## Arthur D Little

## **Arthur D Little**

Appendix C: Cost Model for Amtrak Retention Toilet Systems

Costs by Route

Draft Final Report to Federal Railroad Administration

1000

Arthur D. Little, Inc. Acorn Park Cambridge, Massachusetts 02140-2390

Reference 60719-71

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Totals by Toilet, Car and Route - Expected Scenario - Favorable Scenario - Unfavorable Scenario	Summary
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Co. 1

**Equipment Type:** Modified Vacuum Monogram Scenario: Expected Typical **Toilets** Cars Cars in Operating Capital Car Type Car Number per Car in Consist Service Cost/Car Cost/Car Sleeper Super 32000 12 3 34 \$13.532 \$55,896 Coach Super 34000 6 4 40 \$7,337 \$39,168 Coach-HEP-HLV 39940 4 1 21 \$5,208 \$33,592 Lounge-HEP-HLV 39970 2 1 6 \$3,160 \$28,016 Bag Coach Super 31000 5 3 48 \$4,927 \$36,380 Sleeper Super 32000 12 3 34 \$10,416 \$55,896 Coach Super 5 34000 6 51 \$5,718 \$39,168 Trans Dorm Coach 39900 4 1 36 \$3,985 \$33,592 Sleeper 10-6 2400(30) 17 1 27 \$31,746 \$69.836 Amlounge II 28000 2 1 13 \$4.519 \$28,016 Coach (HDCP) 3 1 4000 21 \$6,319 \$30,804 2 4 Coach 4600 78 \$4.514 \$28,016 Horizon 54000 2 1 103 \$4.682 \$28,016 Dome Coach 9400 2 -1 12 \$4,504 \$28,016 Slumbercoach 24-8 2080 32 1 16 \$34,595 \$111,656 Viewliner-Sleeper 2300 17 1 2 \$18,714 \$69,836 17 2 Sleeper 10-6 2400(30) 55 \$18,676 \$69,836 Amcoach II 25000 2 7 119 \$2,929 \$28,016 2 1 Amlounge II 28000 13 \$2,898 \$28,016 Amcafe 20000 2 1 45 \$4,582 \$28,016 Amclub 2 3 20100 24 \$4,513 \$28,016 Amcoach 21000 2 1 67 \$4,759 \$28,016 Met-Srvc Dinette 2 20900 1 13 \$4,705 \$28,016 2 Met-Srvc Club 20970 1 13 \$4,891 \$28,016 Met-Srvc Coach 2 21900 4 50 \$5,393 \$28,016 Amdinette 2 20200 25 1 \$4.681 \$28,016 Amcoach 21000 2 3 200 \$5,749 \$28,016 Amcoach 21800 2 1 31 \$5,328 \$28,016 Turbo Power Coach 150-Even 1 1 14 \$2,830 \$25,228 Turbo Power Club 151-Odd 1 1 6 \$2,708 \$25,228 Turbo Cafe 170 1 1 3 \$2,943 \$25,228 Turbo Coach 170 2 3 21 \$4,955 \$28,016 Total: 1.239

# Arthur D Little

Entire Fleet:

Operating	Capital	Route	Route	Orlgin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
\$460,103	\$1,900,464	#1-2	Sunset Limited	New Orleans/Los Angeles
\$296,745	\$1,584,128	#1-2	Sunset Limited	New Orleans/Los Angeles
\$109,360	\$705,432	#1-2	Sunset Limited	New Orleans/Los Angeles
\$18,961	\$168,096	#1-2	Sunset Limited	New Orleans/Los Angeles
\$236,494	\$1,746,240	#5-6	California Zephyr	Chicago/Oakland
\$354,140	\$1,900,464	#5-6	California Zephyr	Chicago/Oakland
\$289,073	\$1,980,160	#5-6	California Zephyr	Chicago/Oakland
\$143,466	\$1,209,312	#5-6	California Zephyr	Chicago/Oakland
\$859,054	\$1,889,762	#58	City of New Orleans	New Orleans/Chicago
\$56,489	\$350,200	#58	City of New Orleans	New Orleans/Chicago
\$132,689	\$646,884	#58	City of New Orleans	New Orleans/Chicago
\$352,110	\$2,185,248	#58	City of New Orleans	New Orleans/Chicago
\$482,201	\$2,885,648	#58	City of New Orleans	New Orleans/Chicago
\$54,053	\$336,192	#58	City of New Orleans	New Orleans/Chicago
\$553,520	\$1,786,496	#87-88	Silver Meteor	New York City/Tampa
\$37,428	\$139,672	#87-88	Silver Meteor	New York City/Tampa
\$1,026,074	\$3,836,790	#87-88	Silver Meteor	New York City/Tampa
\$348,598	\$3,333,904		Silver Meteor	New York City/Tampa
\$36,227	\$350,200	#87-88	Silver Meteor	New York City/Tampa
\$206,181	\$1,260,720		Benjamin-Franklin	Boston/Philadelphia
\$108,312	\$672,384		Benjamin-Franklin	Boston/Philadelphia
\$316,505	\$1,863,064	#193	Benjamin-Franklin	Boston/Philadelphia
\$61,169	\$364,208	#200	Metroliner	Washington DC/New York Cit
\$63,584	\$364,208	#200	Metroliner	Washington DC/New York Cit
\$269,632	\$1,400,800	#200	Metroliner	Washington DC/New York Cit
\$117,017	\$700,400	#242	Hudson Highlander	Albany/New York City
\$1,146,865	\$5,589,192	#242	Hudson Highlander	Albany/New York City
\$165,183	\$868,496	#242	Hudson Highlander	Albany/New York City
\$39,621	\$353,192	#250	Electric City Express	Schnecetady/New York City
\$16,247	\$151,368	#250	Electric City Express	Schnecetady/New York City
\$8,829	\$75,684	#250	Electric City Express	Schnecetady/New York City
\$104,052	\$588,336	#250	Electric City Express	Schnecetady/New York City
\$8,469,980	\$43,187,344			
\$9,345,007	\$47,648,991			

Equipment Type: Monogram Self-Cont'd Recirc

Turbo Power Club

Turbo Cafe

Turbo Coach

151-Odd

170

170

Equipment Type:	Monogram	Self-Con	nt'd Recirc			
Scenario:	Expected					
	Typical	Toilets	Cars	Cars in	Operating	Capital
Car Type	Car Number	per Car	in Consist	Service	Cost/Car	Cost/Car
Sleeper Super	32000	12	3	34	\$20,861	\$42,456
Coach Super	34000	6	4	40	\$10,581	\$21,228
Coach-HEP-HLV	39940	4	1	21	\$9,290	\$14,152
Lounge-HEP-HLV	39970	2	1	6	\$4,773	\$7,076
Bag Coach Super	31000	5	3	48	\$9,348	\$17,690
Sleeper Super	32000	12	3	34	\$17,766	\$42,456
Coach Super	34000	6	5	51	\$11,185	\$21,228
Trans Dorm Coach	39900	4	1	36	\$5,977	\$14,152
Sleeper 10-6	2400(30)	17	1	27	\$42,468	\$60,146
Amlounge II	28000	2	1	13	\$5,126	\$7,076
Coach (HDCP)	4000	3	1	21	\$7,607	\$10,614
Coach	4600	2	4	78	\$5,124	\$7,076
Horizon	54000	2	1	103	\$5,219	\$7,076
Dome Coach	9400	2	1	12	\$5,118	\$7,076.
Slumbercoach 24-8	2080	32	1	16	\$55,367	\$113,216
Viewliner-Sleeper	2300	17	1	2	\$29,437	\$60,146
Sleeper 10-6	2400(30)	17	2	55	\$29,415	\$60,146
Amcoach II	25000	2	7	119	\$4,636	\$7,076
Amlounge II	28000	2	1	13	\$3,543	\$7,076
Amcafe	20000	2	1	45	\$5,168	\$7,076
Amclub	20100	2	3	24	\$5,128	\$7,076
Amcoach	21000	2	1	67	\$5,273	\$7,076
Met-Srvc Dinette	20900	2	1	13	\$5,249	<b>\$7,</b> 076
Met-Srvc Club	20970	2	1	13	\$5,363	\$7,076
Met-Srvc Coach	21900	2	4	50	\$5,668	\$7,076
Amdinette	20200	2	1	25	\$5,234	\$7,076
Amcoach	21000	2	3	200	\$5,885	\$7,076
Amcoach	21800	2	1,	31	\$5,629	\$7,076
Turbo Power Coach	150-Even	1	1	14	\$2,722	\$3,538

Total: 1,239 Entire Fleet: 1,367

3

\$2,648

\$2,790

\$5,398

6

3

21

\$3,538

\$3,538

\$7,076

Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination
\$709,264	\$1,443,504	#1-2	Sunset Limited	New Orleans/Los Angeles
				•
\$427,926	\$858,555	#1-2	Sunset Limited	New Orleans/Los Angeles
\$195,089	\$297,192	#1-2	Sunset Limited	New Orleans/Los Angeles
\$28,637	\$42,456	#1-2	Sunset Limited	New Orleans/Los Angeles
\$448,723	\$849,120	#5-6	California Zephyr	Chicago/Oakland
\$604,035	\$1,443,504	#5-6	California Zephyr	Chicago/Oakland
\$565,449	\$1,073,193	#5-6	California Zephyr	Chicago/Oakland
\$215,174	\$509,472	#5-6	California Zephyr	Chicago/Oakland
\$1,149,189	\$1,627,551	#58	•	New Orleans/Chicago
\$64,080	\$88,450	#58	•	New Orleans/Chicago
\$159,744	\$222,894	#58	•	New Orleans/Chicago
\$399,639	\$551,928	#58	City of New Orleans	New Orleans/Chicago
\$537,547	\$728,828	#58	•	New Orleans/Chicago
\$61,416	\$84,912	#58	City of New Orleans	New Orleans/Chicago
\$885,875	\$1,811,456	#87-88	Silver Meteor	New York City/Tampa
\$58,873	\$120,292	#87-88	Silver Meteor	New York City/Tampa
\$1,616,069	\$3,304,421	#87-88	Silver Meteor	New York City/Tampa
\$551,662	\$842,044	#87-88	Silver Meteor	New York City/Tampa
\$44,291	\$88,450	#87-88	Silver Meteor	New York City/Tampa
\$232,570	\$318,420	#193	Benjamin-Franklin	Boston/Philadelphia
\$123,063	\$169,824	#193	Benjamin-Franklin	Boston/Philadelphia
\$350,657	\$470,554	#193	Benjamin-Franklin	Boston/Philadelphia
\$68,242	\$91,988	#200	Metroliner	Washington DC/New York Cit
\$69,714	\$91,988	#200	Metroliner	Washington DC/New York Cit
\$283,415	\$353,800	#200	Metroliner	Washington DC/New York Cit
\$130,860	\$176,900	#242	Hudson Highlander	Albany/New York City
\$1,174,114	\$1,411,662	#242	Hudson Highlander	Albany/New York City
\$174,505	\$219,356	#242	Hudson Highlander	
\$38,102	\$49,532	#250	Electric City Express	Schnecetady/New York City
\$15,887	\$21,228	#250	• •	Schnecetady/New York City
\$8,369	\$10,614	#250		Schnecetady/New York City
\$113,353	\$148,596		• •	Schnecetady/New York City
\$11,505,536	\$19,522,684			•
\$12,694,163	\$21,539,555			

**Equipment Type:** Microphor Gravity Scenario: Expected **Typical Toilets** Cars Cars in Operating Capital Car Type Car Number per Car in Consist Service Cost/Car Cost/Car Sleeper Super 32000 12 3 34 \$14,293 \$74.032 Coach Super 34000 6 4 40 \$7:782 \$42,304 Coach-HEP-HLV 39940 4 1 21 \$5,490 \$31,728 Lounge-HEP-HLV 39970 2 1 6 \$3,542 \$21,152 3 Bag Coach Super 31000 5 48 \$5,367 \$37.016 3 Sleeper Super 32000 12 34 \$11,131 \$74.032 Coach Super 34000 6 5 51 \$6,228 \$42,304 4 1 Trans Dorm Coach 39900 36 \$4,087 \$31,728 Sleeper 10-6 2400(30) 17 1 27 \$32,789 \$100,472 Amlounge II 28000 2 1 13 \$4,556 \$21,152 Coach (HDCP) 3 1 4000 21 \$6,408 \$26,440 2 4 Coach 4600 78 \$4,546 \$21,152 Horizon 54000 2 1 103 \$4,864 \$21,152 2 Dome Coach 9400 1 12 \$4,528 \$21,152 Slumbercoach 24-8 2080 32 1 16 \$36,777 \$179.792 Viewliner-Sleeper 2300 17 1 2 \$19,754 \$100,472 2 Sleeper 10-6 2400(30) 17 55 \$19,683 \$100,472 2 7 Amcoach II 25000 119 \$2,915 \$21,152 Amlounge II 28000 2 1 13 \$2,856 \$21,152 Amcafe 20000 2 1 45 \$4.675 \$21.152 Amelub 20100 2 3 24 \$4,544 \$21,152 2 Amcoach 21000 1 67 \$5,012 \$21,152 Met-Srvc Dinette 20900 2 1 13 \$4,909 \$21,152 Met-Srvc Club 20970 2 1 13 \$5,262 \$21,152 Met-Srvc Coach 21900 2 4 50 \$6,214 \$21,152 Amdinette 20200 2 1 25 \$4,863 \$21,152 2 Amcoach 21000 3 200 \$6,890 \$21,152 2 Amcoach 21800 1 31 \$6,092 \$21,152 Turbo Power Coach 150-Even 1 1 14 \$2.913 \$15,864 Turbo Power Club 151-Odd 1 1 6 \$2,681 \$15,864 Turbo Cafe 170 1 1 3 \$3.127 \$15,864 Turbo Coach 2 3 170 21 \$5,383 \$21,152 Total: 1,239

## **Arthur D Little**

Entire Fleet:

Operating	Capital	Route	Route	Origin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
\$485,972	\$2,517,088	#1-2	Sunset Limited	New Orleans/Los Angeles
\$314,757	\$1,710,962	#1-2	Sunset Limited	New Orleans/Los Angeles
\$115,289	\$666,288	#1-2	Sunset Limited	New Orleans/Los Angeles
\$21,250	\$126,912	#1-2	Sunset Limited	New Orleans/Los Angeles
\$257,640	\$1,776,768	#5-6	California Zephyr	Chicago/Oakland
\$378,465	\$2,517,088	#5-6	California Zephyr	Chicago/Oakland
\$314,864	\$2,138,702	#5-6	California Zephyr	Chicago/Oakland
\$147,146	\$1,142,208	#5-6	California Zephyr	Chicago/Oakland
\$887,258	\$2,718,772	#58	City of New Orleans	New Orleans/Chicago
\$56,948	\$264,400	#58	City of New Orleans	New Orleans/Chicago
\$134,570	\$555,240	#58	City of New Orleans	New Orleans/Chicago
\$354,626	\$1,649,856	#58	City of New Orleans	New Orleans/Chicago
\$501,010	\$2,178,656	#58	City of New Orleans	New Orleans/Chicago
\$54,334	\$253,824	#58	City of New Orleans	New Orleans/Chicago
\$588,437	\$2,876,672	#87-88	Silver Meteor	New York City/Tampa
\$39,508	\$200,944	#87-88	Silver Meteor	New York City/Tampa
\$1,081,386	\$5,519,932	#87-88	Silver Meteor	New York City/Tampa
\$346,893	\$2,517,088	#87-88	Silver Meteor	New York City/Tampa
\$35,697	\$264,400	#87-88	Silver Meteor	New York City/Tampa
\$210,364	\$951,840	#193	Benjamin-Franklin	Boston/Philadelphia
\$109,060	\$507,648	#193	Benjamin-Franklin	Boston/Philadelphia
\$333,304	\$1,406,608	#193	Benjamin-Franklin	Boston/Philadelphia
\$63,820	\$274,976	#200	Metroliner	Washington DC/New York Cit
\$68,405	\$274,976	#200	Metroliner	Washington DC/New York Cit
\$310,709	\$1,057,600	#200	Metroliner	Washington DC/New York Cit
\$121,563	\$528,800	#242	Hudson Highlander	Albany/New York City
\$1,374,582	\$4,219,824	#242	Hudson Highlander	Albany/New York City
\$188,864	\$655,712	#242	Hudson Highlander	Albany/New York City
\$40,781	\$222,096	#250	Electric City Express	Schnecetady/New York City
\$16,085	\$95,184	#250	Electric City Express	Schnecetady/New York City
\$9,381	\$47,592	#250	Electric City Express	Schnecetady/New York City
\$113,044	\$444,192	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$9,076,011	\$42,282,848			•
\$10,013,645	\$46,651,052			· .

