

REGIONAL TRANSIT ISSUE PAPER

Agenda Item No.	Board Meeting Date	Open/Closed Session	Information/Action Item	Issue Date
15	04/14/14	Open	Information	04/04/14

Subject: Status of RT's Bus and Rail Fleet

ISSUE

Regional Transit's (RT) bus and rail vehicles are aging and a large portion of the fleet will need to be replaced within a short time frame. RT's entire active fleet of standard buses will need to be replaced over the next ten years, as will the community bus (small bus) fleet. Similarly, 29 rail vehicles need to be replaced by 2024 with an additional 28 light rail vehicles scheduled for replacement during 2025-2028. Obtaining the necessary funding to maintain a reliable fleet of vehicles will be a major challenge for RT.

RECOMMENDED ACTION

No action is requested at this time. Information only.

FISCAL IMPACT

None at this time.

DISCUSSION

RT's bus and rail fleets are aging and need to be replaced. RT staff has developed a replacement schedule based on vehicle age and anticipated service levels. Analysis of the replacement schedule for the next ten years indicates that while the vehicles are needed, finding the funding necessary to replace the fleet as planned represents a significant challenge. The following discussion addresses RT's fleet needs by vehicle category: standard bus, community bus, and rail vehicles. This discussion assumes no new bus service beyond the service replacement hours identified in TransitRenewal and no expansion of rail service beyond the Blue Line to Cosumes River College and limited stop service on the Gold Line.

Standard Bus

RT estimates its total bus fleet needs by identifying the number of buses needed at the time of day during which most people travel - the peak hour. RT staff calculates the number of vehicle hours necessary to meet peak demand and based on that determines the number of vehicles needed to meet the demand. RT's peak bus fleet need is currently at 147 standard buses. Eight vehicles are kept on standby in order to maintain schedules during incidents that cause bus schedules to be compromised. Also, the Federal government recommends an extra 20 percent of the fleet be kept as spare vehicles to replace vehicles temporarily removed from the fleet for various reasons including mechanical problems and damage. RT's FY2014 active standard bus fleet currently totals 199 vehicles.

Approved:

Presented:

Final 04/07/14

General Manager/CEO

AGM, Planning & TSD

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Please note that, because of the 2010 service cuts, RT has 13 more spare buses than required by the Federal Transit Administration (FTA) for spares. As those buses age, they will be retired from the fleet.

The useful life of a standard bus as recommended by FTA, is 12 years. FTA has determined that after 12 years, standard buses routinely encounter mechanical issues which result in their being very expensive to operate. Because buses used in the Sacramento area do not encounter the severe weather conditions of buses in some other U.S. cities, RT is able to plan on a useful life of a bus of up to 14 years dependent upon the Compressed Natural Gas (CNG) tank expiration date for each bus.

Rehabilitating RT's standard buses to extend their useful life beyond 14 years is problematic. As buses age, obtaining parts becomes difficult. In fact, Orion International, which built RT's fleet and supplied parts is no longer in operation. The safety certification for the CNG tanks generally expires concurrent with RT's 14-year useful life of the bus.

Please refer to Attachment 1 for a visual description of the replacement schedule for standard buses. Line 1 of the Attachment shows that the number of buses in the fleet increases modestly over the next 10 years and that no major increases in bus service are planned. RT fleet size is expected to accommodate increasing ridership of an average 3% annually.

A total of 255 buses need to be purchased by FY2024. RT has secured \$55,223,918 for the purchase of 96 buses through 2019.

Funding has not been identified for the remaining 159 buses needed to meet service needs and maintain a 20% spare level through FY2024. RT will need to secure an additional \$115,735,353 to purchase standard buses between FY2020 and FY2024.

Community Buses

RT has 27 small buses in its Community Bus Service (CBS) fleet. These buses operate on four RT bus routes and four community based routes financially supported through local governmental jurisdictions and Transportation Management Associations (TMAs).

The community buses are used in neighborhoods within which the anticipated demand does not warrant a larger bus and/or the neighborhood is not designed to accommodate a larger vehicle. These buses are expected to operate 5-7 years before the need for a high level of maintenance begins to affect the quality and reliability of service. As illustrated in Attachment 2, staff has identified funding for the community buses scheduled for retirement in 2015. However, staff has not identified funding for the remaining 47 vehicles (replacement vehicles and spares) required between 2017 and 2024. Because of the short useful life of the small vehicles, some vehicles are scheduled to be replaced more than once during the next ten years.

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The cost of one community bus is expected to be \$197,784 in 2017 and increase annually to approximately \$243,2493 in 2024. RT will need to identify an estimated \$10,494,266 in funding between 2017 and 2024 to replace the CBS fleet.

Rail Vehicles

In FY 2014, RT has an active fleet of 76 cars (see below). There are 21 vehicles currently being refurbished to be placed into active service beginning with the Blue Line service in 2015.

