World Academy of Science, Engineering and Technology
International Journal of Urban and Civil Engineering
Vol:11, No:03, 2017

The Strategies to Develop Post-Disaster Multi-Mode Transportation System from the Perspective of Traffic Resilience

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Abstract : On August 8th of 2015, a serious explosion occurred in Binhai New Area of Tianjin. This explosion led to the suspension of Tianjin-Binhai Light Rail Line 9 which was an important transportation mean connecting the old and new urban areas and the suspension causes inconvenience to commuters traveling from Tianjin to Binhai or Binhai to Tianjin and residents living by Line 9. On this regard, this paper intends to give suggestions on how to develop multi-mode transportation system rapidly and effectively after a disaster and tackle with the problems in terms of transportation infrastructure facilities. The paper proposes the idea of traffic resilience which refers to the city's ability to restore its transportation system and reduce risks when the transportation system is destroyed by a disaster. By doing questionnaire research, on the spot study and collecting data from the internet, a GIS model is established so as to analyze the alternative traffic means used by different types of residents and study the transportation supply and demand. The result shows that along the Line 9, there is a larger demand for alternative traffic means in the place which is nearer to the downtown area. Also, the distribution of bus stations is more reasonable in the place nearer to downtown area, however, the traffic speed in the area is slower. Based on traffic resilience, the paper raises strategies to develop post-disaster multi-mode transportation system such as establishing traffic management mechanism timely and effectively, building multi-mode traffic networks, improving intelligent traffic systems and so on.

Keywords : traffic resilience, multi-mode transportation system, public traffic, transportation demand
Conference Title : ICUPRD 2017 : International Conference on Urban Planning and Regional Development
Conference Location : Tokyo, Japan
Conference Dates : March 27-28, 2017