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## Annual Report

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For the period of January 1, 2011 – December 31, 2011

### Utah Transit Authority

3600 South 700 West  
*Facility Street Address*

Salt Lake City, UT  
*City*

84119  
*Zip*

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## Project Status

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On a separate sheet, summarize:

- your Clean Utah project commitments and accomplishments made to date,
- major indicators of environmental improvements (measurable ways that you are determining the environment is improving as the result of steps you are taking),
- public participation activities you have undertaken, and
- your project plans for next year, as they relate to this program.

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## Certification Statement

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*(to be signed by the senior facility manager)*

I certify that the information outlined in the attached annual report is correct and that this facility continues to meet all program criteria and has an active EMS, as defined by the Clean Utah program. I further certify that this facility has conducted periodic assessments of compliance with legal requirements, has corrected all identified instances of noncompliance, and is currently in compliance with all applicable federal, state, and local environmental rules and regulations.

  
Signed

February 6, 2012  
Date

Mary DeLoretto  
Print Name

Senior Program Manager Environmental  
Title

# UTA

## Environmental Improvement Project Results

### Project #1: UTA Air Emission Reduction Project

#### Measurements:

- 1) Reduction of UTA's bus fleet NOx and particulate matter (PM) emission rate through the acquisition of 30 new buses in 2011 to replace older existing buses manufactured in 1997 and previous years.

UTA has developed a 6 year plan, beginning in 2009, to acquire new buses as replacements for older buses that will reduce Particulate Matter (PM) and Nitrogen Oxides (NOx) emissions.

#### Particulate Matter (PM)

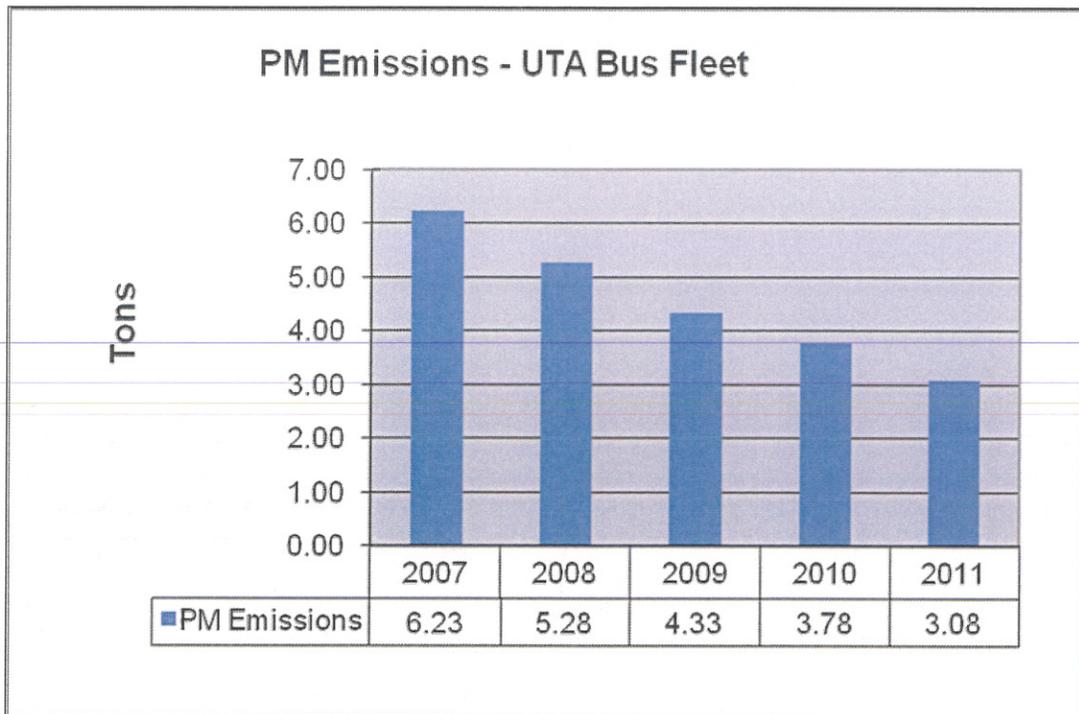
The following table lists the federal emission standards for particulate matter (PM) from heavy-duty diesel engine exhaust in urban buses.

Federal PM Emission Standard			
Model Year	g/bhp-hr	CF bhp-hr/mi	g/mi
1991 – 1992	0.25	4.68	1.17
1993	0.1	4.68	0.468
1994 – 1995	0.07	4.68	0.3276
1996 – 2006	0.05 <sub>(1)</sub>	4.68	0.234
2007 –	0.01	4.68	0.0468

UTA's fixed route and express route bus fleet travels 19 million miles annually. Scheduling newer more efficient buses to accumulate more miles than older buses reduces the emissions of PM from UTA's bus fleet. UTA has set a goal of a 10% reduction for the total pounds of PM emitted each year.