Rail Fleet						
Number of Cars	Manufacturer	Year Built	Comments	Current Age	Replacement Years	Age at Replacement
26	Siemens	1985-87	In Service	27 years	2019-2023	35-36 years
10	Siemens	1990-91	In Service	23 years	2024-2026	34-35 years
40	CAF	2001-02	In Service	12 years	2033-2039	32-37 years
21	UTDC*	1986-88	In Service 2015	26 years	2027-2028	40-41 years

* The first 14 UTDC cars will be put into service in FY2015.

The expected useful life of a rail vehicle is estimated to be at least 25-30 years. RT aims for a useful life of 30 years. As noted on the chart above, most RT vehicles are over 25 years old and will be well past 30 years old when they are eligible for retirement. Attachment 3, shows that five of the oldest light rail vehicles are scheduled for replacement in 2019. Because it takes approximately three years to procure and build a vehicle, the order for replacement vehicles should take place in FY2016. The first five rail vehicles are scheduled to be followed by five vehicles in each of the next three fiscal years and six vehicles in FY2023 and three vehicles in FY2024. Each vehicle is expected to cost between \$4M and \$4.5 M totaling an estimated \$127,911,288 over the next ten years.

Although Attachment 3 details vehicle requirements through 2024, another 46 rail vehicles are scheduled for replacement between in 2025-2035 for a total rail vehicle replacement cost of \$247,774,814. Vehicle costs are expected to increase in future years from \$4.5M to \$6.0M.

The vehicle needs detailed above do not anticipate any further service expansion, including the extension of the Green Line. Green Line vehicles are expected to be part of the New Starts funding necessary to build the rail line. Streetcars are expected to be purchased through the Small Starts process and are, likewise, not included in these totals.

The additional vehicles necessary to operate limited stop service are shown in FY 2016.

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Rail Infrastructure Improvements

RT has committed to beginning the conversion of the rail network to low floor vehicles with the new rail vehicle procurement. The low floor conversion will require modifications at every rail station to accommodate level boarding. Staff has prepared a preliminary cost estimate for each station that varies between \$500,000 and \$1M depending on the extent of the changes. A more accurate estimate of the infrastructure improvements are currently being studied and will be available for review by Fall, 2014.

Summary

RT has always been successful in obtaining funding from various sources to meet bus fleet needs. RT has historically been assisted in these efforts by our partners at SACOG and the State of California who work with all the area transit agencies in obtaining necessary funding.

RT staff estimates that RT will need a total of \$255,595,995 in funding to replace light rail vehicles through 2024. RT has not identified funding for these replacements. A \$125,781,677 funding shortfall currently is forecasted for rail, standard bus, and community bus vehicle procurements during the next 10 years.

RT's 10-year Capital plan forecasts \$129,814,318 in funds for vehicle procurement from SACOG. However, the amount is beyond the typical level of funding received by RT and is not guaranteed.

If RT receives all the projected SACOG funding, an additional \$125,781,677 in funding will still have to be identified. RT staff will explore some possibilities with Federal Bus and Bus Facility (Section 5339) funding as well as innovative opportunities such as the State's Cap and Trade Program. Other possible sources staff is exploring such as Measure A Renewal (2016) and increased State funds for transit, depend upon voter approval.

A focus on obtaining vehicle funding has been and will continue to be a major component of RT's future capital plans.

Vehicle Replacement
Back to Pre-2010 service cut levels

System Growth

Standard Bus Fleet Management												
Maintain a 20% Spare Ratio												
	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	
1	Total Active Fleet-Beginning of Fiscal Year											
2	200	199	199	199	200	204	207	212	220	230	242	
3	Vehicles Required to be Retired											
4	-1	-30	-44	-21	-8	-5	-23	-23	-23	-22	0	
5	Vehicle Replacement w/ Identified Funding											96
6		30	44	22								
7	Vehicle Replacement w/o Identified Funding											104
8					8	5	23	23	23	22		
9	Peak Fleet Requirements (Average/Year)											
10	147	147	152	156	162	165	169	176	184	194	205	
11	Standby Vehicles											
12	8	8	8	8	8	8	8	8	8	8	8	
13	Required Spares											
14	31	31	39	36	34	34	35	36	38	40	42	
15	Excess Spares											
16	13	13										
17	Vehicles Req'd for 20% Spare Ratio											
18	--No Identified Funding--											55
19	0	0	0	0	4	3	5	8	10	12	13	
20	Total Active Fleet-End of Fiscal Year											
21	199	199	199	200	204	207	212	220	230	242	255	Totals
22	Total Vehicle Purchases Req'd											255
23	0	30	44	22	12	8	28	31	33	34	13	
24	Cost per bus											
25		\$608,077	\$608,077	\$608,077	\$664,462	\$684,396	\$704,928	\$704,928	\$704,928	\$704,928	\$793,403	
26	Vehicle Costs											\$170,959,271
27		\$18,242,310	\$26,755,388	\$13,377,694	\$7,973,544	\$5,475,168	\$19,737,984	\$21,852,768	\$23,262,624	\$23,967,552	\$10,314,239	
28	Identified Funding											\$55,223,918
29		\$13,247,100	\$4,988,460	\$28,188,358	\$5,000,000	\$3,800,000						
30	Cumulative Total											-115,735,353 Funding Need
31		\$13,247,100	-6,750	-26,762,138	-11,951,474	-14,925,018	-16,600,186	-36,338,170	-58,190,938	-81,453,562	-105,421,114	-115,735,353

