

Date: May 25, 2017  
 Current Meeting: June 1, 2017  
 Board Meeting: June 1, 2017

**BOARD MEMORANDUM**

**TO:** Santa Clara Valley Transportation Authority  
Board of Directors

**THROUGH:** General Manager, Nuria I. Fernandez

**FROM:** Interim Director - Planning & Program Development, Carolyn M. Gonot

**SUBJECT:** 2016 Sustainability Program Report

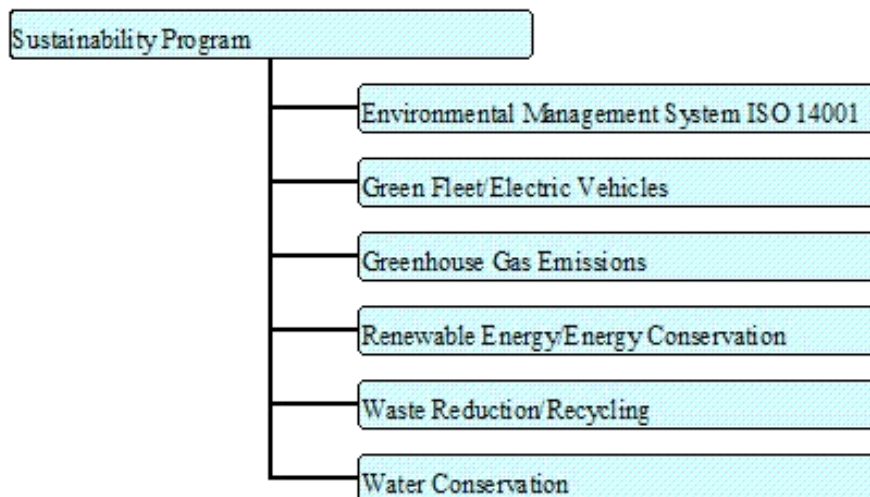
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**FOR INFORMATION ONLY**

**BACKGROUND:**

The VTA Sustainability Program was created in July 2007 and formally approved by the Board of Directors on February 7, 2008. The Program goal is "to proactively reduce the consumption of natural resources, the creation of greenhouse gases, and the generation of pollution in the provision of public transportation services."

The Environmental Programs and Resources Management Department within the Planning and Program Development Division oversees VTA's Sustainability Program. The Sustainability Team, which includes representatives from all VTA Divisions, collaborates to develop and implement initiatives and projects under the Program throughout VTA in the following areas:



In December 2016, the VTA Board of Directors recognized sustainability as one of VTA's core values. The 2016 Strategic Plan includes a commitment to "operate our services and design our projects to avoid or minimize impacts on the environment." This commitment demonstrates VTA's continued support of the Sustainability Program.

The Sustainability Program currently has a budget of \$1 million for Fiscal Years (FY) 2016 and 2017. An allocation of \$700,000 is included in the Proposed Biennial Budget for FY 2018 and 2019.

A summary of accomplishments and list of Sustainability Team members is provided as Attachment A.

## **DISCUSSION:**

The Sustainability Program includes reporting back to the VTA Board of Directors on an annual basis. The purpose of the annual report is to present VTA's awards and certifications, environmental performance, and major accomplishments for the reporting year and provide comparisons to previous years. The 2016 report also includes a summary of future projects considered for FY 18/19.

### **AWARDS AND CERTIFICATIONS**

In May 2016, VTA achieved Gold level recognition through the American Public Transportation Association (APTA) Sustainability Commitment. This monumental accomplishment was achieved by making up to 10% reductions in energy, water, waste, greenhouse gases, and criteria air pollutants. Only three other transit agencies in California have achieved this recognition level or higher.

### **ENVIRONMENTAL PERFORMANCE**

A summary of VTA's environmental performance related to fuel, electricity, natural gas, waste/recycling, and water for 2016, as compared to 2015, is provided in Attachment B. The purpose of the comparison is to provide information that can be used to improve VTA's environmental performance in the future. Details of the year-to-year comparison (2016 and 2015) for the various resources are provided below. Where historical data is available, this report also compares 2016 to the baseline year, which is 2008 unless otherwise noted.

