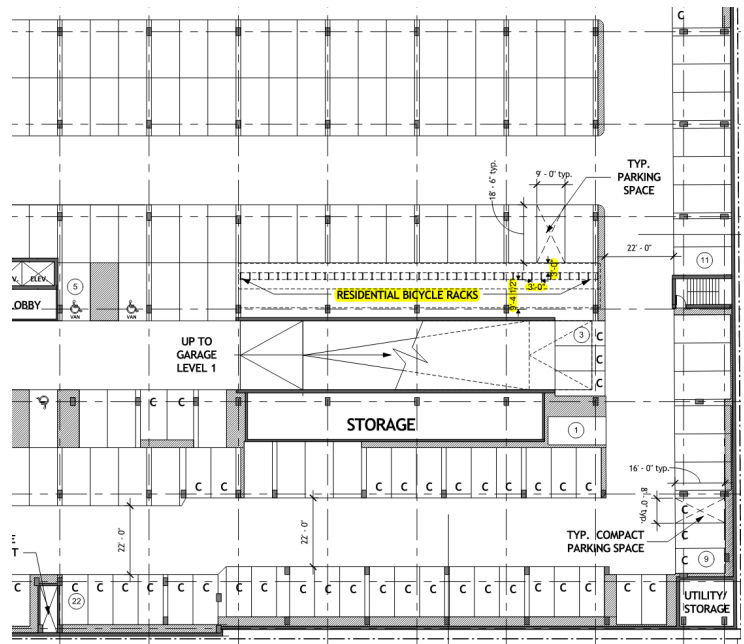
PLAN REQUIREMENTS

LONG-TERM CLASS 1 PLAN REQUIREMENTS

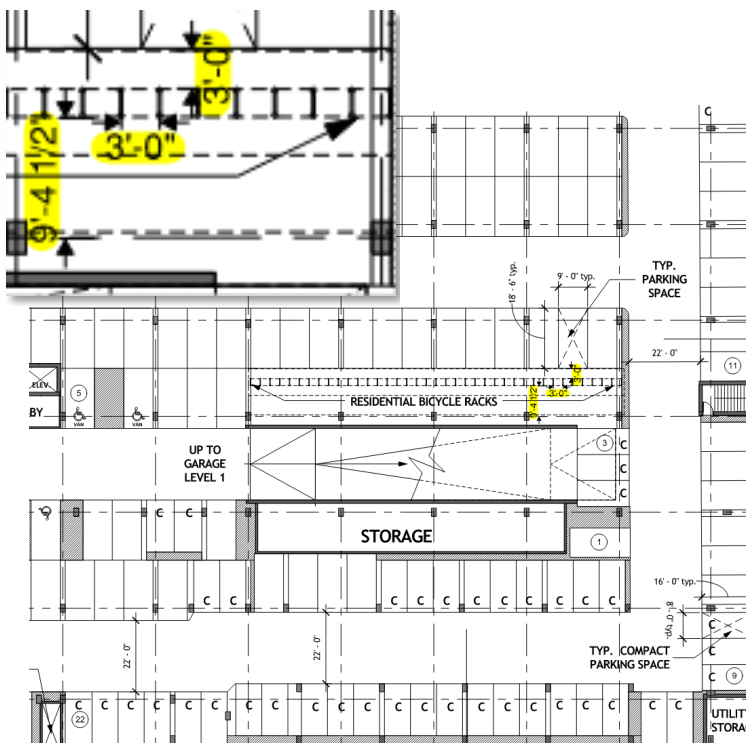
ARCHITECTURAL PLANS

Interior Bike Racks

Show and label all interior bike parking locations on appropriate architectural plan.



