



Environmental Responsibility in Orange County Government

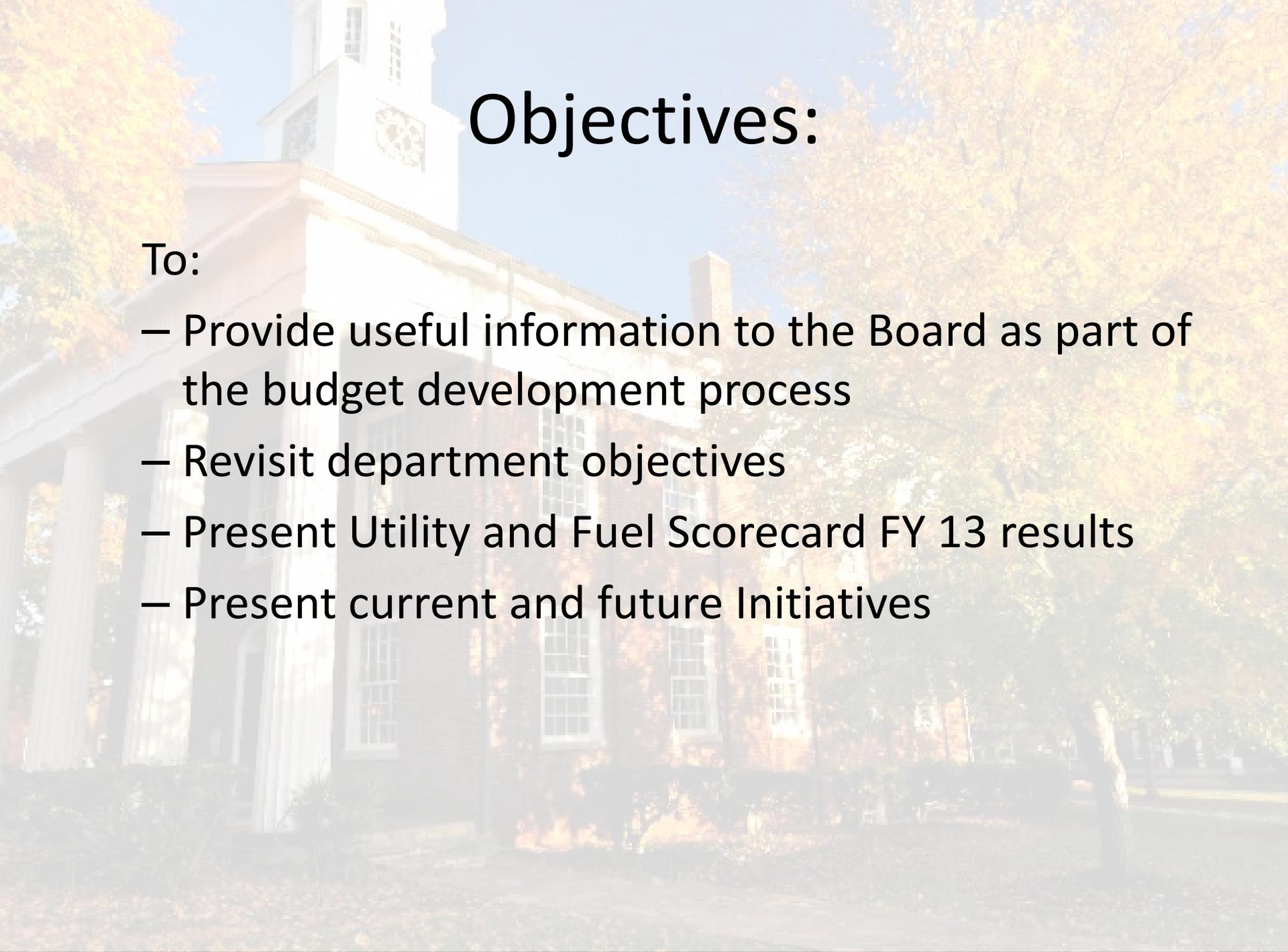
April 8, 2014

Purpose:

- To receive information on three related environmental and energy topics:
 - Commission for the Environment's proposal for a Renewable Energy Committee (RENEW) to explore renewable energy and sustainable development opportunities;
 - the annual Environmental Responsibility in County Government report (including the Energy Scorecard), and;
 - the upcoming State of the Environment 2014 report and Environmental Summit.

