



# San Mateo County's Vehicle Purchase Program

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## Issue

Does the San Mateo County realize a net savings from the purchase of hybrid vehicles?

## Summary

In November 2003, an Operations Review Report on the Department of Public Works Fleet Management Division (Fleet Maintenance) encouraged the department to pursue opportunities to use hybrid vehicles wherever possible. The San Mateo County Audit Division prepared a report that included projected trade-in values for hybrids, and although the best information available at the time, projections were inaccurate. As a result, the conclusion that "The County can realize... fiscal savings ... [from the purchase of hybrid vehicles]" may be erroneous.

The Grand Jury found that the depreciation cost of a hybrid vehicle is higher when compared to conventional powered vehicles. This may offset the savings from fuel consumption over the life of the hybrid vehicle. Because the Grand Jury did not perform a detailed and technical study of the operational cost of the hybrid and conventional powered vehicle, the Grand Jury recommends that the Board of Supervisors commission a new study to compare the ownership cost of hybrid with conventional vehicles commensurate with current trade in values.

## Background

An Operations Review Report on the Department of Public Works Fleet Management Division was issued November 6, 2003 by the San Mateo County Controller's Office, Audit Division. This report encouraged Fleet Maintenance to use hybrid vehicles wherever possible. The report advised that hybrid vehicles would consume less fuel and produce lower emissions. It stated that "... the combined fuel and maintenance cost savings of a hybrid is a discounted \$1,764 per unit over the 7-year life of the vehicle."<sup>1</sup> It was unclear from the report if the analysis included the depreciated value over the 7 year life of the vehicle.

The Public Works Department agreed with the report recommendation to replace assigned vehicles with hybrids when their normal replacement date comes due and to use the cost savings to fund the difference in costs from the standard replacement vehicle to a hybrid replacement vehicle.<sup>2</sup>

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<sup>1</sup> San Mateo County Controller's Office Operations Review Report on the Department of Public Works, November 6, 2003, page 2.

<sup>2</sup> Ibid, Recommendations, No. 2

The Vehicle Equipment Services Section of San Mateo County Public Works is responsible for vehicle replacements, vehicle specification preparation, long-range replacement, preventative maintenance, repairs, parts warranty and recall work, fueling, washing, tire purchase and inventory, motor pool rental, accident damage, abuse damage and modifications or special parts. The fleet consists of 342 compact and mid-size vehicles assigned to the motor pool (shared vehicles), specific departments, and specific individuals. Vehicle Fleet Maintenance bills 19 departments for the mileage cost generated by employee use.

Using the State of California bidding process, the County Purchasing Division utilizes a centralized procurement service to purchase vehicles. Purchasing follows Fleet Maintenance specifications which depend on department needs and the County Board of Supervisors directive for fuel efficiency guidelines and emission standards

Using the Department of Public Works replacement plan, fleet vehicles are replaced at 100,000 miles or 7 years of service for small cars and 100,000 miles or 10 years for larger vehicles including SUVs. Purchasing agent(s) may sell vehicles at public auction or by sealed bid. Auction services are selected based on their responses to a Request for Bid (RFB). The auction services currently in use are Auction Park in Modesto and Auction City in Menlo Park.

## **Investigation**

The 2010-2011 San Mateo County Civil Grand Jury (Grand Jury) performed the following:

- Reviewed Board of Supervisors Resolution no. 069650 dated September 8, 2008, "... Approving a Fuel Efficient County Vehicle Purchasing Policy";
- Reviewed a 2008-2009 San Mateo County Civil Grand Jury Report titled "San Mateo County's Vehicle Fleet Management and Employee Vehicle Reimbursement Programs";
- Reviewed vehicle purchasing policies;
- Reviewed vehicle disposal policies contained in auction service contracts;
- Observed vehicle maintenance practices at various locations;
- Conducted interviews with key personnel in Fleet Maintenance; and
- Visited auction services and car dealerships.

## **Findings**

1. The Board of Supervisors resolved in Resolution no. 069650 dated September 9, 2008 that "... all future [compact and midsize county] vehicle purchases will be hybrid models or other fuel-efficient models that are estimated by the manufacturer to achieve a minimum of 30 miles per gallon."
2. In the County of San Mateo FY 2010-2012 Recommended Budget for Vehicle and Equipment Services, a program objective was established to: "Increase the average fuel

economy to 30 miles per gallon by 2012 for midsize and compact vehicles...” This guideline was incorporated into the purchasing policies of Fleet Maintenance.

3. There are conventional powered compact and intermediate sedans that meet California’s "green" designation and 30 miles per gallon (mpg) Environmental Protection Agency (EPA) estimate.<sup>3</sup> These vehicles achieve the mileage and emission requirements established by the Board of Supervisors and are listed below:

<b>2011 Conventionally Powered Models</b>					
<u>Chevrolet</u>			<u>Honda</u>		
Cobalt	Cruze	Malibu	Civic	Accord	Fit
<u>Ford</u>			<u>Toyota</u>		
Fusion	Focus	Fiesta	Camry	Corolla	Yaris

4. In 2008, the San Mateo County Board of Supervisors resolved that 32 percent of vehicles purchased should be fuel efficient defined as Ultra Low Emissions Vehicle (ULEV), Partial Zero Emissions Vehicle (PZEV) or Zero Emissions Vehicle (ZEV).<sup>4</sup>
5. The California Air Resources Board reports that “Gasoline vehicles meeting PZEV emission standards sometimes have even lower emissions than hybrid or alternate fuel vehicles”<sup>5</sup>. Honda, Ford, Toyota and Chevrolet have vehicles that are certified PZEV. These vehicles have four-cylinder conventional power trains and exceed 30 mpg fuel economy.
6. Since 2002, the Public Works Department has purchased 200 compact sedans with a hybrid power train. All hybrid compact sedans purchased were either Toyota Prius or Honda Civic. In addition, 7 hybrid powered Ford Escape SUVs were purchased between model years 2007 through 2010.
7. According to 2011 vehicle retail stickers, the base retail price of a Toyota Prius with hybrid system cost \$7,280 more than a comparably-sized non-hybrid Toyota Corolla. The Honda Civic Hybrid cost \$5,395 more than a non-hybrid Honda Civic LX.<sup>6</sup> Federal Tax Credits are available for non-governmental buyers. Since the county does not pay income taxes, the credit is of no benefit.