530 First Street Alexandria, VA



530 First Street Alexandria, VA

Label the following details

- Proposed room or cage walls
- Wall and door material
- Cage wall and/or door security plates (if applicable)
- Door lock type
- Dimensions between racks
- Dimensions from racks to walls and other obstructions
- Aisle widths

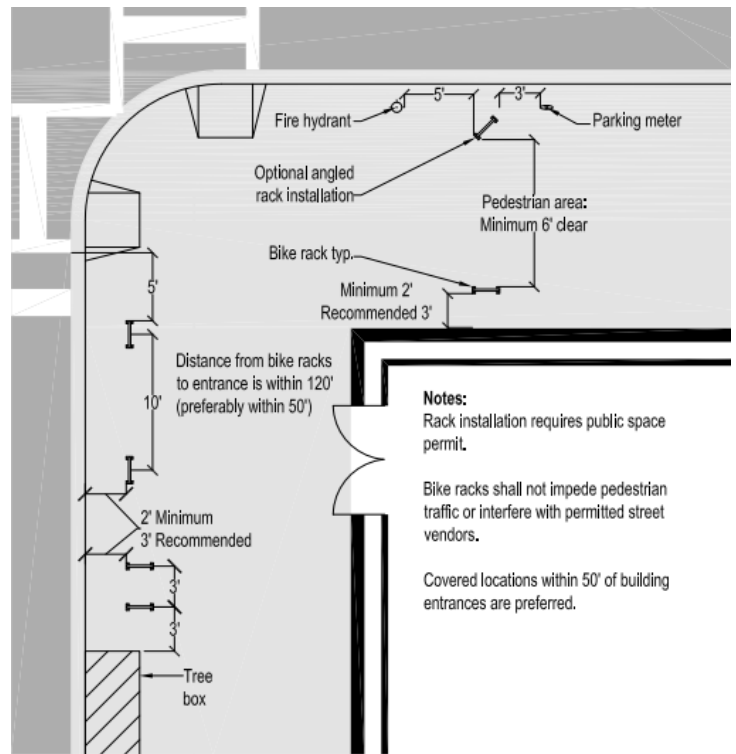
PLAN REQUIREMENTS

SHORT-TERM CLASS 2 & 3 PLAN REQUIREMENTS

CIVIL/LANDSCAPE PLANS

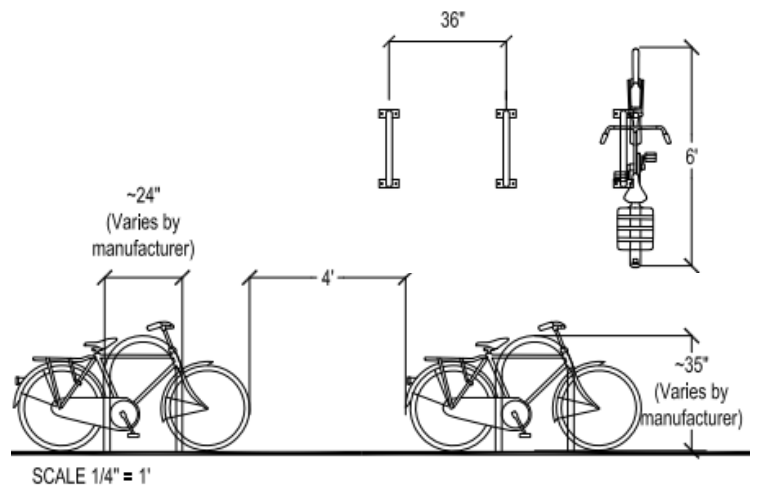
Site / Streetscape Plans

Show and label all exterior bike parking locations. Must be able to count the number of spaces in design.



Detail Drawings

1. Show and label the distance between racks and all obstructions
2. For each type of bicycle rack- provide a construction specification sheet with information from the manufacturer and hardware schedule



Appendix A

Required Provisions of Bike Parking

The developer shall at no charge to the user, secure bicycle storage facilities. These facilities should be highly visible to the intended users and protected from rain within a structure shown on the site plan. The following minimum standards shall be met and approved by the Director of T&ES before the issuance of the Construction Permit.