Equipment Type: Evac Ultimate

Scenario: Expected

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	Typical	Toilets	Cars	Cars in	Operating	Capital
Car Type	Car Number	per Car	in Consist	Service	Cost/Car	Cost/Car
Sleeper Super	32000	12	3	34	\$13,378	\$51,696
Coach Super	34000	6	4	40	\$7,091	\$32,568
Coach-HEP-HLV	39940	4	1	21	\$4,940	\$26,192
Lounge-HEP-HLV	39970	2	. 1	6	\$2,859	\$19,816
Bag Coach Super	31000	5	3	48	\$4,679	\$29,380
Sleeper Super	32000	12	3	34	\$10,269	\$51,696
Coach Super	34000	6	5	51	\$5,484	\$32,568
Trans Dorm Coach	39900	4	1	36	\$3,744	\$26,192
Sleeper 10-6	2400(30)	17	1	27	\$31,666	\$67,636
Amlounge II	28000	2	1	13	\$4,241	\$19,816
Coach (HDCP)	4000	3	1	21	\$6,056	\$23,004
Coach	4600	2	4	78	\$4,237	\$19,816
Horizon	54000	2	1	103	\$4,382	\$19,816
Dome Coach	9400	2	1	12	\$4,229	\$19,816
Slumbercoach 24-8	2080	32	1	16	\$34,693	\$115,456
Viewliner-Sleeper	2300	17	1	2	\$18,634	\$67,636
Sleeper 10-6	2400(30)	17	2	55	\$18,601	\$67,636
Amcoach II	25000	2	7	119	\$2,659	\$19,816
Amlounge II	28000	2	1	13	\$2,632	\$19,816
Amcafe	20000	2	1	45	\$4,296	\$19,816
Amclub	20100	2	3	24	\$4,236	\$19,816
Amcoach	21000	2	1	67	\$4,450	\$19,816
Met-Srvc Dinette	20900	2	1	13	\$4,403	\$19,816
Met-Srvc Club	20970	2	1	13	\$4,564	\$19,816
Met-Srvc Coach	21900	2	4	50	\$5,000	\$19,816
Amdinette	20200	2	1	25	\$4,382	\$19,816
Amcoach	21000	2	3	200	\$5,309	\$19,816
Amcoach	21800	2	1	31	\$4,944	\$19,816
Turbo Power Coach	150-Even	1	1	14	\$2,522	\$16,628
Turbo Power Club	151-Odd	1	1	6	\$2,416	\$16,628
Turbo Cafe	170	1	1	3	\$2,620	\$16,628
Turbo Coach	170	2	3	21	\$4,620	\$19,816

Total: 1,239 Entire Fleet: 1,367

Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination
\$454,866	\$1,757,664		Sunset Limited	New Orleans/Los Angeles
\$286,805	\$1,737,004	#1-2	Sunset Limited	New Orleans/Los Angeles
\$103,735	\$550,032		Sunset Limited	New Orleans/Los Angeles
\$17,157	\$118,896		Sunset Limited	New Orleans/Los Angeles
\$224,598	\$1,410,240		California Zephyr	. •
\$349,130	\$1,410,240		California Zephyr	Chicago/Oakland Chicago/Oakland
\$277,223	\$1,757,004		California Zephyr	Chicago/Oakland
\$134,775	\$942,912		California Zephyr	Chicago/Oakland
			• -	•
\$856,882	\$1,830,230		•	New Orleans/Chicago
\$53,017	\$247,700		•	New Orleans/Chicago
\$127,176	\$483,084		•	New Orleans/Chicago
\$330,492 \$454,004	\$1,545,648		•	New Orleans/Chicago
\$451,381	\$2,041,048		₹	New Orleans/Chicago
\$50,742	\$237,792		-	New Orleans/Chicago
\$555,080	\$1,847,296		Silver Meteor	New York City/Tampa
\$37,267	\$135,272		Silver Meteor	New York City/Tampa
\$1,021,949	\$3,715,922		Silver Meteor	New York City/Tampa
\$316,430	\$2,358,104		Silver Meteor	New York City/Tampa
\$32,899	\$247,700	#87-88	Silver Meteor	New York City/Tampa
\$193,308	\$891,720	#193	Benjamin-Franklin	Boston/Philadelphia
\$101,664	\$475,584	#193	Benjamin-Franklin	Boston/Philadelphia
\$295,923	\$1,317,764	#193	Benjamin-Franklin	Boston/Philadelphia
\$57,238	\$257,608	#200	Metroliner	Washington DC/New York Cit
\$59,335	\$257,608	#200	Metroliner	Washington DC/New York Cit
\$249,982	\$990,800	#200	Metroliner	Washington DC/New York Cit
\$109,539	\$495,400	#242	Hudson Highlander	Albany/New York City
\$1,059,090	\$3,953,292	#242	Hudson Highlander	Albany/New York City
\$153,262	\$614,296	#242	Hudson Highlander	Albany/New York City
\$35,314	\$232,792	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$14,498	\$99,768	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$7,861	\$49,884	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$97,011	\$416,136	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$8,115,630	\$34,243,544			

\$37,781,214

\$8,954,049

**Equipment Type:** Railtech WTS 8300 Scenario: Expected Typical **Toilets** Cars Cars in Operating Capital Car Type Car Number in Consist per Car Service Cost/Car Cost/Car Sleeper Super 32000 12 3 34 \$14,153 \$65,184 6 Coach Super 34000 4 40 \$9,364 \$32,592 Coach-HEP-HLV 4 39940 1 21 \$6,524 \$21,728 Lounge-HEP-HLV 39970 2 1 6 \$4,558 \$15,152 **Bag Coach Super** 5 3 48 31000 \$6,279 \$29,304 12 3 Sleeper Super 32000 34 \$10,953 \$65,184 Coach Super 6 5 34000 51 \$7,066 \$32,592 Trans Dorm Coach 39900 4 1 36 \$4,614 \$21,728 1 Sleeper 10-6 17 27 2400(30) \$32,630 \$94,488 Amlounge II 28000 2 1 13 \$4.557 \$15,152 Coach (HDCP) 4000 3 1 21 \$6,331 \$18,440 2 4 Coach 4600 78 \$4,544 \$15,152 Horizon 54000 2 1 103 \$7,134 \$15,152 2 Dome Coach 9400 1 12 \$4,518 \$15,152 Siumbercoach 24-8 32 1 2080 16 \$36,571 \$173,824 Viewliner-Sleeper 2300 17 1 2 \$19,594 \$94,488 Sleeper 10-6 2400(30) 17 2 55 \$19,495 \$94,488 Amcoach II 25000 2 7 119 \$15,152 \$3,947 Amlounge II 2 1 28000 13 \$3,864 \$15,152 Amcafe 2 1 20000 45 \$4,723 \$15,152 Amclub 20100 2 3 24 \$4,541 \$15,152 Amcoach 21000 2 1 67 \$5,194 \$15,152 Met-Srvc Dinette 2 1 20900 13 \$5,050 \$15,152 Met-Srvc Club 2 20970 1 13 \$5,543 \$15,152 Met-Srvc Coach 21900 2 4 50 \$6,872 \$15,152 Amdinette 20200 2 1 25 \$4,985 \$15,152 2 3 Amcoach 200 21000 \$7,815 \$15,152 Amcoach 21800 2 1 31 \$6,702 \$15,152 Turbo Power Coach 150-Even 1 1 14 \$2.955 \$7,576 Turbo Power Club 151-Odd 1 1 6 \$2,632 \$7,576 Turbo Cafe 1 170 1 3 \$3,254 \$7,576 Turbo Coach 170 2 3 21 \$5,712 \$15,152 Total: 1,239

### **Arthur D Little**

Entire Fleet:

Operating	Capital	Route	Route	Origin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
\$481,200	\$2,216,256	#1-2	Sunset Limited	New Orleans/Los Angeles
\$378,729	\$1,318,165	#1-2	Sunset Limited	New Orleans/Los Angeles
\$137,009	\$456,288	#1-2	Sunset Limited	New Orleans/Los Angeles
\$27,350	\$90,912	#1-2	Sunset Limited	New Orleans/Los Angeles
\$301,370	\$1,406,592	#5-6	California Zephyr	Chicago/Oakland
\$372,401	\$2,216,256	#5-6	California Zephyr	Chicago/Oakland
\$357,240	\$1,647,707	#5-6	California Zephyr	Chicago/Oakland
\$166,112	\$782,208	#5-6	California Zephyr	Chicago/Oakland
\$882,966	\$2,556,845	#58	City of New Orleans	New Orleans/Chicago
\$56,963	\$189,400	#58	City of New Orleans	New Orleans/Chicago
\$132,948	\$387,240	#58	City of New Orleans	New Orleans/Chicago
\$354,432	\$1,181,856	#58	City of New Orleans	New Orleans/Chicago
\$734,763	\$1,560,656	#58	•	New Orleans/Chicago
\$54,215	\$181,824	#58	City of New Orleans	New Orleans/Chicago
\$585,140	\$2,781,184	#87-88	Silver Meteor	New York City/Tampa
\$39,188	\$188,976	#87-88	Silver Meteor	New York City/Tampa
\$1,071,039	\$5,191,171	#87-88	Silver Meteor	New York City/Tampa
\$469,661	\$1,803,088	#87-88	Silver Meteor	New York City/Tampa
\$48,299	\$189,400	#87-88	Silver Meteor	New York City/Tampa
\$212,536	\$681,840	#193	Benjamin-Franklin	Boston/Philadelphia
\$108,978	\$363,648	#193	Benjamin-Franklin	Boston/Philadelphia
\$345,394	\$1,007,608	#193	Benjamin-Franklin	Boston/Philadelphia
\$65,654	*	#200	Metroliner	Washington DC/New York Cit
\$72,053	\$196,976	#200	Metroliner	Washington DC/New York Cit
\$343,588	\$757,600	#200	Metroliner	Washington DC/New York Cit
\$124,628	\$378,800	#242	Hudson Highlander	Albany/New York City
\$1,559,146	\$3,022,824	#242	Hudson Highlander	Albany/New York City
\$207,755	\$469,712	#242	Hudson Highlander	Albany/New York City
\$41,377	\$106,064	#250	Electric City Express	Schnecetady/New York City
\$15,790	\$45,456	#250	Electric City Express	Schnecetady/New York City
\$9,763	\$22,728	#250	Electric City Express	Schnecetady/New York City
\$119,945	\$318,192	#250	Electric City Express	Schnecetady/New York City
\$9,877,631	\$33,914,448			
\$10,898,080	\$37,418,120			

P 7

Scenario: Unfavorable Typical Toilets Cars Cars in Operating Capital Service Car Type Car Number per Car in Consist Cost/Car Cost/Car Sleeper Super 32000 12 3 34 \$16,798 \$55.896 Coach Super 34000 6 4 40 \$9.262 \$39,168 1 Coach-HEP-HLV 39940 4 21 \$6,665 \$33,592 1 Lounge-HEP-HLV 39970 2 6 \$4,176 \$28,016 Bag Coach Super 5 3 48 31000 \$6.414 \$36.380 3 Sleeper Super 32000 12 34 \$13,228 \$55,896 5 Coach Super 34000 6 51 \$7.396 \$39,168 Trans Dorm Coach 39900 4 1 36 \$5,232 \$33,592 1 Sleeper 10-6 2400(30) 17 27 \$37,998 \$69,836 Amlounge II 28000 2 1 13 \$5,698 \$28,016 1 Coach (HDCP) 4000 3 21 \$7,831 \$30.804 Coach 4600 2 4 78 \$5.692 \$28,016 1 Horizon 54000 2 103 \$5.913 \$28,016 Dome Coach 9400 2 1 12 \$5,679 \$28,016 Slumbercoach 24-8 2080 32 1 16 \$42,463 \$111.656 Viewliner-Sleeper 2300 1 17 2 \$23,103 \$69.836 Sleeper 10-6 2400(30) 17 2 55 \$23,054 \$69,836 7 Amcoach II 25000 2 119 \$3,871 \$28,016 Amlounge II 28000 2 1 13 \$3,830 \$28,016 Amcafe 20000 2 1 45 \$5,781 \$28,016 3 Amclub 20100 2 24 \$5,690 \$28,016 Amcoach 21000 2 1 67 \$6,016 \$28,016 2 Met-Srvc Dinette 20900 1 13 \$5,944 \$28,016 1 Met-Srvc Club 20970 2 13 \$6,189 \$28,016 2 4 Met-Srvc Coach 21900 50 \$6,851 \$28,016 Amdinette 20200 2 1 25 \$5.912 \$28,016 2 3 Amcoach 21000 200 \$7,322 \$28,016 Amcoach 21800 2 1 31 \$6,767 \$28,016 Turbo Power Coach 150-Even 1 1 14 \$3,711 \$25,228 Turbo Power Club 1 151-Odd 6 1 \$3,550 \$25,228 Turbo Cafe 170 1 1 3 \$3,860 \$25,228

Modified Vacuum

**Equipment Type:** 

Turbo Coach

170

Monogram

Total: 1,239 Entire Fleet: 1,367

2

3

21

\$6,274

\$28,016

Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination
\$571,147	\$1,900,464	#1-2	Sunset Limited	New Orleans/Los Angeles
\$374,597	\$1,584,128	#1-2	Sunset Limited	New Orleans/Los Angeles
\$139,963	\$705,432	#1-2	Sunset Limited	New Orleans/Los Angeles
\$25,057	\$168,096	#1-2	Sunset Limited	New Orleans/Los Angeles
\$307,864	\$1,746,240	#5-6	California Zephyr	Chicago/Oakland
\$449,742	\$1,900,464		California Zephyr	Chicago/Oakland
\$373,922	\$1,980,160	#5-6	California Zephyr	Chicago/Oakland
\$188,362	\$1,209,312	#5-6	California Zephyr	Chicago/Oakland
\$1,028,224	\$1,889,762	#58	• •	New Orleans/Chicago
\$71,229	\$350,200	#58	•	New Orleans/Chicago
\$164,448	\$646,884		•	New Orleans/Chicago
\$443,965	\$2,185,248	#58	-	New Orleans/Chicago
\$609,014	\$2,885,648	#58	•	New Orleans/Chicago
\$68,146	\$336,192	#58	•	New Orleans/Chicago
\$679,409	\$1,786,496	#87-88	Silver Meteor	New York City/Tampa
\$46,207	\$139,672	#87-88	Silver Meteor	New York City/Tampa
\$1,266,574	\$3,836,790	#87-88	Silver Meteor	New York City/Tampa
\$460,699	\$3,333,904	#87-88	Silver Meteor	New York City/Tampa
\$47,877	\$350,200	#87-88	Silver Meteor	New York City/Tampa
\$260,147	\$1,260,720	#193	Benjamin-Franklin	Boston/Philadelphia
\$136,566	\$672,384	#193	Benjamin-Franklin	Boston/Philadelphia
\$400,039	\$1,863,064	#193	Benjamin-Franklin	Boston/Philadelphia
\$77,273	\$364,208	#200	Metroliner	Washington DC/New York Cit
\$80,461	\$364,208	#200	Metroliner	Washington DC/New York Cit
\$342,575	\$1,400,800	#200	Metroliner	Washington DC/New York Cit
\$147,790	\$700,400	#242	Hudson Highlander	Albany/New York City
\$1,460,644	\$5,589,192	#242	Hudson Highlander	Albany/New York City
\$209,771	\$868,496	#242	Hudson Highlander	Albany/New York City
\$51,960	\$353,192	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$21,301	\$151,368	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$11,581	\$75,684	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$131,745	\$588,336	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$10,648,298	\$43,187,344			
\$11,748,365	\$47,648,991			

