



Business Plan

HIGH, MEDIUM AND LOW CASH FLOW ANALYSIS

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February 10, 2020

Brian Annis
California High-Speed Rail Authority
770 L. Street, Suite 1100
Sacramento, California 95814

Dear Mr. Annis:

Contract #HSR15-92-1 (“Contract”)

Deliverable: Draft 2020 Business Plan Cash Flows

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

- Draft 2020 Business Plan Cash Flows – High, Medium, and Low Cash Flows

The attached documents provide a description of the forecast 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, operations and maintenance costs, and capital replacement costs provided by the California High-Speed Rail Authority (“Authority”) and its consultants.

The attached deliverables have been developed pursuant to our Contract awarded in June 2016. We look forward to continuing to work with the California High-Speed Rail Authority on financial, commercial, and strategic initiatives as design and construction proceed on the program.

Sincerely yours,

Thierry Prate

Attachments:

Draft 2020 Business Plan High, Medium and Low Cash Flow Analysis

**Draft 2020 Business Plan
High, Medium and Low Cash Flow Analysis**

High, Medium and Low Cash Flows – Draft 2020 Business Plan

This document provides a description of the forecast cash flows from the operations of the high-speed rail system for the high, medium, and low ridership projections. Two versions of the net operating cash flows for Phase 1 through 2060 are provided in this analysis. The first is in Year of Expenditure (“YOE”) dollars which includes escalation to the year that funds are collected or spent. The second version provides the cash flows in 2019 dollars which removes the effect of escalation from all values. These estimates illustrate the potential net cash flows that may be available from operating the project that can be applied to future development costs or future financing.

Net operating cash flow after capital replacement is determined by calculating the net cash flow from operations (revenue less operations and maintenance costs (“O&M”). Revenues include those generated from high-speed rail passenger service (farebox revenue), feeder and connecting bus service, as well as ancillary revenues. Depreciation and amortization are non-cash items and are excluded from this calculation. To account for capital replacement needs, the projected annual expenditures for repairing and replacing capital assets over time, including trainsets, equipment, facilities, and rail infrastructure, are then deducted to arrive at net operating cash flow after capital replacement. 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 after capital replacement is the free cash flow available for capital financing purposes or other capital costs. O&M and capital replacement cost forecasts were provided by the Authority’s Early Train Operator (Deutsche Bahn Engineering & Consulting USA Inc.).

The net operating cash flow after capital replacement included herein are based on assumptions related to revenues, operating and maintenance costs, and capital replacement costs provided by the Authority’s technical consultants as described in the Draft 2020 Business Plan. The estimates assume that the Silicon Valley to Central Valley Line (San Francisco / Merced to Bakersfield) will start operations in December 2031, with Phase 1 (San Francisco to Anaheim) opening in December 2033.

Escalation assumptions were provided and validated by the Authority’s Early Train Operator, are consistent with prior Authority business plans, and are as follows:

Figure 1. Escalation Assumptions provided by the Early Train Operator for 2019 to 2060

Assumptions	2019	2020 to 2025	2026 to 2060
Revenues	Base Year	3.00%	3.00%
O&M	Base Year	3.00%	3.00%
Capital Replacement	Base Year	2.25%	3.00%

High, Medium and Low Cash Flow Analysis
(Millions of Dollars in Year of Expenditure, \$'MM YOE)

Exhibit 1. Net Operating Cash Flow after Capital Replacement through Phase 1 (YOE dollars in millions) HIGH Case

Financial Metric (\$'MM YOE)	Total Cash Flow through 2060	2031	2032	2033	2034	2035	2036	2037	2038	2039
Revenue	227,859	91	1,167	1,746	3,708	4,468	5,068	5,553	5,890	6,142
Less: O&M	(77,981)	(54)	(671)	(842)	(1,690)	(1,828)	(1,911)	(2,007)	(2,097)	(2,165)
Net Cash Flow from Operations	149,878	36	496	904	2,018	2,640	3,157	3,546	3,793	3,977
Less: Capital Replacement	(14,535)	-	-	-	-	-	-	-	-	-
Net Operating Cash Flow After Capital Replacement	135,342	36	496	904	2,018	2,640	3,157	3,546	3,793	3,977

