

**Calpipe Security Bollards™**

# What are bollards?

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Bollards are posts used to control pedestrian & vehicular traffic



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# Why use a bollard?

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The conflict between motor vehicles and pedestrians and bicyclists has been a serious problem in the United States for decades.

- **Pedestrian deaths rise nationally and in Minnesota — and drivers mostly to blame**

By [Susan Perry](#) | 08/10/12

- According to [a report](#) [PDF] issued this week by the [National Highway Traffic Safety Administration](#) (NHTSA), 4,280 pedestrians were killed and an estimated 70,000 were injured in U.S. traffic accidents in 2010. Although that's a 13 percent decrease from 2001, it's also a 4 percent increase over 2009 — the first such increase in five years.

# Bollard Applications

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- Separate traffic flow from pedestrians
- Protect property from vehicle incursion
- Block unwanted vehicle flow while allowing free movement of pedestrians between the bollards
- Secure bike lanes, paths and greenways
- Prevent parking on sidewalks
- Guard against potential terrorist threats



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# Why Calpipe Security Bollards?

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- We offer the broadest range of bollards in the market today.
- We get them out on time and right.
- We educate end-users and build ongoing relationships with architects and engineers.



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# What type of steel is in our bollards?

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## Carbon Steel

Carbon steel bollards can be galvanized, primed for painting, and powder coated with more than 180 colors. Carbon steel bollards are strong, durable, and cost-efficient, satisfying most of your perimeter security needs.

## Stainless Steel

Stainless Steel has always been regarded as top-of-the-line for aesthetics and durability. We use Type 304 grade stainless steel or Type 316 for harsh environments on request. The stainless steel is polished to a #4 finish.



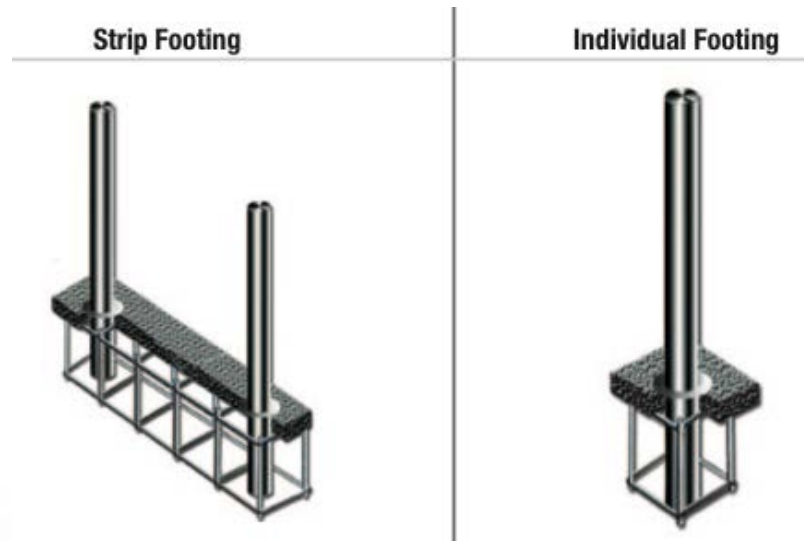
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# Why is installation important?

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A bollard's strength is based on a properly engineered footing, the bollard's diameter, and the bollard's wall thickness.

Strip footings absorb and distribute an impact across the whole footing and are preferred over individual footings.



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# Bollard Types

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- Fixed or Static
- Removable
- Retractable
- Lighted
- High Security



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# Fixed Bollards

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## Embedded Bollards



The most commonly used bollards, embedded bollards create a physical barrier, protecting pedestrians and buildings from oncoming vehicles, yet they still allow free movement between the bollards.

## Base-plate Bollards



Fixed base plate bollards are primarily used in multi-level parking structures, warehouses or distribution centers to protect structures and equipment from fork lifts and pallet jacks. Fixed base plate bollards are visual deterrent only.

# Fixed Bollard Facts

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*Applications* – Road access, protection of property, protection of people, traffic deterrent.

*Whom to sell to* - Typically, the contractor or the end user. Property managers, Facility Managers, Government Agencies, retail facilities. ????????????

*Influencers* - Architects, engineers, and city planners often spec the bollard into the project. On a rare occasion, the contractor will request our bollards.

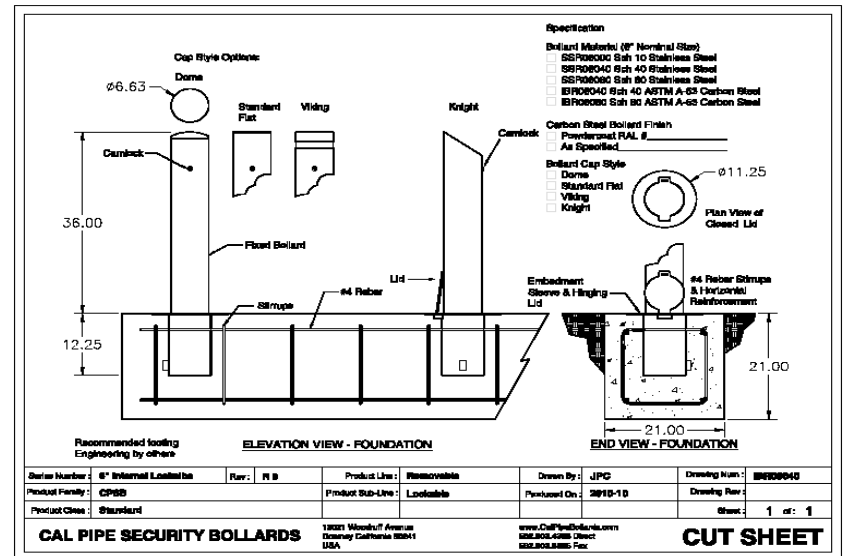
*Key issues* - Fixed bollards are cheap, easy to install, and often permanently in place once set. Contractors often source bollards locally from a pipe company unless there is some custom work involved. (e.g. stainless steel, custom powder coat, custom cap, etc.).