Model Year	2010		2011	
	Miles	PM (lbs)	Miles	PM (lbs)
1991 – 1992	0	0	0	0
1993	0	0	0	0
1994 – 1995	1,219,176	880	55,410	40
1996 – 2006	11,754,649	6,059	10,289,181	5,303
2007 –	6,015,484	620	7,918,677	816
Total	18,989,309	7,558	18,263,268	6,160

Based on the annual miles and the age of UTA's fleet in 2007, the estimated PM emissions were 6.23 tons. By acquiring new buses that meet the 2007 Federal PM standards to replace older buses, PM emissions were reduced to 3.78 tons in 2010 and 3.08 tons in 2011. UTA reduced its PM emissions from 2010 to 2011 by 18.5%, exceeding the goal of 10% reduction for PM emissions per year.



Nitrogen Oxides (NO<sub>x</sub>)

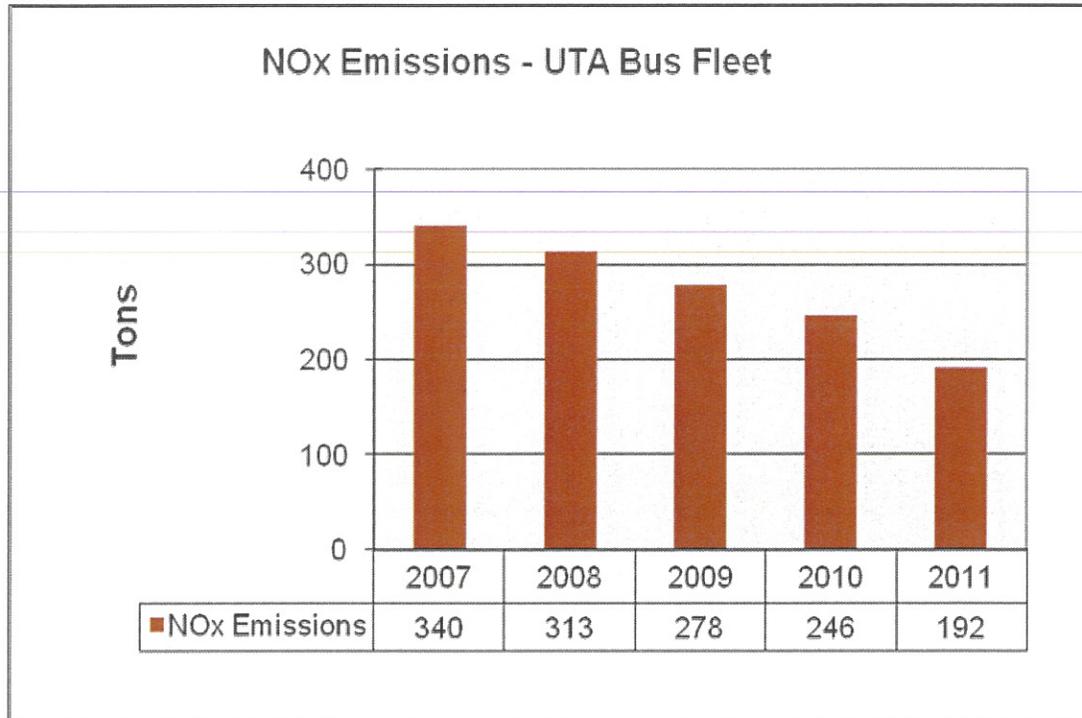
For NO<sub>x</sub> emission calculations EPA sites an 8% compliance margin from manufacturers based on historical certification data. Therefore, for a NO<sub>x</sub> standard of 5.0 g/bhp-hr, a level of 4.6 g/bhp-hr is used as the emission level. The following table illustrates the differing emission standards of NO<sub>x</sub> for diesel engine exhaust from urban buses.

Federal NO <sub>x</sub> Emission Standard			
Model Year	g/bhp-hr	CF bhp-hr/mi	g/mi (8% margin)
1991 – 1997	5.0	4.68	21.53
1998 – 2001	4.0	4.68	17.22
2002 – 2006	2.2	4.68	9.47
2007 – 2009	1.2	4.68	5.17
2010 –	0.2	4.68	0.86

Based on the annual miles and the age of UTA’s fleet in 2007, the estimated NO<sub>x</sub> emissions were 340 tons. By acquiring new buses that meet the 2010 Federal NO<sub>x</sub> standards to replace older buses, UTA estimates that NO<sub>x</sub> emissions by 2015 will be 69 tons. This will reduce NO<sub>x</sub> emissions from UTA’s bus fleet by over 79%.