Background:

- December 2005 - Board adopted goals and policies:
 - Environmental Responsibility in County Government Goal
 - Energy, Water and Fuel Policies
- February 2006 – Environmental Stewardship Action Committee (ESAC) established
- November 2009/May 2010 – Environmental Responsibility Goal (ERG) status report
- June 2011 –Inaugural Utility and Fuel Conservation Report
- October 16, 2012 – Inaugural Environmental Responsibility Goal progress report



Objectives:

To:

- Provide useful information to the Board as part of the budget development process
- Revisit department objectives
- Present Utility and Fuel Scorecard FY 13 results
- Present current and future Initiatives



**Department of Environment,
Agriculture, Parks and
Recreation (DEAPR)**

DEAPR Objectives:

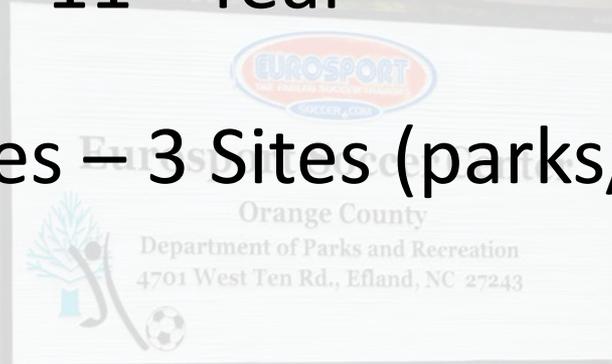
- Re-energize Environmental Responsibility Goal Progress
- Environmental Education Efforts (internal/external)
- Assess/Promote Natural Resource Conservation (water, air, land)
- 10% Campaign (Local Foods)
- No Net Loss of Woodlands on County Lands

DEAPR Current Initiatives:

- State of the Environment 2014 Report
- Environmental Summit (May 31)
- Orange WellNet / Groundwater Guardian (“GWG”)
- Environmental Responsibility Steering Committee
- Sustainable Landscaping / Arbor Day

DEAPR Results:

- GWG Program – 11th Year
- GWG Green Sites – 3 Sites (parks/preserves)
- Implemented:
 - Forest Management Policy (No Net Loss)
 - Landowner Conservation Planning
 - Forest Management Plans / Wildlife Enhancement Project



DEAPR Results:

- Adding 5 new wells to Orange WellNet
- Grant Funding to Relocate Eroding Trails
- Stream Corridor Protection at future Northeast Park (state grant)
- Earth Evening event (in conjunction with “Last Fridays”)

DEAPR New Initiatives:

- Eno River Riparian Buffer Restoration projects (pending federal grant funding)
- Renewable Energy Options for Parks
- Create New Forest Management Plans
- Restart “10% Campaign” (with Economic Development Commission, Cooperative Extension Service)
- New Environmental Education Efforts

DEAPR Horizon:

- Implement Targeted Action Strategies for Environmental Responsibility Goal
- Pursue Additional Groundwater Guardian “Green Site” Designations
- Implement Sustainable Landscaping Policy
- Complete 10% Campaign for Departments



Solid Waste Department

Solid Waste Objectives

- Reduce Waste Landfilled by 61% per capita
- Maximize recycling and waste reduction opportunities in Orange County
- Continued exploration of alternatives to landfilling of waste
- Develop revised interlocal solid waste agreement with municipalities
- Continue to redevelop convenience center sites in accord with adopted plan

Solid Waste Goal & Results

FY 2012/13		
Category	State	Orange Cty
Reduction goal	40%	61%
Reduction achieved (1991-92 baseline)	-12%	58%
Waste landfilled per capita (1991-92)	<u>2,140</u>	2,720*
Waste landfilled per capita (2012-13)	<u>1,800</u>	1,140

Solid Waste Current Initiatives

- Conversion to single stream recycling
- Cart based recycling ~ 1/3 of rural customers - 2012-13
- Walnut Grove Ch. Rd. solid waste convenience center - 2012-13
- Concept plan for second convenience center - 2013
- Closure of lined landfill - June 30, 2013
- Municipal solid waste to Durham Transfer Station for 2013-14
- Establish additional internal goals for waste reduction/recycling for 2013

Solid Waste Future Initiatives

- Urban curbside converting to roll carts in June 2014
- Next ~ 1/2 of current rural curbside recycling to carts in fall 2014
- Continue modernization of Solid Waste Convenience Centers:
 - Eubanks Road plan in progress, construction projected to begin FY 2014-15
 - Walnut Grove district site expansion completed May 2014
- Continue to consider alternatives to Durham City Transfer Station
- Develop Interlocal Agreement on solid waste with Towns (ongoing)
- Evaluate commercial recycling expansion in 2015-16
- Develop formalized 'buy recycled' policy; paper use reduction goal for County government
- Achieve 61% waste reduction goal and set new higher goal.



