Our Transportation System is in Crisis - 50

Today, I continue with evacuation transport planning, from last week. The Diagnostic Report of the Comprehensive National Transport Study (CNTS) presented earlier this year showed the following for key urban centres during a typical 16-hour weekday from 6:00am to 10:00pm: 357,000 people enter POS in 135,000 vehicles, and 343,000 people leave POS in 129,000 vehicles; 153,000 people enter San Fernando in 67,000 vehicles, and 170,000 people leave San Fernando in 77,000 vehicles; 139,000 people enter Chaguanas in 57,000 vehicles, and 117,000 people leave Chaguanas in 41,000 vehicles. Therefore, travel demand and mobility in POS during a typical weekday far exceeds the other urban centres, and so POS is the focus of this article.

Put another way, approximately 350,000 persons, or 30 percent of the national population, enter the capital city every day in order to use it for some type of activity, for example, work, school, business, etc. According to the CNTS, about 60 percent of them, or 210,000, are from the east, and the rest or 140,000 are from the east and north of the city. Any evacuation strategy must recognise that these persons require transport in the respective directions to their places of residence. In addition, there are about 50,000 people residing in the city, and depending on the type of disaster, these may have to be accommodated outside the city.

The Ministry of Works and Transport (MWT) has explained that the nature of a city's evacuation plan is determined by the crisis or threat for which it is being conceived, and they have given the following as examples of such emergencies are: Severe Weather; Power Outage; Water Damage; Medical Emergency; Explosion(s); Fire; Suspicious Mail; Chemical Spill; Gas Leak; Earthquake; Workplace Violence; Civil Disturbance; Bomb Threats; and, Volcano Eruption.

No single solution will deliver similar levels of mobility and accessibility for each of the threats identified without safety, congestion, environmental, or other consequences. The way forward is a balanced approach to evacuation planning. In preparing this approach, the following should be considered: how much time is needed for the entire population to reach a safe place; how many people are at risk as a result of the estimated evacuation time; what routes must be used by public vehicles employed in the evacuation; what types and volumes of commercial vehicles are likely to be involved in the analysis; what are the bottlenecks on the network when exposed to the traffic demand produced by an evacuation; and, what traffic control measures can be implemented to improve the efficiency of the network? The analysis should also include the generalized hypothesis that the rationality of the evacuating user fails: the user acts without information on the transportation network's state of congestion and, due to panic, is unable to evaluate lucidly any information received in real time.

A multimodal strategy may be inevitable, particularly in the case of a post-event evacuation. Not only shuttle bus, maxi, etc., but also water options such as ferry shuttle, etc. Depending on the circumstances, there may be a need to prevent private vehicle travel.

The evacuation strategy must consider and allow for the circulation needs of the city residents, and the security needs of the city businesses and residents.

There must be coordination in decisions relating to management and operation of the transportation network, and between the public and emergency officials. There must be frequent updates to broadcast media for use on radio / TV. There must be increased communications capacity to support peak demand for providing information to the public and support a redundant and robust communication system that is tolerant to equipment failure. Two-way radios would help field personnel communicate during the evacuation; and Internet email would help agencies communicate decision with their staff.

Employment of Intelligent Transport Systems (ITS) is mandatory for monitoring traffic incidents on the routes, including: a Traffic Management Centre and CCTV. Each of the cameras along routes should be equipped with pan, tilt and zoom capabilities, which will be controlled remotely by the system operator. Information will be conveyed to the motorists using Variable Message Signs (VMS).

Tow-trucks would be used to ensure that disabled and abandoned vehicles could be removed. The strategy would identify the number of tow trucks to be used and the time periods they are to be available, the stationing and staging of tow-trucks in the transportation system, storage of towed vehicles, and tow truck coordination and communication with the command centre.

The strategy should be flexible and adaptable to contingencies. Helicopters may be preferred to continuously monitor traffic conditions, particularly in the short term, when the advanced traffic control systems have not been installed.

A disaster may result in a need to carry out the following activities, as identified by the Office of Disaster Preparedness and Emergency Management (ODPEM) in Jamaica: Transportation of

victims to medical care facilities; Clearance of debris from roadway; Clearance of gullies and drains; Evacuation of victims to shelters/safe areas; Rescue of trapped victims; Assisting in the Welfare of victims; and, Movement of response teams and relief items.

Referring to my imaginary example of last week, where the entire eastern side of POS is cut off from traffic accessibility during the afternoon of a weekday as result of a collapsed culvert across both carriageways of the Beetham Highway, with major flooding on both the Eastern Main Road (EMR) and the Priority Bus Route (PBR), and several areas of Beetham/ Laventille, as well as a major landslip across the Lady Young Road near the Lookout. More than 200,000 persons are likely to have been trapped, and require assistance to exit the city. There will be a mad rush to use Saddle Road in Maraval as a bypass to San Juan, and so there will be tremendous congestion in the city, especially around the Queen's Park Savannah. There will also be need for policing traffic on the flooded EMR and PBR. But a critical examination should be made of using the inter-island ferry to shuttle persons and/or vehicles to Point Lisas, as well as supporting security and storage of vehicles at the parking garages and other places in POS. In another article I will discuss evacuation transport routes.

e-mail: lfsystems@carib-link.net