Glasdon®
Quality By Design

Discover the **Advantages** of Plastic Bollards

www.glasdon.com

INTRODUCTION

Bollards are an essential tool for urban planners, highway engineers and motorists alike. They can delineate traffic lanes, control parking, mark hazards, alleviate congestion, protect pedestrians and even enhance aesthetics. However, when choosing the right material, the debate between plastic and metal often takes centre stage.

Discover the advantages of plastic as the ideal material for road safety bollards in this comprehensive eBook. We will examine six key features necessary for a successful bollard and explore how Glasdon's plastic bollard range can help you meet these requirements.

Let us Explore…

- The History of Bollards and How They've Adapted Over Time.
- The Benefits of Plastic and How Beneficial it is for Bollards.
- The Importance of High-Performance Materials.
- Glasdon's Bollard Range.

CONTENTS

PART 1: Roadside Rivals

A BRIEF HISTORY OF BOLLARDS

Although their appearance and functionalities have evolved over the years, the use of bollards to control road traffic dates back to the 18th century when wooden posts were the material of choice. These posts were placed throughout the towns and villages of England to protect pedestrians and property, as well as facilitate traffic navigation during the era of horse and carriage.

In the 19th century, with the transition from horse-drawn to motor vehicles, it became evident that a sturdier infrastructure was necessary to ensure proper safety. Cast iron emerged as a more suitable material for this purpose, leading to the dominance of metal bollards in the urban landscape.

Innovations in bollard design coincided with developments in polymer technology and road safety regulations during the latter half of the 20th century. As a result, plastic-based alternatives were developed with more than just traffic control in mind. Modern plastic bollards can now provide illumination to complement streetlights, serve as warning markers to alert drivers, enhance the aesthetics of their surroundings for communities as decoration, and moderate access control with socket systems. Despite all these expansions, safety has remained the top priority in their design.

Did You Know?

Utilising plastic materials for road safety has been a cornerstone of Glasdon's history. Back in 1959, we introduced our "halt" sign that required no painting. Since then, we have been at the forefront of using plastic in road signs as a cost-effective and durable alternative to traditional materials.

RETHINKING PLASTIC

While metal has been widely regarded as the preferred material for many external products across various sectors due to its strength and durability, in recent years, there has been a gradual shift away from traditional metal-based solutions to plastic-based ones. Scientific discoveries in the field of polymers and advancements in manufacturing techniques have made plastics more durable, design-friendly and economically viable compared to metal.

While both plastic and metal have their advantages for road safety bollards, we strongly believe that plastic has superior qualities that provide higher levels of safety, a greater choice of designs and, offer organisations the opportunity to save money.

7 Reasons why...

1 DURABILITY

Bollards are exposed to various elements in the outdoor environment, including strong winds, heavy rain, snow, ice and even intense sunshine. To be successful, they must withstand these weather and environmental conditions while maintaining their structural integrity and appearance throughout their service life.

Plastics offer enhanced durability due to their inherent resistance to corrosion from various environmental factors, including UV radiation, moisture and extreme temperatures. Unlike metals, which are susceptible to rust and corrosion. This is especially advantageous when the bollards are placed near coastlines and are subject to highly corrosive saltwater or high-speed winds, in high-traffic areas prone to particulates and other pollutants, or during winter months when salt spreading is in effect and grit salt can cause corrosion or physical damage to metal or painted surfaces.

https://www.continental-tires.com/stories/road-safety-history/
https://www.kompozit.org.tr/wp-content/uploads/2017/08/Replacing-Metal-with-Plastic.pdf

2 FLEXIBILITY

A notable quality present in many plastic bollards is their ability to bend or self-right, as demonstrated in our proprietary Impactapol® material. This feature enables bollards to efficiently absorb impact from vehicles and then return to their original form, reducing damage to both the bollard and the vehicle involved. More importantly, this flexibility offers passive safety to those inside the vehicle by reducing the likelihood of injury in case of a crash.

On the other hand, when a metal bollard is impacted, the force can generate shear stress within the material. If this stress exceeds the metal's yield strength, the bollard can shear and break apart, potentially creating a dangerous trip hazard for other road users.

Did You Know?

Passively safe street furniture is designed to minimise the severity of injury to occupants of a vehicle that collides with it. The European Standard BS EN 12767 2019 defines a universal standard test that establishes the performance of a passively safe roadside structure.