**Equipment Type:** Self-Cont'd Recirc Monogram Scenario: Unfavorable Typical **Toilets** Cars Cars in Operating Capital Car Type Car Number per Car in Consist Service Cost/Car Cost/Car Sleeper Super 32000 112 3 34 \$26,429 \$42,456 Coach Super 34000 4 40 6 \$13,386 \$21,228 Coach-HEP-HLV 4 1 39940 21 \$11,480 \$14,152 Lounge-HEP-HLV 2 1 39970 6 \$5,886 \$7,076 Bag Coach Super 5 3 31000 48 \$11,762 \$17,690 Sleeper Super 32000 12 3 34 \$22,891 \$42,456 Coach Super 34000 6 5 51 \$14,076 \$21,228 Trans Dorm Coach 39900 4 1 36 \$7,693 \$14,152 Sleeper 10-6 17 1 \$60,146 2400(30) 27 \$52,201 Amlounge II 1 28000 2 13 \$6,290 \$7,076 1 Coach (HDCP) 4000 3 21 \$9,340 \$10,614 Coach 4600 2 4 78 \$6,287 \$7,076 Horizon 54000 2 1 103 \$6,396 \$7,076 Dome Coach 9400 2 1 12 \$6,280 \$7,076 32 1 Slumbercoach 24-8 2080 16 \$70,177 \$113,216 Viewliner-Sleeper 2300 17 1 2 \$37,308 \$60,146 Sleeper 10-6 17 2 2400(30) 55 \$37,283 \$60,146 Amcoach II 2 7 25000 119 \$5,729 \$7,076 2 Amlounge II 1 28000 13 \$4,481 \$7,076 Amcafe 2 20000 1 45 \$6,338 \$7,076 Amclub 2 3 24 20100 \$6,291 \$7,076 Amcoach 21000 2 1 67 \$6,458 \$7,076 2 Met-Srvc Dinette 20900 1 13 \$6,431 \$7,076 Met-Srvc Club 20970 2 1 13 \$6,560 \$7,076 Met-Srvc Coach 2 4 21900 50 \$6,909 \$7,076 Amdinette 2 20200 1 25 \$6,413 \$7,076 Amcoach 21000 2 3 200 \$7,076 \$7,157 Amcoach 21800 2 1 31 \$6,865 \$7,076 Turbo Power Coach 1 150-Even 1 14 \$3,326 \$3,538 Turbo Power Club 151-Odd 1 1 6 \$3,242 \$3,538 Turbo Cafe 170 1 1 3 \$3,404 \$3,538 Turbo Coach 170 2 3 21 \$6,600 \$7,076 Total: 1,239 **Entire Fleet:** 1,367

### **Arthur D Little**

Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination
\$898,570	\$1,443,504	#1-2	Sunset Limited	New Orleans/Los Angeles
\$541,388	\$858,555	#1-2	Sunset Limited	New Orleans/Los Angeles
\$241,073	\$297,192	#1-2	Sunset Limited	New Orleans/Los Angeles
\$35,316	\$42,456	#1-2	Sunset Limited	New Orleans/Los Angeles
\$564,580	\$849,120	#5-6	California Zephyr	Chicago/Oakland
\$778,308	\$1,443,504	#5-6	California Zephyr	Chicago/Oakland
\$711,639	\$1,073,193	#5-6	California Zephyr	Chicago/Oakland
\$276,965	\$509,472	#5-6	California Zephyr	Chicago/Oakland
\$1,412,559	\$1,627,551	#58	City of New Orleans	New Orleans/Chicago
\$78,625	\$88,450	#58	City of New Orleans	New Orleans/Chicago
\$196,150	\$222,894	#58	City of New Orleans	New Orleans/Chicago
\$490,371	\$551,928	#58	City of New Orleans	New Orleans/Chicago
\$658,762	\$728,828	#58	City of New Orleans	New Orleans/Chicago
\$75,365	\$84,912	#58	City of New Orleans	New Orleans/Chicago
\$1,122,838	\$1,811,456	#87-88	Silver Meteor	New York City/Tampa
\$74,615	\$120,292	#87-88	Silver Meteor	New York City/Tampa
\$2,048,343	\$3,304,421	#87-88	Silver Meteor	New York City/Tampa
\$681,793	\$842,044	#87-88	Silver Meteor	New York City/Tampa
\$56,009	\$88,450	#87-88	Silver Meteor	New York City/Tampa
\$285,202	\$318,420	#193	Benjamin-Franklin	Boston/Philadelphia
\$150,995	\$169,824	#193	Benjamin-Franklin	Boston/Philadelphia
\$429,431	\$470,554	#193	Benjamin-Franklin	Boston/Philadelphia
\$83,598	\$91,988	#200	Metroliner	Washington DC/New York Cit
\$85,280	\$91,988	#200	Metroliner	Washington DC/New York Cit
\$345,467	\$353,800	#200	Metroliner	Washington DC/New York Cit
\$160,337	\$176,900	#242	Hudson Highlander	Albany/New York City
\$1,427,887	\$1,411,662	#242	Hudson Highlander	Albany/New York City
\$212,805	\$219,356	#242	Hudson Highlander	Albany/New York City
\$46,565	\$49,532	#250	Electric City Express	Schnecetady/New York City
\$19,450	\$21,228	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$10,212	\$10,614	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$138,604	\$148,596	#250	Electric City Express	Schnecetady/New York City
\$14,339,101	\$19,522,684			
\$15,820,461	\$21,539,555			

**Equipment Type:** Microphor Gravity Scenario: Unfavorable Typical Toilets Care Cars in Operating Capital Car Type Car Number per Car in Consist Service Cost/Car Cost/Car Sleeper Super 32000 12 3 34 \$18.032 \$74.032 Coach Super 34000 6 4 **4**0 \$10.145 \$42,304 Coach-HEP-HLV 39940 4 1 21 \$7,288 \$31,728 Lounge-HEP-HLV 1 39970 2 6 \$4,596 \$21,152 Bag Coach Super 31000 5 3 48 \$6.999 \$37,016 Sleeper Super 32000 12 3 34 \$14.394 \$74.032 Coach Super 34000 6 5 51 \$8.098 \$42,304 Trans Dorm Coach 1 39900 4 36 \$5,379 \$31.728 Sleeper 10-6 2400(30) 17 1 27 \$39.717 \$100.472 Amlounge II 1 28000 2 13 \$5.720 \$21.152 Coach (HDCP) 3 1 21 4000 \$7,945 \$26,440 Coach 4600 2 4 78 \$5,707 \$21.152 1 ` Horizon 54000 2 103 \$6.151 \$21.152 Dome Coach 9400 2 1 12 \$5.681 \$21,152 Slumbercoach 24-8 2080 1 32 16 \$46,080 \$179.792 Viewliner-Sleeper 2300 17 1 2 \$24.820 \$100.472 Sleeper 10-6 2400(30) 17 2 55 \$24,720 \$100.472 Amcoach II 25000 2 7 119 \$3.817 \$21,152 Amlounge II 2 1 28000 13 \$3,734 \$21,152 Amcafe 20000 2 1 45 \$5,886 \$21,152 Amclub 20100 2 3 24 \$5.704 \$21,152 2 1 67 Amcoach 21000 \$6,358 \$21,152 Met-Srvc Dinette 20900 2 1 13 \$6.214 \$21,152 2 Met-Srvc Club 20970 1 13 \$6,707 \$21,152

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Met-Srvc Coach

Turbo Power Coach

Turbo Power Club

Amdinette

Amcoach

Amcoach

Turbo Cafe

Turbo Coach

21900

20200

21000

21800

170

170

150-Even

151-Odd

2 3 21
Total: 1,239
Entire Fleet: 1,367

4

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1

1

1

1

50

25

200

31

14

6

3

\$8,038

\$6,149

\$8,983

\$7,868

\$3.788

\$3,464

\$4,087

\$6.876

\$21.152

\$21.152

\$21,152

\$21,152

\$15.864

\$15.864

\$15,864

\$21,152

Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination
\$613,079	\$2,517,088	#1-2	Sunset Limited	New Orleans/Los Angeles
\$410,325	\$1,710,962		Sunset Limited	New Orleans/Los Angeles
\$153,058	\$666,288	#1-2	Sunset Limited	New Orleans/Los Angeles
\$27,573	\$126,912	#1-2	Sunset Limited	New Orleans/Los Angeles
\$335,945	\$1,776,768	#5-6	California Zephyr	Chicago/Oakland
\$489,382	\$2,517,088	#5-6	California Zephyr	Chicago/Oakland
\$409,394	\$2,138,702	#5-6	California Zephyr	Chicago/Oakland
\$193,627	\$1,142,208	#5-6	California Zephyr	Chicago/Oakland
\$1,074,751	\$2,718,772	#58	City of New Orleans	New Orleans/Chicago
\$71,500	\$264,400	#58	City of New Orleans	New Orleans/Chicago
\$166,838	\$555,240	#58	City of New Orleans	New Orleans/Chicago
\$445,138	\$1,649,856	#58	City of New Orleans	New Orleans/Chicago
\$633,548	\$2,178,656	#58	City of New Orleans	New Orleans/Chicago
\$68,169	\$253,824	#58	City of New Orleans	New Orleans/Chicago
\$737,276	\$2,876,672	#87-88	Silver Meteor	New York City/Tampa
\$49,640	\$200,944	#87-88	Silver Meteor	New York City/Tampa
\$1,358,142	\$5,519,932	#87-88	Silver Meteor	New York City/Tampa
\$454,262	\$2,517,088	#87-88	Silver Meteor	New York City/Tampa
\$46,680	\$264,400	#87-88	Silver Meteor	New York City/Tampa
\$264,878	\$951,840	#193	Benjamin-Franklin	Boston/Philadelphia
\$136,888	\$507,648	#193	Benjamin-Franklin	Boston/Philadelphia
\$422,788	\$1,406,608	#193	Benjamin-Franklin	Boston/Philadelphia
\$80,781	\$274,976	#200	Metroliner	Washington DC/New York Cit
\$87,190	\$274,976	#200	Metroliner	Washington DC/New York Cit
\$401,899	\$1,057,600	#200	Metroliner	Washington DC/New York Cit
\$153,716	\$528,800	#242	Hudson Highlander	Albany/New York City
\$1,792,077	\$4,219,824	#242	Hudson Highlander	Albany/New York City
\$243,900	\$655,712	#242	Hudson Highlander	Albany/New York City
\$53,031	\$222,096	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$20,782	\$95,184	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$12,262	\$47,592	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$144,401	\$444,192	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$11,552,918	\$42,282,848			
\$12,746,439	\$46,651,052			

**Equipment Type:** Evac Ultimate Scenario: Unfavorable Typical **Toilets** Cars Cars in Operating Capital Car Type Car Number per Car in Consist Service Cost/Car Cost/Car Sleeper Super 32000 12 3 34 \$16,547 \$51,696 6 Coach Super 34000 4 40 \$8,861 \$32,568 Coach-HEP-HLV 39940 4 1 21 \$6,227 \$26,192 Lounge-HEP-HLV 2 1 39970 6 \$3,685 \$19,816 Bag Coach Super 5 3 31000 48 \$6,008 \$29,380 Sleeper Super 32000 12 3 34 \$12,986 \$51,696 6 5 Coach Super 34000 51 \$7,012 \$32,568 Trans Dorm Coach 4 1 39900 36 \$4,833 \$26,192 Sleeper 10-6 2400(30) 17 1 27 \$37,867 \$67,636 Amlounge II 1 28000 2 13 \$5,241 \$19,816 3 1 Coach (HDCP) 4000 21 \$7,398 \$23,004 4600 2 4 Coach 78 \$5,236 \$19,816 54000 2 1 Horizon 103 \$5,424 \$19,816 Dome Coach 9400 2 1 12 \$5,225 \$19,816 Slumbercoach 24-8 2080 32 1 16 \$42.629 \$115.456 Viewliner-Sleeper 2300 17 1 2 \$22.972 \$67,636 Sleeper 10-6 17 2 55 \$22,930 2400(30) \$67,636 Amcoach II 25000 2 7 119 \$3,425 \$19,816 Amlounge II 2 1 28000 13 \$3,390 \$19,816 2 Amcafe 45 20000 1 \$5,312 \$19,816 Amclub 20100 2 3 24 \$5,234 \$19,816 2 Amcoach 21000 1 67 \$5,511 \$19,816 Met-Srvc Dinette 2 1 20900 13 \$5,450 \$19,816 2 Met-Srvc Club 1 13 \$5,659 20970 \$19,816 2 Met-Srvc Coach 21900 4 50 \$6,223 \$19,816 2 1 Amdinette 20200 25 \$5,423 \$19,816 2. Amcoach 21000 3 200 \$6,624 \$19,816 2 Amcoach 21800 1 31 \$6,151 \$19,816 Turbo Power Coach 1 1 150-Even 14 \$3,208 \$16,628 Turbo Power Club 151-Odd 1 1 6 \$3,070 \$16,628 Turbo Cafe 170 1 1 3 \$3,335 \$16,628 Turbo Coach 2 3 170 21 \$5,731 \$19,816

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### **Arthur D Little**

Total:

Entire Fleet:

1,239

Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination
\$562,593	\$1,757,664	#1-2	Sunset Limited	New Orleans/Los Angeles
\$358,384	\$1,317,195		Sunset Limited	New Orleans/Los Angeles
\$130,764	\$550,032		Sunset Limited	New Orleans/Los Angeles
\$22,109	\$118,896		Sunset Limited	New Orleans/Los Angeles
\$288,368	\$1,410,240		California Zephyr	Chicago/Oakland
\$441,524	\$1,757,664		California Zephyr	Chicago/Oakland
\$354,508	\$1,646,493		California Zephyr	Chicago/Oakland
\$174,005	\$942,912		California Zephyr	Chicago/Oakland
\$1,024,674	•		• •	New Orleans/Chicago
\$65,514	\$247,700		•	New Orleans/Chicago
\$155,368	\$483,084	#58	•	New Orleans/Chicago
\$408,378	\$1,545,648	#58	City of New Orleans	New Orleans/Chicago
\$558,647	\$2,041,048	#58	City of New Orleans	New Orleans/Chicago
\$62,695	\$237,792	#58	City of New Orleans	New Orleans/Chicago
\$682,057	\$1,847,296	#87-88	Silver Meteor	New York City/Tampa
\$45,945	\$135,272	#87-88	Silver Meteor	New York City/Tampa
\$1,259,791	\$3,715,922	#87-88	Silver Meteor	New York City/Tampa
\$407,614	\$2,358,104	#87-88	Silver Meteor	New York City/Tampa
\$42,377	\$247,700	#87-88	Silver Meteor	New York City/Tampa
\$239,021	\$891,720	#193	Benjamin-Franklin	Boston/Philadelphia
\$125,622	\$475,584	#193	Benjamin-Franklin	Boston/Philadelphia
\$366,506	\$1,317,764	#193	Benjamin-Franklin	Boston/Philadelphia
\$70,856	\$257,608	#200	Metroliner	Washington DC/New York Cit
\$73,571	\$257,608	#200	Metroliner	Washington DC/New York Cit
\$311,165	\$990,800	#200	Metroliner	Washington DC/New York Cit
\$135,569	\$495,400	#242	Hudson Highlander	Albany/New York City
\$1,321,413	\$3,953,292	#242	Hudson Highlander	Albany/New York City
\$190,686	\$614,296	#242	Hudson Highlander	Albany/New York City
\$44,909	\$232,792	#250	Electric City Express	Schnecetady/New York City
\$18,422	\$99,768	#250	Electric City Express	Schnecetady/New York City
\$10,004	\$49,884	#250	Electric City Express	Schnecetady/New York City
\$120,352	\$416,136	#250	Electric City Express	Schnecetady/New York City
\$10,073,411	\$34,243,544			
\$11,114,086	\$37,781,214			