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# Removable Bollards

Removable bollards can be manually lifted and removed. A base (embedment sleeve) is permanently fixed in the ground. Removable bollards are typically found in areas where you need to block off access, but on occasion, you need to be able to get a vehicle or big item through the area.



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# Types of Removable Bollards

## Internal Locking

Internal locking bollards incorporate a tamper-resistant cam lock. These bollards lock underground making them more secure.



## External Locking

External locking bollards use a padlock to secure them. These bollards are ideal for restricting access to alleyways, bike trails and parking lots.



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# Removable Bollard Facts

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*Applications* - Farmers Markets, stadiums, building entrances, mall or retail entrances, alleys, government facilities, military facilities

*Whom to sell to* - Contractors and end-users directly. Architects and engineers as specified products.

*Influencers* - Architects and engineers. On the rare occasion, contractors will request them to finish out their job.

*Why* - Use to secure areas you need occasional access to (i.e. bike paths and fire roads) or in areas you need to protect for a short time (i.e. Farmer's markets, special events).



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# Retractable Bollards

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Retractable bollards can be used where it is necessary to allow temporary access. The bollard withdraws into a recess in the ground when retracted.



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# Types of Retractable Bollards

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- **Manual-Lift:**

- The bollard lifts easily and locks into place. It retracts to street level with a turn of the lock. The locking stainless steel lid provides extra security and covers the bollard to prevent pedestrian injuries.

- **Manual Assisted Lift**

- These bollards incorporate an industrial grade gas strut that raises and lowers the bollard into place with the turn of a key. The assisted lift mechanism allows for a heavier bollard, with easier lift and higher security.

- **Automatic**

- Designed for repetitive cycles. Ideal for restricted parking lots, access control gates, commercial building entrances, or military bases. Operation of these bollards can be integrated with most existing access control systems.

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# Lighted Bollards

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Our lighted product line combines a sleek architectural design with long-life lighting and the unmatched strength of stainless steel to provide superior durability form, and safety.

We have virtually unlimited combinations for lighting styles, wattage as well as lighting fixtures. See handout for available options for each style of bollard.



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# Types of Lighted Bollards

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## Architectural

Architectural Lighted Bollards are not designed to stop vehicles

Finishes are stainless steel

4 Lighting choices – CFL, LED, Metal Halide, Induction Fluorescent

Diameters available 6" & 8"

Heights 36" & 42"

## Security

Security Lighted Bollards are designed to stop vehicles

Inner post provides strength

4 Lighting choices – CFL, LED, Metal Halide, Induction Fluorescent

Diameters available

6" -(1/2" & 3/4" wall)

8" -(1/2" & 3/4" wall)

12" -(1/2" & 1" wall)

Heights 36" & 42"

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# High Security Bollards

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Security bollards are used as anti-terrorism and anti-crime measures. They are engineered to withstand heavy impacts. They can be fixed, removable or retractable – automatic or manual assisted lift.

Calpipe's High Security line of Bollards can stop a truck at high speeds, and for this reason, they are used at nuclear power plants, embassies, courthouses, the State Department headquarters, the US Supreme Court and military bases around the world.



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# Types of High Security Bollards

## K4 Bollards – 15,000 @ 30 mph

Shallow-Mount (12" depth) Removable Bollard  
Shallow-Mount (12" depth) Fixed Bollard



Deep Mount K-4 Engineered Fixed Bollard  
Deep Mount K-4 Engineered Removable Bollard

## K12 Bollards – 15,000 @ 50 mph

Shallow-Mount (12" depth) Removable Bollard  
Shallow-Mount (12" depth) Fixed Bollard



Deep Mount Fixed Bollard  
Deep Mount Removable Bollard  
Deep Mount Manual Retractable Bollard  
Deep Mount Automatic Bollard

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## Common Concerns

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### 1. **Bollards impede people with visual and mobility impairments.**

Bollards can and should be spaced so that wheelchairs may pass but vehicles can not. Visually impaired pedestrians are, in most cases, equipped with a method of detecting obstacles, such as a guide dog or cane, and are prepared to encounter a bollard. Bollards should be tall enough to prevent a tripping hazard.

### 2. **Bollards interfere with snow plowing.**

Areas with heavy snowfall such as the Midwest and Northeast, routinely use bollards both on sidewalks and streets. Proper management of areas sectioned off by bollards should be determined and implemented.

### 3. **Permanent steel bollards cause damage to vehicles**

While bollards are a boon for pedestrian safety, DOT engineers have limited bollard installation because they perceive them as dangerous to vehicles and their drivers. The DOT's stated fear is that a driver hitting a bollard could cause damage to the car, or even cause injury or death, and the City could be held liable. If a bollard is hit, in many cases it is preventing injuries and saving lives.

## Common Concerns

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### **4. Retractable bollards cause damage to vehicles.**

Retractable bollards can cause damage to a vehicle if it passes over the bollard as it rises from the ground. However, the simple installation of an inductive loop in the road prevents a bollard from rising with a vehicle overhead. The coil of wire is embedded in the street surface to detect the presence of a driver above. In addition, the City should also clearly indicate the presence of the bollard, post the time bollards rise if they are set to a timer, and install lights to alert drivers when bollards are about to rise.