Glasdon passively safe highways products are tested by accredited independent specialists at MIRA, TRL and Transpolis. Where testing has been conducted, the performance rating is clearly shown on the product page and videos are available on request.

To learn more about our quality testing process, please refer to our FAQ.

MIRA
TRL
Transpolis

3 LOW MAINTENANCE

As stated, plastic's self-coloured, corrosion-resistant capability eliminates the need for regular repainting, protective coatings, or complete replacement in the event of degradation or damage, thereby saving time and resources on maintenance.

That means you don't need sandpaper, paint, or brushes to keep everything in order. Routine cleaning with soap and water is usually sufficient to keep plastic bollards looking presentable and, most importantly, visible.

https://sealectplastics.com/news/why-plastic-parts-are-more-durable-and-practical-than-metal-parts/#:~:text=Beyond%20strength%2C%20plastics%20can%20offer,a%20coating%20to%20prevent%20corrosion.

4 EASE OF INSTALLATION & EASE OF USE

Plastic bollards are typically lightweight and much easier to handle compared to metal, wood, or concrete alternatives, making them straightforward to install. This ease of installation leads to cost savings in terms of labour and equipment, which can be especially beneficial when quick deployment or relocation is necessary. They can be surface-mounted or embedded into the ground via various fixing options, depending on the specific requirements of the location.

When dealing with wet or soft ground, plastics, including socket systems, offer significant advantages over metal and wood alternatives. The additional weight and potential difficulties, such as wood swelling and metal corroding when exposed to water, may make them less than ideal for use in socket systems.

Did You Know?

With a choice of up to seven different fixing methods, Glasdon is sure to have one that is right for your application.

The LockFast™ Socket System stands out for its unmatched passive safety measures when the bollard is specified in self-righting Impactapoll® material. It expertly absorbs impact from collisions and keeps nearby surfaces intact. Additionally, the system allows for easy removal and replacement of bollards, accommodating a range of installation requirements, such as permanent, semi-permanent, or temporary. For councils seeking to reduce expenses and prioritise the well-being of road workers by minimising time spent on the roadway, this feature is highly advantageous.

For a full overview, take a look at our Guide to Fixing Options for Glasdon Bollards

5 COST-EFFECTIVENESS

As we've covered in the previous points, plastic bollards are more cost-effective in terms of ongoing maintenance. But what about their initial costs compared to metal?

Metal prices are typically higher per kilogram; in most cases, metal parts cannot be manufactured as efficiently as plastic. Metal bollards often come with a significant price tag and require a labour-intensive installation process. Moreover, their susceptibility to rust requires regular maintenance. They might even require anti-corrosion treatments and periodic painting, further adding to the long-term financial strain.

6 DESIGN COMPLEXITY

Plastic offers great potential for creating intricate shapes and complex geometries due to its adaptable mould design and reliable replication of fine details. Meanwhile, metal fabrication methods such as machining and welding can also handle intricate designs but may involve additional steps to achieve the desired outcome.

This means that plastic bollards come in a variety of designs, sizes and colours to suit various applications and aesthetic preferences. A beneficial result of this is the ability to capture the traditional design of cast iron bollards.

Did You Know?

The traditional design style of cast iron bollards is a beloved and prevalent choice in many British urban areas. These enduring Victorian-inspired designs are still widely used today, and rightfully so. Fortunately, the malleability of plastic allows for an exact replication of this style, allowing plastic bollards to seamlessly complement the visual appeal of many towns and cities across the nation.

https://richfieldsplastics.com/blog/large-size-plastic-molding-vs-traditional-metal-fabrication/

7 REDUCED CARBON IMPACT

Plastic bollards require less energy and resources to produce, resulting in less carbon emissions. They are also cheaper to replace than their metal counterparts.