Asset Management Services

Chronology:

- June 2011 – Inaugural Utility and Fuel Conservation Report
 - Established goals for reduction of:
 - Energy (20% cumulative through FY15; additional 10% cumulative through FY17),
 - Water (5% cumulative through FY17); and
 - Fuel (10% cumulative through FY15; additional 5% cumulative through FY17)
 - Established a baseline year (FY 2010) against which progress is measured
 - Identified annual progress against goals
- October 16, 2012 – Inaugural Environmental Responsibility Goal progress report, including second annual Utility and Fuel Conservation Report
- April 8, 2014 – Second Environmental Responsibility Goal progress report, including third annual Utility and Fuel Conservation Report

Background - Facilities:

- Reports to date have examined energy and water use and cost for most, but not all, County owned buildings
- Have included only facilities managed by Asset Management Services
- Have not included:
 - SportsPlex;
 - Solid Waste facilities (enterprise fund);
 - Animal Services (special use facility)
 - Eno River Parking deck (special use facility);
 - Outdoor lighting, including that managed by DEAPR
- AMS will update future reports to include all County energy and water use

Background - Vehicles:

- Reports to date have examined fuel use and cost for most, but not all, County owned vehicles and equipment
- Have included only vehicles and equipment managed by Asset Management Services
- Have not included:
 - Solid Waste vehicles and equipment (enterprise fund)
- AMS will update future reports to include all County fuel use

Energy Scorecard

Energy reduction goal:

20% cumulative through FY15; additional 10% cumulative through FY17

Energy Use (MMBTU/ 1,000 Sq. FT of Occupied Space)				
	Goals		Actuals	
	MMBTU/ 1,000 Sq. Ft.	% Change from Baseline	MMBTU/ 1,000 Sq. Ft.	% Change from Baseline
FY 10 (Baseline)	96.2		96.2	
FY 11	92.4	4%	91.4	5.0%
FY 12	88.5	8%	84.5	12.2%
FY 13	84.7	12%	82.4	14.3%
FY 14	80.8	16%		
FY 15	77.0	20%		
FY 16	72.2	25%		
FY 17	67.3	30%		



Water Scorecard

Water reduction goal:
5% cumulative through FY17

Water Consumption (Total Gallons)				
	Goals		Actuals	
	Gallons/ Sq. FT.	% Change From Baseline	Gallons/ Sq. FT.	% Change From Baseline
FY 10 (Baseline)	15.93		15.93	
FY 11	15.82	0.7%	13.03	18.2%
FY 12	15.71	1.4%	15.24	4.3%
FY 13	15.59	2.1%	14.87	6.7%
FY 14	15.48	2.9%		
FY 15	15.36	3.8%		
FY 16	15.25	4.3%		
FY 17	15.13	5.0%		



Fuel Scorecard

Fuel reduction goal:

10% cumulative through FY15; additional 5% cumulative through FY17

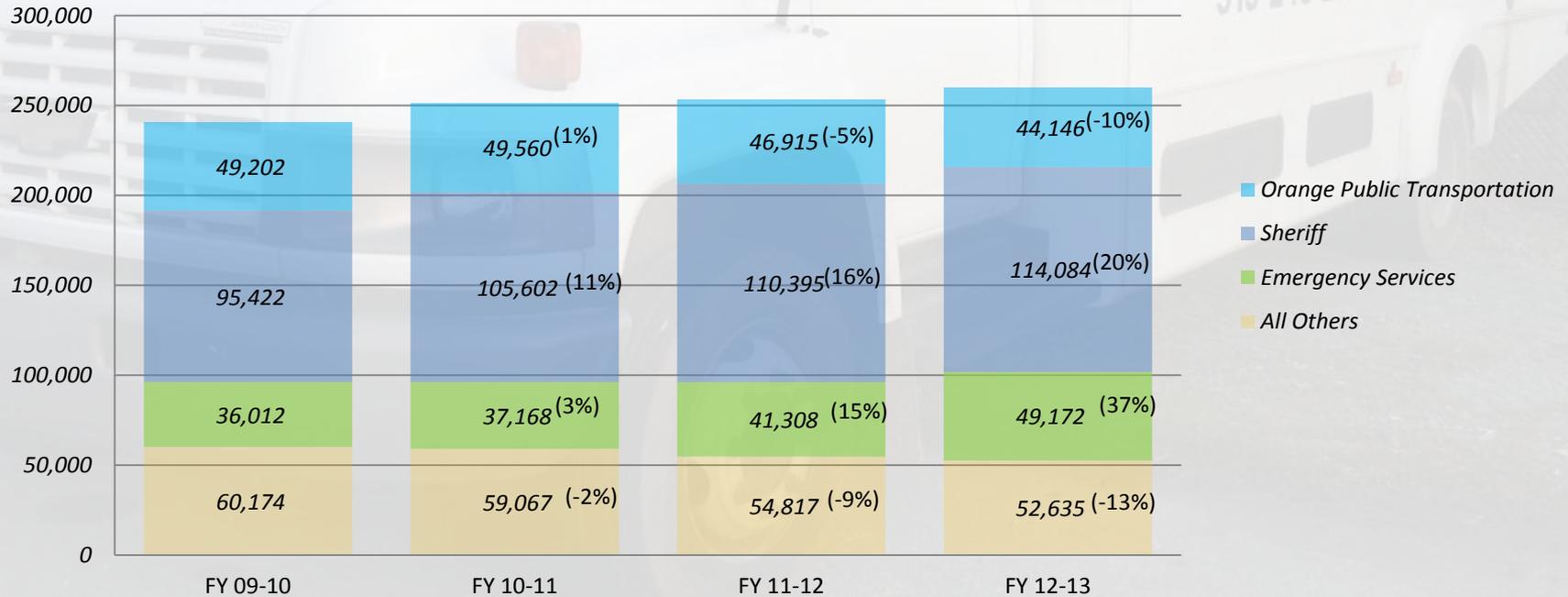
	Fuel Consumption (Total Gallons)				Fuel Efficiency (MPG)			
	Goals		Actuals		Goals		Actuals	
	Gallons	% Change From Baseline	Gallons	% Change From Baseline	MPG	% Change From Baseline	MPG	% Change From Baseline
FY 10 (Baseline)	240,813		240,813		12.82		12.82	
FY 11	235,997	2%	251,382	-4.4%	13.07	2%	12.83	0.1%
FY 12	231,180	4%	252,708	-4.9%	13.33	4%	12.14	-5.3%
FY 13	226,364	6%	260,039	-8.0%	13.59	6%	11.78	-8.1%
FY 14	221,548	8%			13.84	8%		
FY 15	216,732	10%			14.10	10%		
FY 16	210,711	12%			14.42	12%		
FY 17	204,691	15%			14.74	15%		



