Course Code: CE 455
Course Title: Traffic Engineering and Management

Lecture 3: Traffic engineering administration and legislation

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Outline

- Regulation of traffic,
- Need and scope of traffic regulations,
- Motor Vehicle Act,
- Speed limit at different locations

Regulation of traffic

Traffic Rules & Regulations

1) Introduction

Do not Drive without these Documents

1. Valid driving license
2. Vehicle registration certificate (Form 23)
3. Valid vehicle's insurance certificate
4. Permit and vehicle's certificate of fitness (applicable only to transport vehicles)
5. Valid Pollution Under Control Certificate On demand by a police officer in uniform or an officer of the Transport Department, produce these documents for inspection

New Traffic Rules 2022 in Bangladesh

According to the old rule, the highest penalty for traffic law violation was two years' imprisonment, while the minimum jail term was one month. The maximum fine is Taka 5,000, and the minimum Tk100. On the other hand under the Road Transport Act, 2022, the maximum fine is as much as Tk5 lakh, and the minimum fine is Taka 5,000. Following the new fine chart, the amount of collected fines will increase significantly, if the number of traffic rule violations remains the same.

Need and scope of traffic regulations

Reasons for obeying traffic regulations

1 It helps to check over-speeding. Accidents will be reduced when people obey the speed limit. 2 It reduces accidents on the road. If the traffic regulations guide the behaviour of road users, the number of accidents on the roads will reduce greatly.

7 Reasons Why Traffic Rules And Signs Are Important

1. They Reduce Accidents and Injuries.
2. They Provide Consistent Rules
3. They Help Direct You to Where You Are Going
4. They Warn Drivers About Obstacles That Aren't Obvious
5. They Manage Traffic Flow
6. They’re Important for New Drivers
7. They Help Protect Cyclists and Pedestrians

Motor Vehicle Act

- The motor vehicles ordinance, 1983 by Bangladesh Govt.
- Bangladesh Road Transport Authority (BRTA) is the road transport regulatory agency of Bangladesh.

✓ The main reasons behind drafting and enacting this legislation include the rapidly increasing number of vehicles in the country and the need for encouraging adoption of higher technology in the automotive sector.

✓ There also existed a need for effectively tracking down traffic offenders and providing more deterrent punishment for certain offences.

✓ There was also a growing concern for the framing of standards around vehicle components and road safety, as well as measures for pollution control.

✓ Additionally, there was a necessity for improved regulation around the registration of drivers, with there being a need for stricter protocol around granting driving licenses.

Speed limit

- The management of speed through appropriate speed limits is an essential element of highway safety. Appropriate speed limits are a prerequisite for effective and sustainable speed management.
- In terms of traffic law, speed limits should reflect the maximum reasonable and safe speed for normal conditions.
- That is speed limits should be acceptable as reasonable by most drivers and separate high and low risk speed behavior.

Speed limit

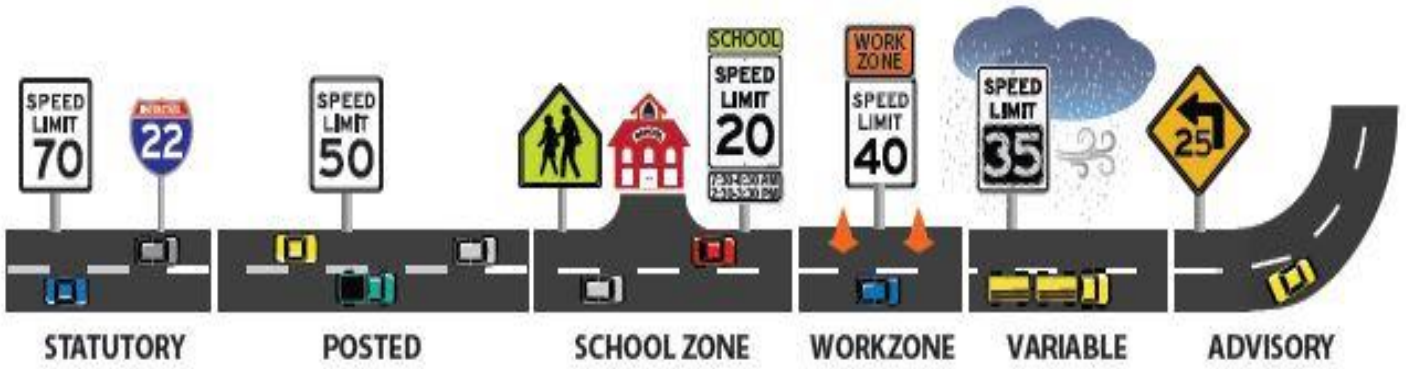
Methods for Setting Speed Limits

The FHWA Methods and Practices for Setting Speed Limits: An Informational Report describes three approaches for setting speed limits.

Engineering Approach - A two-step process where a base speed limit is set according to the 85th percentile speed, the design speed for the road, or other conditions. This base speed limit is adjusted according to traffic and infrastructure conditions such as pedestrian use, median presence, etc. Within the engineering approach there are two approaches: The Operating Speed Method is set within 5 mph of the 85th percentile speed determined from speed surveys and then appropriate changes plus or minus are made based on other considerations. Under the Road Risk Method, the level of roadside development and the function of a road are the primary determinants of the appropriate speed limit.

