

## Economic Cost Savings of the New Mexico Rail Runner Express (Fiscal Years 2007–2016)

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*Produced by:*

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### Rail Runner 10-Year Summary Statistics

Estimated ridership: **10 million passengers / 400 million passenger miles traveled (PMT)**

Estimated roadway maintenance cost savings: **\$5.0 million**

Estimated household vehicle operation and maintenance cost savings: **\$75.3 million**

Estimated automobile emissions cost savings: **\$4.1 million**

### Roadway Maintenance Cost Savings

The New Mexico Rail Runner Express commuter train began operations in July 2006. During the ten-year period since its inception, it has served approximately 10 million passengers for a total of 400 million passenger miles traveled (PMT). This translated into a significant reduction in the total number of vehicle miles traveled (VMT) on New Mexico's roadways, primarily on Interstate 25. The estimated reduction in VMT was 333.3 million, based on a typical automobile occupancy rate of 1.2 persons. Roadway operations and maintenance costs in the Albuquerque Metropolitan Planning Area (AMPA) were estimated to be 1.5 cents per VMT, based on operations and maintenance spending as reported by individual municipalities. The estimated 10-year economic cost savings in roadway operations and maintenance due to the Rail Runner were **\$5.0 million**, adjusted for inflation into 2016 dollar values.

### Vehicle Operation and Maintenance Cost Savings

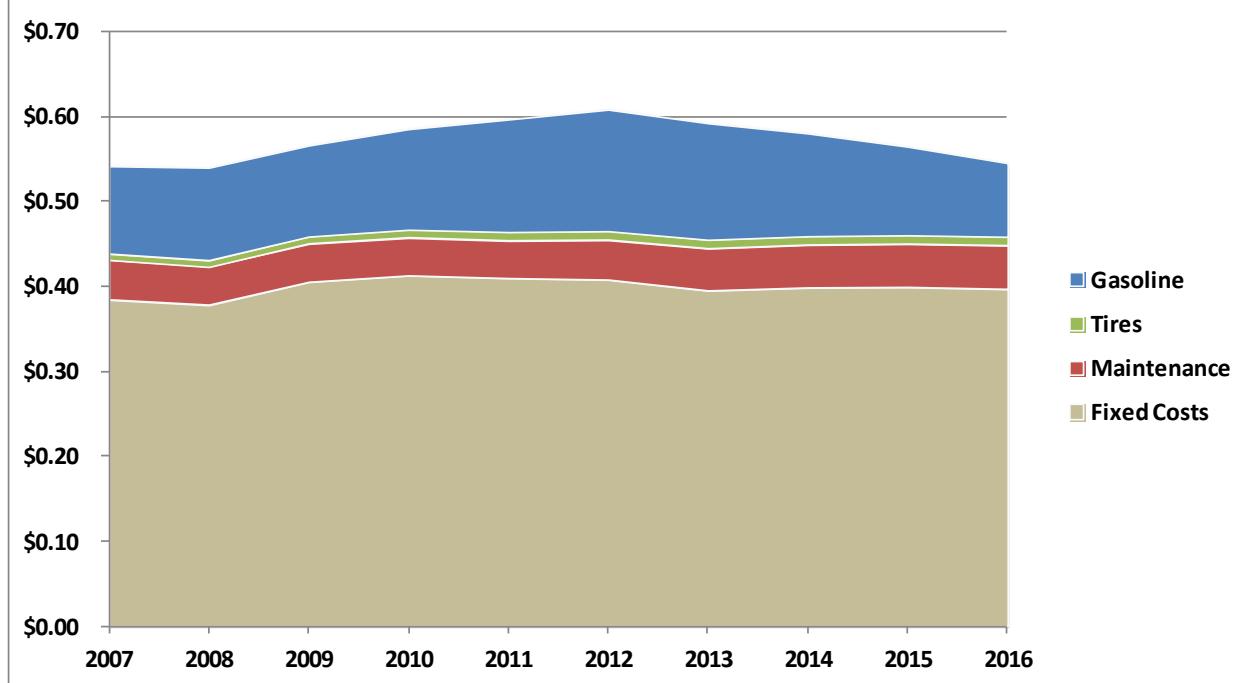
Rail Runner passengers, particularly workers, who chose to ride the train instead of driving an automobile, benefitted from significant household cost savings. An on-board survey of Rail Runner passengers was conducted in 2012 to analyze how passengers traveled from their origin to the station and from the station to their final destination. Over one-quarter (26.5 percent) of Rail Runner passengers did not use a car to complete their trip, choosing instead to walk, bike, or use public transportation. According to the American Automobile Association (AAA), the average cost to own and operate an automobile was 58 cents per mile in FY 2014 (Table 1 and Chart 1). Assuming a driving distance of 15,000 miles per year, the average total cost of vehicle ownership was \$8,700. The variable costs, including gasoline, maintenance, and tires, were 18 cents per mile, or \$2,700 a year. Fixed costs, including insurance, license, registration, taxes, depreciation, and finance charges, were 40 cents per mile in 2014. For the purpose of this analysis, it was assumed that over one-quarter (26.5 percent) of Rail Runner passengers since 2007 experienced the full monetary savings, including fixed and variable costs, associated with reducing the number of household vehicles by one. These passengers chose the Rail Runner as a primary mode of transportation for social or economic reasons. Less than three-quarters (73.5 percent) of passengers were assumed to experience the benefits of reduced variable costs only, and did not reduce the number of household vehicles by one. Approximately \$22.9 million in fare revenue was collected from Rail Runner passengers during the period. Fare costs were subtracted from