Model Year	2010		2011	
	Miles	NO <sub>x</sub> tons	Miles	NO <sub>x</sub> tons
1992 – 1997	2,075,587	49	660,666	16
1998 – 2001	6,095,390	116	5,290,805	100
2002 – 2006	4,802,848	50	4,393,120	46
2007 - 2009	5,583,565	32	5,315,071	30
2010 –	431,919	<1	2,603,606	2
Total	18,989,309	246	18,263,268	192

By scheduling the more efficient buses on the longer routes, UTA has set a goal of a 10% reduction for the total tons of NOx emitted each year. UTA reduced its NOx emissions from 2010 to 2011 by 21.9%, exceeding the goal of 10% reduction for NOx emissions per year.



**Benefit to the environment for year:**

Air Pollutant	Particulate Matter	% Reduction	Nitrogen Oxides	% Reduction
2007	6.23 tons	–	340 tons	–
2008	5.28 tons	15.2 %	313 tons	7.9 %
2009	4.33 tons	18.0 %	278 tons	11.2 %
2010	3.78 tons	12.7 %	246 tons	11.5 %
2011	3.08 tons	18.5 %	192 tons	21.9 %

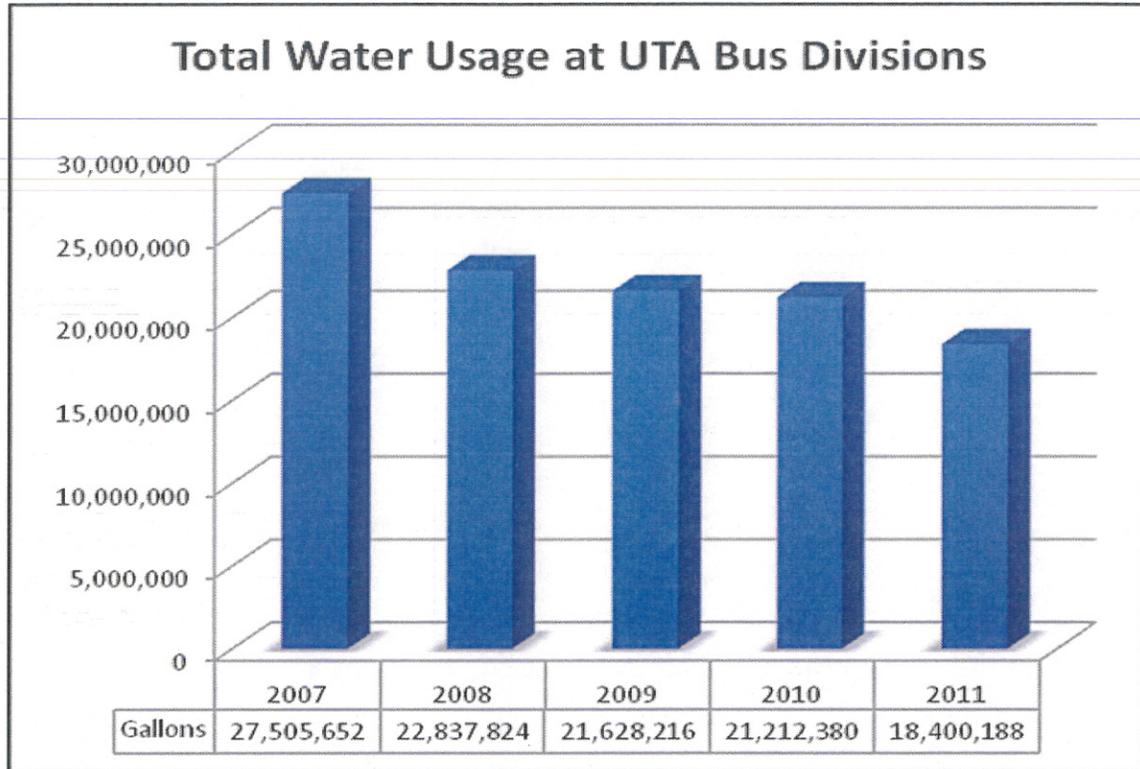
**Benefit or savings for company:**

The acquisition of new buses as replacements for older models reduces UTA’s investment per rider because of the improved fuel efficiency of the newer buses. In 2010 UTA added 20 hybrid-electric diesel buses, as a part of our bus replacement 6 year plan. Today’s technology of hybrid-electric buses is 20% more fuel efficient than their diesel bus counterparts.