<sup>3</sup> Based on standards established by California Assembly Bill 32 and the California Air Resources Board,

<sup>4</sup> San Mateo County Board of Supervisors Resolution no. 069650 dated Sept. 9, 2008.

<sup>5</sup> Fact Sheet: 2003-11-04 California Environmental Protection Agency, Nov. 4, 2003.

<sup>6</sup> Dealerships visited were Putnam Toyota, Putnam Chevrolet, Mike Harvey Honda, and Towne Ford.

<b>Comparable Hybrid and Conventional Compact Models<sup>2</sup></b>				
<b>Toyota</b>				
	Conventional	Hybrid	Hybrid Cost	
Model	<u>Corolla</u>	<u>Prius</u>	<u>Over (Under)</u>	
Base Price	\$ 16,520	\$ 23,800	\$ 7,280	
EPA Mileage Range	26-35 mpg	51-48 mpg	25-13 mpg	
Engine Type	PZEV	PZEV	n/a	
<b>Honda</b>				
	Conventional	Hybrid	Hybrid Cost	
Model	<u>Civic LX</u>	<u>Civic</u>	<u>Over (Under)</u>	
Base Price	\$ 18,555	\$ 23,950	\$ 5,395	
EPA Mileage Range	25-36 mpg	40-43 mpg	15-7 mpg	
Engine Type	PZEV	PZEV	n/a	

8. Throughout the 7 year life of current hybrids in operation, model year 2002 through 2008, the depreciation cost (original purchase price less resale value) of hybrid cars and SUVs exceeded the depreciation cost of conventional powered vehicles. The hybrid depreciation cost for 2003 model vehicles with mileage accumulation to 99,000 miles ranges from \$3,970 to \$4,465 per vehicle more than a comparable conventional powered vehicle<sup>7</sup>. Similar depreciation costs continue for all model years, 2002 through 2010. (See Exhibit A)
9. The depreciated value (salvage value) predicted in the 2003 Operations Review Report for compact hybrid vehicles traded in seven years after being put into operation, were higher than current Kelley Blue Book listings. The report used a salvage value of \$6,524 for vehicles purchased in 2003 and traded in 2010. The January-March 2011 Kelley Blue Book reports an expected trade in value of \$5,025. Thus the report may have overestimated the trade-in value by \$1,509 or 23 percent more than each vehicle was worth.
10. According to the local auction vendors, for compact and midsize vehicles, the salvage value decreases rapidly after 100,000 miles.

## Conclusions

1. The San Mateo County Audit Division report overestimated the trade-in value of hybrids. This brings into question the conclusion that “The County can realize... fiscal savings [from the purchase of hybrids]...”

<sup>7</sup> Kelly Blue Book used car guide for January through March 2011.

2. The “green” standard specified by the Board of Supervisors to achieve clean air and higher fuel economy can be achieved by purchasing compact and mid-sized vehicles with conventional four-cylinder engines.
3. Compact and mid-sized vehicles with conventional four-cylinder engines cost less to purchase and typically depreciate less than hybrid vehicles.
4. A higher resale value can be achieved by selling compact and midsize vehicles with less than 100,000 miles on the odometer.

## **Recommendations**

The San Mateo County Civil Grand Jury recommends that the Board of Supervisors:

1. Commission a new study of the total cost of ownership, including depreciation, comparing hybrid and other alternative fuel vehicles with conventional “green” vehicles.
2. Utilize the results of the new study to revise, if necessary, the current vehicle purchasing policy. While there are many considerations, any decision should be based on a full understanding of all costs involved.
3. Develop a new policy for vehicle retirement based on mileage accumulation as the primary determinant rather than the current policy of 100,000 miles or 7 years, whichever comes first.

## Exhibit A

Compact Conventional and Hybrid Vehicles							
Year	Mfg	Type	Model	Base Price \$	Trade In Value (est) \$	Net Cost Savings from Conventional	
2002	Toyota	Hybrid	Prius	20,480	4,225		
		Conventional	Corolla S	<u>14,073</u>	<u>3,400</u>		
	Price/Trade In Value Difference			6,407	825		5,582
	Honda	Hybrid	Insight	21,740	5,325		
		Conventional	Civic LX	<u>15,550</u>	<u>3,425</u>		
	Price/Trade In Value Difference			6,190	1,900		4,290
2003	Toyota	Hybrid	Prius	20,730	5,025		
		Conventional	Corolla S	<u>15,165</u>	<u>3,925</u>		
	Price/Trade In Value Difference			5,565	1,100		4,465
	Honda	Hybrid	Civic	19,990	4,500		
		Conventional	Civic LX	<u>15,670</u>	<u>4,150</u>		
	Price/Trade In Value Difference			4,320	350		3,970
2004	Toyota	Hybrid	Prius	20,510	6,600		
		Conventional	Corolla S	<u>15,030</u>	<u>5,175</u>		
	Price/Trade In Value Difference			5,480	1,425		4,055
	Honda	Hybrid	Civic	20,140	5,400		
		Conventional	Civic LX	<u>15,850</u>	<u>5,000</u>		
	Price/Trade In Value Difference			4,290	400		3,890
2005	Toyota	Hybrid	Prius	21,515	8,175		
		Conventional	Corolla S	<u>15,430</u>	<u>5,750</u>		
	Price/Trade In Value Difference			6,085	2,425		3,660
	Honda	Hybrid	Civic	20,315	6,725		
		Conventional	Civic LX	<u>16,025</u>	<u>6,375</u>		
	Price/Trade In Value Difference			4,290	350		3,940
2006	Toyota	Hybrid	Prius	22,305	10,000		
		Conventional	Corolla S	<u>15,755</u>	<u>6,650</u>		
	Price/Trade In Value Difference			6,550	3,350		3,200
	Honda	Hybrid	Civic	23,195	10,550		
		Conventional	Civic LX	<u>17,555</u>	<u>9,325</u>		
	Price/Trade In Value Difference			5,640	1,225		4,415
2007	Toyota	Hybrid	Prius	22,755	11,600		
		Conventional	Corolla S	<u>15,830</u>	<u>8,000</u>		
	Price/Trade In Value Difference			6,925	3,600		3,325
	Honda	Hybrid	Civic	23,195	10,550		
		Conventional	Civic LX	<u>17,555</u>	<u>9,325</u>		
	Price/Trade In Value Difference			5,640	1,225		4,415
2008	Toyota	Hybrid	Prius	22,985	13,000		
		Conventional	Corolla S	<u>16,110</u>	<u>8,775</u>		