Vehicle Replacement
Back to Pre-2010 service cut levels

System Growth

CBS Fleet Management
Maintain Spares for Operational Flexibility

	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	
1 Total Active Fleet- Beginning of Fiscal Year	27	27	27	27	27	27	27	27	29	30	32	
2 Vehicles Required to be Retired		-14	0	-3	-4	-6	-14	0	-3	-4	-6	
3 Vehicle Replacement w/ Identified Funding		14										14 Funded Replacements
4 Vehicle Replacement w/o Identified Funding				3	4	6	14		3	4	6	40 Unfunded Replacements
5 Peak Fleet Requirements (Average/Year)	15	15	15	16	17	17	17	19	20	22	24	
6 Spares	12	12	12	11	10	10	10	10	10	10	10	
7 Vehicles Req'd to Maintain Operational Flexibility --No Identified Funds								2	1	2	2	7 Unfunded Req'd Spares
8 Total Active Fleet- End of Fiscal Year	27	27	27	27	27	27	27	29	30	32	34	Totals
9 Total Vehicle Purchases Req'd		14	0	3	4	6	14	2	4	6	8	61
10 Cost per Bus		\$186,430	\$192,023	\$197,784	\$203,717	\$209,829	\$216,123	\$222,607	\$229,285	\$236,164	\$243,249	
11 Vehicle Costs		\$2,610,020	\$0	\$593,352	\$814,868	\$1,258,974	\$3,025,722	\$445,214	\$917,140	\$1,416,984	\$1,945,992	\$13,028,266
12 Identified Funding		\$2,534,000										\$2,534,000
13 Cumulative Total		-\$76,020	-\$76,020	-\$669,372	-\$1,484,240	-\$2,743,214	-\$5,768,936	-\$6,214,150	-\$7,131,290	-\$8,548,274	-\$10,494,266	-\$10,494,266 Funding Need

Attachment 3

Rail Fleet Management													
	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024		
1	Total Fleet-Beginning of Year	76	76	90	97	97	97	97	97	97	97	97	
2	Vehicles to be Retired						-5	-5	-5	-5	-6	-3	
3	Vehicles to be Replaced						5	5	5	5	6	3	29 Unfunded Vehicles
4	Refurbished Vehicles		14	7									7 Unfunded Refurbishments
5	Expansion												
6	Total Fleet-End of Year	76	90	97	97	97	97	97	97	97	97	97	
7	Peak Fleet Requirements	61	69	69	69	69	69	69	69	69	69	78	Totals
8	Total Vehicle Purchase Req'd					5	5	5	5	6	3	29	
9	Cost per Vehicle					\$4,000,000	\$4,000,000	\$4,000,000	\$4,000,000	\$4,000,000	\$4,637,096		
10	Vehicle Costs			\$10,000,000			\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$24,000,000	\$13,911,288	\$127,911,288
11	Identified Funding												\$0
12	Cumulative Total			-\$10,000,000	-\$10,000,000	-\$10,000,000	-\$30,000,000	-\$50,000,000	-\$70,000,000	-\$90,000,000	-\$114,000,000	-\$127,911,288	-\$127,911,288 Funding Need

- 1) Assume reburbished UTDC vehicles have a 12-year life.
- 2) Assume vehicles that have received a mid-life overhaul have an expanded 15-year life.
- 3) Green Line expansion is not shown.
- 4) Limited Stop Service for the Gold Line is shown beginning in 2024.
- 5) An estimated six CAF cars per year will be out of active service for mid-life overhauls between years 2018-2024.

Fleet Funding Needs

	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Totals		
1	Standard Bus	\$18,242,310	\$26,755,388	\$13,377,694	\$7,973,544	\$5,475,168	\$19,737,984	\$21,852,768	\$23,262,624	\$23,967,552	\$10,314,239	\$170,959,271		
2	Community Bus	\$2,610,020	\$0	\$593,352	\$814,868	\$1,258,974	\$3,025,722	\$445,214	\$917,140	\$1,416,984	\$1,945,992	\$13,028,266		
3	Rail					\$20,000,000	\$20,000,000	\$20,000,000	\$20,000,000	\$24,000,000	\$13,911,288	\$117,911,288		
4	Total Vehicle Costs	\$20,852,330	\$26,755,388	\$13,971,046	\$8,788,412	\$26,734,142	\$42,763,706	\$42,297,982	\$44,179,764	\$49,384,536	\$26,171,519	\$301,898,825		
5	Identified Funding	\$20,776,310		\$16,726,520	\$5,000,000	\$3,800,000						\$46,302,830		
6												Funding Need*	-255,595,995	
													Anticipated SACOG Funding (not guaranteed)	\$129,814,318
													Remaining Funding Need*	-\$125,781,677

* Funding Need does not include infrastructure costs to migrate to a low-floor light rail system.

Note: Funding sources necessary to supplement SACOG funding could include Federal 5337 Bus and Bus Facilities funds. Other sources such as Measure A Renewal and increased State funds would be dependent upon voter approval.