Exhibit 1. Net Operating Cash Flow after Capital Replacement through Phase 1 (YOE dollars in millions) HIGH Case (continued)

Financial Metric (\$'MM YOE)	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Revenue	6,405	6,630	6,862	7,103	7,352	7,610	7,876	8,153	8,439	8,735	9,041
Less: O&M	(2,226)	(2,314)	(2,379)	(2,440)	(2,536)	(2,588)	(2,674)	(2,773)	(2,830)	(2,931)	(3,039)
Net Cash Flow from Operations	4,179	4,316	4,483	4,663	4,816	5,022	5,202	5,380	5,609	5,803	6,002
Less: Capital Replacement	(0)	(0)	(51)	(52)	(85)	(88)	(182)	(2,973)	(265)	(5,695)	(283)
Net Operating Cash Flow After Capital Replacement	4,179	4,315	4,433	4,611	4,730	4,934	5,021	2,406	5,344	109	5,718

Exhibit 1. Net Operating Cash Flow after Capital Replacement through Phase 1 (YOE dollars in millions) HIGH Case (continued)

Financial Metric (\$'MM YOE)	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Revenue	9,358	9,686	10,026	10,378	10,742	11,119	11,509	11,912	12,330	12,763
Less: O&M	(3,112)	(3,212)	(3,332)	(3,412)	(3,521)	(3,652)	(3,740)	(3,880)	(4,000)	(4,125)
Net Cash Flow from Operations	6,246	6,474	6,694	6,966	7,221	7,467	7,769	8,033	8,330	8,638
Less: Capital Replacement	(163)	(379)	(390)	(394)	(360)	(187)	(376)	(241)	(345)	(2,028)
Net Operating Cash Flow After Capital Replacement	6,083	6,095	6,304	6,573	6,860	7,280	7,393	7,791	7,985	6,610

Note: Numbers may not foot due to rounding

Exhibit 2. Net Operating Cash Flow after Capital Replacement through Phase 1 (YOE dollars in millions) MEDIUM Case

Financial Metric (\$'MM YOE)	Total Cash Flow through 2060	2031	2032	2033	2034	2035	2036	2037	2038	2039
Revenue	162,064	62	797	1,200	2,623	3,164	3,597	3,949	4,192	4,371
Less: O&M	(71,297)	(50)	(614)	(770)	(1,545)	(1,671)	(1,748)	(1,835)	(1,917)	(1,980)
Net Cash Flow from Operations	90,767	12	183	430	1,079	1,493	1,849	2,114	2,274	2,392
Less: Capital Replacement	(13,345)	-	-	-	-	-	-	-	-	-
Net Operating Cash Flow After Capital Replacement	77,422	12	183	430	1,079	1,493	1,849	2,114	2,274	2,392

Exhibit 2. Net Operating Cash Flow after Capital Replacement through Phase 1 (YOE dollars in millions) MEDIUM Case (continued)

Financial Metric (\$'MM YOE)	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Revenue	4,559	4,719	4,884	5,055	5,233	5,416	5,606	5,803	6,007	6,217	6,435
Less: O&M	(2,035)	(2,116)	(2,175)	(2,231)	(2,319)	(2,366)	(2,445)	(2,535)	(2,587)	(2,680)	(2,779)
Net Cash Flow from Operations	2,523	2,603	2,709	2,825	2,914	3,050	3,161	3,268	3,419	3,537	3,657
Less: Capital Replacement	(0)	(0)	(46)	(48)	(78)	(81)	(167)	(2,730)	(244)	(5,228)	(260)
Net Operating Cash Flow After Capital Replacement	2,523	2,603	2,663	2,777	2,836	2,969	2,995	538	3,176	(1,691)	3,397