Compact Conventional and Hybrid Vehicles						
Year	Mfg	Type	Model	Base Price \$	Trade In Value (est) \$	Net Cost Savings from Conventional
		Price/Trade In Value Difference		6,875	4,225	2,650
	Honda	Hybrid	Civic	23,235	12,050	
		Conventional	Civic LX	<u>17,595</u>	<u>10,600</u>	
		Price/Trade In Value Difference		5,640	1,450	4,190
2009	Toyota	Hybrid	Prius	24,035	14,000	
		Conventional	Corolla S	<u>17,310</u>	<u>8,900</u>	
	Price/Trade In Value Difference		6,725	5,100	1,625	
	Honda	Hybrid	Civic	24,320	13,300	
	Conventional	Civic LX	<u>18,125</u>	<u>11,550</u>		
Price/Trade In Value Difference		6,195	1,750	4,445		
2010	Toyota	Hybrid	Prius	22,150	16,450	
		Conventional	Corolla S	<u>17,470</u>	<u>10,200</u>	
	Price/Trade In Value Difference		4,680	6,250	(1,570)	
	Honda	Hybrid	Civic	24,510	14,350	
	Conventional	Civic LX	<u>18,315</u>	<u>12,550</u>		
Price/Trade In Value Difference		6,195	1,800	4,395		
SUV Conventional and Hybrid Vehicles						
Year	Mfg	Type	Model	Base Price \$	Trade In Value (est) \$	Net Cost Savings from Conventional
2005	Ford	Hybrid	Escape	28,595	8,575	
		Conventional	Escape	22,045	6,800	
		Price/Trade In Value Difference		6,550	1,775	4,775
2006	Ford	Hybrid	Escape	29,140	10,400	
		Conventional	Escape	22,435	8,425	
		Price/Trade In Value Difference		6,705	1,975	4,730
2007	Ford	Hybrid	Escape	27,925	12,350	
		Conventional	Escape	22,515	10,100	
		Price/Trade In Value Difference		5,410	2,250	3,160
2008	Ford	Hybrid	Escape	27,680	15,750	
		Conventional	Escape	22,175	12,800	
		Price/Trade In Value Difference		5,505	2,950	2,555
2009	Ford	Hybrid	Escape	30,750	17,750	

Compact Conventional and Hybrid Vehicles						
Year	Mfg	Type	Model	Base Price \$	Trade In Value (est) \$	Net Cost Savings from Conventional
		Conventional	Escape	23,370	14,350	
		Price/Trade In Value Difference		7,380	3,400	3,980





**COUNTY OF SAN MATEO**  
Inter-Departmental Correspondence  
County Manager's Office



**APPROVED BY**  
BOARD OF SUPERVISORS

JUL 12 2011

BY  CLERK OF BOARD  
DEPUTY

**DATE:** June 21, 2011

**BOARD MEETING DATE:** July 12, 2011

**SPECIAL NOTICE/HEARING:** None

**VOTE REQUIRED:** None

**TO:** Honorable Board of Supervisors

**FROM:** David S. Boesch, County Manager 

**SUBJECT:** 2010-11 Grand Jury Response – Executive Summary

**RECOMMENDATION:**

Accept this report containing the County's response to the following 2010-11 Grand Jury report: San Mateo County's Vehicle Purchase Program.

**BACKGROUND:**

The FY 2010-11 Grand Jury submitted findings and recommendations regarding the County fleet on April 25, 2011. A copy of the Grand Jury report is attached hereto and identified herein as "Exhibit A".

**DISCUSSION:**

The County is mandated to respond to the Grand Jury within 90 days from the date that reports are filed with the County Clerk and Elected Officials are mandated to respond within 60 days. To that end, included is the County's response to the 2010-11 Grand Jury's report recommendations issued on April 25, 2011 relating to San Mateo County's Vehicle Purchase Program.

**Recommendations:**

The 2010-11 San Mateo Civil Grand Jury recommends that the Board of Supervisors:

1. Commission a new study of the total cost of ownership, including depreciation, comparing hybrid and other alternative fuel vehicles with conventional "green" vehicles.

**Response:**

This recommendation has been implemented. The County Controller's office performed such a study in January 2011 and will be submitting an updated analysis in June 2011.

Our analysis of 2011 vehicle retail stickers indicates that the vehicle cost data presented in the 2010-11 Grand Jury Report is not accurate. The January 2011 Controller's audit identifies the seven year true cost to own differentials at \$2,331 (Prius vs. Corolla) and \$2,805 (Honda Civic Hybrid vs. Honda Civic LX). The Controller's audit was based on fuel costs of \$3.25 per gallon. With correspondingly higher fuel costs, the actual true cost to own differential between conventional and hybrid vehicles decreases. We are performing additional full life cycle cost analyses, but are recommending continuing with current fleet purchasing practices based on information currently available to us.

