



CALIFORNIA
High-Speed Rail Authority

High, Medium, Low Cash Flows

2016 BUSINESS PLAN: TECHNICAL SUPPORTING DOCUMENT

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April 25, 2016

Russell Fong
California High-Speed Rail Authority
770 L Street, Suite 1100
Sacramento, CA 95814

Dear Mr. Fong:

Contract #HSR14-01 (“Contract”)
Deliverable: 2016 Draft Business Plan Cash Flows

KPMG LLP is pleased to provide the following deliverable pursuant to our Contract:

- 2016 Final Business Plan Cash Flows – High, Medium, and Low Cash Flows

The attached document provides a description of the potential cash flows from operations of the California high-speed rail system for the high, medium, and low ridership projections.

The cash flow analysis presented in the attached document is based on assumptions related to revenues, operating and maintenance costs and capital replacement costs provided by the Authority and its consultants.

This has been developed pursuant to our Contract effective August 24, 2014. We look forward to continuing to provide service to the California High-Speed Rail Authority on this important project.

Sincerely yours,

Kurt Ramey
Partner

Attachment:
• Project Cash Flow Analysis_04 25 2016 FINAL.doc

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Cash Flow Analysis – Final 2016 Business Plan

This document provides a description of the potential cash flows from operations of the high-speed rail system for the high, medium, and low ridership projections. Two versions of the net operating cash flows for full Phase 1 through 2060 are provided in this appendix. The first is in Year of Expenditure (YOE) dollars which include inflation to the year that funds are collected or spent. The second version provides the cash flows in 2015 dollars which removes the effect of inflation from all values. These estimates illustrate the potential net cash flows that may be available from operating the project that can be used for future development costs or financing purposes.

The net project cash flow calculation begins with the net cash flow from operations (revenue less operations and maintenance costs (O&M)). Depreciation is a non-cash item and is excluded from this calculation. To account for capital replacement needs, the projected annual expenditures for repairing and replacing capital assets over time, including trains, equipment, and rail infrastructure, are then deducted to arrive at net operating cash flow after capital replacement costs. This represents the net cash flow available to be used for capital purposes and is before consideration of any debt service or investment returns. Net Operating Cash Flow available after Capital Replacement is the free cash flow available for capital financing purposes or other capital costs.

The cash flows included herein are based on assumptions related to revenues, operating and maintenance costs and capital replacement costs provided by Parsons Brinkerhoff as described in the 2016 Business Plan. The estimates assume that Valley to Valley Extended (San Francisco to Bakersfield) have an Operations Start Date of 2025 with full Phase 1 opening in 2029.

Inflation assumptions were provided by Parsons Brinkerhoff and are as follows:

	2015	2016	2017-2025	2026-2060
Revenues	Base Year	2.00%	3.00%	3.00%
O&M	Base Year	2.00%	3.00%	3.00%
Life Cycle	Base Year	2.00%	2.25%	3.00%

High, Medium, Low Cash Flows
(Year of Expenditure \$)

Exhibit 1. Net Project Cash Flow through Phase 1 Blended (YOE dollars in millions) HIGH Case

\$'MM YOE	Total Cash Flow through 2060	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Revenue	252,993	351	497	651	815	2,222	2,804	3,433	4,113	4,846	5,062	5,287	5,523
Less: O&M	(76,743)	(331)	(377)	(424)	(473)	(1,196)	(1,275)	(1,376)	(1,465)	(1,562)	(1,624)	(1,680)	(1,737)
Net Cash Flow from Operations	176,250	19	120	228	342	1,026	1,528	2,057	2,648	3,285	3,438	3,607	3,785
Capital Replacement	(18,253)	-	-	-	-	-	-	-	-	-	(46)	(48)	(4)
Net operating cash flow after capital replacement	157,997	19	120	228	342	1,026	1,528	2,057	2,648	3,285	3,392	3,560	3,781

Exhibit 1. Net Project Cash Flow through Phase 1 Blended (YOE dollars in millions) HIGH Case (continued)

\$'MM YOE	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
Revenue	5,769	6,025	6,293	6,574	6,805	7,044	7,291	7,548	7,813	8,088	8,372	8,666
Less: O&M	(1,797)	(1,846)	(1,923)	(1,983)	(2,032)	(2,104)	(2,174)	(2,236)	(2,313)	(2,375)	(2,461)	(2,547)
Net Cash Flow from Operations	3,972	4,179	4,371	4,591	4,772	4,940	5,118	5,311	5,500	5,713	5,911	6,119
Capital Replacement	(4)	(106)	(172)	(91)	(94)	(27)	(267)	(369)	(383)	(221)	(124)	(309)
Net operating cash flow after capital replacement	3,967	4,074	4,199	4,500	4,678	4,914	4,851	4,943	5,117	5,492	5,787	5,811

