Traffic Signal Encyclopedia Article

Traffic Signal

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Contents

Traffic Signal Encyclopedia Article.....1

Contents.....2

Traffic Signal.....3

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Ever since Roman times, society has tried to control traffic. Even the fabled Roman road system created a conflict between pedestrian and equine travellers. However, a practical solution was not developed until the mid-nineteenth century, when J. P. Knight, a railway signaling engineer, created the first traffic signal, which was installed near Westminster Abbey in London, England in 1868. Unfortunately, the device exploded, killing a police officer, and its use was discontinued after being in operation for only a short time.

The modern traffic light was invented in America. New York had a three-color system in 1918 that was operated manually from a tower in the middle of the street. Other cities soon adopted the idea of having someone on the scene to control the lights. Garrett Morgan, inventor of the gas mask, also developed traffic signalling devices. Having witnessed an accident between a car and a carriage, Morgan felt compelled to devise a system to prevent such collisions at street intersections. In 1923 he patented an electric traffic light system using a pole with a cross section on which the words STOP and GO were illuminated.

These basic designs were soon improved. In 1926 the first automatic signals were installed in London; they depended on a timer to activate them. In the 1930s vehicle-activated lights were created in which cars rolled over half-buried rubber tubes. Air in the tubes was displaced by the weight of the car rolling over them, and the increased pressure operated an electric contact, activating the lights. But these tubes wore out quickly. A better idea was the inductive-loop device: a loop of wire was imbedded in the road itself and connected to a box controlling the lights; a current of electricity passed through the loop, and when the steel body of a car passed overhead, it produced a signal that activated the light.

Today, traffic is automatically routed onto limited access highways courtesy of a computer activated guidance system that determines traffic volume on the highway. Global positioning satellite systems (GPS) are installed in many cars. These systems connect with a satellite and inform drivers where they are and possible routes to their destination. Such systems will eventually enable a drive to determine the best route to a destination given prevailing traffic conditions.