- 2. Utilize the results of the new study to revise, if necessary, the current vehicle purchasing policy. While there are many considerations, any decision should be based on a full understanding of all costs involved.**

**Response:**

The recommendation requires further analysis. Operating costs should not be the sole determining factor for vehicle purchase policies. Impact on the environment caused by vehicle emissions should also be a deciding factor.

A summary table of vehicle emissions is attached hereto and identified herein as "Exhibit B".

- 3. Develop a new policy for vehicle retirement based on mileage accumulation as the primary determinant rather than the current policy of 100,000 miles or 7 years, whichever comes first.**

**Response:**

This recommendation requires further analysis. We recommend reviewing these standards every three years in order to ascertain whether or not such a replacement policy should be modified.

Acceptance of this report contributes to the Shared Vision 2025 outcome of a Collaborative Community by ensuring that all Grand Jury findings and recommendations are thoroughly reviewed by the appropriate County departments and that, when appropriate, process improvements are made to improve the quality and efficiency of services provided to the public and other agencies.

**FISCAL IMPACT:**

There is no Net County Cost associated with accepting this report.





**COUNTY OF SAN MATEO**  
Inter-Departmental Correspondence  
County Manager's Office



**DATE:** June 21, 2011  
**BOARD MEETING DATE:** July 12, 2011  
**SPECIAL NOTICE/HEARING:** None  
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**TO:** Honorable Board of Supervisors  
**FROM:** David S. Boesch, County Manager  
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**Findings:**

**Grand Jury Finding Number 1.** The Board of Supervisors resolved in Resolution No. 069650 dated September 9, 2008 that "...all future (compact and midsize county) vehicle purchases will be hybrid models or other fuel-efficient models that are estimated by the manufacturer to achieve a minimum of 30 miles per gallon."

**Response:**

Agree.

**Grand Jury Finding Number 2.** In the County of San Mateo FY 2010-2012 Recommended Budget for Vehicle and Equipment Services, a program objective was established to: "Increase the average fuel economy to 30 miles per gallon by 2012 for

midsize and compact vehicles...” This guideline was incorporated into the purchasing policies of Fleet Maintenance.

**Response:**

Agree.

**Grand Jury Finding Number 3.** There are conventional powered compact and intermediate sedans that meet California’s “green” designation and 30 miles per gallon (mpg) Environmental Protection Agency (EPA) estimate. These vehicles achieve the mileage and emission requirements established by the Board of Supervisors and are listed below: Chevrolet Cobalt, Cruze, and Malibu; Honda Civic, Accord, and Fit; Ford Fusion, Focus, and Fiesta; Toyota Camry, Corolla, and Yaris.

Response. Agree in part. There are conventional powered vehicles that meet the 30 miles per gallon objective established by the Board. However, we do not believe that it can be definitively argued that these vehicles comply with the Climate Action Work Plan being developed by the County, as these conventional powered vehicles produce increased vehicle emissions, contrary to County goals of achieving emission reductions. Staff believes that in order to have the greatest impact on reducing the County’s carbon footprint, it is imperative that we purchase vehicles that are the most fuel efficient in their class.

**Grand Jury Finding Number 4.** In 2008, the San Mateo County Board of Supervisors resolved that 32 percent of vehicles purchased should be fuel efficient defined as Ultra Low Emissions Vehicle (ULEV), Partial Zero Emissions Vehicle (PZEV) or Zero Emissions Vehicle (ZEV).

**Response:**

Agree.

**Grand Jury Finding Number 5.** The California Air Resources Board reports that “Gasoline vehicles meeting PZEV emission standards sometimes have even lower emissions than hybrid or alternate fuel vehicles.” Honda, Ford, Toyota and Chevrolet have vehicles that are certified PZEV. These vehicles have four-cylinder conventional power trains and exceed 30 mpg fuel economy.

**Response:**

Disagree. Based on preliminary research, we have determined that the Ford Focus produces comparable smog emissions but significantly greater amounts of greenhouse gases than the Toyota Prius. Further, the Ford Focus achieves a mileage rating of only 28 miles per gallon, not the 30 mile per gallon objective established by the Board. We have not identified any conventional fuel vehicles with lower smog emissions and have found most conventional fuel vehicles to have far greater overall emissions than the Toyota and Honda hybrid models.

**Grand Jury Finding Number 6.** Since 2002, the Public Works Department has



purchased 200 compact sedans with a hybrid power train. All hybrid compact sedans purchased were either Toyota Prius or Honda Civic. In addition, 7 hybrid powered Ford Escape SUVs were purchased between model years 2007 through 2010.

**Response:**

Agree. We agree that approximately 200 hybrid vehicles purchased between 2002 and 2010 were either Toyota Prius' or Honda Civics.

**Grand Jury Finding Number 7.** According to 2011 vehicle retail stickers, the base retail price of a Toyota Prius with hybrid system cost \$7,280 more than a comparably-sized non-hybrid Toyota Corolla. The Honda Civic Hybrid cost \$5,395 more than a non-hybrid Honda Civic LX. Federal Tax Credits are available for non-governmental buyers. Since the county does not pay income taxes, the credit is of no benefit.

**Response:**

Agree in part. The information on the price comparison is correct on the Honda Civic models. However, our findings show that the retail price for the Toyota Prius is \$6,280 more than a comparably sized Toyota Corolla.

**Grand Jury Finding Number 8.** Throughout the seven year life of current hybrids in operation, model year 2002 through 2008, the depreciation cost (original purchase price less resale value) of hybrid cars and SUVs exceeded the depreciation cost of conventional powered vehicles. The hybrid depreciation cost for 2003 model vehicles with mileage accumulation to 99,000 miles ranges from \$3,970 to \$4,465 per vehicle more than a comparable conventional powered vehicle. Similar depreciation costs continue for all model years, 2002 through 2010 (See Exhibit A in the report).