Exhibit 1. Net Project Cash Flow through Phase 1 Blended (YOE dollars in millions) HIGH Case (continued)

\$'MM YOE	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Revenue	8,971	9,286	9,612	9,950	10,300	10,662	11,037	11,425	11,826	12,242	12,672	13,118
Less: O&M	(2,610)	(2,705)	(2,791)	(2,867)	(2,969)	(3,065)	(3,156)	(3,263)	(3,353)	(3,440)	(3,550)	(3,663)
Net Cash Flow from Operations	6,360	6,581	6,822	7,083	7,331	7,597	7,881	8,162	8,473	8,802	9,123	9,455
Capital Replacement	(346)	(210)	(207)	(211)	(837)	(1,101)	(1,200)	(1,227)	(2,044)	(2,420)	(2,973)	(3,212)
Net operating cash flow after capital replacement	6,014	6,371	6,615	6,872	6,493	6,496	6,681	6,935	6,430	6,381	6,150	6,243

Exhibit 2. Net Project Cash Flow through Phase 1 Blended (YOE dollars in millions) MEDIUM Case

\$'MM YOE	Total Cash Flow through 2060	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Revenue	194,258	248	351	460	576	1,671	2,126	2,619	3,151	3,726	3,892	4,065	4,246
Less: O&M	(70,130)	(303)	(344)	(387)	(432)	(1,093)	(1,166)	(1,257)	(1,339)	(1,427)	(1,484)	(1,535)	(1,588)
Net Cash Flow from Operations	124,129	(55)	6	73	143	578	961	1,362	1,812	2,299	2,408	2,530	2,658
Capital Replacement	(16,759)	-	-	-	-	-	-	-	-	-	(43)	(44)	(4)
Net operating cash flow after capital replacement	107,370	(55)	6	73	143	578	961	1,362	1,812	2,299	2,365	2,486	2,654

Exhibit 2. Net Project Cash Flow through Phase 1 Blended (YOE dollars in millions) MEDIUM Case (continued)

\$'MM YOE	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
Revenue	4,435	4,632	4,838	5,054	5,231	5,415	5,606	5,803	6,007	6,218	6,436	6,662
Less: O&M	(1,642)	(1,687)	(1,757)	(1,812)	(1,857)	(1,922)	(1,987)	(2,044)	(2,114)	(2,170)	(2,249)	(2,327)
Net Cash Flow from Operations	2,793	2,945	3,081	3,242	3,374	3,493	3,619	3,759	3,893	4,048	4,187	4,335
Capital Replacement	(4)	(97)	(158)	(84)	(86)	(24)	(245)	(339)	(352)	(203)	(114)	(284)
Net operating cash flow after capital replacement	2,789	2,848	2,924	3,158	3,288	3,468	3,374	3,420	3,541	3,845	4,073	4,052

Exhibit 2. Net Project Cash Flow through Phase 1 Blended (YOE dollars in millions) MEDIUM Case (continued)

\$'MM YOE	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Revenue	6,897	7,139	7,390	7,650	7,919	8,197	8,485	8,783	9,092	9,412	9,743	10,085
Less: O&M	(2,385)	(2,472)	(2,550)	(2,620)	(2,714)	(2,801)	(2,884)	(2,982)	(3,064)	(3,144)	(3,244)	(3,347)
Net Cash Flow from Operations	4,511	4,667	4,840	5,030	5,205	5,396	5,601	5,802	6,028	6,268	6,499	6,738
Capital Replacement	(318)	(193)	(190)	(194)	(769)	(1,011)	(1,102)	(1,127)	(1,876)	(2,222)	(2,729)	(2,949)
Net operating cash flow after capital replacement	4,193	4,474	4,650	4,836	4,436	4,385	4,499	4,675	4,151	4,046	3,769	3,789

Exhibit 3. Net Project Cash Flow through Phase 1 Blended (YOE dollars in millions) LOW Case

\$'MM YOE	Total Cash Flow through 2060	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Revenue	152,023	193	274	359	449	1,307	1,663	2,049	2,466	2,916	3,046	3,181	3,323
Less: O&M	(67,200)	(290)	(330)	(370)	(414)	(1,047)	(1,117)	(1,205)	(1,283)	(1,368)	(1,422)	(1,471)	(1,521)
Net Cash Flow from Operations	84,823	(97)	(56)	(12)	35	259	546	845	1,183	1,548	1,624	1,710	1,802
Capital Replacement	(15,201)	-	-	-	-	-	-	-	-	-	(39)	(40)	(4)
Net operating cash flow after capital replacement	69,622	(97)	(56)	(12)	35	259	546	845	1,183	1,548	1,585	1,670	1,798