Fuel Use:

Fuel Usage by Departments - FY 09-10 Through FY 12-13

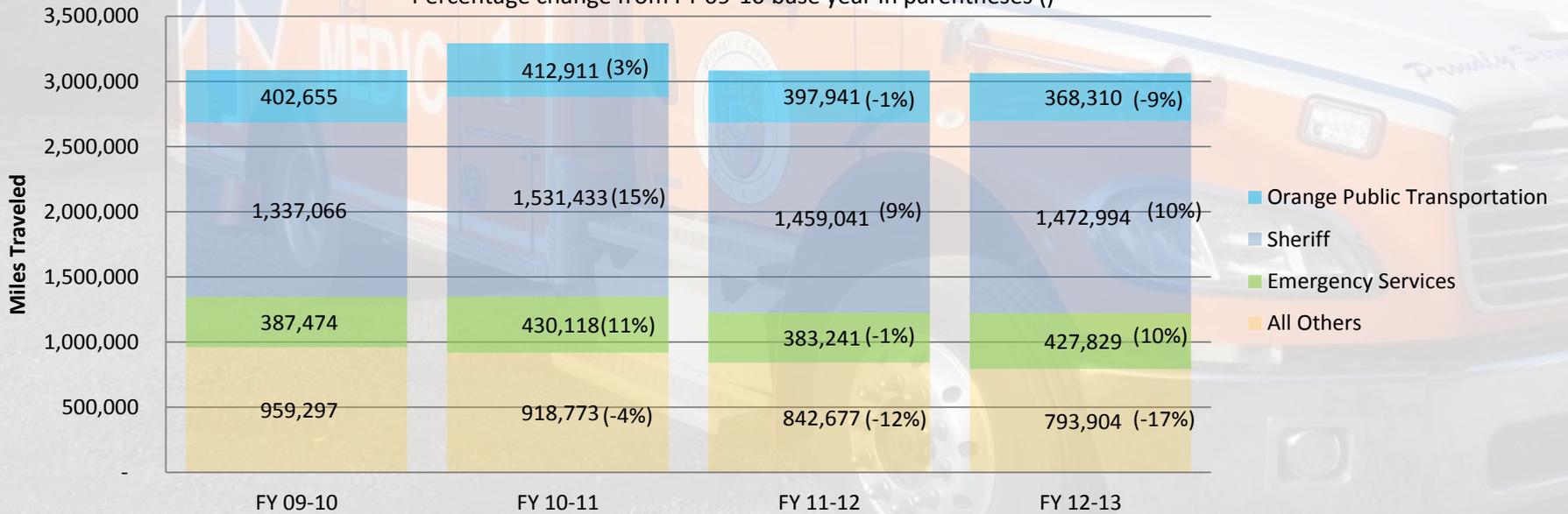
Percentage change from FY 09-10 base year in parentheses ()



Miles Driven:

