AUTOMATED SMALL VEHICLE TRANSIT SYSTEM STRUCTURAL & ARCHITECTURAL RESEARCH STUDY FOR A UNIVERSITY CAMPUS

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RESEARCH

Introduction

This study focuses on the structural and architectural aspects of constructing an Automated Small Vehicle Transportation (ASVT) system on a university campus.

Project Objective

The structural and architectural aspects of constructing an Automated Small Vehicle Transit System (ASVT) in a university setting have been studied to provide a cost comparison for the different design options.

Project Description

Vehicle size and capacity used for the study were determined and the corresponding live loads and dead loads were calculated for each structural option along with seismic, wind and snow loads. The optimum span between supports was determined to be 90-feet. Several types of structures were considered and three types, pre-stressed concrete inverted T Beams, pre-stressed concrete K-3 beams and rolled steel girders, were studied. Each type of these three superstructure options was designed and a detailed cost estimate was prepared based on that design. Items such as snow melting systems and space for mechanical elements were also considered in the design.

In addition to the superstructure, arrival/departure stations were located along the route. One of the stations in this study was attached to an existing building, utilizing the existing elevators and waiting areas. The rest of the stations were free standing structures located for ease of access and utilization of existing parking areas. The stations were architecturally studied to blend with the existing environment of the campus. Control and maintenance facilities were also addressed in this study.

Project Results

An ASVT system must have an operating control room and vehicle storage and maintenance facilities. These facilities need to be located outside the core of the campus and designed to blend with the existing surroundings.

Report Information

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