Exhibit 3. Net Project Cash Flow through Phase 1 Blended (YOE dollars in millions) LOW Case (continued)

\$'MM YOE	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
Revenue	3,471	3,625	3,787	3,955	4,094	4,238	4,387	4,541	4,701	4,866	5,037	5,214
Less: O&M	(1,573)	(1,617)	(1,684)	(1,736)	(1,780)	(1,842)	(1,904)	(1,958)	(2,025)	(2,080)	(2,155)	(2,230)
Net Cash Flow from Operations	1,897	2,009	2,103	2,219	2,314	2,396	2,483	2,583	2,675	2,786	2,882	2,984
Capital Replacement	(4)	(88)	(143)	(76)	(78)	(22)	(222)	(307)	(319)	(184)	(104)	(257)
Net operating cash flow after capital replacement	1,894	1,921	1,960	2,143	2,236	2,374	2,261	2,276	2,356	2,603	2,779	2,727

Exhibit 3. Net Project Cash Flow through Phase 1 Blended (YOE dollars in millions) LOW Case (continued)

\$'MM YOE	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Revenue	5,397	5,587	5,784	5,987	6,197	6,415	6,641	6,874	7,116	7,366	7,625	7,893
Less: O&M	(2,286)	(2,369)	(2,444)	(2,510)	(2,600)	(2,684)	(2,763)	(2,857)	(2,936)	(3,013)	(3,109)	(3,207)
Net Cash Flow from Operations	3,112	3,218	3,340	3,476	3,597	3,731	3,877	4,017	4,179	4,353	4,516	4,685
Capital Replacement	(288)	(175)	(172)	(176)	(697)	(917)	(1,000)	(1,022)	(1,702)	(2,016)	(2,476)	(2,675)
Net operating cash flow after capital replacement	2,823	3,044	3,168	3,301	2,900	2,814	2,877	2,995	2,477	2,337	2,040	2,010

High, Medium, Low Cash Flows (2015\$)

Exhibit 4: Net Cash Flow from Operations through Phase 1 (2015 dollars in millions) HIGH case

\$'MM 2015	Total Cash Flow through 2060	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Revenue	100,628	263	362	461	561	1,483	1,817	2,160	2,513	2,875	2,915	2,956	2,998
Less: O&M	(31,459)	(249)	(275)	(300)	(325)	(798)	(827)	(866)	(895)	(926)	(935)	(939)	(943)
Net Cash Flow from Operations	69,169	14	87	161	235	685	991	1,295	1,618	1,948	1,980	2,017	2,055
Capital Replacement	(6,043)	-	-	-	-	-	-	-	-	-	(29)	(29)	(3)
Net operating cash flow after capital replacement	63,126	14	87	161	235	685	991	1,295	1,618	1,948	1,951	1,988	2,052

Exhibit 4: Net Cash Flow from Operations through Phase 1 (2015 dollars in millions) HIGH case (continued)

\$'MM 2015	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
Revenue	3,040	3,083	3,126	3,170	3,186	3,202	3,218	3,234	3,250	3,267	3,283	3,299	3,316
Less: O&M	(947)	(945)	(955)	(956)	(952)	(956)	(959)	(958)	(962)	(959)	(965)	(970)	(965)
Net Cash Flow from Operations	2,093	2,138	2,171	2,214	2,235	2,246	2,259	2,276	2,288	2,307	2,318	2,330	2,351
Capital Replacement	(3)	(58)	(91)	(47)	(47)	(13)	(126)	(169)	(170)	(95)	(52)	(126)	(137)
Net operating cash flow after capital replacement	2,091	2,081	2,080	2,167	2,188	2,233	2,133	2,107	2,118	2,212	2,266	2,204	2,214

Exhibit 4: Net Cash Flow from Operations through Phase 1 (2015 dollars in millions) HIGH case (continued)

\$'MM 2015	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Revenue	3,332	3,349	3,366	3,383	3,400	3,417	3,434	3,451	3,468	3,485	3,503
Less: O&M	(971)	(972)	(970)	(975)	(977)	(977)	(981)	(978)	(975)	(976)	(978)
Net Cash Flow from Operations	2,362	2,377	2,396	2,407	2,422	2,440	2,453	2,472	2,494	2,509	2,525
Capital Replacement	(80)	(77)	(76)	(294)	(375)	(397)	(394)	(637)	(732)	(873)	(916)
Net operating cash flow after capital replacement	2,281	2,300	2,320	2,114	2,047	2,043	2,059	1,836	1,761	1,636	1,609

Exhibit 5: Net Cash Flow from Operations through Phase 1 (2015 dollars in millions) MEDIUM case

