

To: A&F Committee

Date: September 4, 2019

From: J. Scott Mitchell  
Chief Operating Officer

Reviewed by: 

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### **SUBJECT: Retrofit Batteries and Battery Management System – 1600 Series Buses**

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**BACKGROUND:** In 2016, County Connection purchased four (4) prototype electric buses from Gillig using a 2012 Clean Air Grant for use on the Route 4 in Walnut Creek.

**SUMMARY OF ISSUES:** The 2016 buses were built by Gillig using XALT batteries with a 4C battery management system and BAE drivetrain. County Connection has experienced an unacceptable level of battery system problems due to battery management, which has resulted in limited availability of the buses and a high rate of service interruptions and accelerated battery degradation.

XALT has stopped using 4C for their battery management system making it difficult to support. County Connection has been working with Gillig to resolve these issues. Gillig has recommended, and County Connection staff agrees, the best way to resolve these issues is to retrofit the 1600 batteries and management system to match the 1800 series buses that have improved range and reliability and use a different battery management system and battery pack. The cost to retrofit four (4) buses with new batteries and management system with a three (3) year warranty is \$594,126.

Gillig is willing to take on \$364,126 of the cost. The remaining \$230,000 will be paid for by County Connection using a LCTOP Grant that is programmed to support the electric vehicles.

**FINANCIAL IMPLICATIONS:** LCTOP: \$230,000

**RECOMMENDATION:** Staff recommends that the A&F Committee recommend that the Board of Directors authorize the General Manager to enter into an agreement with Gillig to retrofit four (4) 1600 series electric buses, with the cost to County Connection not to exceed \$230,000.

**ACTION REQUESTED:** Staff requests that the A&F Committee recommend that the Board of Directors at its September 19, 2019, Board of Directors meeting, adopt a Resolution authorizing the General Manager to enter into an agreement with the Gillig Corporation to retrofit four (4) electric buses with new battery pack and battery management system, with the cost to County Connection not to exceed \$230,000.

# RETROFIT COST

Description	Remarks	Per Unit	Extended
XALT Parts	Refer to XALT Quote	\$ 86,746	\$ 346,984
XALT NRE	Commissioning	\$ -	\$ -
XALT Add'l 3 Year Warranty		\$ 3,387	\$ 13,548
Telematics Kit - Additonal Years		TBD	TBD
GILLIG Parts	HV Cables	\$ 6,400	\$ 25,600
	Rear Panel	\$ 4,700	\$ 18,800
	AV Harness	\$ 4,500	\$ 18,000
GILLIG Labor (Eng, Mfg)	40 Hrs/Unit	\$ 4,000	\$ 16,000
BAE Labor	40 Hrs/Unit	\$ 4,200	\$ 16,800
Complete Coach Labor		\$ 22,493	\$ 89,970
Towing		\$ 1,400	\$ 5,600
10% Risk			\$ 42,824
<b>TOTAL</b>			<b>\$ 594,126</b>

## Open Points

- 1-year real time monitoring from XALT
- Charges for Ongoing SW & Troubleshooting support from BAE, XALT, WAVE, EFACEC

**GILLIG**