household cost savings to calculate a 10-year net cost savings to Rail Runner passengers, which were adjusted for inflation into 2016 dollar values. The estimated 10-year net household cost savings were **\$75.3 million** from FY 2007 to FY 2016 (Table 1).

**Table 1. Estimated Reduction in Vehicle Ownership Costs (US\$ per mile)**

	<u>Gasoline</u>	<u>Maintenance</u>	<u>Tires</u>	<u>Fixed Costs</u>	<u>Total Costs</u>
<b>2007</b>	\$0.10	\$0.05	\$0.01	\$0.38	\$0.54
<b>2008</b>	\$0.11	\$0.05	\$0.01	\$0.38	\$0.54
<b>2009</b>	\$0.11	\$0.05	\$0.01	\$0.41	\$0.57
<b>2010</b>	\$0.12	\$0.04	\$0.01	\$0.41	\$0.59
<b>2011</b>	\$0.13	\$0.04	\$0.01	\$0.41	\$0.60
<b>2012</b>	\$0.14	\$0.05	\$0.01	\$0.41	\$0.61
<b>2013</b>	\$0.14	\$0.05	\$0.01	\$0.39	\$0.59
<b>2014</b>	\$0.12	\$0.05	\$0.01	\$0.40	\$0.58
<b>2015</b>	\$0.10	\$0.05	\$0.01	\$0.40	\$0.56
<b>2016</b>	\$0.09	\$0.05	\$0.01	\$0.40	\$0.55
<b>Total Vehicle Ownership Cost Savings</b>		<b>\$75,345,000</b>			

**Chart 1. Estimated Cost-Per-Mile of Owning and Operating an Automobile**



Source: American Automobile Association, Your Driving Costs (Heathrow, FL: Annual Issues), available at <http://www.aaapublicaffairs.com> as of Oct. 07, 2015.

Note: Individual costs may not sum to total costs due to rounding. Fiscal year (FY) averages were calculated for 2007 through 2014. Costs per mile for FY 2015 and FY 2016 were estimated based on changes in gasoline prices. Rail Runner fare costs are included in vehicle ownership cost savings. Total savings were adjusted for inflation into 2016 dollar values using the consumer price index (CPI).

## Emissions Reduction

Economic cost savings of reduced automobile emissions are directly related to the reduction of VMT due to an increase in ridership on the Rail Runner. The vehicle emissions rates in grams per mile, and the economic costs per gram, for particulate matter and four classes of pollutants, are defined by the U.S. Department of Transportation in the advanced parameters of the Regional Economic Models Inc. (REMI) TranSight model. The economic cost savings associated with reduced automobile pollution include improved air quality and reduced harmful health effects. This is a quantitative measure of improved quality of life in the region. The greatest economic cost savings were realized for reduced nitrogen oxide (NOX) and sulfur oxide (SOX) emissions. The estimated 10-year economic cost savings attributed to reduced roadway VMT since the inception of the Rail Runner were **\$4.1 million** (Table 2), adjusted for inflation into 2016 dollar values.

<b>Table 2. Estimated Emissions Reduced by Type</b>	<b>Volatile Organic Compounds (VOC)</b>	<b>Nitrogen Oxide (NOx)</b>	<b>Carbon Monoxide (CO)</b>	<b>Sulfur Oxide (SOx)</b>	<b>Particulate Matter (PM)</b>
<b>Cost per Gram (US\$)</b>	\$0.001	\$0.005	\$0.000	\$0.031	\$0.014
<b>Emissions Reduction (Tons)</b>	428	372	4,683	44	45
<b>Total Emissions Cost Savings</b>					<b>\$4,120,000</b>

Source: U.S. Department of Transportation data. REMI TranSight.

Note: The net emissions cost savings do not include Rail Runner emissions costs. Total savings were adjusted for inflation into 2016 dollar values using the consumer price index (CPI).