

Public Transit & University Cooperation

CARTA & UTC



History of Partnership

- The Downtown Shuttle, operated by CARTA electric buses since 1992, has removed 170,000 tons of tailpipe emissions from the environment.
- UTC College of Engineering and Computer Science wanted to become a problem solving educational & research source on basic theory and design.
- UTC evolved into an urban residential campus.



Goals of Campus Shuttle

- Solve problem of limited space for parking and expansion.
- Provide commuter students with link to campus.
- Provide residential students with alternative to driving on campus.

Influences of Shuttle Usage

- Distance to destination
- Residency
- Parking/driving constraints
- Weather
- Time of day
- Health
- Whether or not student is with someone

Major Factors Influencing Shuttle Usage by Students

- Being able to get to class on time
- Comfort and Protection from Weather
- Information Technology
- Frequency of Service
- Safety

Growth of Student Enrollment

STUDENT ENROLLMENT-FALL SEMESTER 2001-2010										
YEAR	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
ENROLLMENT	8,485	8,525	8,528	8,689	8,656	8,923	9,558	9,807	10,526	10,781

Contract With University

- The Mocs Express route-campus circulator is 2.7 miles long, operated with three vehicles with a seven minute frequency.
- Free With Student ID
- 22 designated bus stops serving major buildings/facilities, residence halls and various parking lots.
- Operates from 7:30 a.m. to 5:30 p.m.
- Annual cost of \$258,040 paid by the university.

Progression of Partnership: Research

- Center for Energy, Transportation & the Environment focused on the relationship between Energy, Transportation & the Environment as part of the College of Engineering and Computer Science.

Plan Focus

- Advanced vehicle technologies and Intelligent Transportation Systems (ITS) applications that can break the mold of traditional transit service and create a truly 'smart and clean' transit system.
- CARTA contribution: 20 years of quantified data from operation of Downtown Shuttle with pure electric vehicles.

The Next Step: Inductive Charging

- Wikipedia-Inductive charging uses an electromagnetic field to transfer energy between two objects
- Short Distance Wireless Energy Transfer
- Induction Coil
- Charging Base Station
- Opportunity Charging

Range of Electric Bus

- Range of electric bus without inductive charging is about 44 miles.
- Inductive charging more than doubles the extension of that range and could eventually lead to there being no range limitation on the electric bus.

Safety

- Wireless Link between embedded coils
- No exposed conductors, and no possibility of electric shock