UTC Project Information	
Project Title	Synergistic Integration of Transportation Demand Management Strategies (Land Use, Transit, and Auto Pricing) with New Technologies and Services (Battery Electric Vehicles and Dynamic Ridesharing) to Enhance Reductions in VMT and GHG (Former title: Transportation Futures for Deep Greenhouse Gas Reductions: Synergistic Interactions of New Transportation Technologies and Services with Land Use, Transit, and Auto Pricing Policies)
University	San José State University Mineta National Transit Research Consortium
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Funding Source(s) and Amounts Provided (by each agency or organization)	Research and Innovative Technology Administration University Transportation Centers Program ($30,500) California Department of Transportation Office of Research—MS42 ($30,500)
Total Project Cost	$61,000
Agency ID or Contract Number	DTRT12-G-UTC21
Start and End Dates	August 2013 – October 2015
Brief Description of Research Project	It is widely recognized that new vehicle and fuel technology is necessary, but not sufficient, to meet deep greenhouse gas (GHG) reductions goals for both the U.S. and the state of California. Demand management strategies (such as land use, transit, and auto pricing) are also needed to reduce passenger vehicle miles traveled (VMT) and related GHG emissions. In this study, the authors explore how demand management strategies may be combined with new vehicle technology (battery electric vehicles or BEVs) and services (dynamic ridesharing) to enhance VMT and GHG reductions. Owning a BEV or using a dynamic ridesharing service may be more feasible when distances to destinations are made shorter and alternative modes of travel are provided by demand management strategies. To examine potential markets, we use the San Francisco Bay Area activity based travel demand model to simulate business-as-usual, transit oriented development, and auto pricing policies with and

	without high, medium, and low dynamic ridesharing participation rates and BEV daily driving distance ranges. The results of this study suggest that dynamic ridesharing has the potential to significantly reduce VMT and related GHG emissions, which may be greater than land use and transit policies typically included in Sustainable Community Strategies (under California Senate Bill 375), if travelers are willing pay with both time and money to use the dynamic ridesharing system. However, in general, large synergistic effects between ridesharing and transit oriented development or auto pricing policies were not found in this study. The results of the BEV simulations suggest that TODs may increase the market for BEVs by less than 1% in the Bay Area and that auto pricing policies may increase the market by as much as 7%. However, it is possible that larger changes are possible over time in faster growing regions where development is currently at low density levels (for example, the Central Valley in California). The VMT Fee scenarios show larger increases in the potential market for BEV (as much as 7%). Future research should explore the factors associated with higher dynamic ridesharing and BEV use including individual attributes, characteristics of tours and trips, and time and cost benefits. In addition, the travel effects of dynamic ridesharing systems should be simulated explicitly, including auto ownership, mode choice, destination, and extra VMT to pick up a passenger.
Describe Implementation of Research Outcomes (or why not implemented)	Rodier, Caroline. "Dynamic Ridesharing Services: An Exploration of the Potential for Greenhouse Gas Reductions." Presentation at the ITE (Institute of Transportation Engineers) SF Bay Area Modeling Workshop, San Francisco, CA, April 29, 2015. Rodier, Caroline. "Transportation Futures for Deep Greenhouse Gas Reductions." Presentation at the Caltrans Research Connection Event, Webcast, May 28, 2015. Rodier, Caroline. "Travel Effects of Dynamic Ridesharing Adapted for Automated Vehicles." Presentation at the Automated Vehicles Symposium 2015: Envisioning Automated Vehicles within the Built Environment: 2020, 2035 and 2050, Ann Arbor, MI, July 24, 2015. Rodier, Caroline. "Potential Market for Dynamic Ridesharing in the Bay Area." Podcar City 9: Innovative Mobility in the Era of Automation, Mountain View, CA, November 5, 2015. Rodier, Caroline. "Dynamic Ridesharing: An Exploration of the Potential for Reduction in Vehicle Miles Traveled." Presentation at the 95th Annual Meeting of the Transportation Research Board, Washington, DC,

	January 10-14, 2016. Rodier, C., Alemi, F., and Smith, D. (2016). Dynamic Ridesharing: An Exploration of the Potential for Reduction in Vehicle Miles Traveled. Transportation Research Record (TRR), Journal of the Transportation Research Board, 2542 (2016): 120-126.
Place Any Photos Here	
Impacts/Benefits of Implementation (actual, not anticipated)	
Web Links • Reports • Project Website	Final report (MNTRC Website): http://transweb.sjsu.edu/project/1207.html