Equipment Type: Railtech WTS 8300

Scenario:	Unfavorable	
	Total	T-11-4-

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	Typical	Tollets	Cars	Cars in	Operating	Capital
Car Type	Car Number	per Car	in Consist	Service	Cost/Car	Cost/Car
Sleeper Super	32000	12	3	34	\$21,688	\$65,184
Coach Super	34000	6	4	40	\$11,688	\$32,592
Coach-HEP-HLV	39940	· 4	1	21	\$8,193	\$21,728
Lounge-HEP-HLV	39970	2	1	6	\$5,819	\$15,152
Bag Coach Super	31000	5	3	48	\$8,018	\$29,304
Sleeper Super	32000	12	3	34	\$16,687	\$65,184
Coach Super	34000	6	5	51	\$8,998	\$32,592
Trans Dorm Coach	39900	4	1	36	\$5,860	\$21,728
Sleeper 10-6	2400(30)	17	· 1	27	\$39,438	\$94,488
Amlounge II	28000	2	1	13	\$8,142	\$15,152
Coach (HDCP)	4000	3	1	21	\$7,786	\$18,440
Coach	4600	2	4	78	\$8,123	\$15,152
Horizon	54000	2	1	103	\$8,754	\$15,152
Dome Coach	9400	2	1	12	\$8,086	\$15,152
Slumbercoach 24-8	2080	32	1	16	\$45,719	\$173,824
Viewliner-Sleeper	2300	17	1	2	\$24,538	\$94,488
Sleeper 10-6	2400(30)	17	2	55	\$24,397	\$94,488
Amcoach II	25000	2	7	119	\$4,949	\$15,152
Amlounge II	28000	2	1	13	\$4,832	\$15,152
Amcafe	20000	2	1	45	\$5,925	\$15,152
Amclub	20100	2	3	24	\$5,666	\$15,152
Amcoach	21000	2	1	67	\$6,595	\$15,152
Met-Srvc Dinette	20900	2	1	13	\$6,390	\$15,152
Met-Srvc Club	20970	2	1	13	\$7,091	\$15,152
Met-Srvc Coach	21900	2	4	50	\$8,981	\$15,152
Amdinette	20200	2	1	25	\$6,298	\$15,152
Amcoach	21000	2	3	200	\$10,323	\$15,152
Amcoach	21800	2	1	31	\$8,739	\$15,152
Turbo Power Coach	150-Even	1	1	14	\$3,807	\$7,576
Turbo Power Club	151-Odd	1	1	6	\$3,347	<b>\$7,</b> 576
Turbo Cafe	170	1	1	3	\$4,232	\$7,576
Turbo Coach	170	2	3	21	\$7,331	\$15,152
		Total:		1.239		

Total: 1,239 Entire Fleet: 1,367

Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination
\$737,391	\$2,216,256	#1-2	Sunset Limited	New Orleans/Los Angeles
\$472,729	\$1,318,165	#1-2	Sunset Limited	New Orleans/Los Angeles
\$172,044	\$456,288	#1-2	Sunset Limited	New Orleans/Los Angeles
\$34,916	\$90,912	#1-2	Sunset Limited	New Orleans/Los Angeles
\$384,863	\$1,406,592	#5-6	California Zephyr	Chicago/Oakland
\$567,358	\$2,216,256	#5-6	California Zephyr	Chicago/Oakland
\$454,918	\$1,647,707	#5-6	California Zephyr	Chicago/Oakland
\$210,969	\$782,208	#5-6	California Zephyr	Chicago/Oakland
\$1,067,195	\$2,556,845	#58	City of New Orleans	New Orleans/Chicago
\$101,772	\$189,400	#58	City of New Orleans	New Orleans/Chicago
\$163,510	\$387,240	#58	City of New Orleans	New Orleans/Chicago
\$633,607	\$1,181,856	#58	City of New Orleans	New Orleans/Chicago
\$901,647	\$1,560,656	#58	City of New Orleans	New Orleans/Chicago
\$97,033	\$181,824	#58	City of New Orleans	New Orleans/Chicago
\$731,507	\$2,781,184	#87-88	Silver Meteor	New York City/Tampa
\$49,077	\$188,976	#87-88	Silver Meteor	New York City/Tampa
\$1,340,379	\$5,191,171	#87-88	Silver Meteor	New York City/Tampa
\$588,976	\$1,803,088	#87-88	Silver Meteor	New York City/Tampa
\$60,395	\$189,400	#87-88	Silver Meteor	New York City/Tampa
\$266,625	\$681,840	#193	Benjamin-Franklin	Boston/Philadelphia
\$135,978	\$363,648	#193	Benjamin-Franklin	Boston/Philadelphia
\$438,548	\$1,007,608	#193	Benjamin-Franklin	Boston/Philadelphia
\$83,076	\$196,976	#200	Metroliner	Washington DC/New York Cit
\$92,178	\$196,976	#200	Metroliner	Washington DC/New York Cit
\$449,058	\$757,600	#200	Metroliner	Washington DC/New York Cit
\$157,444	\$378,800	#242	Hudson Highlander	Albany/New York City
\$2,059,461	\$3,022,824	#242	Hudson Highlander	Albany/New York City
\$270,920	\$469,712	#242	Hudson Highlander	Albany/New York City
\$53,302	\$106,064	#250	Electric City Express	Schnecetady/New York City
\$20,080	\$45,456	#250	Electric City Express	Schnecetady/New York City
\$12,697	\$22,728	#250	Electric City Express	Schnecetady/New York City
\$153,954	\$318,192	#250		Schnecetady/New York City
\$12,963,606	\$33,914,448		,	•
\$14,302,865	\$37,418,120			

**Equipment Type:** Monogram Modified Vacuum Scenario: **Favorable** Typical **Toilets** Cars Cars in Operating Capital in Consist Car Type Car Number per Car Service Cost/Car Cost/Car Sleeper Super 3 32000 12 34 \$10.283 \$55,896 Coach Super 34000 6 4 40 \$5,441 \$39,168 Coach-HEP-HLV 1 39940 4 21 \$3,778 \$33,592 Lounge-HEP-HLV 39970 2 1 6 \$2,177 \$28,016 Bag Coach Super 31000 5 3 48 \$3,463 \$36,380 Sleeper Super 32000 12 3 34 \$7,617 \$55,896 5 Coach Super 34000 6 51 \$4,061 \$39,168 Trans Dorm Coach 39900 4 1 36 \$2,750 \$33,592 Sleeper 10-6 2400(30) 17 1 27 \$25,503 \$69,836 Amlounge II 2 1 28000 13 \$3,359 \$28,016 Coach (HDCP) 3 1 4000 21 \$4,823 \$30,804 Coach 2 4 78 \$3,355 4600 \$28,016 Horizon 54000 2 1 103 \$3,482 \$28,016 2 Dome Coach 9400 1 12 \$3,348 \$28,016 Slumbercoach 24-8 1 2080 32 16 \$26,737 \$111,656 Viewliner-Sleeper 2300 17 1 2 \$14,333 \$69,836 Sleeper 10-6 2400(30) 17 2 55 \$14,304 \$69,836 Amcoach II 2 7 119 25000 \$2,002 \$28,016 1 Amlounge II 28000 2 13 \$1,978 \$28,016 2 1 Amcafe 45 20000 \$3,407 \$28,016 2 3 Amclub 20100 24 \$3,354 \$28,016 Amcoach 21000 2 1 67 \$3,541 \$28,016 2 1 Met-Srvc Dinette 20900 13 \$3,500 \$28,016 Met-Srvc Club 2 1 20970 13 \$3,641 \$28,016 2 Met-Srvc Coach 21900 4 50 \$4,022 \$28,016 2 Amdinette 20200 1 25 \$28,016 \$3,482 2 3 200 Amcoach 21000 \$4,292 \$28,016 Amcoach 21800 2 1 31 \$3,973 \$28,016 Turbo Power Coach 1 150-Even 1 14 \$1.978 \$25,228 Turbo Power Club 151-Odd 1 1 6 \$1,886 \$25,228 Turbo Cafe 170 1 1 3 \$2,064 \$25,228 Turbo Coach 170 2 3 21 \$3,690 \$28,016 Total: 1.239

### **Arthur D Little**

Entire Fleet:

Operating	Capital	Route	Route	Origin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
\$349,629	\$1,900,464	#1-2	Sunset Limited	New Orleans/Los Angeles
\$220,049	\$1,584,128	#1-2	Sunset Limited	New Orleans/Los Angeles
\$79,334	\$705,432	#1-2	Sunset Limited	New Orleans/Los Angeles
\$13,063	\$168,096	#1-2	Sunset Limited	New Orleans/Los Angeles
\$166,213	\$1,746,240	#5-6	California Zephyr	Chicago/Oakland
\$258,973	\$1,900,464	#5-6	California Zephyr	Chicago/Oakland
\$205,326	\$1,980,160	#5-6	California Zephyr	Chicago/Oakland
\$98,988	\$1,209,312	#5-6	California Zephyr	Chicago/Oakland
\$690,116	\$1,889,762	#58	City of New Orleans	New Orleans/Chicago
\$41,988	\$350,200	#58	City of New Orleans	New Orleans/Chicago
\$101,290	\$646,884	#58	City of New Orleans	New Orleans/Chicago
\$261,711	\$2,185,248	#58	City of New Orleans	New Orleans/Chicago
\$358,672	\$2,885,648	#58	City of New Orleans	New Orleans/Chicago
\$40,174	\$336,192		City of New Orleans	New Orleans/Chicago
\$427,790	\$1,786,496	#87-88	Silver Meteor	New York City/Tampa
\$28,665	\$139,672	#87-88	Silver Meteor	New York City/Tampa
\$785,871	\$3,836,790	#87-88	Silver Meteor	New York City/Tampa
\$238,230	\$3,333,904		Silver Meteor	New York City/Tampa
\$24,728	\$350,200	#87-88	Silver Meteor	New York City/Tampa
\$153,294	\$1,260,720	#193	Benjamin-Franklin	Boston/Philadelphia
\$80,504	\$672,384	#193	Benjamin-Franklin	Boston/Philadelphia
\$235,502	\$1,863,064	#193	Benjamin-Franklin	Boston/Philadelphia
\$45,503	\$364,208	#200	Metroliner	Washington DC/New York Cit
\$47,336	\$364,208	#200	Metroliner	Washington DC/New York Cit
\$201,094	\$1,400,800	#200	Metroliner	Washington DC/New York Cit
\$87,040	\$700,400	#242	Hudson Highlander	Albany/New York City
\$856,266	\$5,589,192	#242	Hudson Highlander	Albany/New York City
\$123,169	\$868,496	#242	Hudson Highlander	Albany/New York City
\$27,697	\$353,192	#250	Electric City Express	Schnecetady/New York City
\$11,314	\$151,368	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$6,192	\$75,684	#250	Electric City Express	Schnecetady/New York City
\$77,483	\$588,336	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$6,343,200	\$43,187,344		•	
\$6,998,511	\$47,648,991			

**Equipment Type:** Self-Cont'd Recirc Monogram Scenario: Favorable Typical Toilets Cars in Operating Capital Cars Car Type Car Number per Car in Consist Service Cost/Car Cost/Car Sleeper Super 32000 12 \$42,456 3 34 \$15,293 Coach Super 34000 6 4 40 \$7,775 \$21,228

		•	•		4.10	<b>4</b> ,
Coach-HEP-HLV	39940	4	1	21	\$7,100	\$14,152
Lounge-HEP-HLV	39970	2	1	6	\$3,660	\$7,076
Bag Coach Super	31000	5	3	48	\$6,935	\$17,690
Sleeper Super	32000	12	3	34	\$12,640	\$42,456
Coach Super	34000	6	<b>5</b> .	- 51	\$8,293	\$21,228
Trans Dorm Coach	39900	. 4	1	36	\$4,261	\$14,152
Sleeper 10-6	2400(30)	17	. 1	27	\$32,735	\$60,146
Amlounge II	28000	2	1	13	\$3,963	\$7,076
Coach (HDCP)	4000	3	1	21	\$5,873	\$10,614
Coach	4600	2	4	78	\$3,960	\$7,076
Horizon	54000	2	1	103	\$4,042	\$7,076
Dome Coach	9400	2	1	12	\$3,956	\$7,076
Slumbercoach 24-8	2080	32	1	16	\$40,557	\$113,216
Viewliner-Sleeper	2300	17	1	2	\$21,565	\$60,146
Sleeper 10-6	2400(30)	17	2	55	\$21,547	\$60,146
Amcoach II	25000	2	7	119	\$3,542	\$7,076
Amlounge II	28000	2	1	13	\$2,606	\$7,076
Amcafe	20000	2	1	45	\$3,999	\$7,076
Amclub	20100	2	<b>.3</b>	24	\$3,964	\$7,076
Amcoach	21000	2	1 1	67	\$4,088	\$7,076
Met-Srvc Dinette	20900	2	1	13	\$4,068	\$7,076
Met-Srvc Club	20970	2	1	13	\$4,165	\$7,076
Met-Srvc Coach	21900	2	4	50	\$4,427	\$7,076
Amdinette	20200	2	1	25	\$4,055	\$7,076
Amcoach	21000	2	3	200	\$4,613	\$7,076
Amcoach	21800	2	1	31	\$4,394	\$7,076
Turbo Power Coach	150-Even	1	1	14	\$2,117	\$3,538
Turbo Power Çlub	151-Odd	1	1	6	\$2,054	\$3,538
Turbo Cafe	170	1	1	3	\$2,176	\$3,538
Turbo Coach	170	2	3	21	\$4,195	\$7,076
		Total:		1,239		

Total: 1,239 Entire Fleet: 1,367

Operating	Capital	Route	Route	Origin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
`\$519,959	\$1,443,504	#1-2	Sunset Limited	New Orleans/Los Angeles
\$314,464	\$858,555	#1-2	Sunset Limited	New Orleans/Los Angeles
\$149,105	\$297,192	#1-2	Sunset Limited	New Orleans/Los Angeles
\$21,958	\$42,456	#1-2	Sunset Limited	New Orleans/Los Angeles
\$332,865	\$849,120	#5-6	California Zephyr	Chicago/Oakland
\$429,762	\$1,443,504	#5-6	California Zephyr	Chicago/Oakland
\$419,259	\$1,073,193	#5-6	California Zephyr	Chicago/Oakland
\$153,382	\$509,472	#5-6	California Zephyr	Chicago/Oakland
\$885,819	\$1,627,551	#58	City of New Orleans	New Orleans/Chicago
\$49,534	\$88,450	#58	City of New Orleans	New Orleans/Chicago
\$123,338	\$222,894	#58	City of New Orleans	New Orleans/Chicago
\$308,908	\$551,928	#58	City of New Orleans	New Orleans/Chicago
\$416,333	\$728,828	#58	City of New Orleans	New Orleans/Chicago
\$47,467	\$84,912	#58	City of New Orleans	New Orleans/Chicago
\$648,913	\$1,811,456	#87-88	Silver Meteor	New York City/Tampa
\$43,131	\$120,292	#87-88	Silver Meteor	New York City/Tampa
\$1,183,796	\$3,304,421	#87-88	Silver Meteor	New York City/Tampa
\$421,530	\$842,044	#87-88	Silver Meteor	New York City/Tampa
\$32,572	\$88,450	#87-88	Silver Meteor	New York City/Tampa
\$179,937	\$318,420	#193	Benjamin-Franklin	Boston/Philadelphia
\$95,132	\$169,824	#193	Benjamin-Franklin	Boston/Philadelphia
\$271,882	\$470,554	#193	Benjamin-Franklin	Boston/Philadelphia
\$52,887	\$91,988	#200	Metroliner	Washington DC/New York Cit
\$54,148	\$91,988	#200	Metroliner	Washington DC/New York Cit
\$221,363	\$353,800	#200	Metroliner	Washington DC/New York Cit
\$101,384	\$176,900	#242	Hudson Highlander	Albany/New York City
\$920,342	\$1,411,662	#242	Hudson Highlander	Albany/New York City
\$136,206	\$219,356	#242	Hudson Highlander	Albany/New York City
\$29,640	\$49,532	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$12,323	\$21,228	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$6,527	\$10,614	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$88,103	\$148,596	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$8,671,971	\$19,522,684			
\$9,567,864	\$21,539,555			