**Response:**

Agree. Our Analysis indicates that the vehicle depreciation differential is roughly as described above.

**Grand Jury Finding Number 9.** The depreciated value (salvage value) predicted in the 2003 Operations Review Report for Compact hybrid vehicles traded in seven years after being put into operation, were higher than current Kelley Blue Book listings. The report used a salvage value of \$6,524 for vehicles purchased in 2003 and traded in 2010. The January-March 2011 Kelley Blue Book reports an expected trade in value of \$5,025. Thus the report may have overestimated the trade-in value by \$1,509 or 23 percent more than each vehicle was worth.

**Response:**

Agree in part. The above trade in value projections are based on limited data. The 2003 vehicles are just now coming due for replacement (based on the 7 year/100,000 mile vehicle replacement guidelines). More data relating to trade in values should be forthcoming in the coming months and years.

**Grand Jury Finding Number 10.** According to the local auction vendors, for compact



and midsize vehicles, the salvage value decreases rapidly after 100,000 miles.

**Response:**

Disagree. We do not find evidence of this. Ultimately, we believe trade in value after 100,000 miles will be largely dependent on other factors, such as the overall condition of the vehicle and vehicle maintenance practices.

**Recommendations:**

**The 2010-11 San Mateo Civil Grand Jury recommends that the Board of Supervisors:**

- 1. Commission a new study of the total cost of ownership, including depreciation, comparing hybrid and other alternative fuel vehicles with conventional "green" vehicles.**

**Response:**

This recommendation has been implemented. The County Controller's office performed such a study in January 2011 and will be submitting an updated analysis in June 2011.

Our analysis of 2011 vehicle retail stickers indicates that the vehicle cost data presented in the 2010-11 Grand Jury Report is not accurate. Our findings are that the retail price differentials identified in the report between conventional fuel and hybrid vehicles are less than represented in the FY 2010-11 Grand Jury report.

More importantly, the January 2011 Controller's audit identifies the seven year true cost to own differentials at \$2,331 (Prius vs. Corolla) and \$2,805 (Honda Civic Hybrid vs. Honda Civic LX). The Controller's audit was based on fuel costs of \$3.25 per gallon. With correspondingly higher fuel costs such as the \$4.00 per gallon prices we've seen recently, the actual true cost to own differential between conventional and hybrid vehicles decreases substantially. Furthermore, we believe that the overall trend of fuel prices will continue upward, making the purchase of the most fuel efficient vehicles critical in future years. We are performing additional full life cycle cost analyses, but are recommending continuing with current fleet purchasing practices based on information currently available to us. Staff further believes that current practices are more consistent with the San Mateo County's Cool Climate designation and the Climate Action Plan currently being developed.

- 2. Utilize the results of the new study to revise, if necessary, the current vehicle purchasing policy. While there are many considerations, any decision should be based on a full understanding of all costs involved.**

**Response:**

The recommendation requires further analysis. Operating costs should not be the sole determining factor for vehicle purchase policies. Impact on the environment caused by vehicle emissions should also be a deciding factor.

Preliminary findings indicate there are conventional powered vehicles that meet the 30 miles per gallon objective established by the Board of Supervisors, through Board Resolution No. 060950 on September 9, 2008. We do not believe that it can be definitively argued that these vehicles comply with the Climate Action Work Plan currently being developed by the County. Given the high cost of fuel, the differential in overall lifecycle costs between hybrids and conventional powered engines narrows, and the benefits to our environment outweigh the relatively small added overall cost to operate hybrids.

Based on preliminary research we have identified at least one conventional fuel vehicle (Ford Focus) which has comparable smog emissions to the hybrid models of Toyota Prius and Honda Civic. However, this vehicle has significantly greater greenhouse gas emissions and we have not identified any conventional fuel vehicles with lower smog emissions. Our findings are that most conventional fuel vehicles have far greater emissions than the Toyota Prius and Honda Civic.

A summary table of vehicle emissions is attached hereto and identified herein as "Exhibit B".

We do not agree that the non-hybrid vehicles meeting the County's established fuel efficiency standards are consistent with the County's emission reduction goals and we therefore recommend continuing with a hybrid vehicles purchasing policy while continually evaluating alternatives that are in keeping with the Board's emission reduction goals.

**3. Develop a new policy for vehicle retirement based on mileage accumulation as the primary determinant rather than the current policy of 100,000 miles or seven years, whichever comes first.**

**Response:**

This recommendation requires further analysis. The seven year or 100,000 mile replacement standard was developed based on a previous analysis of fleet efficiency standards. With the development of new vehicle technologies and overall vehicle longevity improvements, we recommend reviewing these standards every three years in order to ascertain whether or not such a replacement policy should be modified.

Acceptance of this report contributes to the Shared Vision 2025 outcome of a Collaborative Community by ensuring that all Grand Jury findings and recommendations are thoroughly reviewed by the appropriate County departments and that, when appropriate, process improvements are made to improve the quality and efficiency of services provided to the public and other agencies.

**FISCAL IMPACT:**

There is no Net County Cost associated with accepting this report.





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## Issue

Does the San Mateo County realize a net savings from the purchase of hybrid vehicles?

## Summary

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The Grand Jury found that the depreciation cost of a hybrid vehicle is higher when compared to conventional powered vehicles. This may offset the savings from fuel consumption over the life of the hybrid vehicle. Because the Grand Jury did not perform a detailed and technical study of the operational cost of the hybrid and conventional powered vehicle, the Grand Jury recommends that the Board of Supervisors commission a new study to compare the ownership cost of hybrid with conventional vehicles commensurate with current trade in values.

