SCOTTSDALE TRANSPORTATION COMMISSION REPORT

To: **Transportation Commission**
From: **John Kelley, Transportation Planner**
Subject; **Vehicle Replacement Plan Update**
Meeting Date: **December 15, 2011**

ITEM IN BRIEF

Background:
The City of Scottsdale owns and operates a fleet of fifteen (15) trolley vehicles and six (6) Eldorado buses used to provide service on four routes. Twenty-four (24) Eldorado buses were purchased in 1999 for operation by Veolia Tempe 66, 72, 76, 81 84 and 114. The first seven (7) trolleys were purchased in 2003 for use on the Downtown Route. As the Neighborhood Route was created in 2006, expanded in 2008, and service was added for Giants games and Downtown events, nine (9) additional vehicles were purchased (one was totaled in March 2009 and not replaced). When the Miller Road route was reassigned to our contract with Dunn Transit, six (6) of the Eldorado buses were brought in from Tempe Veolia to Scottsdale. The remainder of the Eldorado vehicles have been retired. Federal Transit Administration (FTA) grants funded over 80 percent of the purchase price of all vehicles. FTA guidelines recommend that the trolleys be replaced after ten years of operation and the buses after twelve years; therefore, thirteen (13) of the vehicles are due for replacement in 2013.

At the Commission's October 20, 2011 meeting, transit staff presented an extensive summary of information regarding the choices that must be evaluated in order to develop specifications for replacement vehicles including: vehicle size, engine, body style, fuel type and interior seating and materials. Staff addressed questions and concerns from the Commissioners regarding discussions that included the cost of maintenance for trolleys versus buses, funding for purchase of vehicles, the use of one type of vehicle on all routes rather than using different types of vehicles, and the merits of using newer technology (low floor vs. high floor).

Additional Information Collected:
After the October Commission meeting, given the Commission's feedback, staff conducted additional research, particularly on the choice of high floor vs. low floor trolley-replica buses and hybrid technology.

In our research, we found that the manufacturer of our current fleet is the only manufacturer left that builds high floor trolleys in the United States. This leaves no procurement competition and little industry support for parts and equipment. In talking

to other transit agencies that replaced their high floor with low floor vehicles, we found repetitive themes for eliminating high floor vehicles - lack of comfort and accessibility and reliability issues. We found that fewer and fewer cities are using the old style hand-built trolley vehicles or planning to replace their existing fleet with the same vehicle.

We contacted cities across the nation with trolley operations and found several that have replaced their high floor trolleys with newer low floor trolley-replica designs (Kingston, New York; New Orleans, Louisiana; Providence, Rhode Island; St. Petersburg, Florida). In each case, the older style trolley was replaced with low floor buses wrapped to resemble trolleys due to the same maintenance, access, comfort, and reliability issues the City of Scottsdale is facing with our current vehicle fleet. Locally, the City of Flagstaff/Coconino County, Arizona purchased six of the same vehicles that we currently own in 2007. After two years of operation the city disposed of the vehicles due to reliability issues and maintenance costs. Based on the lack of vehicle choice, support, maintenance costs, and high floor lift designs, staff does not recommend pursuing the purchase of high floor vehicles.

Hybrid vehicles obtain their best fuel economy when operated at slow speeds with frequent stops, since vehicle breaking recharges the batteries. Hybrid vehicles are advertised to increase fuel efficiency by an estimated 20 percent; however, we have received mixed reviews from agencies using the technology, primarily due to variations in operating environments. In Santa Barbara, California, the vehicles are achieving the 20 percent fuel savings, since they are operated in an environment with many stops at slow speeds and they use little air conditioning. By comparison, the St. Petersburg, Florida hybrid fuel economy is only five percent better, because the vehicles are used on long routes with few stops and have high air conditioning use. In Scottsdale, we would anticipate an increase in fuel economy between 5 and 20 percent since our routes are slow with many stops like Santa Barbara, but have air conditioning requirements that would be higher than Santa Barbara and somewhat lower than St. Petersburg.

It is generally agreed that while hybrid vehicles generate less pollution, the fuel economy may or may not necessarily pay for the added vehicle cost over the life of the vehicle. For purposes of the City's planned procurement, capital funding for the vehicles will come from a combination of Federal grants and Proposition 400 revenues. Probably the greatest positive factor provided by diesel hybrid technology is a reduction in vehicle noise, since hybrid engines run noticeably quieter. Scottsdale Downtown merchants and residents periodically complain about vehicle noise, as was the case recently in the Arts District and last year on the Marshall Way Bridge.

Staff Recommendations:
The information gathered leads staff to recommend purchase of a standard low floor bus with a bio-diesel/hybrid power plant. To adequately provide the variety of services we offer, considering ridership growth on the Miller Road route, we propose the following fleet replacement plan.