Equipment Type: Microphor Gravity Scenario: Favorable **Typical Toilets** Cars Cars in Operating Capital Car Type Car Number per Car in Consist Service Cost/Car Cost/Car Sleeper Super 32000 12 3 34 \$10.601 \$74.032 Coach Super 6 4 40 \$42,304 34000 \$5,698 1 Coach-HEP-HLV 39940 4 21 \$3,976 \$31,728 Lounge-HEP-HLV 39970 2 1 6 \$2,366 \$21,152 Bag Coach Super 31000 5 3 48 \$3.785 \$37,016 3 12 Sleeper Super 32000 34 \$7.904 \$74,032 6 5 Coach Super 34000 51 \$4,267 \$42,304 1 Trans Dorm Coach 39900 4 36 \$2,828 \$31,728 1 Sleeper 10-6 2400(30) 17 27 \$25,883 \$100.472 1 Amlounge II 28000 2 13 \$3,444 \$21,152 Coach (HDCP) 4000 3 1 21 \$4,918 \$26,440 2 4 Coach 4600 78 \$3,437 \$21,152 Horizon 54000 2 1 103 \$3,664 \$21,152 Dome Coach 9400 2 1 12 \$3,424 \$21,152 Slumbercoach 24-8 2080 32 1 16 \$27.502 \$179.792 Viewliner-Sleeper 2300 17 1 2 \$14,711 \$100,472 Sleeper 10-6 17 2 55 2400(30) \$14,660 \$100,472 2 7 Amcoach II 25000 119 \$2.053 \$21,152 2 Amlounge II 1 28000 13 \$2,010 \$21,152 Amcafe 20000 2 1 45 \$3.529 \$21,152 Amclub 20100 2 3 24 \$3,435 \$21,152 2 Amcoach 21000 1 67 \$3,770 \$21,152 Met-Srvc Dinette 2 1 20900 13 \$3,697 \$21,152 Met-Srvc Club 2 20970 1 13 \$3,949 \$21,152 Met-Srvc Coach 21900 2 4 50 \$4,631 \$21,152 2 Amdinette 20200 1 25 \$3.663 \$21,152 Amcoach 2 3 200 21000 \$5,115 \$21,152 2 Amcoach 21800 1 31 \$4,544 \$21,152 Turbo Power Coach 150-Even 1 1 14 \$2.119 \$15,864 Turbo Power Club 151-Odd 1 1 6 \$1,953 \$15.864 Turbo Cafe 170 1 1 3 \$2,272 \$15.864 2 Turbo Coach 170 3 21 \$4,036 \$21,152 Total: 1.239

### **Λrthur D Little**

Entire Fleet:

1.367

Operating	Capital	Route	Route	Origin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
\$360,423	\$2,517,088	#1-2	Sunset Limited	New Orleans/Los Angeles
\$230,456	\$1,710,962	#1-2	Sunset Limited	New Orleans/Los Angeles
\$83,504	\$666,288	#1-2	Sunset Limited	New Orleans/Los Angeles
\$14,198	\$126,912	#1-2	Sunset Limited	New Orleans/Los Angeles
\$181,663	\$1,776,768	#5-6	California Zephyr	Chicago/Oakland
\$268,736	\$2,517,088	#5-6	California Zephyr	Chicago/Oakland
\$215,720	\$2,138,702	#5-6	California Zephyr	Chicago/Oakland
\$101,808	\$1,142,208	#5-6	California Zephyr	Chicago/Oakland
\$700,398	\$2,718,772	#58	City of New Orleans	New Orleans/Chicago
\$43,047	\$264,400	#58	City of New Orleans	New Orleans/Chicago
\$103,284	\$555,240	#58	City of New Orleans	New Orleans/Chicago
\$268,089	\$1,649,856	#58	City of New Orleans	New Orleans/Chicago
\$377,437	\$2,178,656	#58	City of New Orleans	New Orleans/Chicago
\$41,084	\$253,824	#58	City of New Orleans	New Orleans/Chicago
\$440,030	\$2,876,672	#87-88	Silver Meteor	New York City/Tampa
\$29,423	\$200,944	#87-88	Silver Meteor	New York City/Tampa
\$805,445	\$5,519,932	#87-88	Silver Meteor	New York City/Tampa
\$244,258	\$2,517,088	#87-88	Silver Meteor	New York City/Tampa
\$25,126	\$264,400	#87-88	Silver Meteor	New York City/Tampa
\$158,798	\$951,840	#193	Benjamin-Franklin	Boston/Philadelphia
\$82,449	\$507,648	#193	Benjamin-Franklin	Boston/Philadelphia
\$250,726	\$1,406,608	#193	Benjamin-Franklin	Boston/Philadelphia
\$48,057	\$274,976	#200	Metroliner	Washington DC/New York Cit
\$51,339	\$274,976	#200	Metroliner	Washington DC/New York Cit
\$231,540	\$1,057,600	#200	Metroliner	Washington DC/New York Cit
\$91,581	\$528,800	#242	Hudson Highlander	Albany/New York City
\$1,020,374	\$4,219,824	#242	Hudson Highlander	Albany/New York City
\$140,852	\$655,712	#242	Hudson Highlander	Albany/New York City
\$29,666	\$222,096	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$11,718	\$95,184	#250	Electric City Express	Schnecetady/New York City
\$6,817	\$47,592	#250	Electric City Express	Schnecetady/New York City
\$84,753	\$444,192	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$6,742,796	\$42,282,848			
\$7,439,389	\$46,651,052			

Equipment Type: Evac Ultimate

Turbo Coach

170

Equipment Type:	Evac	Ultimate				
Scenario:	Favorable					
	Typical	Toilets	Cars	Cars in	Operating	Capital
Car Type	Car Number	per Car	in Consist	Service	Cost/Car	Cost/Car
Sleeper Super	32000	12	3	34	\$10,222	\$51,696
Coach Super	34000	6	4	40	\$5,343	\$32,568
Coach-HEP-HLV	39940	4	1	21	\$3,673	\$26,192
Lounge-HEP-HLV	39970	2	1	6	\$2,059	\$19,816
Bag Coach Super	31000	5	3	48	\$3,367	\$29,380
Sleeper Super	32000	12	3	34	\$7,561	\$51,696
Coach Super	34000	6	5	51	\$3,971	\$32,568
Trans Dorm Coach	39900	4	1	36	\$2,663	\$26,192
Sleeper 10-6	2400(30)	17	1	27	\$25,472	\$67,636
Amlounge II	28000	2	1	13	\$3,256	\$19,816
Coach (HDCP)	4000	3	1	21	\$4,726	\$23,004
Coach	4600	2	4	78	\$3,252	\$19,816
Horizon	54000	2	1	103	\$3,365	\$19,816
Dome Coach	9400	2	1	12	\$3,246	\$19,816
Slumbercoach 24-8	2080	32	1	16	\$26,764	\$115,456
Viewliner-Sleeper	2300	17	1	2	\$14,301	\$67,636
Sleeper 10-6	2400(30)	17	2	55	\$14,276	\$67,636
Amcoach II	25000	2	7	119	\$1,904	\$19,816
Amlounge II	28000	2	1.	13	\$1,883	\$19,816
Amcafe	20000	2	1	45	\$3,298	\$19,816
Amclub	20100	2	3	24	\$3,252	\$19,816
Amcoach	21000	2	1	67	\$3,417	\$19,816
Met-Srvc Dinette	20900	2	1	13	\$3,381	\$19,816
Met-Srvc Club	20970	2	1	13	\$3,505	\$19,816
Met-Srvc Coach	21900	2	4	50	\$3,842	\$19,816
Amdinette	20200	2	1	25	\$3,364	\$19,816
Amcoach	21000	. 2	3	200	\$4,081	\$19,816
Amcoach	21800	2	1	31	\$3,799	\$19,816
Turbo Power Coach	150-Even	1	1	14	\$1,859	\$16,628
Turbo Power Club	151-Odd	1	1	6	\$1,777	\$16,628
Turbo Cafe	170	1	1	3	\$1,935	\$16,628
		_				

Total: 1,239 Entire Fleet: 1,367

3

21

\$3,548

\$19,816

2

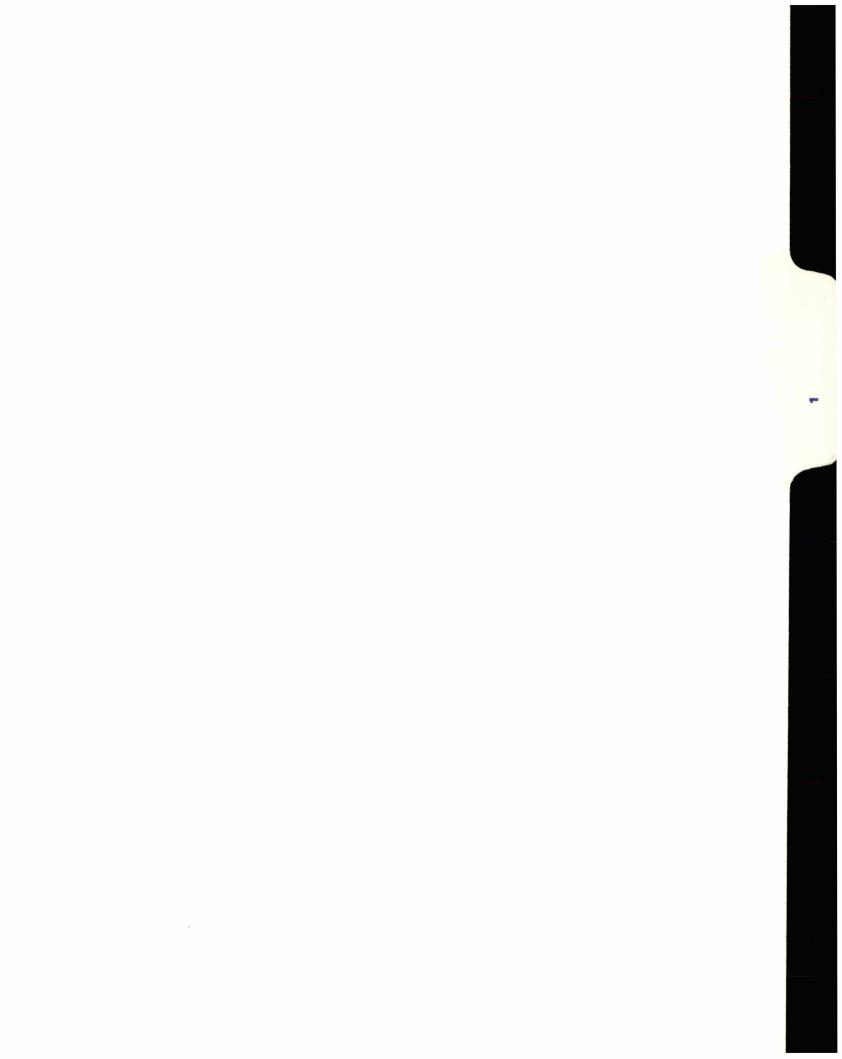
Operating Cost/Fleet	Capital Cost/Fleet	Route Number	Route Name	Origin/ Destination
\$347,565	\$1,757,664	#1-2	Sunset Limited	New Orleans/Los Angeles
\$216,090	\$1,317,195	#1-2	Sunset Limited	New Orleans/Los Angeles
\$77,137	\$550,032	#1-2	Sunset Limited	New Orleans/Los Angeles
\$12,351	\$118,896	#1-2	Sunset Limited	New Orleans/Los Angeles
\$161,639	\$1,410,240	#5-6	California Zephyr	Chicago/Oakland
\$257,060	\$1,757,664	#5-6	California Zephyr	Chicago/Oakland
\$200,760	\$1,646,493	#5-6	California Zephyr	Chicago/Oakland
\$95,858	\$942,912	#5-6	California Zephyr	Chicago/Oakland
\$689,262	\$1,830,230	#58	City of New Orleans	New Orleans/Chicago
\$40,697	\$247,700	#58	City of New Orleans	New Orleans/Chicago
\$99,251	\$483,084	#58	City of New Orleans	New Orleans/Chicago
\$253,692	\$1,545,648	#58	City of New Orleans	New Orleans/Chicago
\$346,564	\$2,041,048	#58	City of New Orleans	New Orleans/Chicago
\$38,950	\$237,792	#58	City of New Orleans	New Orleans/Chicago
\$428,222	\$1,847,296	#87-88	Silver Meteor	New York City/Tampa
\$28,603	\$135,272	#87-88	Silver Meteor	New York City/Tampa
\$784,330	\$3,715,922	#87-88	Silver Meteor	New York City/Tampa
\$226,539	\$2,358,104		Silver Meteor	New York City/Tampa
\$23,534	\$247,700	#87-88	Silver Meteor	New York City/Tampa
\$148,400	\$891,720	#193	Benjamin-Franklin	Boston/Philadelphia
\$78,039	\$475,584	#193	Benjamin-Franklin	Boston/Philadelphia
\$227,228	\$1,317,764	#193	Benjamin-Franklin	Boston/Philadelphia
\$43,948	\$257,608	#200	Metroliner	Washington DC/New York Cit
\$45,568	\$257,608	#200	Metroliner	Washington DC/New York Cit
\$192,084	\$990,800	#200	Metroliner	Washington DC/New York Cit
\$84,103	\$495,400	#242	Hudson Highlander	Albany/New York City
\$814,061	\$3,953,292	#242	Hudson Highlander	Albany/New York City
\$117,758	\$614,296	#242	Hudson Highlander	Albany/New York City
\$26,029	\$232,792	#250	• •	Schnecetady/New York City
\$10,664	\$99,768		Electric City Express	Schnecetady/New York City
\$5,805	\$49,884		•	Schnecetady/New York City
\$74,509	\$416,136	#250	Electric City Express	Schnecetady/New York City
\$6,196,299	\$34,243,544			
\$6,836,433	\$37,781,214			

**Equipment Type:** Railtech WTS 8300 Scenario: **Favorable Typical** Toilets Cars Cars in Operating Capital Car Type Car Number per Car in Consist Service Cost/Car Cost/Car Sleeper Super 32000 12 3 34 \$10,607 \$65,184 Coach Super 34000 6 4 40 \$7,160 \$32,592 1 Coach-HEP-HLV 4 39940 21 \$4,971 \$21,728 2 1 Lounge-HEP-HLV 39970 6 \$3,434 \$15,152 Bag Coach Super 31000 5 3 48 \$4,634 \$29,304 Sleeper Super 32000 12 3 34 \$7,885 \$65,184 Coach Super 6 5 51 34000 \$5,225 \$32,592 Trans Dorm Coach 39900 4 1 36 \$3,429 \$21,728 Sleeper 10-6 17 1 27 2400(30) \$25,857 \$94,488 Amlounge II 28000 2 1 13 \$3,505 \$15,152 Coach (HDCP) 4000 3 1 21 \$4,947 \$18,440 2 4 78 Coach 4600 \$3,496 \$15,152 2 1 Horizon 54000 103 \$5,647 \$15,152 2 1 Dome Coach 9400 12 \$3,477 \$15,152 Slumbercoach 24-8 1 16 2080 32 \$27,465 \$173,824 Viewliner-Sleeper 2300 17 1 2 \$14,685 \$94,488 Sleeper 10-6 17 2 2400(30) 55 \$14,615 \$94,488 Amcoach II 2 7 \$15,152 25000 119 \$3,005 Amlounge II 28000 2 1 13 \$2,951 \$15,152 2 1 Amcafe 20000 45 \$3,621 \$15,152 Amelub 2 3 24 20100 \$3,493 \$15,152 2 Amcoach 1 67 21000 \$3,952 \$15,152 2 Met-Srvc Dinette 1 \$3,851 20900 13 \$15,152 Met-Srvc Club 20970 2 1 13 \$4,197 \$15,152 Met-Srvc Coach 2 4 21900 50 \$5,130 \$15,152 Amdinette 2 1 20200 25 \$3,805 \$15,152 Amcoach 21000 2 3 200 \$5,793 \$15,152 2 Amcoach 21800 1 31 \$5,011 \$15,152 Turbo Power Coach 1 150-Even 1 14 \$2,228 \$7,576 Turbo Power Club 1 151-Odd 1 6 \$2,000 \$7,576 Turbo Cafe 170 1 3 1 \$2,438 \$7,576 Turbo Coach 2 3 170 21 \$4,316 \$15,152 Total: 1.239