#### *Renewable Energy/Energy Conservation*

**Fuel.** In 2016, the revenue fleet consumed 4.2 million gallons of fuel. This is approximately the same as the previous year and 9% higher than the baseline year (2011). In 2016, VTA spent \$7.5 million on fuel, which is 18% less than the previous year due to lower diesel prices. The use of biodiesel fuel, based on a blend of B20 soy biodiesel and ultra-low sulfur diesel, for buses, was discontinued in May 2016 due to lower fuel economy compared to conventional diesel.

In 2016, the non-revenue fleet consumed 198,232 gallons of fuel and the paratransit fleet used 350,745 gallons of gasoline. Fuel use by the non-revenue fleet was approximately 6% higher than the previous year and 18% higher than the baseline year. Fuel used by paratransit service

was approximately 3% lower than the previous year and 12% lower than the baseline year.

**Electricity.** In 2016, total VTA electricity use was 37.1 million kilowatt hours (kWh), enough to power 3,431 homes for one year. VTA's electricity includes grid electricity (PG&E) and renewable energy (solar) sources. Grid electricity use was 33.9 million kWh. This is approximately 7% lower than the previous year and 17% lower than the baseline year. The decrease in usage over last year is due to reduced traction power usage as a result of fewer special events at Levi's Stadium, LED lighting retrofits, and HVAC retrofits at River Oaks. In 2016, VTA spent \$5.6 million on grid electricity, which is approximately 2% lower than the previous year.

The majority of electricity consumed at VTA's bus divisions is supplied by solar power. In 2016, total solar electricity production at Cerone, Chaboya, and North Bus Divisions was 3.2 million kWh, which is 2.6% lower than the previous year. The total cost for solar electricity in 2016 was \$682,000, which is 0.5% higher than the previous year.

**Natural Gas.** In 2016, VTA used 136,087 therms and spent \$126,363 on natural gas. Since the baseline year, natural gas use decreased by 24%. Usage increased by 6% compared to the previous year, resulting in a cost increase of \$10,662. This increase was primarily due to increased natural gas use at River Oaks, as more heating systems are transferred from electricity, and colder winter months.

#### *Waste Reduction and Recycling*

In 2016, approximately 815 tons of materials (mixed paper, plastic, aluminum, glass, wood, and metal) were recycled and 2,620 tons of waste were collected by VTA's solid waste providers, representing a waste diversion rate of 28%. Overall, solid waste decreased by approximately 1% compared to the previous year and 29% compared to the baseline year.

#### *Water Conservation*

In 2016, total potable water use was 25.5 million gallons, which is enough water to fill 39 Olympic-size swimming pools. Since the baseline year, potable water use decreased by 50%. In response to mandatory drought restrictions imposed in 2015, potable water use decreased by 29% in 2016 due to reduced irrigation schedules, increased monitoring of water use to identify and fix leaks, and replacement of turf with drought tolerant landscaping. Additionally in 2015, the bus wash at Chaboya was connected to recycled water, saving approximately 5 million gallons of potable water per year.

### **ACCOMPLISHMENTS**

VTA's Sustainability Program achieved many accomplishments in 2016. Each accomplishment is a validation of VTA's commitment to increasing environmental performance and efficiency. Key accomplishments are described below.

#### *Green Fleet and Electric Vehicles*

VTA started purchasing hybrid diesel electric buses in 2010 and formally adopted a Sustainable

Fleet Policy in 2015 with the aim to decrease both fuel consumption and greenhouse gases by 2% by 2020.

In 2016, VTA was selected as a recipient for the Federal Transit Administration's Low or No-Emission (Low-No) Bus Competitive Grant Program. VTA will use the Low-No funding to purchase 5 zero-emission battery-electric buses and charging stations, upgrade Cerone Division to service electric buses, and provide workforce development on the new technology. The battery-electric buses will begin revenue service in 2018. In addition, VTA is currently receiving offers on a Request for Proposals for 5 electric buses and charging stations, with an option for 25 more buses.

VTA purchased 2 Ford Fusion plug-in hybrids, 4 Ford Focus full electric, and 11 Ford Fusion hybrids for the non-revenue fleet in 2016. Six associated charging stations were installed at River Oaks in 2017.

### *Greenhouse Gas Emissions*

In March 2016, VTA prepared its first Greenhouse Gas Inventory. This inventory included emissions from VTA vehicle fleets, emissions from off-site generation of the electricity VTA consumes, and emissions from on-site combustion of propane and natural gas. Overall, the majority of VTA's GHG emissions (79%) are related to the operation of the revenue fleet.