Producing metal bollards can be an involved resource-heavy process that requires heavy machinery. This often comes at the expense of large amounts of resources like ores and fossil fuels acquired via elaborate energy-intensive processes that lead to high carbon emissions. When exposed to harsh weather conditions over long periods, metal bollards inevitably degrade and rust. The recycling and replacement of metal bollards requires a high amount of energy and resources leading to significant financial and environmental impacts on communities. Plastic remains a better and more convenient alternative, with one kilogram of plastic connected to far less carbon emissions than one kilogram of stainless steel. Plastic is easier to recycle and repurpose and at less of a financial and environmental cost, contributing to a greener economy.

https://8billiontrees.com/carbon-offsets-credits/carbon-footprint-of-steel/
https://www.rodongroup.com/blog/the-benefits-of-replacing-metals-with-plastics

PART 2: Specific Solutions from Glasdon

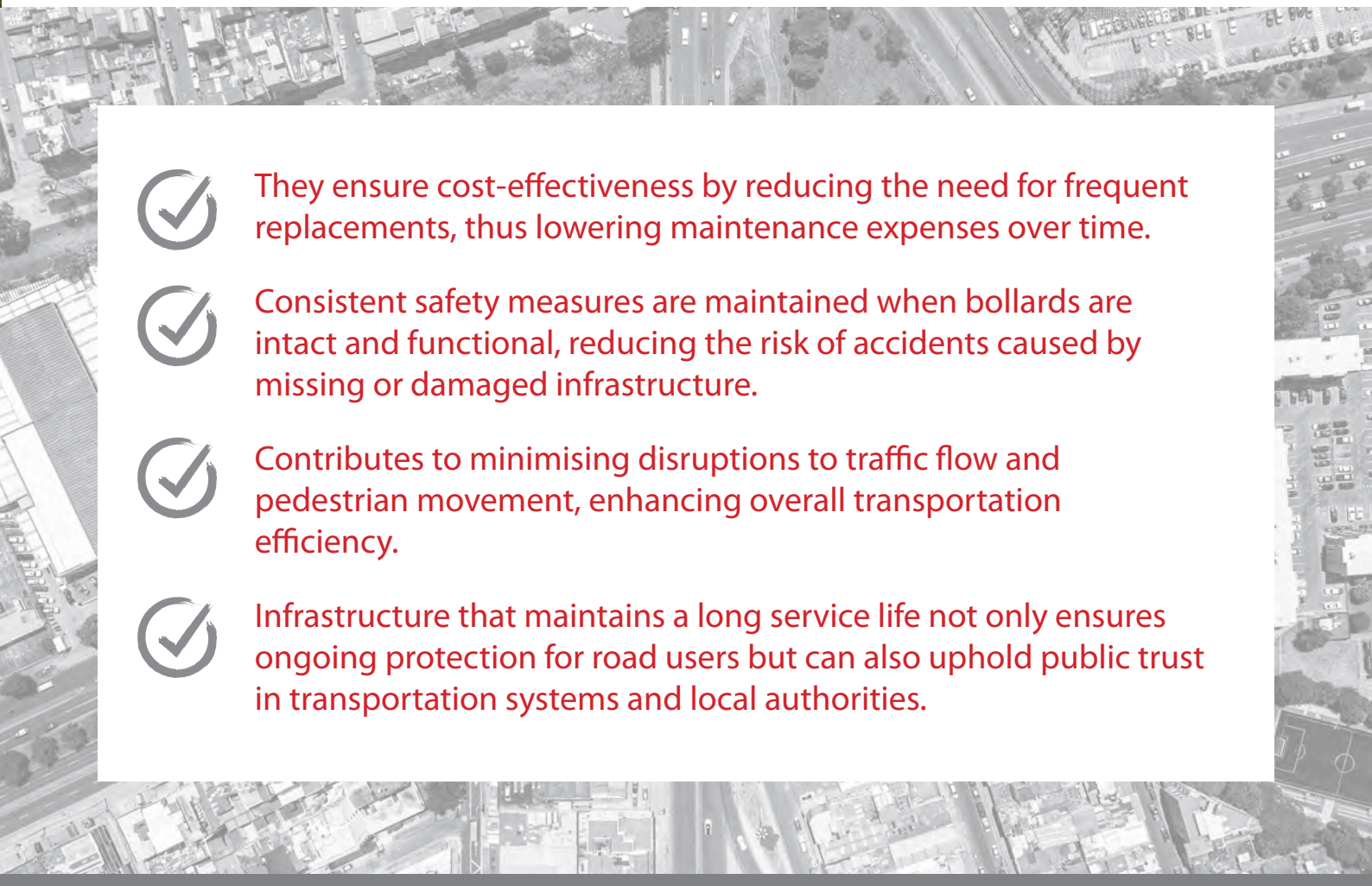
Glasdon has been designing and manufacturing bollards for over 40 years. Our versatile road safety solutions are used all over the highways and byways of the United Kingdom, and we believe we offer a product for every application.