**Project #2: Water Conservation Project**

**Measurements:**

- 1) Water usage by volume at UTA Bus Divisions.



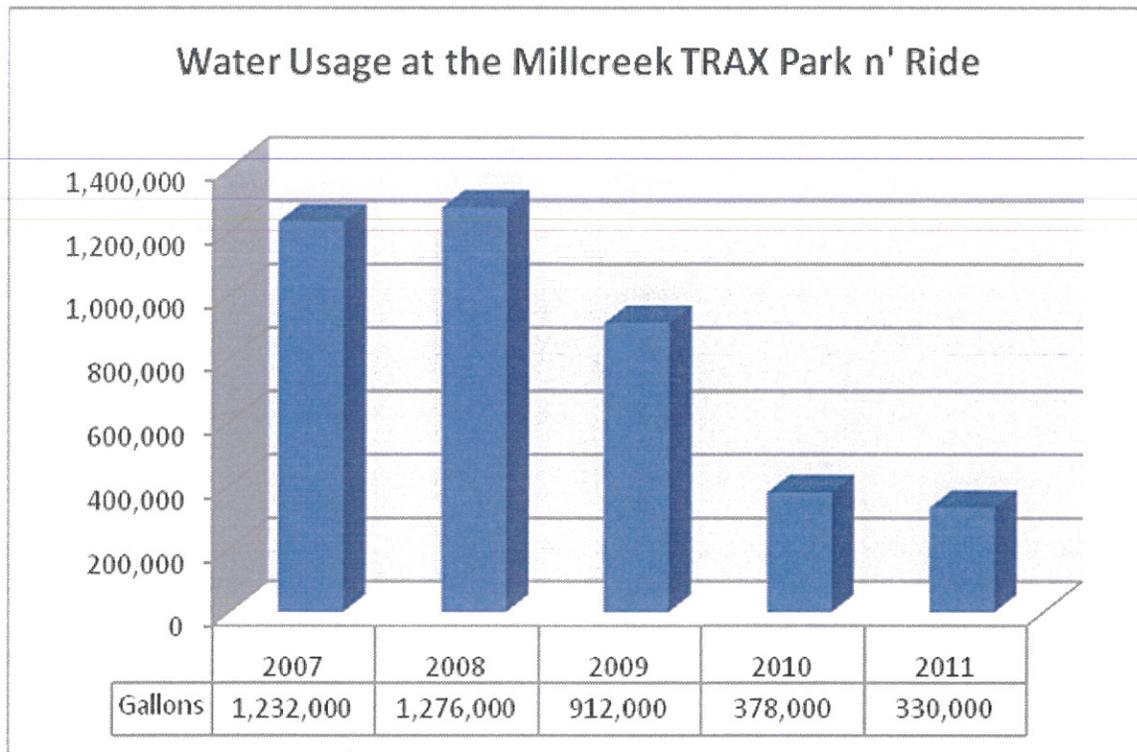
**Benefit to the environment for year:**

Water Usage at UTA Bus Divisions		
	Total Gallons Used	Water Saved (Gallons)
2007	27,505,652	-
2008	22,837,824	4,667,828
2009	21,628,216	5,877,436
2010	21,212,380	6,293,272
2011	18,400,188	9,105,464

**Benefit or savings for company:**

Water Usage: Savings at UTA Bus Divisions		
	Annual Cost	Water Saved (Gallons)
2007	\$35,923.76	-
2008	\$29,306.93	\$6,616.83
2009	\$27,890.01	\$8,033.75
2010	\$28,549.84	\$7,373.91
2011	\$24,443.92	\$11,479.83

- 2) Water usage at Park n' Rides, where landscaping changes have been instituted to reduce water consumption for irrigation.

