

## MTA NYCT Enhanced Station Initiative Program: Innovation in Design Build Information Management, Passenger Modeling, and VR

### **Ms. Eci Garavito-Bruhn**

Senior Engineer

Arup

New York, USA

[eci.garavito-bruhn@arup.com](mailto:eci.garavito-bruhn@arup.com)

Eci is an internationally experienced manager and design professional with over 13 years of experience working on major infrastructure projects.

### **Mr. James Rimington**

Transport Planner

Arup

New York, USA

[james.rimington@arup.com](mailto:james.rimington@arup.com)

James is a Transport Planner primarily involved in 3D pedestrian simulations and user experience-based design.

### **Mr. Roland Martin**

Senior Consultant

Arup

Los Angeles, USA

[roland.martin@arup.com](mailto:roland.martin@arup.com)

Roland is a GIS specialist and analyst with extensive experience in various infrastructure disciplines.

### **Mr. Neil Towell**

Associate

Arup

New York, USA

[neil.towell@arup.com](mailto:neil.towell@arup.com)

Neil is an internationally experienced structural engineer with over 25 years of experience working on major infrastructure projects.

### **Mr. Chad Corsten**

Associate Principal

Arup

New York, USA

[chad.corsten@arup.com](mailto:chad.corsten@arup.com)

Chad is an internationally experienced project manager and engineer with over 24 years of experience working on major infrastructure projects.

**Contact:** [eci.garavito-bruhn@arup.com](mailto:eci.garavito-bruhn@arup.com)

## **1 Abstract**

The Enhanced Station Initiative (ESI) is an ambitious program to rehabilitate and enhance existing New York City Subway stations under an aggressive schedule, using Design-Build contracts. This paper will describe an innovative approach to project information management for the development of concept documents, sharing of information within the project team, and during design and construction, as well as using passenger modeling and virtual reality (VR). Several key software applications and platforms will be discussed, including a project developed dashboard, a collaborative document control system with version-control, a construction management submittal and document control system, a passenger modeling application, and virtual reality (VR) experiences. The paper will focus particularly on the innovative ESI dashboard, a web-based platform developed as a single source for accessing project information. The document control systems were used for contract and construction document production, collaboration and management. The paper will also present the advanced passenger modeling performed with MassMotion and the immersive VR environments used to understand how the confluence of discipline specific designs impact a future user's experience of the station.

**Keywords:** Web-application; Data Visualization; Geomatics; Information Management; Document control; Passenger modeling; VR.