THE IMPORTANCE OF HIGH-PERFORMANCE MATERIALS

Glasdon bollards are manufactured from a variety of high-performance materials and are crucial to the success of our products to ensure durability and provide the best value.

What exactly are high-performance materials? They are specially crafted substances with exceptional properties that exceed those of traditional materials.

These substances boast impressive strength, durability and resistance against wear and damage. They excel in challenging settings and can withstand extreme circumstances like high temperatures and exposure to harsh chemicals. But what other advantages do they offer the humble road safety bollard?



- They ensure cost-effectiveness by reducing the need for frequent replacements, thus lowering maintenance expenses over time.
- Consistent safety measures are maintained when bollards are intact and functional, reducing the risk of accidents caused by missing or damaged infrastructure.
- Contributes to minimising disruptions to traffic flow and pedestrian movement, enhancing overall transportation efficiency.
- Infrastructure that maintains a long service life not only ensures ongoing protection for road users but can also uphold public trust in transportation systems and local authorities.

Two specific plastics that we use consistently throughout our range are:

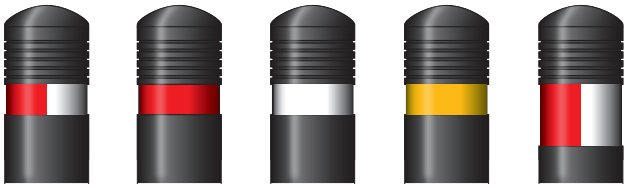
DURAPOL®

A strong, lightweight material that offers numerous advantages over traditional materials. Durapol material is self-coloured, which means it will never need painting and scratches will not show. The material is completely corrosion-resistant, so it will not chip, rust, or be easily vandalised.

IMPACTAPOL®

A flexible material with excellent recovery performance, meaning it will return to its original shape following a drive-through collision. Impactapol material products reduce maintenance costs in vulnerable areas by consistently meeting statutory requirements even after multiple impacts. Impactapol material offers all the additional benefits of Durapol material – it is self-coloured and completely corrosion-free.

Glasdon has ISO 9001:2015 and ISO 14001:2015 accreditation, underlining our commitment to quality.



BANDING

All Glasdon bollards are designed with purposeful rebated reflective banding points to ensure that bands stay securely in place. The height and surface area of these on the bollard are designed to ensure compliance with UK highway regulations when bollards with reflectors are used as roadside delineators. The reflective banding is specified to the highest standards using high-performance reflective sheeting and is available in various colour options to match the scheme application and the placement of the bollard.

On rigid Durapol bollards, our reflective banding is aluminum-backed, and the banding is attached to the bollards with alloy strips and rivets for added durability. On self-righting Impactapol bollards, for improved safety our reflective banding does not consist of aluminum-backed material. In this instance, banding is Is adhered to the bollard and secured in place with plastic strips and rivets, both of which are designed to help reduce injuries to vehicle occupants and other road users in the event of a road traffic accident.

PRODUCTS IN ACTION

Glasdon provides a wide range of plastic bollards for traffic calming schemes, cycle routes and other road safety applications. We design and manufacture our bollards with high-quality, durable polymer materials that are rigorously tested to meet British and European standards.

To showcase the most effective use of our plastic bollards, let's examine some of our cutting-edge products in action.

Victory™ Bollard

Admiral™ Bollard

Glasdon Manchester™ Bollard

Neopolitan™ 150 Bollard and Ensign™ Bollard

Cyclemaster™ Bollard

CHOOSE OPTIMAL ROAD SAFETY, CHOOSE GLASDON

Apex™ Chevron Sign

By embracing plastic-based road safety solutions, local authorities, organisations and urban planners can strike an effective balance between safety, functionality, aesthetics, cost-effectiveness and environmental responsibility.

The road to safer streets and aesthetically pleasing public spaces begins with the right choice of materials, and Glasdon's plastic bollards pave the way for a sustainable and secure future.

For more assistance and information, please contact us today and talk to our team of dedicated experts.

Admiral™ Bollard

Glasdon®
Quality By Design

www.glasdon.com

Click here to watch our product demonstration videos on YouTube.

GOLD 2023 ecovadis Sustainability Rating

Buffer™ Bollard

ANNIVERSARY 1959-2024 65 YEARS

© Glasdon 06/2024
GW873/LP