### **Λrthur D Little**

**Entire Fleet:** 

Operating	Capital	Route	Route	Origin/
Cost/Fleet	Cost/Fleet	Number	Name	Destination
\$360,648	\$2,216,256	#1-2	Sunset Limited	New Orleans/Los Angeles
\$289,563	\$1,318,165	#1-2	Sunset Limited	New Orleans/Los Angeles
\$104,384	\$456,288	#1-2	Sunset Limited	New Orleans/Los Angeles
\$20,607	\$90,912	#1-2	Sunset Limited	New Orleans/Los Angeles
\$222,422	\$1,406,592	#5-6	California Zephyr	Chicago/Oakland
\$268,098	\$2,216,256	#5-6	California Zephyr	Chicago/Oakland
\$264,166	\$1,647,707	#5-6	California Zephyr	Chicago/Oakland
\$123,438	\$782,208	#5-6	California Zephyr	Chicago/Oakland
\$699,703	\$2,556,845	#58	City of New Orleans	New Orleans/Chicago
\$43,809	\$189,400	#58	City of New Orleans	New Orleans/Chicago
\$103,886	\$387,240	#58	City of New Orleans	New Orleans/Chicago
\$272,657	\$1,181,856	#58	City of New Orleans	New Orleans/Chicago
\$581,598	\$1,560,656	#58	City of New Orleans	New Orleans/Chicago
\$41,727	\$181,824	#58	City of New Orleans	New Orleans/Chicago
\$439,434	\$2,781,184	#87-88	Silver Meteor	New York City/Tampa
\$29,369	\$188,976	#87-88	Silver Meteor	New York City/Tampa
\$802,945	\$5,191,171	#87-88	Silver Meteor	New York City/Tampa
\$357,587	\$1,803,088	#87-88	Silver Meteor	New York City/Tampa
\$36,884	\$189,400	#87-88	Silver Meteor	New York City/Tampa
\$162,959	\$681,840	#193	Benjamin-Franklin	Boston/Philadelphia
\$83,840	\$363,648	#193	Benjamin-Franklin	Boston/Philadelphia
\$262,806	\$1,007,608	#193	Benjamin-Franklin	Boston/Philadelphia
\$50,065	\$196,976	#200	Metroliner	Washington DC/New York Cit
\$54,559	\$196,976	#200	Metroliner	Washington DC/New York Cit
\$256,511	\$757,600	#200	Metroliner	Washington DC/New York Cit
\$95,134	\$378,800	#242	Hudson Highlander	Albany/New York City
\$1,155,659	\$3,022,824	#242	Hudson Highlander	Albany/New York City
\$155,336	\$469,712	#242	Hudson Highlander	Albany/New York City
\$31,189	\$106,064	#250	Electric City Express	Schnecetady/New York City
\$12,002	\$45,456	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$7,313	\$22,728	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$90,627	\$318,192	#250	<b>Electric City Express</b>	Schnecetady/New York City
\$7,480,925	\$33,914,448			•
\$8,253,773	\$37,418,120			



Amtrak Route:

Sunset Limited

Route Number:

#1-2

Origin/Destination: Length in Miles: New Orleans-Los Angeles

Length in Hours:

2,033 43.00

Expected Trips per Day: Manufacturer:

Equipment:

Monogram Modified Vacuum

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA <u>NA</u>
Quantity of cars	4	1	: 3	1	, NA	NA
Capacity (# people) - seated	75	72	44	86	NA	NA
Toilets per car	6	4	12	2	NA	NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	33.68	32.33	19,76	38.61	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	36.4	34.9	21.3	41.7	NA	NA
Capacity Req'd/day (gals)	70.1	67.3	41.1	80.3	NA	NA
Adj. Capacity Req'd w/ Buffer	87.6	84.1	51.4	100.4	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	64 89%	67 93%	110 152%	56 6 78%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	2.7	2.8	4.6	2.3	NA	NA
As a percentage of 3 days	89.45%	93.18%	152.47%	6 78.01%	NA	NA
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	NA	NA
CAPITAL COSTS			,			
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$15,000</u>	<u>\$10,000</u>	\$30,000	\$5,000	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$36,000	\$31,000	\$51,000	\$26,000	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1.152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$3,168	\$2,592	\$4,896	\$2,016	NA	NA
Total Capital Cost	\$39,168	\$33,592	\$55,896	\$28,016	NA	NANA

Amtrak Route: **Sunset Limited** Route Number: #1-2 Origin/Destination: New Orleans-Los Angeles 2,033 Length in Miles: Length in Hours: 43.00 Expected Trips per Day: Manufacturer: Monogram Modified Vacuum Equipment: Scenario: Expected \* All data on per car basis (unless noted otherwise) 32000 39970 39940 NA Coach-HEP-HLV Lounge-HEP-HLV Coach Super Sleeper Super NA NA OPERATING COSTS Non-Trip Related Costs: Labor cost/major servicing \$432 \$288 \$864 \$144 NA NA Frequency per Year 3 3 3 3 3 3 Servicing Cost/Year \$1,296 \$864 \$2,592 \$432 NA NA \$930 \$1,530 Annual spare parts cost per yr \$1,080 \$780 NA <u>NA</u> \$4,122 NA Total- Oprtng Non-Trip Related \$2,376 \$1,794 \$1,212 NÃ Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$36 \$24 \$72 \$12 NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.70 \$0.67 \$0.41 \$0.80 NA NA - Pump out minutes 1.17 1.12 0.69 1.34 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NA NA - Waste Disposal \$1.25 \$2.45 \$2,13 \$2.05 NA NA Subtotal- End of Day/Trip Srvc \$38.83 \$26.72 \$73.66 \$15.25 NA NA Train Delay: - Pump out volume reg'd 0 0 0 0 NΑ NA - # of stops reg'd 0 0 0 0 NA NA - Pump out minutes 0.0 0.0 0.0 0.0 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NA NA - Total Time Delay(mins/car) 0 0 0 0 NA NA Average Cost Per Delay \$0 \$0 \$0 \$0 NA NA Subtotal-Oprtng Trip Related \$39 \$27 \$74 \$15 NA NA Total # Cars in fleet 91 21 68 6 NA NA **Total Annual Car-days** 33,215 7,665 24,820 2,190 NΑ NA Adjusted Total Car-days 23,251 5,366 17,374 1,533 NA NA Days per Trip (min. of 1) 2 2 2 2 2 2 Annual Oprtng Trip Related per Car \$4,961 \$3,414 \$9,410 \$1,948 NA NA Annual Non-Trip Related per Car \$2,376 \$1,794 \$4,122 \$1,212 NA NA \$639,909 Annual Opring Trip Related per Car Type \$451,460 \$71,686 \$11,689 NA NA Annual Non-Trip Related per Car Type \$216,216 \$37,674 \$280,296 \$7,272 NA NA Total OPRTNG COST per Car \$7,337 \$5,208 \$13,532 NA \$3,160 NA Total CAPITAL COST per Car \$55,896 \$39,168 \$33,592 \$28,016 NA NA

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

\$667,676

\$3,564,288

\$109,360

\$705,432

\$920,205

\$3,800,928

\$18,961

\$168,096

NA

NA

NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

Expected Trips per Day:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Manufacturer: Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Expected

COURT IV.	Lypecieu
* All data on per car basis	(unless noted otherwise)

* All data on per car basis (unless noted	otherwise)					
	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA
<i>t</i>				_	<u>NA</u>	<u>NA</u>
Quantity of cars	4	1	3	1	NA	NA
Capacity (# people) - seated Toilets per car	75 6	72 4	44 12	86 2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
Car Waste Data (per car)						
Black Water:				•		
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	NA	NA
Capacity Req'd/day (gals)	33.7	32.3	19.8	38.6	NA	NA
Adj. Capacity Req'd w/ Buffer	42.1	40.4	24.7	48.3	NA	NA
Tank Capacity per Car (gals)	81	54	162	27	. NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	46 64%	32 45%	157 219%	13 3 19%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	1.9	1.3	6.6	0.6	NA	. NA
As a percentage of 3 days	64.14%	44.54%	218.67%	6 18.65%	.NA	NA
Consecutive Trips before pumpout	1.0	0.0	3.0	0.0	NA	, <b>NA</b>
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$19,500</u>	<u>\$13,000</u>	<u>\$39,000</u>	\$6,500	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$19,500	\$13,000	\$39,000	\$6,500	NA	· NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0
Toilet Cost per Car	<u>\$1.728</u>	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,728	\$1,152	\$3,456	\$576	NA	NA
Total Capital Cost	\$21,228	\$14,152	\$42,456	\$7,076	NA NA	NA NA

. 1-1- (D)4141	Sunset Limited	·	Route Number:			
Origin/Destination:	New Orleans-Los /	Angeles				
ength in Miles:	2,033					
ength in Hours:	43.00					
Expected Trips per Day:	1					
Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc					
Scenario:	Expected					
<ul> <li>All data on per car basis (unless note</li> </ul>	•					
-	34000	39940	32000	39970 Lounge-HEP-HLV	NA NA	
OPERATING COSTS	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEF-HEV	<u>NA</u>	
Non-Trip Related Costs:						
Labor cost/major servicing	\$1,728	\$1,152	\$3,456	\$576	NA	
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	
Servicing Cost/Year	\$5,184	\$3,456	\$10,368	\$1,728	NA NA	
Annual spare parts cost per yr	\$585	\$390	\$1,170		<u>NA</u>	
Total- Opring Non-Trip Related	\$5,769	\$3,846	\$11,538	\$1,923	NA	
Total opting from the front of	701.00			<del>,,,==</del>		
Trip Related Costs:			•			
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	
- Light Repair	\$0	\$0	\$0	\$0	\$0	
Pump out and Disposal						
- Pump out Cost	\$0.34	\$8.40	\$0.20	\$4.32	NA	
- Pump out minutes	0.56	0.00	0.33	0.19	NA	
- Connect/Disc. minutes	0.0	14.0	0.0	7.0	NA	
- Waste Disposal	<u>\$1.33</u>	<b>\$1.27</b>	\$0.78	<b>\$1.52</b>	<u>NA</u>	
Subtotal- End of Day/Trip Srvc	\$37.66	\$33.67	\$72.98	•	NA	
Train Delay:	•	•		·		
- Pump out volume reg'd	0	54	0	27	NA	
- # of stops reg'd	0	1	0	1	NA	
- Pump out minutes	0.0	0.9	0.0	0.5	NA	
- Connect/Disc. minutes	0.0	<u>14.0</u>	0.0	<u>7.0</u>	NA	
- Total Time Delay(mins/car)	0	15	0	7	NA	
Average Cost Per Delay	\$0	\$9	\$0	\$4	NA NA	
Subtotal- Opring Trip Related	\$38	\$43	\$73	\$22	NA NA	
Cabicial Opining Trip Helated	<del></del>	<del></del>			NA .	
Total # Cars in fleet	91	21	68	6	NA	
Total Appual Cor days	22.015	7.665	04.000	0.100	NA	
Total Annual Car-days	33,215	7,665	24,820	2,190	NA.	
Adjusted Total Car-days	23,251	5,366	17,374	1,533	NA	
Days per Trip (min. of 1)	2	2	2	2	2	
Annual Opring Trip Related per Car	\$4,812	\$5,444	\$9,323	\$2,850	NA	
Annual Non-Trip Related per Car	\$5,769	\$3,846	\$11,538	\$1,923	NA NA	
The second secon	44,,00	<b>\$2,240</b>	Ţ.,, <b>300</b>	¥.,	• • • •	•
Annual Opring Trip Related per Car Ty		\$114,323	\$633,945		NA	
Annual Non-Trip Related per Car Type	<u>\$524.979</u>	<u>\$80,766</u>	<u>\$784.584</u>	<u>\$11.538</u>	<u>NA</u>	
Total OPRTNG COST per Car	\$10,581	\$9,290	\$20,861	\$4,773	NA	
Total CAPITAL COST per Car	\$21,228	\$14,152	\$42,456		NA	
Total CAPITAL COST per Car Total OPRTNG COST for all cars			\$42,456 \$1,418,529		NA NA	٠.

· ·

Sunset Limited

Route Number:

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

1

Manufacturer:

Equipment:

Microphor

Gravity

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted	otherwise)	*				
	34000	39940	32000 Slagger Street	39970	NA NA	NA NA
	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	NA	
Quantity of cars	4	1	3	1	NA	NA
Capacity (# people) - seated Toilets per car	75 <sup>.</sup> 6	72 4	44 12	86 2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
Car Waste Data (per car)				•		
Black Water:						
Human Waste/day (gals)	33.68	32.33	19.76	38.61	<sup>®</sup> NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	99.3	95.4	58.3	113.9	NA	NA
Capacity Req'd/day (gals)	133.0	127.7	78.0	152.5	NA	NA
Adj. Capacity Req'd w/ Buffer	166.3	159.6	97.5	190.6	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	43 60%	45 63%	74 103%	38 52%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	1.8	1.9	3.1	1.6	NA	NA
As a percentage of 3 days	60.15%	62.65%	102,53%	52.45%	NA	NA
Consecutive Trips before pumpout	1.0	1.0	1.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	\$30,000	<u>\$20,000</u>	<u>\$60,000</u>	\$10,000	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$40,000	\$30,000	\$70,000	\$20,000	NA	NA NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	\$1,728	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,304	\$1,728	\$4,032	\$1,152	NA	NA
Total Capital Cost	\$42,304	\$31,728	\$74,032	\$21,152	NA NA	NA
			<del></del>		<del></del>	

Amtrak Route:	Command I institute of		-Route Number:	_#1-2		
	Sunset-Limited	A manina	Monta tantingi	-#-1-2		
Origin/Destination:	New Orleans-Los	Angeles				
Length in Miles:	2,033					
Length in Hours:	43.00					
Expected Trips per Day:	1					
Manufacturer:	Microphor					
Equipment:	Gravity					
Scenario:	Expected					
* All data on per car basis (unless noted o	•					
	34000	39940	32000	39970	NA NA	NA
ADED 4711/0 00070	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	NA	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	NA
Frequency per Year	3	3	3	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$1,296	\$864	\$2,592	_	NA NA	NA NA
Annual spare parts cost per yr	\$1,200	\$900	\$2,100	\$600	NA NA	NA
Total- Opring Non-Trip Related	\$2,496	\$1,764	\$4,692		NA NA	NA NA
rotal opting from the from to	Ψ2,430	ψ1,70 <del>4</del>	Ψ4,032	V1,002		
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing				•		
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$1.33	\$1.28	\$0.78	\$0.00	NA	NA
- Pump out minutes	2.22	2.13	1.30	0.00	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	\$4.05	\$3.89	\$2.38	\$4.65	NA	NA
Subtotal- End of Day/Trip Srvc	\$41.38	\$29.17	\$75.16		NA	NA.
Train Delay:	******	<b>V</b>	***	******		
- Pump out volume reg'd	0	0	0	300	NA	NA
- # of stops req'd	0	ō	ō	1	NA NA	NA.
- Pump out minutes	0.0	0.0	0.0	5.0	NA.	NA NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA NA	NA NA
- Total Time Delay(mins/car)	<u>0.0</u> 0	<u>0.0</u> 0	<u>9.9</u> 0	<u>5.0</u> 5	NA	· NA
Average Cost Per Delay	\$0	\$0	\$0	\$3	NA.	NA NA
Subtotal- Opring Trip Related	\$41	\$29	\$75	\$20	NA.	. NA
Gabiotal- Opining Trip Helated		Ψ29	Ψ/3	Ψ20		11/1
Total # Cars in fleet	91	21	68	6	NA	ŅA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adiusted Tatal Con days	00.054	r 000	47.074	4 500	A.A.	
Adjusted Total Car-days	23,251	5,366	17,374	1,533	NA 2	NA
Days per Trip (min. of 1)	2	2	2	2	2	2
Annual Oprtng Trip Related per Car	\$5,286	\$3,726	\$9,601	\$2,510	NA	NA
Annual Non-Trip Related per Car	\$2,496	\$1,764	\$4,692	\$1,032	NA	NA
Annual Oprtng Trip Related per Car Type	\$481,066	\$78,245	\$652,888	\$15,058	NA	NA
Annual Non-Trip Related per Car Type	<u>\$227,136</u>	<u>\$37,044</u>	<u>\$319,056</u>	<u>\$6,192</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$7,782	\$5,490	\$14,293	\$3,542	NA	NA
Total CAPITAL COST per Car	\$42,304	\$31,728	\$74,032		NA	NA
,	,,	,	,-3=			
Total OPRTNG COST for all cars	\$708,202	\$115,289	\$971,944	\$21,250	NA	NA NA
Total CAPITAL COST for all cars	\$3,849,664		\$5,034,176		NA	NA NA
	, ,,, <del>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</del>	\$300, <u>200</u>	ψο,σοπ, ι 7 σ	Ψ120,312;	TION STATE	

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033

Expected Trips per Day:

43.00

Manufacturer:

Evac

Equipment:

Ultimate

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	otherwise)					
	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA <u>NA</u>	NA NA
0	<del></del>	<u> </u>				<del></del>
Quantity of cars	4	1	3	1	NA	NA
Capacity (# people) - seated Toilets per car	75 6	72 4	44 12	86 2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	27.1	26:1	15.9	31.1	NA	NA
Capacity Req'd/day (gals)	60.8	58.4	35.7	69.7	NA	NA
Adj. Capacity Req'd w/ Buffer	76.0	73.0	44.6	87.2	, NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	63 88%	66 91%	108 149%	55 6 76%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	2.6	2.7	4.5	2.3	NA	NA
As a percentage of 3 days	87.69%	91.35%	149.48%	6 76.48%	NA	NA
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$17,400</u>	<u>\$11,600</u>	<u>\$34,800</u>	<u>\$5,800</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$29,400	\$23,600	\$46,800	\$17,800	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1.728</u>	<u>\$1.152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$3,168	\$2,592	\$4,896	\$2,016	NA	NA
Total Capital Cost	\$32,568	\$26,192	\$51,696	\$19,816	NA	NA_

## **Arthur D Little**

Sunset Limited Route Number: #1-2 Amtrak Route: Origin/Destination: New Orleans-Los Angeles Length in Miles: 2.033 43.00 Length in Hours: Expected Trips per Day: Manufacturer: Evac Equipment: Ultimate Expected Scenario: \* All data on per car basis (unless noted otherwise) 39970 32000 NA NA 39940 Coach-HEP-HLV Lounge-HEP-HLV NA Sleeper Super NA Coach Super **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$432 \$288 \$864 \$144 NA NA Frequency per Year 3 3 3 3 3 3 Servicing Cost/Year \$864 \$2,592 \$432 NA NA \$1,296 Annual spare parts cost per yr \$708 \$1,404 \$534 <u>NA</u> <u>NA</u> \$882 Total- Oprtng Non-Trip Related \$2,178 \$1,572 \$3,996 \$966 NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$36 \$24 \$72 \$12 NA NA \$0 \$0 - Light Repair \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.61 \$0.58 \$0.36 \$0.70 NA NA - Pump out minutes 1.01 0.97 0.59 1.16 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NA NA - Waste Disposal \$1.85 \$1.78 \$1.09 \$2.12 NA NA Subtotal- End of Day/Trip Srvc \$38.46 \$26.36 \$73.44 \$14.82 NA NA Train Delay: NA NA - Pump out volume reg'd ٥ ٥ ٥ 0 - # of stops reg'd 0 0 0 0 NA NA - Pump out minutes 0.0 0.0 0.0 0.0 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NA NA NA NA - Total Time Delay(mins/car) 0 0 0 0 Average Cost Per Delay \$0 \$0 \$0 \$0 NA NA Subtotal-Oprtng Trip Related \$38 \$26 \$73 \$15 NA NA Total # Cars in fleet 91 6 NA NA 21 68 Total Annual Car-days 33.215 7.665 24,820 2.190 NA NA Adjusted Total Car-days 23,251 5,366 17.374 1.533 NA NA Days per Trip (min. of 1) 2 2 2 2 2 2 Annual Opring Trip Related per Car \$4,913 \$3,368 \$9,382 \$1,893 NA NA Annual Non-Trip Related per Car \$2,178 \$1,572 \$3,996 \$966 NA Annual Oprtng Trip Related per Car Type \$447,114 \$70,723 \$638,004 \$11,361 NA NA Annual Non-Trip Related per Car Type \$198,198 \$33,012 \$271,728 \$5,796 <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$7,091 \$4,940 \$13,378 \$2,859 NA NA Total CAPITAL COST per Car \$32,568 \$26,192 \$51,696 \$19,816 NA NA Total OPRTNG COST for all cars \$645,312 NA NA \$103,735 \$909,732 \$17,157

Total CAPITAL COST for all cars

\$2,963,688

\$550,032

\$3,515,328

\$118,896

Route Number: Amtrak Route: Sunset Limited Origin/Destination: New Orleans-Los Angeles Length in Miles: 2,033 Length in Hours: 43.00 Expected Trips per Day: Manufacturer: Railtech Equipment: WTS 8300 Scenario: Expected \* All data on per car basis (unless noted otherwise) 39970 34000 39940 32000 Lounge-HEP-HLV Sleeper Super NA NA Coach-HEP-HLV Coach Super NA NA Quantity of cars 3 1 86 NA NA Capacity (# people) - seated 75 72 44 NA 6 12 2 NA Toilets per car NA Average persons/toilet on train 12.5 18.0 3.7 43.0 NA Car Waste Data (per car) Black Water: NA 19.76 38.61 NA Human Waste/day (gals) 33.68 32.33 7.00 7.00 7.00 7.00 7.00 7.00 # Flushes/Person-day 1.10 1.10 1.10 1.10 Flush efficiency adjustment 1.10 1.10 7.7 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 0.263 0.263 0.263 0.263 0.263 0.263 Flush Fluids/flush (gals) 174.3 NA NA 152.0 145.9 89.2 Flush Fluids/day (gals) Capacity Req'd/day (gals) 185.6 178.2 108.9 212.9 NA NA Adj. Capacity Reg'd w/ Buffer 232.1 222.8 136.1 266.1 NA NA NA 100 NA Tank Capacity per Car (gals) 150 100 300 53 NA NA Continuous Service Hours Supported 16 73% 13% NΑ NA 22% 15% As a percentage of 72 hours 24 24 24 24 Probable Service Hours per Day 24 24 0.4 NA NA 22 Service Days Supported 0.6 0.4 14.96% 73.45% 12.53% NA NA 21.55% As a percentage of 3 days 0.0 1.0 0.0 NA NA Consecutive Trips before pumpout 0.0 **CAPITAL COSTS** \$8,000 \$24,000 \$8,000 NA NA Collection System per Car \$12,000 Toilet Cost per Car \$18,000 \$12,000 \$36,000 \$6,000 <u>NA</u> NA \$30,000 \$20,000 \$60,000 \$14,000 NA NA - Total Equip Cost Equipment Installation

\$576

\$1,152

\$1,728

\$21,728

\$1,728

\$3,456

\$5,184

\$65,184

\$576

\$576

\$1,152

\$15,152

NA

<u>NA</u>

NA

NA

NA

<u>NA</u>

NA

NA

\$864

\$1,728

\$2,592

\$32,592

### **Arthur D Little**

Collection System per Car

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

Route Number: Amtrak Route: Sunset Limited #1-2 New Orleans-Los Angeles Origin/Destination: Length in Miles: 2,033 Length in Hours: 43.00 Expected Trips per Day: Manufacturer: Railtech WTS 8300 Equipment: Scenario: Expected \* All data on per car basis (unless noted otherwise) 39970 34000 39940 32000 NA NA Lounge-HEP-HLV Coach Super Coach-HEP-HLV Sleeper Super NA NA **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$432 \$288 \$864 \$144 NA NA Frequency per Year 3 3 3 3 3 3 Servicing Cost/Year \$1,296 \$864 \$2,592 \$432 NA NA Annual spare parts cost per yr \$900 \$600 \$1,800 \$420 <u>NA</u> <u>NA</u> Total- Opring Non-Trip Related \$4,392 \$852 NA \$2,196 \$1,464 NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$36 \$24 \$72 \$12 NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$6.66 \$4.98 \$1.09 \$5.33 NΑ NA - Pump out minutes 0.59 1.30 1.82 1.88 NA NA - Connect/Disc. minutes 10.5 7.0 0.0 7.0 NA NA - Waste Disposal \$5.65 \$5.43 \$3.32 \$6.48 <u>NA</u> <u>NA</u> Subtotal- End of Day/Trip Srvc \$48.31 \$34.41 \$76.41 \$23.81 NA NA Train Delay: - Pump out volume reg'd 150 100 n 100 NA NA - # of stops req'd 0 NA NA 1 1 1 - Pump out minutes 2.5 1.7 0.0 1.7 NA NA - Connect/Disc. minutes 10.5 7.0 0.0 7.0 <u>NA</u> <u>NA</u> - Total Time Delay(mins/car) 13 9 0 9 NA NA Average Cost Per Delay \$8 \$5 \$0 \$5 NA NA Subtotal-Oprtng Trip Related \$56 \$40 \$76 \$29 NA NA Total # Cars in fleet 91 21 NA 68 6 NA Total Annual Car-days 33.215 7.665 24,820 2,190 NA NA Adjusted Total Car-days 23,251 5,366 17,374 1,533 NA NA Days per Trip (min. of 1) 2 2 2 2 2 2 Annual Oprtng Trip Related per Car \$7,168 \$5,060 \$9,761 \$3,706 NA NA Annual Non-Trip Related per Car \$2,196 \$852 \$1,464 \$4,392 NA NA Annual Opring Trip Related per Car Type \$652,305 \$106,265 \$663,743 \$22,238 NA NA Annual Non-Trip Related per Car Type \$199,836 \$30,744 \$298,656 \$5,112 <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$9,364 \$6,524 \$14,153 \$4,558 NA NA Total CAPITAL COST per Car \$32,592 \$21,728 \$65,184 \$15,152 NΑ NA

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

\$852,141

\$2,965,872

\$137,009

\$456,288

\$962,399

\$4,432,512

\$27,350

\$90,912

NA

NA

NA

Amtrak Route: California Zephyr Origin/Destination: Chicago-Oakland Length in Miles: 2,422 Length in Hours: 51.17 Expected Trips per Day: Manufacturer: Monogram Equipment: Scenario: Expected

Modified Vacuum \* All data on per car basis (unless noted otherwise) 39900 32000 31000 34000 NA Trans Dorm Coach Sleeper Super Bag Coach Super Coach Super NA <u>NA</u> NA NA Quantity of cars 3 3 5 78 75 NA NA Capacity (# people) - seated 40 44 Toilets per car 4 12 5 6 NA NA Average persons/toilet on train 10.0 3.7 15.6 12.5 NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 19.76 35.02 33.68 NA NA 17.96 # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.063 0.063 0.063 0.063 0.063 0.063 Flush Fluids/day (gals) 19.4 21.3 37.8 36.4 NA NA Capacity Req'd/day (gals) 37.4 41.1 72.9 70 1 NA NA NA NA Adj. Capacity Req'd w/ Buffer 46.7 51.4 91.1 876 235 235 235 235 235 235 Tank Capacity per Car (gals) Continuous Service Hours Supported 121 110 62 64 NA NA NA NA 86% 89% 168% 152% As a percentage of 72 hours Probable Service Hours per Day 24 24 24 24 24 24 5.0 2.6 2.7 NA NA 4.6 Service Days Supported As a percentage of 3 days 167.72% 152,47% 86.01% 89.45% NA NA 2.0 2.0 1.0 1.0 NA NA Consecutive Trips before pumpout **CAPITAL COSTS** Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 Toilet Cost per Car \$10,000 \$30,000 \$12,500 \$15,000

\$51,000

\$1,440

\$3,456

\$4,896

\$55,896

\$33,500

\$1,440

\$1,440

\$2,880

\$36,380

\$36,000

\$1,440

\$1,728

\$3,168

\$39,168

\$31,000

\$1,440

\$1,152

\$2,592

\$33,592

Route Number:

#5-6

<u>NA</u>

NA

<u>NA</u>

NA

NA

\$1,440

NA

NΑ

NA

NA

\$1,440

#### **Arthur D Little**

- Total Equip Cost

Equipment Installation

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

Collection System per Car

	California Zephyr		Route Number:	#5-6		
Origin/Destination:	Chicago-Oakland					
ength in Miles:	2,422					
ength in Hours:	51.17					
expected Trips per Day:	1					
Aanufacturer:	Monogram					
Equipment:	Modified Vacuum					
Scenario:	Expected				•	•
' All data on per car basis (unless noted o	therwise)		•			
•	39900 Taran Daran Caran	32000	31000	34000 Casab Super	NA NA	!
PERATING COSTS	Trans Dorm Coach	Sleeper Super	Bag Coach Super	Coach Super	<u>NA</u>	<u> </u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	ı
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	
Servicing Cost/Year	\$864	\$2,592	\$1,080	\$1,296	NA	ı
Annual spare parts cost per yr	<u>\$930</u>	<u>\$1,530</u>	<u>\$1,005</u>	<u>\$1,080</u>	<u>NA</u>	1
Total- Opring Non-Trip Related	\$1,794	\$4,122	\$2,085	\$2,376	NA	1
						,
rip Related Costs: Toilet maintenance enroute						
End of Day/Trip Servicing						
Cleaning	\$24	\$72	\$30	\$36	NA	
· Light Repair	\$0	\$0	\$0	\$0	\$0	\$
Pump out and Disposal						
Pump out Cost	\$0.37	\$0.41	\$0.73	\$0.70	NA	
- Pump out minutes	0.62	0.69	1.21	1.17	NA	
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	
- Waste Disposal	\$1.35	\$1,49	\$2.64	\$2.54	NA	
Subtotal- End of Day/Trip Srvc	\$25.73	\$73.90	\$33.37	\$39.24	NA	
Train Delay:	<b>V</b> ==	*	<b>*</b>	¥		
- Pump out volume req'd	0	0	0	0	NA	
- # of stops req'd	0	0	0	0	NA NA	
- Pump out minutes	0.0	0.0	0.0	0.0	NA	
- Connect/Disc, minutes	0.0 0.0		0.0 0.0	0.0	NA NA	
	<u>0,0</u> 0	<u>0.0</u> 0	<u>0.0</u> 0	<u>0.0</u> 0	NA NA	
- Total Time Delay(mins/car)		_	_			i
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	
Subtotal-Oprtng Trip Related	\$26	\$74	\$33	\$39	NA NA	
otal # Cars in fleet	36	68	48	91	NA	
otal Annual Car-days	13,140	24,820	17,520	33,215	NA	
djusted Total Car-days	9,198	17,374	12,264	23,251	NA	
ays per Trip (min. of 1)	3	3	3	25,251 <u>3</u>	3	
		-	_	<b>-</b>	<del>-</del>	
nnual Oprtng Trip Related per Car	\$2,191	\$6,294	\$2,842	\$3,342	NA	
nnual Non-Trip Related per Car	\$1,794	\$4,122	\$2,085	\$2,376	NA	
nnual Oprtng Trip Related per Car Type	\$78,882	\$427,984	\$136,414	\$304,115	NA	
nnual Non-Trip Related per Car Type	<u>\$64,584</u>	\$280,296	\$100,080	<u>\$216,216</u>	NA	
otal OPRTNG COST per Car	\$3,985	\$10,416	64.007	¢5 740	NA	
ora ora ma oco i per car	\$3,592	\$10,416 \$55,896	\$4,927 \$36,380	\$5,718 \$39,168	NA NA	
otal CAPITAL COST per Car						

Route Number: #5-6 Amtrak Route: California Zephyr Origin/Destination: Chicago-Oakland Length in Miles: 2,422 Length in Hours: 51.17 Expected Trips per Day: Manufacturer: Monogram Equipment: Self-Cont'd Recirc Scenario: Expected \* All data on per car basis (unless noted otherwise) 31000 34000 NA 32000 NA NA Trans Dorm Coach Bag Coach Super Coach Super NΑ Sleeper Super NA 3 3 5 NA Quantity of cars 1 75 NA Capacity (# people) - seated 40 44 78 NA 12 5 6 NA NA Toilets per car 4 NA Average persons/toilet on train 10.0 3.7 15.6 12.5 NA Car Waste Data (per car) Black Water: 17.96 19.76 35.02 33.68 NA NA Human Waste/day (gals) # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 7.7 7.7 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.000 0.000 0.000 0.000 0.000 0.000 Flush Fluids/day (gals) 0.0 0.0 0.0 NA NA 0.0 33.7 Capacity Reg'd/day (gals) 18.0 19.8 35.0 NA NA Adj. Capacity Req'd w/ Buffer 22.5 24.7 43.8 42.1 NA NA 67.5 81 NA NA Tank Capacity per Car (gals) 54 162 Continuous Service Hours Supported 58 157 37 46 NA NA 51% 64% 219% NA NA As a percentage of 72 hours 80% 24 24 24 24 24 24 Probable Service Hours per Day 1.5 NA NA Service Days Supported 2.4 6.6 19 51.40% 64.14% NA NA 80.18% 218.67% As a percentage of 3 days 1.0 3.0 0.0 0.0 NA NA Consecutive Trips before pumpout CAPITAL COSTS \$0 \$0 \$0 \$0 \$0 \$0 Collection System per Car \$16,250 \$19,500 <u>NA</u> Toilet Cost per Car \$13,000 \$39,000 <u>NA</u>

