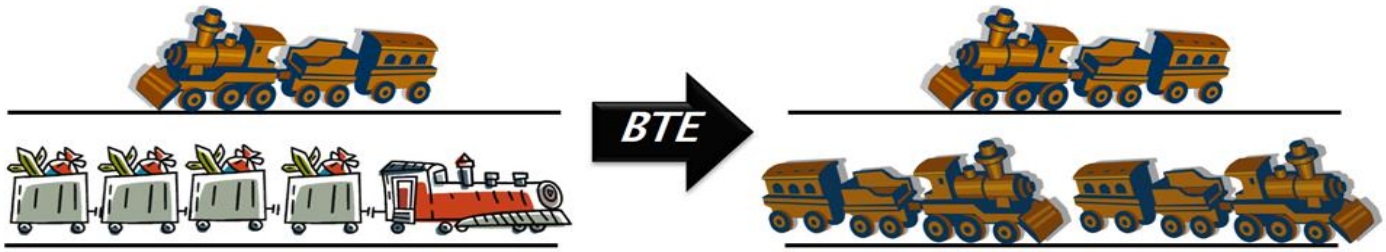
THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
土木及環境工程學系
CEE

Hong Kong Society for Transportation Studies



Converting Multiple Types of Trains into a Standard Capacity Unit Using Base Train Equivalents Model

Prof. Yung-Cheng (Rex) Lai
Department of Civil Engineering,
National Taiwan University, Taiwan

Abstract

Determining the required capacity upgrades to accommodate future demand is a critical process in assisting public and private financing of capacity investments. A conventional railway system usually has multiple types of trains with various service patterns operating on the same line. These different types of trains can exert substantially different capacity impact, and can cause serious operational conflicts. In the past, rail line capacity is commonly defined as the maximum number of trains that can be operated on a section of track within a given time period. However, a specific unit (trains/hour or trains/day) does not reflect the heterogeneity of train types. According to the concept of Base Train Equivalent (BTE) and Base Train Unit (BTU), this study developed headway-based models to determine BTE for transforming different train types into a standard unit (i.e., BTU). An approximate method for lines with three and more types of trains was also proposed to compute BTEs for non-base trains. Results from the case studies demonstrate that this method enables the standardization of rail capacity unit, facilitates assessment of the impact from heterogeneous trains, and allows comparison and evaluation of the capacity measurements from different lines and systems.

Date: **29 January 2019 (Tuesday)**

Time: **17:00 – 18:00**

Venue: **Room Z414, 4/F, Block Z,**
The Hong Kong Polytechnic University,
181 Chatham Road South, Hunghom, Kowloon,
Hong Kong

Speaker's Biography

Prof. Yung-Cheng Lai, also go by Rex, is a Professor in the Railway Technology Research Center and Department of Civil Engineering at National Taiwan University. He is also the Associate Editor for the Journal of Rail Transport Planning and Management, and Chairman of the Academic Committee for the Railway Engineering Society of Taiwan (RESOT). He is currently on the Board of Directors for both the Chinese Institute of Transportation (CIT) and the Railway Engineering Society of Taiwan (RESOT). His main research interests include railway operation management, capacity planning, and railway safety. His professional services and performance were recognized with the "Distinguished Young Transportation Professional Award" from the Chinese Institute of Transportation, and the "Young Railway Operations Research Award" from the International Association of Railway Operations Research in 2013. In 2014, Prof. Lai was also presented with the "Ta-You Wu Memorial Award" (the most prestigious research award for young researchers in Taiwan) from the Ministry of Science and Technology. He received his Bachelor Degree at National Taiwan University in 2002, Master and PhD from the Railroad Engineering Program at University of Illinois at Urbana-Champaign in 2004, and 2008, respectively. He also served as the Chairman of Railroad Operating Technologies Committee at US Transportation Research Board (TRB) from 2010 to 2016.

***** All Interested Are Welcome *****

For further information, please contact Prof. Anthony Chen at Tel. 3400-8327.
Free Admission. Please reserve your seat with Ms. Connie F.Y. Lam by email: fyc.lam@polyu.edu.hk.
Certificates of attendance will be provided to participants who attend the whole seminar.