### *Renewable Energy/Energy Conservation*

In November 2016, VTA's Sustainability Program and Operations Division received a rebate check of \$26,150 for its light-emitting diode (LED) lighting project. The check was presented to VTA staff by PG&E and the Lockheed Martin Corporation, as shown in Figure 1, Attachment C.

To date, the LED retrofits are estimated to save over 460,000 (kWh) per year, reducing VTA's greenhouse gas emissions by over 241,000 pounds. In addition to saving annual electricity costs by nearly \$85,000 per year, the LEDs also save labor costs associated with ongoing maintenance required for older fixtures.

Solar photovoltaic (PV) panels were installed on the Berryessa BART Station parking garage as shown in Figure 2, Attachment C. The 152 kW photovoltaic system became operational in January 2017. VTA applied a federal renewable energy grant of \$750,000 towards the project. The grant was awarded to VTA in September 2012.

### *Waste Reduction/Recycling*

In collaboration with other departments and divisions, the Sustainability Program continues to improve recycling rates and promote the use of technology over paper as a way to reduce waste and improve efficiency throughout VTA. In 2016, VTA accomplished the following initiatives:

- Initiated a process to convert personnel and benefit files to electronic records,
- Converted creative service work order requests from hard-copy to electronic,
- Implemented an electronic invoice process to reduce the volume of physical records retention and eliminate printing of invoices and routing slips,

- Created an online Policies and Procedures Manual that allows users to search for documents electronically,
- Added “think before you print” signature line to outgoing email messages,
- Changed Take-One distribution from monthly publication to quarterly printing,
- Reopened employee Re-use Center for office supply exchange, and
- Added signage to River Oaks Cafeteria and trained vendor on mixed recycling and composting program.

Together these initiatives are estimated to save VTA over 250,000 sheets of paper per year.

### *Water Conservation*

In October 2016, VTA retrofitted toilets and urinals with dual-flush valves at its River Oaks administrative offices. The valves replaced sensors that flushed automatically and often resulted in phantom flushes that increased water use. The new dual-flush valves allow users to push the handle down for a full flush or lift the handle up for a reduced flush. On average the dual-flush valves save 23,000 gallons of water per month.

In early 2017, the Sustainability Program updated 33 weather-based irrigation controllers at 22 park-and-ride lots and transit centers. These controllers, originally installed in 2009, utilize a cloud-based platform that adjusts watering schedules based on weather forecast, plant types, and soil data; automatically schedules irrigation to occur in compliance with any municipal restrictions or mandatory watering days; and sends alerts based on any unusual situations, such as abnormal water flow rates. The updated controllers will allow VTA staff to remotely manage irrigation schedules via a mobile device.

### *Other Accomplishments*

Other accomplishments in 2016 include hosting a quarterly meeting of the Bay Area Transportation & Sustainability Working Group and organizing an Earth Day celebration for VTA employees.

In July 2016, VTA staff was invited to present at the APTA Sustainability Conference in Austin, Texas. VTA presented on its response to the California drought emergency and ability to reduce potable water by 21%. In addition, VTA presented on best practices for operating a sustainability program including how to identify opportunities, justify improvements, and measure cost and usage savings. VTA also led a roundtable discussion of how to prepare a basic greenhouse gas inventory.

**FUTURE PROJECTS**

Future projects and staff time to support the Sustainability Program are dependent on funding allocation for the next two fiscal years. Projects in the Proposed Biennial Budget for FY 18 and 19 are listed in the table below.

| <b>Sustainability Area</b>                | <b>Projects in the Proposed FY 18/19 Budget</b>   |
|---|---|
| Environmental Management System ISO 14001 | No projects budgeted at this time   |
| Green Fleet/Electric Vehicles             | Continue to expand the electric bus fleet and electric vehicle charging infrastructure; Participate in SB350 proceedings on accelerating the electrification of the transportation sector |
| Greenhouse Gas Emissions                  | Prepare 2017 Greenhouse Gas Inventory   |
| Renewable Energy/Energy Conservation      | Complete free PG&E Energy Audits of facilities; Install solar PV on Milpitas BART Station Parking Garage; Continue utility monitoring and reporting                                       |
| Waste Reduction/Recycling                 | Adopt policies to support green building practices and procurement; Expand composting and recycling programs; Promote projects to reduce paper  |
| Water Conservation                        | Install weather-based irrigation controllers and flow sensors   |

Related projects funded outside the Sustainability Program include LED lighting retrofits and Guadalupe train wash replacement.

