



A novel Approach of an Improved Two-Lane, Two-Way Highways: Current Procedures

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Abstract—In this article are presenting a novel approach of an improved two lane, two ways highways. In this article are describing the current procedure of two lane & two ways highways. A two – lane highway is an undivided motorway with lanes, one to be used by way of site visitors in each route of travel. Lane changing and passing is possible simplest within the segment of oncoming visitors inside the opposing visitors as site visitor’s volume boom, the ability to skip will decrease. Any segment may be analyzed as a directional segment. The manner is used to investigate prolonged directional segments, precise enhancements or downgrades defined as two-lane highways positioned in mountainous terrain or with grades that exceed 3 percent in segments exceeding lengths of zero.6 m and passing lanes for pretty quick uniform segments.

Keywords—Novel; 2-lane; 2-ways; Highways; Improved.

I. INTRODUCTION

The latest statutory exchange within the velocity limit has had a dramatic impact on rural -lane, manner visitors. In years past, heavy vans tended to make use of the interstate toll road machine due to the fact at the 55 mile per hour (mph) velocity limit, it supplied the least route of resistance. While actual distances pushed had been really more, journey times have been kind of identical when compared to using rural highways. Some delays have been because of riding via cities. The new velocity restriction modified that equation. By being able to travel at extra speeds, truck drivers can now store time by taking extra direct routes to their ultimate locations the usage of the agricultural highways. Thus, the proportion of truck visitors on the rural highways has multiplied. With this increase in large automobiles comes an growth in the range of passing actions required through passenger vehicles. This circumstance is an immediate function of the allowable speeds for the various varieties of automobiles. While passenger cars might also travel at accelerates to 70 mph, trucks are restricted to 60 mph and faculty buses are confined to 50 mph. This relative pace deviation creates a circumstance in which drivers in open terrain, like that in West Texas, are tempted to execute probably dangerous passing moves for 3 motives.

First, because the terrain is noticeably flat drivers accept as true with they have got the essential passing sight distance when regularly they do now not. Secondly, due to the fact, the visitors are generally mild; drivers are greater confident they could execute this movement accurately. Third and most important for this take a look act’s a reason, drivers know that they must execute a passing motion sooner or later if they do now not need to follow a slow-transferring vehicle to the subsequent town due to the fact there are not any options.

The community of the two lane two way dual carriageway within the Hashemite state of Jordan wishes a brief and numerous improvement and treatment, inside the past few many years the growth of the wide variety of cars has led to a decrease inside the stage of provider and the excellent overall performance on lane highways.

Roads and highways are a primary part of the transportation infrastructure in Jordan and play a big role within the local economic system and network improvement. High satisfactory of provider of

these centers is important to ensure safe, price powerful and daily visitors operations. There is a fast increase in populace of Jordan which led to increase of demand in each and every issue of our lives; therefore the increase of demand is directly proportional to increase of the usage of cars and the motorway potential.

Two-lane highways are a totally essential element in the dual carriageway structures of most international locations. They are used for a variety of capabilities, are located in all geographic areas, and serve a huge range of traffic. Any attention of operating great should account for those disparate capabilities.

A two-lane dual carriageway is an undivided roadway with two lanes, one lane for use with the aid of visitors in every route. As volumes and geometric restrictions growth, the ability to bypass decreases and platoons bureaucracy. Motorists in platoons are concern to postpone due to the fact they're not able to skip.

Highways in the Hashemite country of Jordan needs to be reconsidered and locate destiny plans to improve high-quality of provider that provided from these facilities; wherein with the growth range of motors brought about decrease within the quality service and became important to look at the reasons in addition to finds the solutions whether for the modern or future conditions.

Highway Capacity Manual (HCM) is the pioneer in control and assessment for capability and satisfactory of carrier of various motorway centers including freeways, highways, arterial roads, roundabouts, signalized and un-signalized intersections, city highways, and the consequences of mass transit, pedestrians, and bicycles at the performance of those systems.