Exhibit 2. Net Operating Cash Flow after Capital Replacement through Phase 1 (YOE dollars in millions) MEDIUM Case (continued)

Financial Metric (\$'MM YOE)	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Revenue	6,661	6,895	7,137	7,387	7,646	7,915	8,192	8,480	8,777	9,085
Less: O&M	(2,845)	(2,937)	(3,047)	(3,119)	(3,219)	(3,339)	(3,419)	(3,547)	(3,657)	(3,771)
Net Cash Flow from Operations	3,816	3,958	4,090	4,268	4,427	4,576	4,773	4,933	5,120	5,314
Less: Capital Replacement	(150)	(348)	(358)	(361)	(331)	(171)	(345)	(221)	(316)	(1,862)
Net Operating Cash Flow After Capital Replacement	3,666	3,610	3,732	3,906	4,096	4,404	4,428	4,711	4,804	3,452

Note: Numbers may not foot due to rounding

Exhibit 3. Net Operating Cash Flow after Capital Replacement through Phase 1 (YOE dollars in millions) LOW Case

Financial Metric (\$'MM YOE)	Total Cash Flow through 2060	2031	2032	2033	2034	2035	2036	2037	2038	2039
Revenue	136,008	51	657	996	2,194	2,650	3,016	3,313	3,517	3,668
Less: O&M	(68,744)	(48)	(591)	(742)	(1,489)	(1,611)	(1,685)	(1,769)	(1,849)	(1,909)
Net Cash Flow from Operations	67,263	3	66	254	705	1,039	1,331	1,544	1,669	1,759
Less: Capital Replacement	(12,105)	-	-	-	-	-	-	-	-	-
Net Operating Cash Flow After Capital Replacement	55,158	3	66	254	705	1,039	1,331	1,544	1,669	1,759

Exhibit 3. Net Operating Cash Flow after Capital Replacement through Phase 1 (YOE dollars in millions) LOW Case (continued)

Financial Metric (\$'MM YOE)	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Revenue	3,826	3,960	4,099	4,243	4,392	4,546	4,706	4,871	5,042	5,219	5,402
Less: O&M	(1,962)	(2,040)	(2,097)	(2,151)	(2,236)	(2,282)	(2,357)	(2,445)	(2,495)	(2,584)	(2,679)
Net Cash Flow from Operations	1,863	1,920	2,002	2,092	2,156	2,265	2,348	2,427	2,547	2,635	2,723
Less: Capital Replacement	(0)	(0)	(42)	(43)	(71)	(73)	(151)	(2,476)	(221)	(4,742)	(236)
Net Operating Cash Flow After Capital Replacement	1,863	1,920	1,960	2,049	2,085	2,192	2,197	(50)	2,327	(2,108)	2,487

Exhibit 3. Net Operating Cash Flow after Capital Replacement through Phase 1 (YOE dollars in millions) LOW Case (continued)

Financial Metric (\$'MM YOE)	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Revenue	5,592	5,788	5,992	6,202	6,420	6,645	6,879	7,120	7,370	7,629
Less: O&M	(2,743)	(2,832)	(2,938)	(3,008)	(3,104)	(3,219)	(3,297)	(3,420)	(3,526)	(3,636)
Net Cash Flow from Operations	2,849	2,956	3,054	3,194	3,316	3,426	3,582	3,700	3,844	3,993
Less: Capital Replacement	(136)	(315)	(325)	(328)	(300)	(155)	(313)	(201)	(287)	(1,689)
Net Operating Cash Flow After Capital Replacement	2,713	2,641	2,729	2,867	3,016	3,271	3,269	3,499	3,557	2,304

Note: Numbers may not foot due to rounding

High, Medium, Low Cash Flows
(Millions of Dollars in 2019, \$'MM 2019)

Exhibit 4: Net Operating Cash Flow after Capital Replacement through Phase 1 (2019 dollars in millions) HIGH case