TABLE 1: MINIMUM NUMBER OF BICYCLE PARKING SPACES

Use	Long-Term Spaces	Short-Term Spaces
Office	1 space / 7,500 sq. ft.	1 space / 20,000 sq. ft.
Retail	1 space / 25,000 sq. ft.	2 spaces / 10,000 sq. ft. of the first 50,000 sq. ft. 1 space for every 12,500 sq. ft. of additional floor area
Residential	3 spaces / 10 units	1 space / 50 units
Hotel	1 rack / 15 rooms (< 75 rooms)	6 racks if > 75 rooms
Public Recreation	None	15% of required automobile parking

Appendix B

“Inverted-U” Bicycle Racks

“Inverted-U” Bicycle Rack (In-Ground)

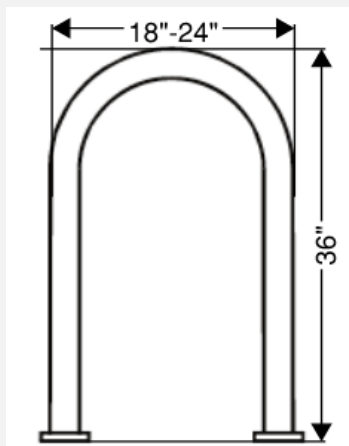
1. Legs must be anchored 9” deep in new concrete within minimum dimensions, including a minimum of 3” of concrete encasement on all sides.
2. Legs must be fitted with anchor pins to prevent lift-out.

Installation on a sloped sidewalk

1. Ensure the legs of the rack are vertical (plumb) in two planes.
2. Preferred method is using in-ground racks.
3. For surface-mounted racks, the use of shims may accomplish this task.

“Inverted-U” Base Rail Array Alternate (Surface/ Flange Mount)

1. Must be installed on cured concrete sidewalk or continuous concrete subbase.
2. Legs must have a minimum of two fasteners per flange.
3. Concrete sidewalk must be minimum 4” thick and conform to City standards.
4. Anchors must be frictions, mechanically expanded, or adhesive bonded, and may be treated for driven; if threaded, they must be fixed with tamper-resistant nuts as approved by City.
5. Rack may not be bolted to unit pavers; however, unit pavers may be installed over flanges mounted to concrete.
 - a. Pavers must be neatly cut and fit around flanges, fasteners, and legs of rack while maintaining the minimum height from finished grade.



The Inverted U’s shall be fabricated from 1.5" inner diameter (I.D.) (1.9" outer diameter (O.D.)) to - 2.0" I.D. (2.375" O.D.) Schedule 40 Steel Pipe. The bicycle racks shall not be welded in sections. Only the baseplate shall be welded to the steel pipe with two (2) 1/8" vent holes - one on the inside of each upright where the pipe is welded to the baseplate. After fabrication, the rack shall be coated with a Thermoplastic (polyethylene copolymer based) powder coating (polyarmor) to a thickness 200-250 micrometers (8 -12 mils).

Appendix C

Vendor List

The City does not recommend any particular vendor, however, a list of vendors that sell acceptable bicycle racks are listed below.

LONG-TERM (Class 1)

BikeParking.com

Double-Decker with Locking Arm

Dero

Dero Decker

Ultra-Space Saver

Saris Infrastructure

Stretch Rack Indoor Bike Storage

SHORT-TERM (Class 2 & 3)

Bike Fixation by Saris

Bike Dock (2.38" and 2" square)

BikeParking.com

Welle Series Racks

(Surface Flange and Inground)

Dero

Arc

Heavy Duty Hoop

Madrax

Square "U"

'UX'-238 Round

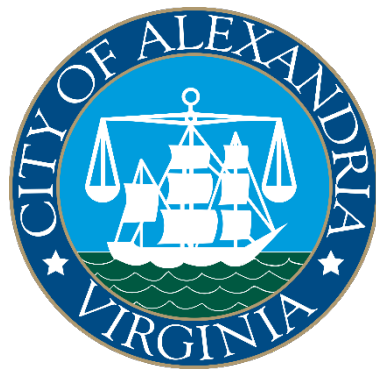
Sportworks

Circular

Heavy Duty Inverted-U

Inverted U-Narrow

Inverted U-Wide



For additional information on bike parking, visit <https://www.alexandriava.gov/BicycleParking>