Miles Traveled by Department - FY 09-10 Through FY 12-13

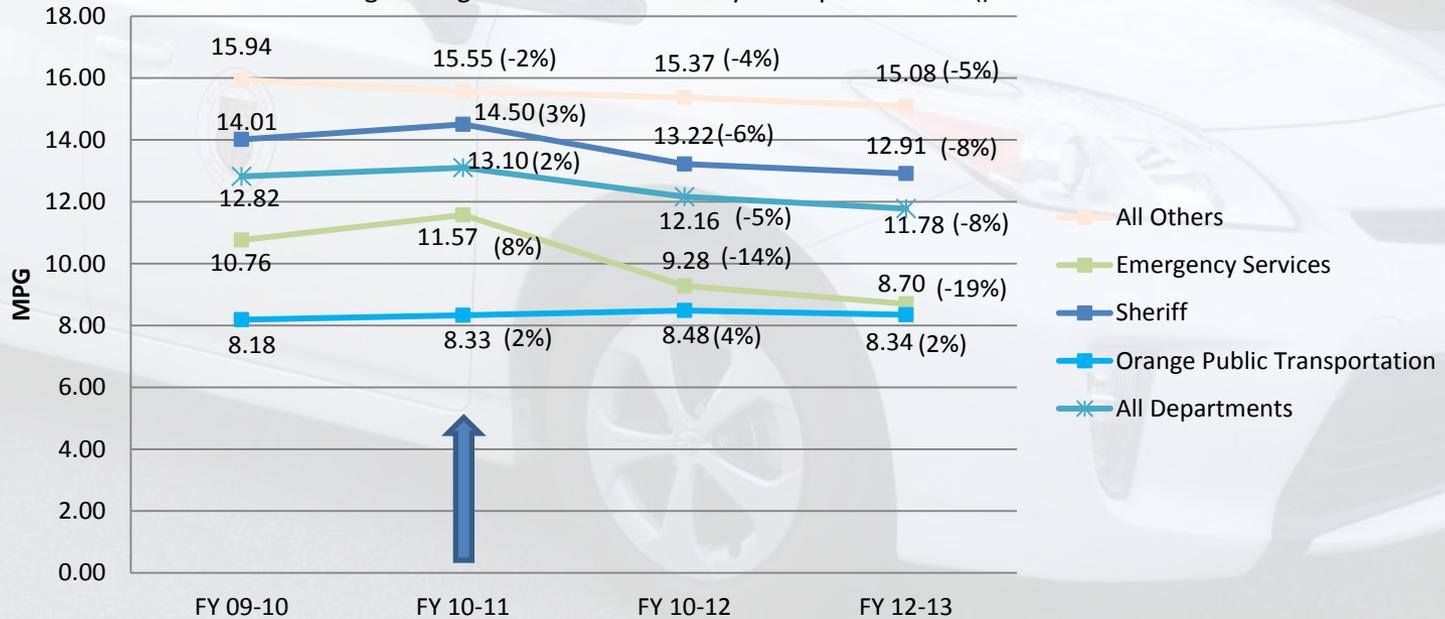
Percentage change from FY 09-10 base year in parentheses ()



Miles Per Gallon:

Miles Per Gallon by Department - FY 09-10 Through FY 12-13

Percentage change from FY 09-10 base year in parentheses ()



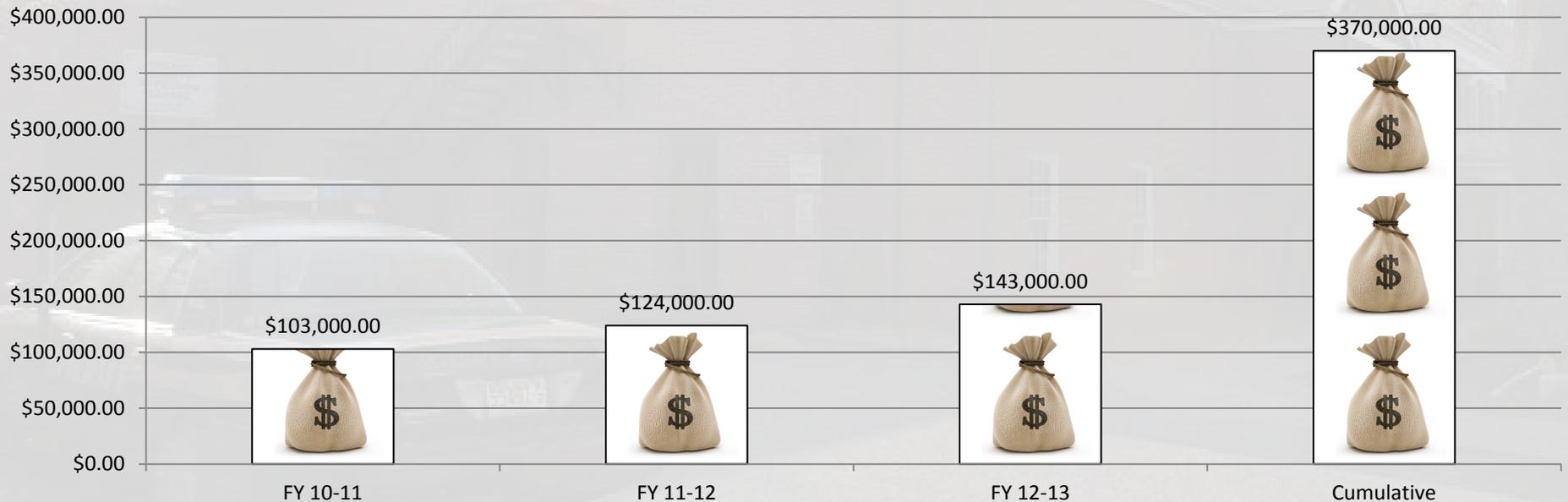
Note: A new fuel management system was implemented during FY 11, providing greater data reliability