Expert System Approach - Speed limits are suggested by a computer program that uses knowledge and inference procedures that simulate the judgment and behavior of speed limit experts. Typically, this system contains a knowledge base containing accumulated knowledge and a set of rules for applying the knowledge to each particular situation. The FHWA developed USLIMITS2 is an expert system. USLIMITS2 is designed to determine speed limits in speed zones on all types of road, from rural two-lane segments to urban freeway segments. Based on input from the user, USLIMITS2 uses a decision algorithm to advise the user of the speed limit for the specific road section. Input into US LIMITS2 includes: surrounding development; access points; road function; road characteristics (e.g., divided or undivided, number of lanes, annual average daily traffic (AADT), roadside hazards, and section length) or freeway characteristics (e.g., number of interchanges, section length, and AADT); existing vehicle operating speeds (50th and 85th percentile); pedestrian activity; crash history; and special conditions (e.g., adverse alignment, transition zones, and parking). There is current industry discussion that an expert system, such as USLIMITS2, should be used to validate an engineering approach to speed limits.

Safe System Approach - The safe systems approach emphasizes that some degree of roadway user error will always occur, and that such errors should not result in a fatality or serious injury. With this approach, speed limits are set according to the crash types that are likely to occur, the impact forces that result, and the human body's tolerance to withstand these forces. In the safe system approach, the primary criterion is the safety of all road users, including pedestrians and bicyclists that are more vulnerable to injury and death when hit by a vehicle. Consequently, this approach usually results in lower speed limits than those that would be determined by the engineering and expert system approaches. Tactics such as traffic calming, physical separation of roadway users, and treatments that enhance visibility of vulnerable users to give drivers greater reaction time are safe systems. A safe systems approach requires a holistic planning of the roads and interconnected factors provide for optimal safety. The safe systems approach is an ideal approach for many urban roads and to strengthen protection for vulnerable users. The World Health Organization Speed Management: A Road Safety Manual for Decision-Makers and Practitioners has sections on Safe Systems and the Role of Speed. Additionally, the World Road Association Road Safety Manual, A Manual For Practitioners And Decision Makers On Implementing Safe System Infrastructure and the World Resources Institute report titled Sustainable and Safe: A Vision and Guidance for Zero Road Deaths provides information on how practitioners can apply the Safe Systems approach to fatalities and offers guidance on safe speed limits appropriate for the type of road, common crash types, safety of all road users, and how to effectively use safety data to inform speed management decisions.



Types of Speed Limits

Speed limit in different locations of Bangladesh

Rules of the road

- 25 KPH in town.
- 30 KPH on rural / main roads.
- 80 KPH on highways / motorways.

Variable Speed Limits

Selecting appropriate speed limits on roadways is important in maintaining a safe and efficient transportation network. Speed limits are established with an engineering study based on inputs like traffic volumes, operating speeds, roadway characteristics, and crash history. However, conditions on the roadway are susceptible to change in a short amount of time (e.g., congestion, crashes, weather). Drivers typically determine their operating speeds under normal weather conditions on a straight roadway section with good pavement quality and adequate sight distances. If ideal conditions do not exist and the roadway does not meet the driver's expectations, there is a greater chance that a driver error could result in a crash. Providing variable speeds limits (VSLs) capable of adapting to changing circumstances could reduce crash frequency and severity.

Source: WSDOT

Applications

VSLs use prevailing information on the roadway, like traffic speed, volumes, weather, and road surface conditions, to determine appropriate speeds and display them to drivers. This strategy improves safety performance and traffic flow by reducing speed variance (i.e., improving speed harmonization). VSLs may also improve driver expectation by providing information in advance of slowdowns and potential lane closures, which could reduce the probability for secondary crashes. VSLs can mitigate adverse weather conditions or to slow faster-moving traffic as it approaches a queue or bottleneck.

Speed management strategies, including VSLs, are integral to the Safe Speeds element of the Safe System Approach. Because humans are unlikely to survive high-speed crashes, VSLs reduce speeds so that human injury tolerances are accommodated in three ways: improving visibility, providing additional time for drivers to stop, and reducing impact forces.

Agencies can implement VSLs for the following applications:

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Considerations

- Particularly effective on urban and rural freeways and high-speed arterials with posted speed limits greater than 40 mph.
- Often implemented as part of Active Traffic Management (ATM) plans or incorporated into existing Road Weather Information Systems.
- When used with ATM, VSLs can mitigate rear-end, sideswipe, and other crashes on high-speed roadways.
- May be implemented as a regulatory and/or an advisory system.
- Can be applied to an entire roadway segment or individual lanes.

Transportation and transport infrastructure authority in Bangladesh		
Name	Responsibilities	Website
Bangladesh Road Transport Authority (BRTA)	Regulatory body to control, manage and ensure discipline in the road transport sector of Bangladesh, as well as to maintain road safety.	http://www.brta.gov.bd/
Roads and Highways Department (RHD)	Responsible for the construction and maintenance of highways and bridges across Bangladesh.	https://rhd.portal.gov.bd/
Local Government Engineering Department (LGED)	Created for provision of transport infrastructures in rural areas and to provide technical support to the rural and the urban local government, planning and implementation of infrastructure development projects in the rural and urban areas to improve communication and transport network	https://www.lged.gov.bd/
Bangladesh Inland Water Transport Authority (BIWTA)	Authority who controls the inland water transport in Bangladesh.	http://www.biwta.gov.bd/
City corporations, such as, DNCC, DSCC, CCC, KCC, RCC	Governs the municipal areas and traffic operations, regulations.	
Bangladesh Railway (BR)	Operates and maintains all railways in the country	https://railway.gov.bd/