There are two performance measures to describe service quality for two lane two way highways:

- Percent time spent following (PTSF)
- Average travel speed (ATS)
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Percent time spent following (PTSF)

Percent time spent following represent the freedom to move and comfort and comfort of tour. It is the common percentages of journey times that automobile have to journey in platoons behind slower vehicles due to lack of ability to skip.

Average travel speed (ATS)

ATS reflects the mobility on a Two -lane dual carriageway (Highway). It is calculated as the length of the highway phase divided by way of the common travel time of all motors travelling the segment in both directions during a designated interval.

The philosophy of Super Two is to offer easy traffic movement and overtaking manoeuvres inside the conventional two-lane -way highways. If constructed as a -lane street the Super Two will offer a number of the facilities of a four-lane motorway. In making plans a regional avenue system, the Super Two might be facility usually used for minor and low-volume major arterials.

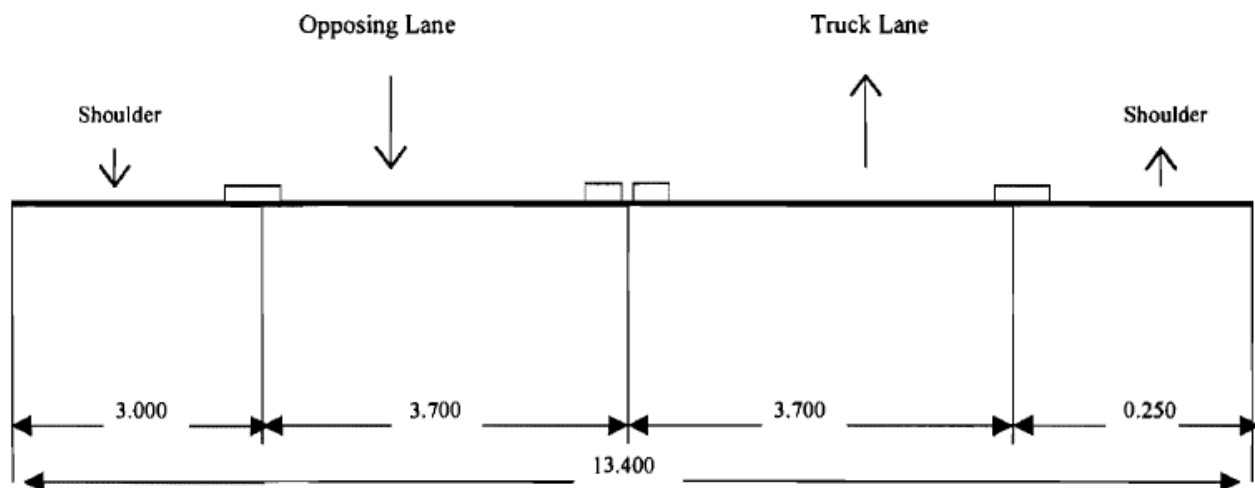


Figure 1. Current Two-Lane Rural Highway [Internet Resource]

II. TYPES OF TWO WAY TWO LANES HIGHWAYS

Two classes of -lane highways are analyzed. They are described according to their characteristic within the following manner.

Class I. Two-lane highways that characteristic as number one arterials, day by day commuter routes, and links to different arterial highways. Motorists' expectations are that travel could be at highly excessive speeds.

Class II. Two-lane highways in which the expectancy of motorists is that tour speeds will be lower than for Class I roads. These highways might also serve as get right of entry to to Class I -lane highways; they will serve as scenic byways or may be utilized by motorists for sightseeing. They also may be located in rugged terrain. Average ride lengths on Class II highways are shorter than on Class I highways.