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The Public Works Department agreed with the report recommendation to replace assigned vehicles with hybrids when their normal replacement date comes due and to use the cost savings to fund the difference in costs from the standard replacement vehicle to a hybrid replacement vehicle.<sup>2</sup>

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<sup>1</sup> San Mateo County Controller's Office Operations Review Report on the Department of Public Works, November 6, 2003, page 2.

<sup>2</sup> Ibid, Recommendations, No. 2



The Vehicle Equipment Services Section of San Mateo County Public Works is responsible for vehicle replacements, vehicle specification preparation, long-range replacement, preventative maintenance, repairs, parts warranty and recall work, fueling, washing, tire purchase and inventory, motor pool rental, accident damage, abuse damage and modifications or special parts. The fleet consists of 342 compact and mid-size vehicles assigned to the motor pool (shared vehicles), specific departments, and specific individuals. Vehicle Fleet Maintenance bills 19 departments for the mileage cost generated by employee use.

Using the State of California bidding process, the County Purchasing Division utilizes a centralized procurement service to purchase vehicles. Purchasing follows Fleet Maintenance specifications which depend on department needs and the County Board of Supervisors directive for fuel efficiency guidelines and emission standards

Using the Department of Public Works replacement plan, fleet vehicles are replaced at 100,000 miles or 7 years of service for small cars and 100,000 miles or 10 years for larger vehicles including SUVs. Purchasing agent(s) may sell vehicles at public auction or by sealed bid. Auction services are selected based on their responses to a Request for Bid (RFB). The auction services currently in use are Auction Park in Modesto and Auction City in Menlo Park.

## **Investigation**

The 2010-2011 San Mateo County Civil Grand Jury (Grand Jury) performed the following:

- Reviewed Board of Supervisors Resolution no. 069650 dated September 8, 2008, "... Approving a Fuel Efficient County Vehicle Purchasing Policy";
- Reviewed a 2008-2009 San Mateo County Civil Grand Jury Report titled "San Mateo County's Vehicle Fleet Management and Employee Vehicle Reimbursement Programs";
- Reviewed vehicle purchasing policies;
- Reviewed vehicle disposal policies contained in auction service contracts;
- Observed vehicle maintenance practices at various locations;
- Conducted interviews with key personnel in Fleet Maintenance; and
- Visited auction services and car dealerships.

## **Findings**

1. The Board of Supervisors resolved in Resolution no. 069650 dated September 9, 2008 that "... all future [compact and midsize county] vehicle purchases will be hybrid models or other fuel-efficient models that are estimated by the manufacturer to achieve a minimum of 30 miles per gallon."
2. In the County of San Mateo FY 2010-2012 Recommended Budget for Vehicle and Equipment Services, a program objective was established to: "Increase the average fuel

economy to 30 miles per gallon by 2012 for midsize and compact vehicles...” This guideline was incorporated into the purchasing policies of Fleet Maintenance.

3. There are conventional powered compact and intermediate sedans that meet California’s "green" designation and 30 miles per gallon (mpg) Environmental Protection Agency (EPA) estimate.<sup>3</sup> These vehicles achieve the mileage and emission requirements established by the Board of Supervisors and are listed below:

<b>2011 Conventionally Powered Models</b>					
<u>Chevrolet</u>			<u>Honda</u>		
Cobalt	Cruze	Malibu	Civic	Accord	Fit
<u>Ford</u>			<u>Toyota</u>		
Fusion	Focus	Fiesta	Camry	Corolla	Yaris

4. In 2008, the San Mateo County Board of Supervisors resolved that 32 percent of vehicles purchased should be fuel efficient defined as Ultra Low Emissions Vehicle (ULEV), Partial Zero Emissions Vehicle (PZEV) or Zero Emissions Vehicle (ZEV).<sup>4</sup>
5. The California Air Resources Board reports that “Gasoline vehicles meeting PZEV emission standards sometimes have even lower emissions than hybrid or alternate fuel vehicles”<sup>5</sup>. Honda, Ford, Toyota and Chevrolet have vehicles that are certified PZEV. These vehicles have four-cylinder conventional power trains and exceed 30 mpg fuel economy.
6. Since 2002, the Public Works Department has purchased 200 compact sedans with a hybrid power train. All hybrid compact sedans purchased were either Toyota Prius or Honda Civic. In addition, 7 hybrid powered Ford Escape SUVs were purchased between model years 2007 through 2010.
7. According to 2011 vehicle retail stickers, the base retail price of a Toyota Prius with hybrid system cost \$7,280 more than a comparably-sized non-hybrid Toyota Corolla. The Honda Civic Hybrid cost \$5,395 more than a non-hybrid Honda Civic LX.<sup>6</sup> Federal Tax Credits are available for non-governmental buyers. Since the county does not pay income taxes, the credit is of no benefit.

<sup>3</sup> Based on standards established by California Assembly Bill 32 and the California Air Resources Board,

<sup>4</sup> San Mateo County Board of Supervisors Resolution no. 069650 dated Sept. 9, 2008.

<sup>5</sup> Fact Sheet: 2003-11-04 California Environmental Protection Agency, Nov. 4, 2003.

<sup>6</sup> Dealerships visited were Putnam Toyota, Putnam Chevrolet, Mike Harvey Honda, and Towne Ford.