Financial Metric (\$'MM 2019)	Total Cash Flow through 2060	2031	2032	2033	2034	2035	2036	2037	2038	2039
Revenue	96,241	64	795	1,154	2,380	2,784	3,066	3,262	3,359	3,401
Less: O&M	(33,452)	(38)	(457)	(557)	(1,085)	(1,139)	(1,156)	(1,179)	(1,196)	(1,199)
Net Cash Flow from Operations	62,789	26	338	597	1,296	1,645	1,910	2,083	2,163	2,202
Less: Capital Replacement	(5,923)	-	-	-	-	-	-	-	-	-
Net Operating Cash Flow After Capital Replacement	56,866	26	338	597	1,296	1,645	1,910	2,083	2,163	2,202

Exhibit 4: Net Operating Cash Flow after Capital Replacement through Phase 1 (2019 dollars in millions) HIGH case (continued)

Financial Metric (\$'MM 2019)	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Revenue	3,443	3,460	3,477	3,494	3,511	3,529	3,546	3,563	3,581	3,599	3,616
Less: O&M	(1,197)	(1,208)	(1,205)	(1,200)	(1,211)	(1,200)	(1,204)	(1,212)	(1,201)	(1,208)	(1,216)
Net Cash Flow from Operations	2,246	2,252	2,272	2,294	2,300	2,329	2,342	2,351	2,380	2,391	2,401
Less: Capital Replacement	(0)	(0)	(27)	(27)	(43)	(43)	(85)	(1,358)	(118)	(2,451)	(118)
Net Operating Cash Flow After Capital Replacement	2,246	2,252	2,245	2,267	2,257	2,286	2,257	994	2,263	(60)	2,282

Exhibit 4: Net Operating Cash Flow after Capital Replacement through Phase 1 (2019 dollars in millions) HIGH case (continued)

Financial Metric (\$'MM 2019)	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Revenue	3,634	3,652	3,670	3,688	3,706	3,725	3,743	3,761	3,780	3,799
Less: O&M	(1,208)	(1,211)	(1,220)	(1,212)	(1,215)	(1,223)	(1,216)	(1,225)	(1,226)	(1,228)
Net Cash Flow from Operations	2,426	2,441	2,450	2,476	2,491	2,501	2,527	2,536	2,554	2,571
Less: Capital Replacement	(66)	(149)	(149)	(146)	(130)	(65)	(128)	(80)	(110)	(631)
Net Operating Cash Flow After Capital Replacement	2,359	2,292	2,301	2,330	2,362	2,436	2,399	2,457	2,443	1,940

Note: Numbers may not foot due to rounding

Exhibit 5: Net Operating Cash Flow after Capital Replacement through Phase 1 (2019 dollars in millions) MEDIUM case

Financial Metric (\$'MM 2019)	Total Cash Flow through 2060	2031	2032	2033	2034	2035	2036	2037	2038	2039
Revenue	68,421	43	542	793	1,684	1,972	2,176	2,320	2,391	2,420
Less: O&M	(30,584)	(35)	(418)	(509)	(992)	(1,041)	(1,057)	(1,078)	(1,093)	(1,096)
Net Cash Flow from Operations	37,837	9	125	284	692	930	1,119	1,242	1,297	1,324
Less: Capital Replacement	(5,438)	-	-	-	-	-	-	-	-	-
Net Operating Cash Flow After Capital Replacement	32,399	9	125	284	692	930	1,119	1,242	1,297	1,324

Exhibit 5: Net Operating Cash Flow after Capital Replacement through Phase 1 (2019 dollars in millions) MEDIUM case (continued)