Fuel Scorecard Comments:

- Increased fuel use attributed to:
 - Increased law enforcement and emergency response vehicle miles
 - Driver behavior including idling, hard acceleration, hard braking, speeding
- ***Solution:***
 - ***Active vehicle replacement program;***
 - ***higher fuel efficiency standards;***
 - ***consistent, comprehensive, sustainable driver behavior training and education***

Cost Avoided - Energy

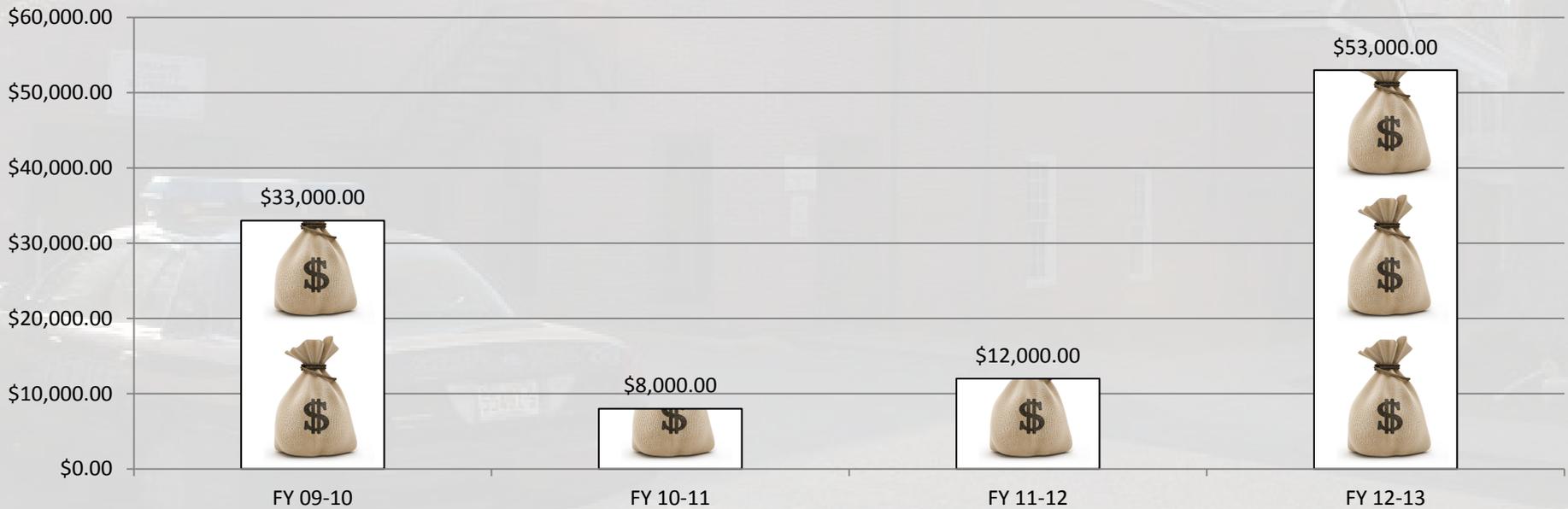
Energy Cost Avoided FY 10-11 Through FY 12-13 & Cumulative



Note: Costs calculated in FY 13 dollars. Unit costs based on \$0.08/KWH for electricity and \$0.71/therm for natural gas.

Cost Avoided - Water:

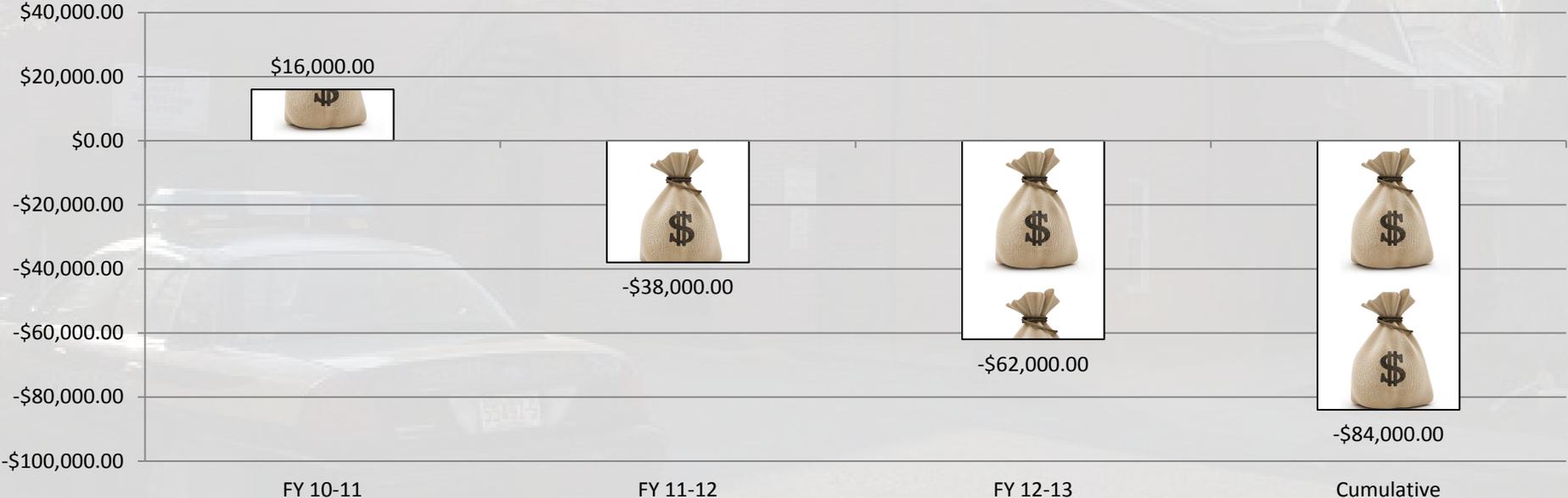
Water Cost Avoided FY 10-11 Through FY 12-13 & Cumulative



Note: Costs calculated in FY 13 dollars. Unit costs based on \$0.018/gallon for water & sewer.

Cost Avoided - Fuel:

**Fuel Cost Avoided
FY 10-11 Through FY 12-13 & Cumulative**



Note: Costs calculated in FY 13 dollars. Fuel costs based on an average cost of \$2.95/gallon for both gas and diesel.

Current year initiatives:

- Downtown Hillsborough geo-thermal project completion – impact beginning FY 14-15
 - Estimated annual reduction of ~ 2,025 MMBTU's
 - Associated annual cost avoidance of ~ \$8,000



Current year initiatives:

- Orange Public Transportation relocated from modular office building
 - Cost avoidance of ~ \$2,000 annually due to reduced electrical consumption. (estimated 50% reduction).



Energy Bank:

- Revolving fund for energy and water reduction projects
- Annual avoided costs used to “pay back” energy bank account
- Current fund: \$100,000
- FY 14-15 request: \$50,000
- Total fund to be capped at \$150,000
- Invested funds to date: \$41,220

Current year initiatives (Energy Bank):

- Eno River Parking deck lighting replacement – LED fixtures
 - Initial investment: ~ \$34,000
 - Annual savings: ~ \$5,000
 - Estimated payback: ~ 5.6 years



- Note: savings are calculated based on reduced wattage of lights. Concurrent with installation of LED replacement fixtures, hours of operation for lighting system were increased for security purposes.

Current year initiatives (Energy Bank):

- Central Orange Senior Center solar film – heat reduction
 - Initial investment: ~ \$7,200
 - Annual savings: ~ \$900
 - Estimated payback: ~ 9 years



Current year initiatives:

- Insulation upgrades as part of roof replacements (F. Gordon Battle Courtroom, Court Street Annex)
 - Costs included in overall roofing replacement project
 - Battle Courtroom - R-value of roof insulation increased from 18 to 30
 - Court Street Annex – R-value of roof insulation increased from ~ 5 to 30

Current year initiatives:

- Building control improvements
- Asset improvements - Whitted Center door replacements
- LED lighting in new BOCC meeting room at Whitted (operations to begin FY 14-15)
- Employee education and outreach – “Know Your Building” (includes discussion of not using portable appliances; use of programmable stats; sustainable driving practices, etc.)