\$'MM 2015	Total Cash Flow through 2060	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Revenue	77,196	186	256	326	396	1,115	1,378	1,648	1,925	2,210	2,241	2,273	2,305
Less: O&M	(28,748)	(227)	(251)	(274)	(297)	(730)	(755)	(791)	(818)	(847)	(855)	(858)	(862)
Net Cash Flow from Operations	48,448	(41)	5	52	99	386	623	857	1,107	1,364	1,387	1,414	1,443
Capital Replacement	(5,549)	-	-	-	-	-	-	-	-	-	(26)	(26)	(2)
Net operating cash flow after capital replacement	42,900	(41)	5	52	99	386	623	857	1,107	1,364	1,360	1,388	1,441

Exhibit 5: Net Cash Flow from Operations through Phase 1 (2015 dollars in millions) MEDIUM case (continued)

\$'MM 2015	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
Revenue	2,337	2,370	2,403	2,437	2,450	2,462	2,474	2,486	2,499	2,511	2,524	2,537
Less: O&M	(865)	(863)	(873)	(874)	(870)	(874)	(877)	(876)	(879)	(877)	(882)	(886)
Net Cash Flow from Operations	1,472	1,507	1,531	1,563	1,580	1,588	1,597	1,611	1,620	1,635	1,642	1,651
Capital Replacement	(2)	(53)	(84)	(43)	(43)	(12)	(115)	(155)	(156)	(87)	(48)	(115)
Net operating cash flow after capital replacement	1,469	1,454	1,447	1,520	1,537	1,576	1,482	1,456	1,463	1,547	1,594	1,535

Exhibit 5: Net Cash Flow from Operations through Phase 1 (2015 dollars in millions) MEDIUM case (continued)

\$'MM 2015	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Revenue	2,549	2,562	2,575	2,588	2,601	2,614	2,627	2,640	2,653	2,666	2,680	2,693
Less: O&M	(882)	(887)	(889)	(886)	(891)	(893)	(893)	(896)	(894)	(891)	(892)	(894)
Net Cash Flow from Operations	1,668	1,675	1,686	1,701	1,709	1,721	1,734	1,744	1,759	1,776	1,787	1,799
Capital Replacement	(125)	(74)	(71)	(70)	(270)	(344)	(364)	(362)	(585)	(672)	(802)	(841)
Net operating cash flow after capital replacement	1,542	1,601	1,616	1,631	1,440	1,376	1,370	1,382	1,174	1,103	986	958

Exhibit 6: Net Cash Flow from Operations through Phase 1 (2015 dollars in millions) LOW case

\$'MM 2015	Total Cash Flow through 2060	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Revenue	60,410	145	200	254	309	872	1,078	1,289	1,507	1,730	1,754	1,779
Less: O&M	(27,547)	(218)	(241)	(262)	(284)	(699)	(724)	(758)	(784)	(811)	(819)	(823)
Net Cash Flow from Operations	32,864	(73)	(41)	(8)	24	173	354	531	723	918	935	956
Capital Replacement	(5,033)	-	-	-	-	-	-	-	-	-	(24)	(24)
Net operating cash flow after capital replacement	27,831	(73)	(41)	(8)	24	173	354	531	723	918	911	932

Exhibit 6: Net Cash Flow from Operations through Phase 1 (2015 dollars in millions) LOW case (continued)

\$'MM 2015	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047
Revenue	1,804	1,829	1,855	1,881	1,907	1,917	1,927	1,936	1,946	1,956	1,965	1,975
Less: O&M	(826)	(829)	(827)	(836)	(837)	(833)	(837)	(840)	(839)	(843)	(840)	(845)
Net Cash Flow from Operations	978	1,000	1,028	1,045	1,070	1,084	1,089	1,096	1,107	1,113	1,125	1,130
Capital Replacement	(2)	(2)	(48)	(76)	(39)	(39)	(11)	(105)	(141)	(142)	(79)	(43)
Net operating cash flow after capital replacement	976	998	980	969	1,031	1,045	1,078	991	966	971	1,046	1,087

Exhibit 6: Net Cash Flow from Operations through Phase 1 (2015 dollars in millions) LOW case (continued)

\$'MM 2015	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Revenue	1,985	1,995	2,005	2,015	2,025	2,035	2,045	2,056	2,066	2,076	2,087	2,097	2,108
Less: O&M	(849)	(845)	(850)	(851)	(849)	(854)	(856)	(855)	(859)	(857)	(853)	(855)	(856)
Net Cash Flow from Operations	1,136	1,150	1,155	1,164	1,176	1,181	1,190	1,200	1,207	1,219	1,233	1,242	1,251
Capital Replacement	(105)	(114)	(67)	(64)	(64)	(245)	(312)	(331)	(328)	(530)	(610)	(727)	(763)
Net operating cash flow after capital replacement	1,032	1,036	1,088	1,100	1,112	937	877	870	879	689	623	515	488