<b>Comparable Hybrid and Conventional Compact Models<sup>2</sup></b>				
	<b>Toyota</b>			
	Conventional	Hybrid	Hybrid Cost	
Model	<u>Corolla</u>	<u>Prius</u>	<u>Over (Under)</u>	
Base Price	\$ 16,520	\$ 23,800	\$ 7,280	
EPA Mileage Range	26-35 mpg	51-48 mpg	25-13 mpg	
Engine Type	PZEV	PZEV	n/a	
	<b>Honda</b>			
	Conventional	Hybrid	Hybrid Cost	
Model	<u>Civic LX</u>	<u>Civic</u>	<u>Over (Under)</u>	
Base Price	\$ 18,555	\$ 23,950	\$ 5,395	
EPA Mileage Range	25-36 mpg	40-43 mpg	15-7 mpg	
Engine Type	PZEV	PZEV	n/a	

8. Throughout the 7 year life of current hybrids in operation, model year 2002 through 2008, the depreciation cost (original purchase price less resale value) of hybrid cars and SUVs exceeded the depreciation cost of conventional powered vehicles. The hybrid depreciation cost for 2003 model vehicles with mileage accumulation to 99,000 miles ranges from \$3,970 to \$4,465 per vehicle more than a comparable conventional powered vehicle<sup>7</sup>. Similar depreciation costs continue for all model years, 2002 through 2010. (See Exhibit A)
9. The depreciated value (salvage value) predicted in the 2003 Operations Review Report for compact hybrid vehicles traded in seven years after being put into operation, were higher than current Kelley Blue Book listings. The report used a salvage value of \$6,524 for vehicles purchased in 2003 and traded in 2010. The January-March 2011 Kelley Blue Book reports an expected trade in value of \$5,025. Thus the report may have overestimated the trade-in value by \$1,509 or 23 percent more than each vehicle was worth.
10. According to the local auction vendors, for compact and midsize vehicles, the salvage value decreases rapidly after 100,000 miles.

## Conclusions

1. The San Mateo County Audit Division report overestimated the trade-in value of hybrids. This brings into question the conclusion that “The County can realize... fiscal savings [from the purchase of hybrids]...”

<sup>7</sup> Kelly Blue Book used car guide for January through March 2011.

2. The “green” standard specified by the Board of Supervisors to achieve clean air and higher fuel economy can be achieved by purchasing compact and mid-sized vehicles with conventional four-cylinder engines.
3. Compact and mid-sized vehicles with conventional four-cylinder engines cost less to purchase and typically depreciate less than hybrid vehicles.
4. A higher resale value can be achieved by selling compact and midsize vehicles with less than 100,000 miles on the odometer.

## **Recommendations**

The San Mateo County Civil Grand Jury recommends that the Board of Supervisors:

1. Commission a new study of the total cost of ownership, including depreciation, comparing hybrid and other alternative fuel vehicles with conventional “green” vehicles.
2. Utilize the results of the new study to revise, if necessary, the current vehicle purchasing policy. While there are many considerations, any decision should be based on a full understanding of all costs involved.
3. Develop a new policy for vehicle retirement based on mileage accumulation as the primary determinant rather than the current policy of 100,000 miles or 7 years, whichever comes first.

## Exhibit A

Compact Conventional and Hybrid Vehicles							
Year	Mfg	Type	Model	Base Price \$	Trade In Value (est) \$	Net Cost Savings from Conventional	
2002	Toyota	Hybrid	Prius	20,480	4,225		
		Conventional	Corolla S	<u>14,073</u>	<u>3,400</u>		
	Price/Trade In Value Difference			6,407	825		5,582
	Honda	Hybrid	Insight	21,740	5,325		
		Conventional	Civic LX	<u>15,550</u>	<u>3,425</u>		
	Price/Trade In Value Difference			6,190	1,900		4,290
2003	Toyota	Hybrid	Prius	20,730	5,025		
		Conventional	Corolla S	<u>15,165</u>	<u>3,925</u>		
	Price/Trade In Value Difference			5,565	1,100		4,465
	Honda	Hybrid	Civic	19,990	4,500		
		Conventional	Civic LX	<u>15,670</u>	<u>4,150</u>		
	Price/Trade In Value Difference			4,320	350		3,970
2004	Toyota	Hybrid	Prius	20,510	6,600		
		Conventional	Corolla S	<u>15,030</u>	<u>5,175</u>		
	Price/Trade In Value Difference			5,480	1,425		4,055
	Honda	Hybrid	Civic	20,140	5,400		
		Conventional	Civic LX	<u>15,850</u>	<u>5,000</u>		
	Price/Trade In Value Difference			4,290	400		3,890
2005	Toyota	Hybrid	Prius	21,515	8,175		
		Conventional	Corolla S	<u>15,430</u>	<u>5,750</u>		
	Price/Trade In Value Difference			6,085	2,425		3,660
	Honda	Hybrid	Civic	20,315	6,725		
		Conventional	Civic LX	<u>16,025</u>	<u>6,375</u>		
	Price/Trade In Value Difference			4,290	350		3,940
2006	Toyota	Hybrid	Prius	22,305	10,000		
		Conventional	Corolla S	<u>15,755</u>	<u>6,650</u>		
	Price/Trade In Value Difference			6,550	3,350		3,200
	Honda	Hybrid	Civic	23,195	10,550		
		Conventional	Civic LX	<u>17,555</u>	<u>9,325</u>		
	Price/Trade In Value Difference			5,640	1,225		4,415
2007	Toyota	Hybrid	Prius	22,755	11,600		
		Conventional	Corolla S	<u>15,830</u>	<u>8,000</u>		
	Price/Trade In Value Difference			6,925	3,600		3,325
	Honda	Hybrid	Civic	23,195	10,550		
		Conventional	Civic LX	<u>17,555</u>	<u>9,325</u>		
	Price/Trade In Value Difference			5,640	1,225		4,415
2008	Toyota	Hybrid	Prius	22,985	13,000		
		Conventional	Corolla S	<u>16,110</u>	<u>8,775</u>		