No. of Vehicles to Replace	Vehicle Configuration	Description and Vehicle Use	Replacement Year
7	30' Trolley replicas	(Downtown/Hospitality/Giants)	2013
7	35' Standard bus w/trolley exterior	(Neighborhood/Miller Road)	2013
7	30' Standard bus w/trolley exterior	(Neighborhood/Miller Road)	2015

By purchasing the trolley replica vehicles first, the quieter new vehicles can be used Downtown to mitigate noise issues. The trolley replica package is identical to the current trolley with the faux trolley exterior including the wood trim, rail moldings, simulated cow catcher front bumper and center headlight. The interior faux trolley includes simulated oak trim with brass finish handrails with wood finish seats. This package is a $65,000 - $75,000 option and is not practical for the entire fleet due to capital costs and increased maintenance costs. The remainder of the fleet can be painted or wrapped to mimic the exterior trolley, which maintains trolley identity/branding without capital costs or increased maintenance. The interior of these vehicles can be outfitted with a more sophisticated color palette and upholstered seats because trips are longer than Downtown trips. This will allow for a more gentle transition to the new technology as it is introduced on the other two routes.

The recommended fleet composition, outlined in the table above, allows for maximum flexibility while retaining the standardization of drive train and chassis components. Three vehicle configurations are recommended and all vehicles will be identical trolley-replica looking buses on the outside; however, the interior of the seven vehicles purchased for the Downtown, Hospitality and stadium service will be upgraded to also look authentic with wood simulated interiors and brass looking metal trim. The fourteen (14) buses used on the Miller Road and Neighborhood routes would have standard transit bus interiors. All vehicles will be built on the same chassis and will use the same components (engine, transmission, wheels, tire size, air conditioning units, etc.).

The slightly longer 35-foot configuration accommodates six additional seated passengers and four to six additional standees, yet the additional vehicle cost is small (5-10%) compared to the 15% increase in capacity. The size of these vehicles will

enable us to better accommodate crush loads on the Neighborhood and Miller routes and will reduce the occurrence of making riders wait for the next trolley, when at capacity. The extra capacity will also reduce the likelihood of having to add peak hour trips, which would increase operating costs.

The low floor design provides boarding/de-boarding of passengers at sidewalk level, making ingress and egress not only faster but safer as well. A simple ramp with one moving part (which can be operated manually) eliminates the need and cost of rescue vehicles. Key target audiences for the Neighborhood and Miller Road routes are seniors and the physically challenged. As ridership increases, it is important to provide more efficient processes for boarding/de-boarding to maintain the tight schedules, especially the frequent boarding of mobility devices. Being able to successfully manage tight schedules allows for high quality frequency of service with the fewest number of vehicles possible.

Staff also recommends purchase of bio-diesel/bio-diesel hybrid vehicles, since they will provide the most fuel efficient drive trains and the vehicles will run quieter.

Next Steps:
During the next two months, staff will reach out to the Scottsdale community to seek opinion on the recommended vehicle configurations. Open house forums and meeting presentations will be held at the following locations:

- Granite Reef Senior Center
- Paiute Neighborhood Center
- Chaparral Park
- Old Town Merchants Association meeting presentation
- 5th Avenue Merchants Association meeting presentation
- February 16th Transportation Commission Open House

In addition, a website will be set up to solicit public opinion, and a summary of the proposal will be sent out via email list.

Staff will return to summarize the results of the public outreach at the Commission's February 16th meeting, to hear final testimony at a Commission Public Hearing, and request approval of a final recommendation.

Staff Contact: John Kelley, jkelley@scottsdaleaz.gov, 480-312-7626

Vehicle Replacement Plan

John Kelley

Transportation Planner

Existing Fleet

- 7 Supreme Trolley's — 5 Downtown
- 4 Supreme Trolley's — 3 Neighborhood
- 5 Supreme Trolley's — 3 DT, 6 NT, 2 Giants/ Events, 2 Hospitality

- 6 El Dorado Nationals — 3 Miller Road

Manufacturers

- High Floor Trolley
- Supreme

Low Floor Bus/ faux Trolley

El Dorado

Gillig

North American (NABI)

New Flyer

Transit Providers Trend

- Flagstaff/Coconino County, Arizona
- Kingston, New York
- New Orleans, Louisiana
- Providence, Rhode Island
- St. Petersburg, Florida

Powertrain

- Bio-Diesel/Hybrid

- 5 – 20% increase in fuel economy
- Greener/lower emissions
- Capital Costs/Maintenance costs
- Quieter operation

Vehicle Configurations

- 7 30’ Standard Bus/Trolley Replica
  DT / Hospitality Trolley
- 7 35’ Standard Bus w/ Faux Trolley Exterior
  Neighborhood / Miller Road
- 7 30’ Standard Bus w/ Faux Trolley Exterior
  Neighborhood / Miller Road

Trolley Replica

- Interior
  - Brass handrails
  - Wood finish molding, wooden slat seats
- Exterior
  - Window Treatment
  - Wood rail molding, cow catcher

- Standard bus
  Paint or wrap exterior

Low Floor Design

- Seniors/Physically challenged
  - Ease of boarding/de- boarding
  - Level with the sidewalk

- Ramps v. Lifts
  - Ramps have one moving part (hinge)
  - Ramps can be operated manually
  - Lifts have mechanical/electrical and hydraulic systems

Next Steps

- Public Outreach
  - Granite Reef Senior Center
  - Paiute Neighborhood Center
  - Old Town Merchants
  - Fifth Avenue Merchants Associations
  - Chaparral Park
  - Website

Transportation Commission February 16, 2012