Base conditions for two way two lanes

Base situations exist for the following traits:

- Level terrain
- Lane widths 12 ft or more
- Clear shoulders 6 feet extensive or extra
- Passing authorized with absence of no-passing zones
- No impediments to via traffic due to traffic control or turning vehicles
- Passenger automobiles only inside the traffic flow
- Equal volume in each direction (for analysis of two-way goes with the flow)

III. CAPACITY AND LOS OF A TWO-LANE HIGHWAY

The potential of a two-lane highway is 1700 passenger cars consistent with an hour (pc/h) for every route of journey Capacity of directions is 3200 pc / hr Capacity and LOS of a two-lane highway. Level of Service (LOS) expresses the overall performance of a dual carriageway at site visitor's volumes much less than ability. LOS for Class I highways is based totally on measures: PTSF and ATS. LOS for Class II highways is based on a single degree: PTSF

Speed-Flow and Percent Time-Spent-Following - Flow Relationships for Two-Way Segments with Base Conditions.

IV. PROCEDURES FOR DETERMINING LEVEL OF SERVICE

The tactics for figuring out the LOS of a -lane motorway are done one after the other for the following cases:

Two-way segments positioned in degree or rolling terrain. Grades are 1 to two percentage, and heavy motors hold an equal pace as passenger automobiles.

Directional segments for which the LOS is decided for site visitors in a single direction. Any phase may be analyzed as a directional segment. The procedure is used to research prolonged directional segments, particular enhancements or downgrades described as -lane highways located in mountainous terrain or with grades that exceed 3 percent in segments exceeding lengths of 0.6 m and passing lanes for pretty brief uniform segments.

Two-Way Segments

The evaluation of -lane roads for two-manner segments is generally performed on prolonged lengths while the section length is as a minimum 2.Zero mi and the section is positioned in level or rolling terrain.

1. Level terrain: segments comprise flat grades of 2 percentage or much less. Heavy cars are able to preserve the equal pace as passenger motors all through the segment.

2. Rolling terrain: segments incorporate brief or medium period grades of 4 percent or less. Heavy truck speeds are decrease than passenger automobiles however aren't at move slowly pace.

V. DESIGN SPEED AND AVERAGE DAILY TRAFFIC

The Design Speed ought to range from 80 to one hundred ten km/h when an current -lane toll road is upgraded to Super Two. In all new construction and reconstruction, the Design Speed of a hundred to one hundred ten km/h should be used. In all instances, while upgrading the existing roadway, the fashion designer need to apply the velocity that is extra than or at the least equal to the published speed. The ADT cost of 2000 is considered to be the essential ADT between and four-lane highways. In a examine published within the Transportation Research Record (TRR) 1303, "Warrants for Passing Lanes", suggests that Passing Lanes on rural two-lane highways have beneficial benefit/price ratio at AADT's of 6500 and more. The length of a passing lane is depending on the quantity of automobiles in line with hour (vph) for the task. The top of the line length of passing lanes to reduce platooning is zero.8 to one.6 km. General recommendations for the development of design length is as follows:

VPH One Way	Length of Passing Lane
400	1.2 to 1.6 km
700	1.6 to 2.0 km

The spacing layout for passing lane is dependent on site visitors extent. For a vph of much less than seven-hundred this spacing may additionally vary from 16 to 24 km. On the alternative hand this spacing may additionally range from 5 to eight km or more for a vph of seven-hundred or extra (Technical Memorandum, 1996).

IV. CONCLUSION

After evaluating motorway traits, the Super Two idea is a great approach to the solution of the problem. This sort of dual carriageway with brought passing lanes should offer a fee-effective method for improving the level of a carrier on two-lane, two - way highways. Not best can passing lanes improve site visitors operations on the two-lane, two-way highway; however, they've also been documented to lessen accidents. However, earlier than the design section, an intensive analysis of the toll road in phrases of evaluating financial savings with the development and upkeep expenses is crucial. In order to give you sound analysis, area statistics revealing the characteristics of a selected toll road ought to be connected. By taking into account all put-off and coincidence savings, Super Two have to be taken into consideration a permanent solution or a brief production among two-lane, two-way highways.

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