Financial Metric (\$'MM 2019)	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Revenue	2,450	2,463	2,475	2,487	2,499	2,511	2,524	2,536	2,549	2,561	2,574
Less: O&M	(1,094)	(1,104)	(1,102)	(1,097)	(1,107)	(1,097)	(1,101)	(1,108)	(1,098)	(1,104)	(1,111)
Net Cash Flow from Operations	1,356	1,358	1,373	1,390	1,392	1,414	1,423	1,428	1,451	1,457	1,463
Less: Capital Replacement	(0)	(0)	(25)	(25)	(39)	(39)	(78)	(1,247)	(108)	(2,251)	(109)
Net Operating Cash Flow After Capital Replacement	1,356	1,358	1,348	1,365	1,353	1,375	1,345	182	1,343	(793)	1,354

Exhibit 5: Net Operating Cash Flow after Capital Replacement through Phase 1 (2019 dollars in millions) MEDIUM case (continued)

Financial Metric (\$'MM 2019)	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Revenue	2,587	2,600	2,612	2,625	2,638	2,651	2,664	2,677	2,691	2,704
Less: O&M	(1,105)	(1,107)	(1,115)	(1,109)	(1,111)	(1,118)	(1,112)	(1,120)	(1,121)	(1,122)
Net Cash Flow from Operations	1,482	1,492	1,497	1,517	1,527	1,533	1,552	1,557	1,570	1,582
Less: Capital Replacement	(61)	(137)	(137)	(134)	(119)	(60)	(117)	(73)	(101)	(579)
Net Operating Cash Flow After Capital Replacement	1,421	1,355	1,360	1,383	1,408	1,473	1,435	1,484	1,468	1,003

Note: Numbers may not foot due to rounding

Exhibit 6: Net Operating Cash Flow after Capital Replacement through Phase 1 (2019 dollars in millions) LOW case

Financial Metric (\$'MM 2019)	Total Cash Flow through 2060	2031	2032	2033	2034	2035	2036	2037	2038	2039
Revenue	57,409	36	447	659	1,409	1,652	1,825	1,946	2,006	2,031
Less: O&M	(29,489)	(34)	(402)	(491)	(956)	(1,004)	(1,020)	(1,039)	(1,054)	(1,057)
Net Cash Flow from Operations	27,920	2	45	168	453	648	805	907	952	974
Less: Capital Replacement	(4,933)	-	-	-	-	-	-	-	-	-
Net Operating Cash Flow After Capital Replacement	22,987	2	45	168	453	648	805	907	952	974

Exhibit 6: Net Operating Cash Flow after Capital Replacement through Phase 1 (2019 dollars in millions) LOW case (continued)

Financial Metric (\$'MM 2019)	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Revenue	2,057	2,067	2,077	2,087	2,098	2,108	2,119	2,129	2,140	2,150	2,161
Less: O&M	(1,055)	(1,065)	(1,063)	(1,058)	(1,068)	(1,058)	(1,061)	(1,068)	(1,059)	(1,065)	(1,072)
Net Cash Flow from Operations	1,002	1,002	1,014	1,029	1,030	1,050	1,057	1,061	1,081	1,086	1,089
Less: Capital Replacement	(0)	(0)	(22)	(22)	(35)	(35)	(71)	(1,131)	(98)	(2,041)	(99)
Net Operating Cash Flow After Capital Replacement	1,002	1,002	992	1,007	994	1,015	986	(70)	983	(956)	991

Exhibit 6: Net Operating Cash Flow after Capital Replacement through Phase 1 (2019 dollars in millions) LOW case (continued)

Financial Metric (\$'MM 2019)	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Revenue	2,172	2,182	2,193	2,204	2,215	2,226	2,237	2,248	2,259	2,271
Less: O&M	(1,065)	(1,068)	(1,075)	(1,069)	(1,071)	(1,078)	(1,072)	(1,080)	(1,081)	(1,082)
Net Cash Flow from Operations	1,106	1,115	1,118	1,135	1,144	1,148	1,165	1,168	1,178	1,188
Less: Capital Replacement	(55)	(124)	(124)	(122)	(108)	(54)	(106)	(66)	(92)	(525)
Net Operating Cash Flow After Capital Replacement	1,051	990	994	1,014	1,036	1,093	1,059	1,102	1,086	663

Note: Numbers may not foot due to rounding