Compact Conventional and Hybrid Vehicles						
Year	Mfg	Type	Model	Base Price \$	Trade In Value (est) \$	Net Cost Savings from Conventional
		Price/Trade In Value Difference		6,875	4,225	2,650
	Honda	Hybrid	Civic	23,235	12,050	
		Conventional	Civic LX	<u>17,595</u>	<u>10,600</u>	
		Price/Trade In Value Difference		5,640	1,450	4,190
2009	Toyota	Hybrid	Prius	24,035	14,000	
		Conventional	Corolla S	<u>17,310</u>	<u>8,900</u>	
	Price/Trade In Value Difference		6,725	5,100	1,625	
	Honda	Hybrid	Civic	24,320	13,300	
	Conventional	Civic LX	<u>18,125</u>	<u>11,550</u>		
Price/Trade In Value Difference		6,195	1,750	4,445		
2010	Toyota	Hybrid	Prius	22,150	16,450	
		Conventional	Corolla S	<u>17,470</u>	<u>10,200</u>	
	Price/Trade In Value Difference		4,680	6,250	(1,570)	
	Honda	Hybrid	Civic	24,510	14,350	
	Conventional	Civic LX	<u>18,315</u>	<u>12,550</u>		
Price/Trade In Value Difference		6,195	1,800	4,395		
SUV Conventional and Hybrid Vehicles						
Year	Mfg	Type	Model	Base Price \$	Trade In Value (est) \$	Net Cost Savings from Conventional
2005	Ford	Hybrid	Escape	28,595	8,575	
		Conventional	Escape	22,045	6,800	
		Price/Trade In Value Difference		6,550	1,775	4,775
2006	Ford	Hybrid	Escape	29,140	10,400	
		Conventional	Escape	22,435	8,425	
		Price/Trade In Value Difference		6,705	1,975	4,730
2007	Ford	Hybrid	Escape	27,925	12,350	
		Conventional	Escape	22,515	10,100	
		Price/Trade In Value Difference		5,410	2,250	3,160
2008	Ford	Hybrid	Escape	27,680	15,750	
		Conventional	Escape	22,175	12,800	
		Price/Trade In Value Difference		5,505	2,950	2,555
2009	Ford	Hybrid	Escape	30,750	17,750	

Compact Conventional and Hybrid Vehicles						
Year	Mfg	Type	Model	Base Price \$	Trade In Value (est) \$	Net Cost Savings from Conventional
		Conventional	Escape	23,370	14,350	
		Price/Trade In Value Difference		7,380	3,400	3,980

## Exhibit B

### Vehicle and Equipment Services Compact Vehicle Analysis – Hybrid v Non-hybrid

**Table 1: Summary – 'Made in', Reliability and 7-Yr Emissions & Cost Data**

Vehicle	Made in	Com- bined MPG <sup>1</sup>	Meets Policy (Y/N)	Relia- bility <sup>2</sup>	7-Year Ownership Data				
					Emissions		Owner- -ship Net Cost	Est'd Cost savings	
					Greenhse Gases (tons)	Smog (grams)		Per Unit	Total (50 Units) <sup>3</sup>
Current Hybrids in Fleet Alternatives	Japan	46	Y	4.5	6.2	1687	\$28,564	\$ -	\$ -
2010 Honda Fit	Japan	31	Y	4.0	16.1	7042	23,020	5,544	277,200
2010 Nissan Versa	Mexico	28	N	2.5	16.1	7042	22,039	6,525	326,250
2010 Toyota Yaris	Japan	31	Y	3.5	13.7	7042	22,624	5,940	297,000
2010 Chevrolet Aveo	Mexico	30	Y	2.0	18.6	6195	26,406	2,158	107,900
2010 Chevrolet Cobalt	US	30	Y	3.5	18.6	9016	24,624	3,940	197,000
2010 Ford Focus	US	28	N	3.5	16.1	1687	23,939	4,625	231,250

<sup>1</sup>Combined Street/Highway Mileage  
<sup>2</sup>JD Power predicted reliability score out of a maximum score of 5.  
<sup>3</sup>There are 50 conventional compacts in the fleet that will be replaced in the near future.

**Table 2: Summary - Emissions & Cost Data**

Vehicle	Com- bined MPG <sup>1</sup>	Meets Policy <sup>2</sup> (Y/N)	7-Year Ownership Data <sup>3</sup>			Alternat- ives' Cost Under/ (over)	Increase in Emissions		Cost of Reduction in Emissions utilizing Current Hybrids <sup>4</sup>	
			Grnhse Gases (tons)	Smog (grams)	Cost		Grnhse Gases (tons)	Smog (grams)	Grnhse Gas (per ton)	Smog (per gram)
			Current Hybrids in Fleet Alternatives	46	Y	6.2	1,687	\$28,564	\$0	-
2010 Honda Fit	31	Y	16.1	7,042	23,020	5,544	9.9	5,355	\$558.12	\$1.04
2010 Nissan Versa	28	N	16.1	7,042	22,039	6,525	9.9	5,355	656.87	1.22
2010 Toyota Yaris	31	Y	13.7	7,042	22,624	5,940	7.5	5,355	797.31	1.11
2010 Chevrolet Aveo	30	Y	18.6	6,195	26,406	2,158	12.4	4,508	173.80	0.48
2010 Chevrolet Cobalt	30	Y	18.6	9,016	24,624	3,940	12.4	7,329	317.31	0.54
2010 Ford Focus	28	N	16.1	1,687	23,939	4,625	9.9	-	465.60	-
<b>Estimated current market price of one Carbon Credit</b>									<b>\$ 12.25 per ton</b>	

<sup>1</sup>Combined Street/Highway Mileage  
<sup>2</sup>Minimum 30 MPG per BOS Resolution No. 069650, approved 9/9/08  
<sup>3</sup>Emissions data is from the California Air Resources Board; The ownership cost data is from Edmunds.com  
<sup>4</sup>Toyota Prius & Honda Civic hybrids preferred under the current policy have lower emissions but higher costs. We divided the increase in emissions by the incremental cost to determine the per unit cost of benefit (lower emissions). The estimated current 'market value' of one carbon credit (\$12.25 per ton) is provided for comparison.