The aforementioned projects are necessary to maintain VTA’s Gold level recognition from APTA. The ultimate goal of the Sustainability Program is to achieve Platinum level recognition and ISO 14001 Certification.

**STANDING COMMITTEE DISCUSSION/RECOMMENDATION:**

The Safety, Security, Transit Planning & Operations Committee received this item as part of its May 19, 2017, Regular Agenda and expressed strong support for the Sustainability Program. The Committee recommended that this item be placed on the Consent Agenda for the June 2017 Board Meeting.

Prepared By: Keelikolani Ho  
Memo No. 6071

## MAJOR ACCOMPLISHMENTS OF VTA'S SUSTAINABILITY PROGRAM SINCE 2008

2018

BART stations open with sustainable design features

Electric vehicle procurement for the revenue and non-revenue fleet

Irrigation upgrades ongoing

2016

APTA Sustainability Gold-Level

LED lighting retrofits ongoing

Chaboya bus wash connected to recycled water

2014

Completed FTA's Environmental Management System Institute

Utility management system implemented

EV charging stations installed at River Oaks and Eastridge Transit Center

2012

Installed 2.1 megawatts of solar PV at bus divisions

2010

Hybrid bus procurement

PG&E energy audits

Water use surveys

2008

Sustainability Program established

### SUSTAINABILITY TEAM

**Kevin Balak**, Real Estate & Joint Development

**Marshall Ballard**, Transportation Planning

**Hassan Basma**, Engineering & Transportation Infrastructure Development

**Ann Calnan**, Environmental Programs & Resources Management

**Marc DeLong**, Engineering & Transportation Infrastructure Development

**Casey Emoto**, Project Development

**Inez Evans**, Operations Administration

**Tom Fitzwater**, SVRT Environmental Planning

**Robert Furber**, Environmental Programs & Resources Management

**Carolyn Gonot**, Planning & Project Development

**Lani Ho**, Environmental Programs & Resources Management

**Karly Hutchinson**, Environmental Health & Safety

**Christina Jaworski**, Environmental Programs & Resources Management

**Baljit Pannu**, Human Resources

**Kathleen Podrasky**, Community Engagement

**Kris Sabherwal**, Rail Engineering

**Heidi Samuels**, Operations Maintenance

**Rajwinder Sehdev**, Engineering & Transportation Infrastructure Development

**Jesse Soto**, Facilities Maintenance

**Robert Victor**, Technology

**Kendall Whitson**, Facilities Maintenance

## ENVIRONMENTAL PERFORMANCE SUMMARY FOR 2016 COMPARED TO 2015

| Resource Area                                      | ← LOWER<br>Compared to 2015   | HIGHER →<br>Compared to 2015  |
|--|---|---|
| <b>FUEL</b>  | <b>3%</b> reduction of paratransit fuel use due to use of more efficient vehicles   | <b>6%</b> increase of non-revenue fuel use<br><br>✓ Plug-in Hybrids added in 2017 to replace older vehicles         |
| No significant change in fuel use by revenue fleet |   |   |
| <b>ELECTRICITY</b>                                 | <b>7%</b> reduction due to less light rail service for special events at Levi's Stadium and facility upgrades:<br><br>✓ LED lighting retrofits at light rail station and park-and-ride lots<br>✓ HVAC retrofits at River Oaks   |   |
| <b>NATURAL GAS</b>                                 |   | <b>6%</b> increase due to conversion of River Oaks heating systems from electricity to gas and colder winter months |
| <b>WATER CONSERVATION</b>                          | <b>29%</b> reduction due to water conservation measures:<br><br>✓ Reduced irrigation schedules<br>✓ Increased monitoring of water use to identify and fix leaks<br>✓ Replaced turf with drought tolerant landscaping<br>✓ Connected Chaboya bus wash to recycled water line |   |
| <b>WASTE REDUCTION/ RECYCLING</b>                  | <b>1%</b> reduction of solid waste as a result of:<br><br>✓ Compost program improvements at River Oaks Cafeteria<br>✓ Employee Reuse Center<br>✓ Conversion to paperless processes  |   |



FIGURE 1: VTA RECEIVES \$26,150 REBATE CHECK FOR LED LIGHTING PROJECT



FIGURE 2: SOLAR PV PANELS ON BART BERRYESSA PARKING GARGAGE