Current year initiatives:

Vehicle related:

- Vehicle utilization monitoring and analysis (GPS trial/ demo in progress) – route planning, driver behavior
- Continuing addition of more fuel efficient vehicles added to fleet

FY 14-15 Planned/Proposed Initiatives

- Southern Campus Master Plan Infrastructure analysis – feasibility analysis of: geo-thermal, solar thermal (hot water), solar power (photovoltaic) rain gardens/water reclamation, vehicle charging stations
- “Energy Bank project contest” held in conjunction with local middle and high school science and entrepreneurial programs

FY 14-15 Planned/Proposed Initiatives

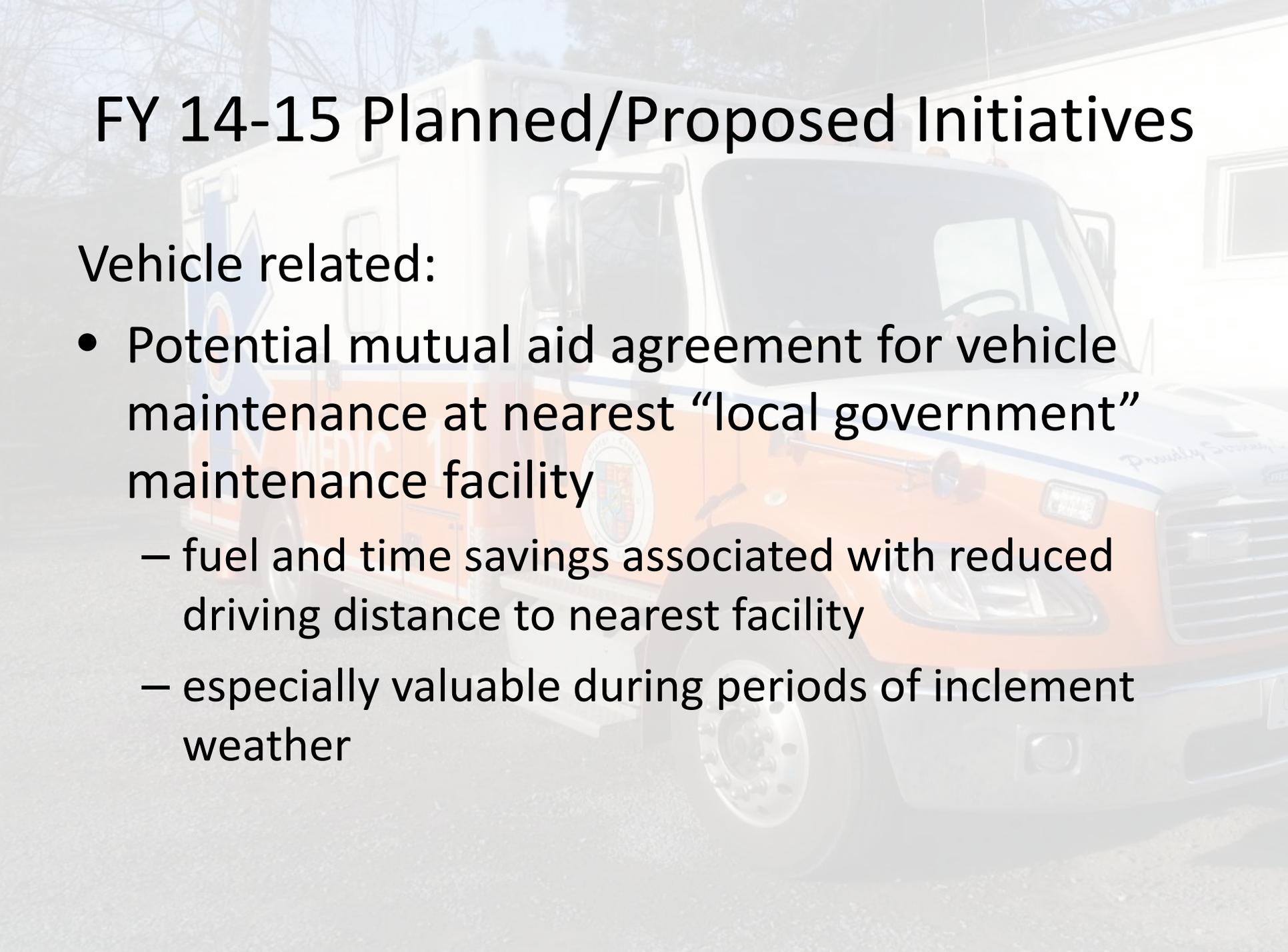
- Begin reporting on total County energy, water and fuel data
- On-going organics management initiative analysis in conjunction with Solid Waste and DEAPR
- Reclassification of vacant position within AMS as Project Manager/Sustainability Coordinator
 - included in FY 14-15 AMS proposed budget

FY 14-15 Planned/Proposed Initiatives

Vehicle related:

- Public/Private partnership “fast charge” stations for electric vehicles (to Board on 04/15/14)
 - Eno River Farmers’ Market; Skills Development Center
- Liquid propane and compressed natural gas vehicle technology evaluation
- “Zip Car” (optimal vehicle utilization model) for public sector evaluation
- Additional fuel efficient vehicles added to fleet

FY 14-15 Planned/Proposed Initiatives



Vehicle related:

- Potential mutual aid agreement for vehicle maintenance at nearest “local government” maintenance facility
 - fuel and time savings associated with reduced driving distance to nearest facility
 - especially valuable during periods of inclement weather

- Thank you
- Questions?

