

# The Role of Research in Transit Operations

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# Spotlight

## Blue Sky Research: Long-term Vision

- Space Travel
- Elon Musk's Hyperloop

# Flashlight

## Practical Research: Meeting Current Transit Challenges

- Low-Floor LRVs in the late 1980s
- Handling Native American Artifacts
- HOV Lane Standardization Handbook
- and others...

# Key Presentation Take-Aways

- Low-Floor LRVs in the Late 1980s
- Handling Native American Artifacts
- HOV Lane Standardization
- Bus Rapid Transit (BRT)
- Senior Adult Community Transit Use Training
- TSA Explosives Operators Training Program
- Regional Transit System Emergency Response Evaluation
- Informing Public Policy on Auto-based Greenhouse Gas Emissions

# Low-Floor LRVs in the Late 1980s

- Medium Capacity Rapid Transit (MCRT) was being Identified throughout the Nation as a preferred alternative during alternative analyses.
- MCRT was defined as light-rail based primarily on the European model of the time.
- APTA requested TRB's TCRP to determine what LRVs were optimum for America.
- The resulting study defined a LRV was that not only operationally but met the new ADA requirements with an ultra low-floor eliminating the cost and operational impediments of raised platforms for LRVs.
- As the TRB report was being published the results became specifications for the VTA Light-Rail Fleet then being ordered.

# Handling Native American Artifacts

- Construction projects throughout the nation have been delayed when Native American artifacts are found and must be respectfully handled.
- In 2006, California DOT asked the Mineta Transportation Institute to study the issue and develop a standardized, expedited procedure to be applied whenever artifacts were identified.
- Working with Caltrans staff, MTI researchers evaluated multiple circumstances of such discoveries and developed a peer reviewed report which has since been published in 2011 and again in numerous professional journals and has become the basis for standardized "Tribal Corridor Management Plan for California" which is now the guiding procedure for Caltrans and other agencies.

# HOV Lane Standardization

- As High Occupancy Vehicle (HOV) lanes became popular in the 1980s and 90s, Caltrans noticed that each project was being designed individually and using different performance specifications.
- That unique effort was costing significantly more, creating delay which was also expensive and not building on prior experience, therefore, allowing the same errors to occur time again.
- Caltrans asked the Mineta Institute to study the potential of standardizing the process which was done in cooperation with current and retired Caltrans staff members.
- The result was a peer reviewed and often republished report that led to a Caltrans HOV standardization handbook.

# Bus Rapid Transit (BRT)

- In 2006 CA DOT asked MTI to look at the multitude of Bus Rapid Transit projects in the state to determine if a standardization of specifications might be possible.
- MTI research associates looked at best practices throughout the world and after two years of intensive evaluations proposed standardized specifications and BRT project study procedures to Caltrans.
- Caltrans then in 2009, with support of the MTI research team developed and continues to use the bus rapid transit guidebook throughout the state and when working on projects with local partners.



# Senior Adult Community Transit Use Training

- In 2004 Caltrans requested a study of the senior adult communities use of transit with the objective of developing a demonstration program to assist those programs.
- MTI fielded a team of research associates which conducted focus group surveys of seniors in several communities, most especially the Rossmoor senior adult community in northern California. With the assistance of professional public relations experts and frequent feedback surveys with the seniors. A report was prepared that included a video training program.
- That video won the TRB “Communicating with John and Jane Q. Public” award in 2011 and is frequently used by Caltrans and local communities in California.

# TSA Explosives Operators Training Program

- In 2008 US DHS asked MTI to develop a training program for TSA explosive operators (those who detect and dispose of explosives).
- MTI's National Security and Safety Center conducted a detailed best practices survey of similar training programs throughout the world and published a peer reviewed report in 2010. Demonstration training programs by the MTI staff were conducted for US DHS.
- MTI received the US DOT Science and Technology Directorate's "Impact Award" for 2011 for this program which continues to be in use.



# Regional Transit System Emergency Response Evaluation

- San Francisco Bay region conducted an emergency response exercise, OPERATION IRON HORSE, with all 27 of the areas transit agencies especially focusing on the rail transit systems in 2009.
- The regional Metropolitan Transportation Commission requested an objective third-party after-action to be conducted by MTI. To accomplish that difficult and controversial step the MTI National Transportation Safety and Security Center researchers were observers throughout the exercise, prepared detailed yet tactful critiques, and privately debriefed the involved transit agencies.
- The organization sponsoring the test “Urban Area Initiative” has integrated the critique recommendations in to a new set of first responder procedures.

# Informing Public Policy on Auto-based Greenhouse Gas Emissions

- Based on several projects conducted by MTI researchers a paper was prepared for TRB and titled “Greenhouse Gas Emissions: Impacts of Car-sharing in North America.”
- The paper won the 2011 TRB “Second Annual Outstanding Research Paper in Public Transportation Award” and has since been republished in several professional journals.
- The paper and the related research, led by MTI research associate Dr. Susan Shaheen, has provided an intellectual foundation for the rapidly expanding car and bicycle sharing programs now being introduced in many American cities.

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