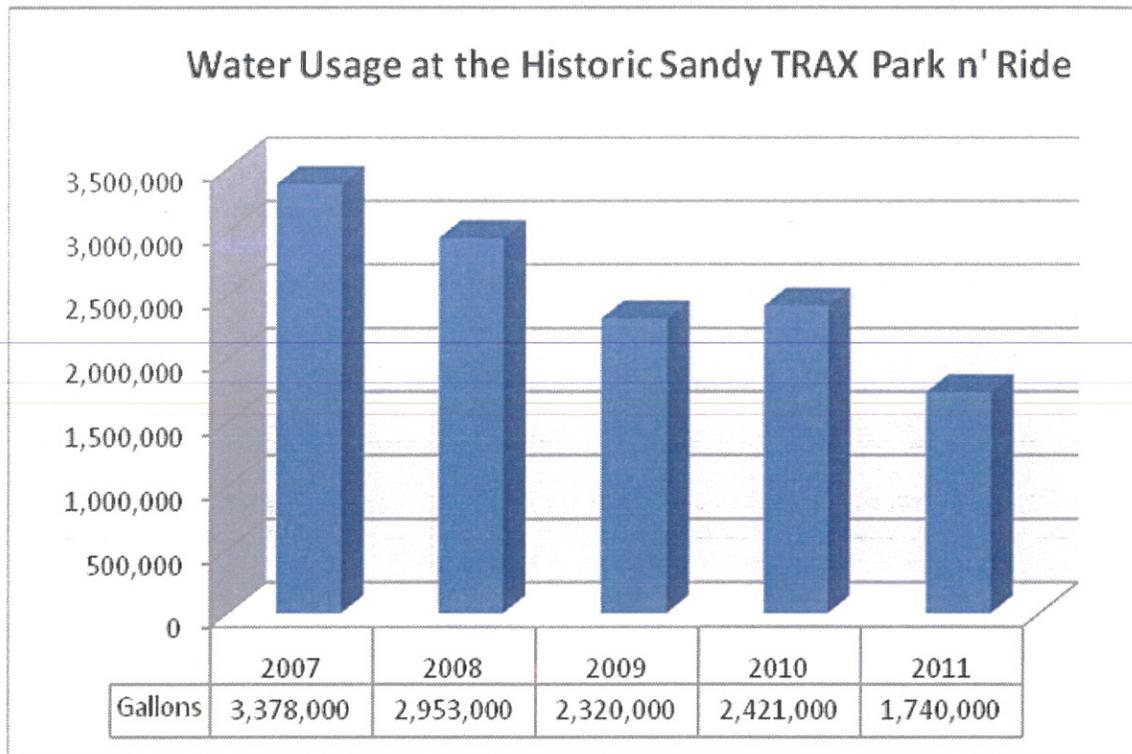


**Benefit to the environment for year:**

Water Usage at UTA's Millcreek Park n' Ride		
	Total Gallons Used	Water Saved (Gallons)
2007	1,232,000	-
2008	1,276,000	(44,000)
2009	912,000	320,000
2010	378,000	854,000
2011	330,000	902,000

**Benefit or savings for company:**

Water Usage: Savings at UTA's Millcreek Park n' Ride		
	Annual Cost	\$\$\$ Saved
2007	\$2,694.54	-
2008	\$2,772.80	(\$78.26)
2009	\$2,121.24	\$573.30
2010	\$1,143.90	\$1,550.64
2011	\$1,071.10	\$1,623.44



**Benefit to the environment for year:**

Water Usage at UTA's Historic Sandy Park n' Ride		
	Total Gallons Used	Water Saved (Gallons)
2007	3,378,000	-
2008	2,953,000	425,000
2009	2,320,000	1,058,000
2010	2,421,000	957,000
2011	1,740,000	1,638,000

**Benefit or savings for company:**

Water Usage: Savings at UTA's Historic Sandy Park n' Ride		
	Annual Cost	\$\$\$ Saved
2007	\$13,386.55	-
2008	\$9,982.43	\$3,404.12
2009	\$9,136.82	\$4,249.73
2010	\$9,650.26	\$3,736.29
2011	\$8,687.47	\$4,699.08

## **Targeted Goals for 2012 (include specific measurement)**

### **Project #1: UTA Air Emission Reduction Project**

UTA will continue monitor and report on the following parameters and monitor the progress towards the 2015 goal of 80 % reduction of air pollutants:

- The number of new buses and the manufactured year of the bus replaced.
- The vehicle miles traveled for all buses within a manufactured year.

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### **Project #2: UTA Water Conservation Project**

Clean water is one of Utah's most valuable and limited resources. UTA is a significant stakeholder in the development and growth for communities along the Wasatch Regional Front. Through this project UTA will take an active role to conserve water consumption at our facilities, park n'rides and rail stations.

#### **Objectives:**

1. **Baseline Measurement:** Beginning in 2007, UTA has begun efforts to reduce water usage at bus divisions, park-n'rides and rail stations. UTA has achieved a significant reduction of more than 33% through 2011. UTA will continue to evaluate its water usage at our bus maintenance facilities and set a goal of 5% reduction by the end of 2012.
2. In 2010 UTA made landscape changes at the 3300 South and 9000 South park-n'rides to reduce water usage for irrigation, achieving water usage reductions of 74% and 48% respectively. UTA will continue to evaluate grounds keeping maintenance at other properties throughout its bus and rail infrastructure to minimize water use and work with community stakeholders to implement "Xeriscaping" where allowed.