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- UTC Railway Safety Consortium Institutions – Successful Partnership
- Research Efforts – Fall 2013 to Present
- Educational and Outreach Activities
- Professional Development Activities
- UTCRS Achievements and Impacts
Consortium Institutions

• University of Texas-Pan American (UTPA-Lead)
  – Research Focus: Mechanical Components Safety
• Texas A&M University (TAMU)
  – Research Focus: Railway Infrastructure Safety
• University of Nebraska-Lincoln (UNL)
  – Research Focus: Railway Operations Safety
Keys for Successful Center Operation

- Complimentary areas of research with a strong emphasis on one or more transportation related fields
- Complimentary B.S., M.S., and Ph.D. degree programs
- Mutually beneficial partnerships with appropriate federal, state, local, and private entities leading to products and solutions addressing industry needs
- Effective partnerships with state and local school districts
- Effective communication and equitable distribution of funds among consortium members that optimizes the commitment level of all parties involved in the center
- Build upon, optimize, and enhance already existing facilities, infrastructure, and institutional resources
- Effective collaborations across departments and colleges
Research Activity – Fall 2013 to Present

• Research Covers all aspects of railway safety: physical systems; operations and planning; and human factors
• 18 Projects to date
• 30 Bachelor’s
• 15 Master’s
• 9 Doctoral
• 2 Journal Articles
• 8 Conference Papers
• 2 Master’s Thesis
• 4 Senior Design Projects
Research Experience for Undergraduates (REUs)

- In 2014: 8 students (2 men, 6 women)
- In 2015: 12 students selected (4 men, 8 women)
- All historically underrepresented
UTCRS Summer Camps

• Summer 2014: the camps served 700 students (300 elementary, 300 middle school, and 100 high school students) from over 130 schools representing 26 school districts in the Rio Grande Valley (RGV).

• Summer 2015: committed camp enrollment is 1000 students (450 elementary, 425 middle school, and 125 high school), again distributed among RGV school districts.
Elementary Students

• 3rd-5th grade students took part in inquiry-based activities to learn about science and engineering concepts in relation to transportation safety.
• Students designed and built a magnetic levitation train system to explore dynamic motion concepts and safety measures to prevent collisions.

Elementary camp participants discuss their daily lesson plans with UTCRS director Constantine Tarawneh.
Middle School

- 6th-8th grade students learned about transportation engineering and railway safety through project-based curriculum focused on robotics.
- Students built and programmed various types of vehicular robots designed to obey traffic lights and railway safety signs and signals.
High School

- 9th-12th grade students took part in a number of challenging competitions that included designing and programming an efficient vehicular robot as part of collaborations with TexPREP and an NSF-STEP grant.
A major goal of the UTC for Railway Safety is to encourage students from groups traditionally underrepresented in transportation to consider careers in transportation-related fields. The summer camps supported this goal as there were approximately 700 camp participants, of which over 80 percent were Hispanic and over 35 percent were female.
Research Experience for Teachers (RETs)

- In 2014: 66 K-12 STEM Teachers
- In 2015: 85 K-12 STEM Teachers
Questions