

ROAD JUNCTION

One of the conventional solutions to the problem posed by the crossing of two traffic routes is the use of traffic lights. Such traffic lights have inefficient cross-flow of traffic and cause long delays during rush hours, causing noise and air pollution at the junction.

The other conventional solution to the problem posed by the crossing of two traffic routes is to elevate or depress one of the routes, the long ramps for such an elevated or depressed route at the congested area is unattractive in a growing city and inconvenient for business established along both side edges of the road, therefore business people in that area often oppose such routes.

Other interchanges are diamond or clover-shaped and have large radii which require large amounts of construction materials and expensive grading and excavation, therefore they are unsuitable for use in the confined areas of a city.

The present invention is designed to solve the above-noted problems. According to the present invention there is provided a road junction comprising a level intersection of a main road and a minor road; a barrier set across the path of the minor road at the intersection and in line with the main road such that traffic is permitted to travel freely on the main road in one stream direction on one side of the barrier and in the opposite stream direction on the other side of the barrier, and two one way detour roads each having an entry and an exit on opposite sides of the main road and overpassing or underpassing the main road such that

traffic travelling on the main road may by using the detour road entry immediately downstream of said intersection turn to the nearside and transfer to the opposite side of the main road emerging upstream of said intersection. Preferably the barrier is  
5 a safety island. The main road is a non-stop road and the safety island prevents traffic travelling straight across the junction from the minor road. Such traffic must merge with the main road traffic. Therefore, no traffic signal light is necessary except at the merging point during the rush hour, hence less noise and  
10 less pollution will be generated, and money will be saved.

Underground passages for motorcycle and for pedestrians may be built beneath the intersections of the roads for safety purposes so that cars, motorcycles and pedestrians can go freely on their own way. The central part of the main road of this invention may  
15 be available for through traffic, and may, for example, carry a railway, negating the requirement for a subway in the city.

Figure 1 is a plan view of the present invention and the flow of traffic for right-hand traffic.

Figure 2 is a perspective view of the present invention using  
20 underground detour road to communicate with the main road.

Figure 3 is a perspective view of the present invention using an elevated detour road to communicate with the main road.

Figure 4 is a plan view of the junction of two main roads.

Figure 5 is a plan view of the present invention and the flow of  
25 traffic for left-hand traffic (it is the reverse side view of Figure 1).

Referring to Figure 1 for right-hand traffic and Figure 5 for left-hand traffic, if the south north road AB is a main road, east west roads CD, EF are minor roads intersecting with the main road

AB at right angles, their intersections are at grade level. A safety island I or J is located at each intersection of the main road in such a manner that the longitudinal axis of said safety island is in parallel with the main road and divide the main road for two-way traffic, said safety island being used to prevent traffic flow across the junction from the minor road. Detour roads such as ab, dc, ef, gh are built opposite each other on the main road, near the minor road, said detour road may be either of elevated or depressed depending on the place of use, which can be better seen in Figure 2 and 3. Where the bicycle and motorcycle are allowed to drive, a special path is constructed at the outermost side of each road shown as dashed lines in the drawings. To avoid the interruption of the car and the motorcycle at the intersections, under ground passages for motorcycle or pedestrian are built under the intersections o, p, q, r, s, t, u, v of the detour ways, also k, l, m, n under both sides of the main road as shown in Figures 2 and 3. However under ground passages w, x, y, x may be built for pedestrians only. Thus no traffic signal light is necessary except road signs and course lines or curbs at the intersection of the roads. Therefore all cars and motorcycles may go their own way without interruption or blockage. However, during rush hour manual control or automatic electronic controlled signal lights may be used at the merging points of the roads. For the intersection of two main roads one must be taken to be the first priority main road and the other, the secondary main road, and that the safety island and the detour roads should be both located on the first priority main road in the same manner as

aforementioned.

For right-hand traffic:-

Referring to Figure 1, if the main road AB running south to north has four lanes of traffic, 1, 2, 3 and 4, the arrows represent the direction of driving and dotted and dashed lines and numerals represent the flow of the traffic, then it is obvious that the traffic 2, 3 on the inner lane of the main road can travel without obstruction, but they cannot make a right turn into the minor road CD or EF unless they change to outer lane, nor can they make left or roundabout turn unless they go around detour road cd or gh. Similarly the traffic on lanes 3 and 4 must go around the detour road ef or ab to complete a left or round-about turn.

Referring again to Figure 1 if the minor road CD running east to west has two lane traffic 5, 6, then the car in lane 5 can make a right turn to the main road AB, but it cannot make a left turn or travel straight on because of the safety island j. It must take detour road cd then make a right turn to road CD or travel straight on the main road AB. Similarly the traffic in lane 6 must take a detour road ab for a left or roundabout turn.

For left-hand traffic:-

With reference to Figure 5, the statement is identical to the paragraph above except that all the words 'right' and 'left' are interchanged.

Although the term "road" is employed in the above description and in the appendix claims, it will be obvious that the invention is applicable also to junctions of street, highways, avenues and boulevards, as well as intersections of railway lines with highways.

CLAIMS

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1. A road junction comprising a level intersection of a main<sup>road</sup> and a minor road, a barrier set across the path of the minor road at the intersection such as to prevent traffic on the minor road crossing the major road directly, the barrier being in line with the main road such that traffic is permitted to travel freely on the main road in one stream direction on one side of the barrier and in the opposite stream direction on the other side of the barrier, and two one way detour roads each having an entry and an exit on opposite sides of the main road and overpassing or underpassing the main road such that traffic travelling on the main road may by using the detour road entry immediately downstream of said intersection turn to the nearside and transfer to the opposite side of the main road emerging upstream of said intersection.

2. A road junction as claimed in Claim 1 wherein the major road comprises at least two traffic lanes on at least one side of the barrier such that in use traffic flow in one or more lanes is unhindered by traffic entering or leaving the minor or detour roads.

3. A road junction as claimed in Claim 1 or 2 further comprising tunnels for pedestrians or cycles having an entrance or exit on either side of one or more merging points of the said roads.

4. A road junction substantially as hereinbefore described with reference to the accompanying drawings.