\$39,000

\$3,456

\$3,456

\$42,456

\$0

\$16,250

\$1,440

\$1,440

\$17,690

\$0

\$19,500

\$1,728

\$1,728

\$21,228

\$0

NA

\$0

<u>NA</u>

NA

NA

NA

\$0

<u>NA</u>

NA NA

\$13,000

\$1,152

\$1,152

\$14,152

\$0

- Total Equip Cost

Equipment Installation
Collection System per Car

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

	Amtrak Route:	California Zephyr		Route Number:	#5-6		
	Origin/Destination:	Chicago-Oakland					
	Length in Miles:	2,422					
	Length in Hours:	51.17					
	Expected Trips per Day:	1					
	Manufacturer:	Monogram					
	Equipment:	Self-Cont'd Recirc	·		•		
	Scenario:	Expected					
	* All data on per car basis (unless noted o	•					
	The date of por our busic (affects folder)	39900	32000	31000	34000	NA	NA
		Trans Dorm Coach		Bag Coach Super	Coach Super	NA NA	NA NA
	OPERATING COSTS Non-Trip Related Costs:						
	Labor cost/major servicing	\$1,152	\$3,456	\$1,440	\$1,728	NA	NA
	Frequency per Year	3	3	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
	Servicing Cost/Year	\$3,456	\$10,368		\$5,18 <b>4</b>	NA	NA
	Annual spare parts cost per yr	\$3 <u>90</u>	\$1,170		\$58 <u>5</u>	NA NA	NA NA
	Total- Opring Non-Trip Related	\$3,846	\$11,538		\$5,769	NA	NA NA
	Totals Objuild House trib Helated	\$3,840	ψ11,500	<b>\$4,000</b>	\$5,769	INA	
	#1 B L . 10						
	Trip Related Costs:				•		
	Toilet maintenance enroute	,					
	End of Day/Trip Servicing		A=-	***	***	***	
	- Cleaning	\$24	\$72		\$36	NA	NA
	- Light Repair	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
	Pump out and Disposal						
	- Pump out Cost	\$0.18	\$0.20	•	\$12.60	NA	NA
	- Pump out minutes	0.30	0.33	0.00	0.00	NA	NA
•	- Connect/Disc. minutes	0.0	0.0	17.5	21.0	NA	NA
	- Waste Disposal	<u>\$0.84</u>	<u>\$0.93</u>	<u>\$1.64</u>	<b>\$1</b> .58	<u>NA</u>	<u>NA</u>
	Subtotal- End of Day/Trip Srvc	\$25.02	\$73.12	\$42.14	\$50.18	NA	NA
,	Train Delay:						
	<ul> <li>Pump out volume req'd</li> </ul>	0	0	68	81	NA	· NA
	- # of stops req'd	0	0	1	1	NA	NA
	- Pump out minutes	0.0	. 0.0	1.1	1.4	NA	NA
	- Connect/Disc. minutes	<u>0.0</u>	0.0	<u>17.5</u>	21.0	NA ·	<u>NA</u>
	- Total Time Delay(mins/car)		0	19	22	NA NA	NA
	Average Cost Per Delay	\$0	· \$0	\$11	\$13	NA	NA
	Subtotal- Oprtng Trip Related	\$25	\$73	\$53	\$64	NA	NA
	, ,						
•	Total # Cars in fleet	36	68	48	91	NA	NA
	Total # Gard III House	00	00	70	31	INA	INA
	Total Annual Car-days	12 140	04.000	17 500	22.015	NIA	A
	Total Attitual Cal-days	13,140	24,820	17,520	33,215	NA	NA
	Adjusted Total Car-days	0.100	47.074	12,264			
		9,198	17,374		23,251	NA	, NA
	Days per Trip (min. of 1)	3	3	<u>3</u>	<u>3</u>	<u>3</u>	3
	A	<b>.</b>					
	Annual Oprtng Trip Related per Car	\$2,131	\$6,228	\$4,541	\$5,416	NA	NA
	Annual Non-Trip Related per Car	\$3,846	\$11,538	\$4,808	\$5,769	NA	NA
					*		
	Annual Opring Trip Related per Car Type	\$76,718	\$423,487	\$217,963	\$492,830	NA	NA
	Annual Non-Trip Related per Car Type	<u>\$138.456</u>	<u>\$784,584</u>	<u>\$230,760</u>	<u>\$524,979</u>	<u>NA</u>	NA.
	Total OPRTNG COST per Car	\$5,977	\$17,766	\$9,348	\$11,185	NA	NA
	Total CAPITAL COST per Car	\$14,152	\$42,456	\$17,690	\$21,228	NA	NA
	Total OPRTNG COST for all cars	\$215,174	\$1,208,071	\$448,723	\$1,017,809	NA NA	NA
	Total CAPITAL COST for all cars	\$509,472	\$2,887,008	- Y	\$1,931,748	NA	NA

Amtrak Route: Route Number: #5-6 California Zephyr Origin/Destination: Chicago-Oakland Length in Miles: 2.422 Length in Hours: 51.17 Expected Trips per Day: Manufacturer: Microphor Equipment: Gravity Scenario: Expected \* All data on per car basis (unless noted otherwise) 34000 31000 NA NA 32000 Trans Dorm Coach Sleeper Super Bag Coach Super Coach Super NA <u>NA</u> Quantity of cars 1 3 3 5 NΑ NA 40 78 75 NA NA Capacity (# people) - seated 44 5 NA Toilets per car 4 12 6 NA 10.0 12.5 NA NA Average persons/toilet on train 3.7 15.6 Car Waste Data (per car) Black Water: 17.96 Human Waste/day (gals) 19.76 35.02 33.68 NA NA # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 0.172 0.172 0.172 0.172 Flush Fluids/flush (gals) 0.172 0.172 Flush Fluids/day (gals) 53.0 58.3 103.3 99.3 NA NA Capacity Req'd/day (gals) 70.9 78.0 138.3 133.0 NA NA Adj. Capacity Req'd w/ Buffer 88.7 97.5 172.9 166.3 NA NA Tank Capacity per Car (gals) 300 300 300 300 300 300 Continuous Service Hours Supported 74 43 NA NA 113% 103% NA NA As a percentage of 72 hours 58% 60% 24 24 24 24 24 Probable Service Hours per Day 24 Service Days Supported 3.4 1.7 1.8 NA NA 3.1 112.78% 102.53% 57.83% 60.15% 'NA NA As a percentage of 3 days 0.0 0.0 NA Consecutive Trips before pumpout 1.0 1.0 NA **CAPITAL COSTS** Collection System per Car \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 Toilet Cost per Car \$20,000 \$60,000 \$25,000 \$30,000 <u>NA</u> <u>NA</u> - Total Equip Cost \$30,000 \$70,000 \$35,000 \$40,000 NA NA Equipment Installation \$576 Collection System per Car \$576 \$576 \$576 \$576 \$576 Toilet Cost per Car \$1,152 \$3,456 \$1,440 \$1,728 <u>NA</u> <u>NA</u> NA - Total Installation Cost \$1,728 \$4,032 \$2,016 \$2,304 NA

\$74,032

\$37,016

\$42,304

NA

NA

\$31,728

**Total Capital Cost** 

Amtrak Route:	_California Zephyr		Route Number:	#5-6		
Origin/Destination:	Chicago-Oakland		_UODIA_IAGUIDA!	#J-0		
Length in Miles:	2,422	•				
Length in Hours:	51.17	· e				
Expected Trips per Day:	1					
Manufacturer:	Microphor			•		
Equipment:	Gravity					
Scenario:	Expected		·			
* All data on per car basis (unless noted of	•	<b>'6.</b>				
All data on per dai basis (diffess floted o	39900	32000	31000	34000	NA	NA
	Trans Dorm Coach		Bag Coach Super	Coach Super	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:					_	_
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$864	\$2,592	\$1,080	\$1,296	NA ·	-NA
Annual spare parts cost per yr	<u>\$900</u>	<u>\$2,100</u>	<u>\$1,050</u>	<u>\$1,200</u>	. <u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,764	\$4,692	\$2,130	\$2,496	NA NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing			•	•		
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal					•	
- Pump out Cost	\$0.71	\$0.78	\$0.00	\$0.00	NA	NA
- Pump out minutes	1.18	1.30	0.00	0.00	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$2.57</u>	<u>\$2.83</u>	<u>\$5.01</u>	<u>\$4.82</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$27.28	\$75.61	\$35.01	\$40.82	NA	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	300	300	NA	NA
- # of stops req'd	0	0	1	1	NA	NA
- Pump out minutes	0.0	0.0	5.0	5.0	NA	NA
- Connect/Disc, minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	5	5	NA	NA
Average Cost Per Delay	\$0	\$0	\$3	\$3	, NA	NA
Subtotal- Opring Trip Related	\$27	\$76	\$38	\$44 -	NA NA	NA
Total # Cars in fleet	36	68	48	91	ŅA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Adjusted Total Car-days	9,198	17,374	12,264	23,251	NA NA	NA
Days per Trip (min. of 1)	3	<u>3</u>	3	3	3	<u>3</u>
Annual Opring Trip Related per Car	\$2,323	\$6,439	\$3,237	\$3,732	NA	NA
Annual Non-Trip Related per Car	\$1,764	\$4,692	\$2,130	\$2,496	NA NA	NA NA
	<b>7.1.</b>	V 1,002	<b>42</b> ,.00	42,100		
Annual Oprtng Trip Related per Car Type	\$83,642	\$437,874	\$155,400	\$339,619	NA	NA
Annual Non-Trip Related per Car Type	<u>\$63,504</u>	<u>\$319,056</u>	<u>\$102,240</u>	<u>\$227,136</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$4,087	\$11,131	\$5,367	\$6,228	NA	NA
Total CAPITAL COST per Car	\$31,728	\$74,032	\$37,016	\$42,304	NA	ŅA
T-4-LODDING COOT	in indiana	0750 055	, Agemmia 15	ئىلىنىدىنىدىنىدىنىدىنىدىنىدىنىدىنىدىنىدىن	<ul> <li></li></ul>	4, 5, 1, 71 - 200 <b>214323</b>
Total OPRTNG COST for all cars	\$147,146	\$756,930	\$257,640	\$566,755	NA	NA NA
Total CAPITAL COST for all cars	\$1,142,208	\$5,034,176	\$1,776,768	\$3,849,664	NA	NA

Amtrak Route: #5-6 Route Number: California Zephyr Origin/Destination: Chicago-Oakland Length in Miles: 2,422 Length in Hours: 51.17 Expected Trips per Day: Manufacturer: Evac Equipment: Ultimate Scenario: Expected \* All data on per car basis (unless noted otherwise) 34000 32000 31000 NA NA Trans Dorm Coach Bag Coach Super NA NA Coach Super Sleeper Super Quantity of cars 1 3 3 NA NA Capacity (# people) - seated 40 78 75 NA 44 NA 5 NA Toilets per car 4 12 6 NA Average persons/toilet on train 10.0 3.7 15.6 12.5 NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 17.96 19.76 35.02 33.68 NA NA # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 1.10 1.10 Flush efficiency adjustment 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.047 0.047 0.047 0.047 0.047 0.047 Flush Fluids/day (gals) 14.5 15.9 28.2 27.1 NA NA Capacity Req'd/day (gals) 32.4 35.7 63.3 60.8 NA NΑ Adj. Capacity Req'd w/ Buffer 40.5 44.6 79.1 76.0 NA NA Tank Capacity per Car (gals) 200 200 200 200 200 200 Continuous Service Hours Supported 118 108 61 NA NA 88% As a percentage of 72 hours 164% 149% 84% NA NA 24 Probable Service Hours per Day 24 24 24 24 24 Service Days Supported 4.9 4.5 2.5 2.6 NA NA 164.43% As a percentage of 3 days 149.48% 84.32% 87.69% NA NA Consecutive Trips before pumpout 2.0 2.0 1.0 1.0 NA NA **CAPITAL COSTS** Collection System per Car \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 Toilet Cost per Car \$11,600 \$34,800 \$14,500 \$17,400 <u>NA</u> <u>NA</u> - Total Equip Cost \$23,600 \$46,800 \$26,500 \$29,400 NA NA **Equipment Installation** Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440

\$3,456

\$4,896

\$51,696

\$1,440

\$2,880

\$29,380

\$1,728

\$3,168

\$32,568

<u>NA</u>

NA

NA

<u>NA</u>

NA

NA

\$1,152

\$2,592

\$26,192

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

Amtrak Route:	California Zephyr		Route Number:	#5-6		
	Chicago-Oakland				<del></del>	
Length in Miles:	2,422					
Length in Hours:	51.17					
Expected Trips per Day:	1					
· · ·	Evac					
Equipment:	Ultimate					
	Expected					
* All data on per car basis (unless noted otl	nerwise)					
•	39900 Trans Dorm Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:		<del></del>			_	_
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$864	\$2,592	\$1,080	\$1,296	NA	NA
Annual spare parts cost per yr	\$708	\$1,404	\$795	\$882	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,572	\$3,996	\$1,875	\$2,178	NA NA	NA
-			· · · · · · · · · · · · · · · · · · ·			
Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	•	••	••	75	•	
- Pump out Cost	\$0.32	\$0.36	\$0.63	\$0.61	NA	NA
- Pump out minutes	0.54	0.59	1.05	1.01	NA NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA.	NA
- Waste Disposal	\$1.18	\$1.29	\$2.29	\$2.20	NA	NA NA
Subtotal- End of Day/Trip Srvc	\$25.50	\$73.65	\$32.93	\$38.81	NA	NA
Train Delay:	Ψ23.30	Ψ/3.03	φυ2.50	ψ50.01	1373	IN/A
- Pump out volume req'd	0	0	0	0	NA	NA
- # of stops req'd	0	0	0	0	NA NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA NA	NA NA
- Connect/Disc. minutes	0.0	0.0	0.0	<u>0.0</u>	NA NA	NA NA
- Total Time Delay(mins/car)	<u>0.0</u> 0	0.0	<u>9.9</u> 0	0 0	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA NA	NA.
Subtotal- Opring Trip Related	\$26	\$74	\$33	\$39	NA NA	NA.
					<del> </del>	
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Adjusted Total Car-days	9,198	17,374	12,264	23,251	NA	NA
Days per Trip (min. of 1)	3	3	3	3	3	3
		-	-	-	-	-
Annual Oprtng Trip Related per Car	\$2,172	\$6,273	\$2,804	\$3,306	NA	NA
Annual Non-Trip Related per Car	\$1,572	\$3,996	\$1,875	\$2,178	NA	NA
Annual Oprtng Trip Related per Car Type	\$78,183	\$426,532	\$134,598	\$300,804	NA	NA
Annual Non-Trip Related per Car Type	<u>\$56,592</u>	\$271,728	\$90,000	<u>\$198,198</u>	<u>NA</u>	NA
Total OPRTNG COST per Car	\$3,744	\$10,269	\$4,679	\$5,484	NA	NA
Total CAPITAL COST per Car	\$26,192	\$51,696	\$29,380	\$32,568	NA NA	NA NA
		•		•		
Total OPRTNG COST for all cars	\$134,775	\$698,260	\$224,598	\$499,002	NA	NA
Total CAPITAL COST for all cars	\$942,912	\$3,515,328	\$1,410,240	\$2,963,688	NA	NA

,

Amtrak Route: Route Number: #5-6 California Zephyr Origin/Destination: Chicago-Oakland Length in Miles: 2,422 51.17 Length in Hours: Expected Trips per Day: Railtech Manufacturer: WTS 8300 Equipment: Scenario: Expected \* All data on per car basis (unless noted otherwise) 31000 34000 NA NA 32000 NA <u>NA</u> Trans Dorm Coach Sleeper Super **Bag Coach Super** Coach Super NA NA 3 3 5 Quantity of cars 1 NA 75 NA 40 44 78 Capacity (# people) - seated NA 12 5 6 NA Toilets per car 12.5 NA NA 10.0 3.7 15.6 Average persons/toilet on train Car Waste Data (per car) Black Water: Human Waste/day (gals) NA 17 96 19.76 35.02 33.68 NA 7.00 7.00 7.00 7.00 7.00 # Flushes/Person-day 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 7.7 7.7 7.7 7.7 Adj. # Flushes/Person-day 7.7 7.7 0.263 Flush Fluids/flush (gals) 0.263 0.263 0.263 0.263 0.263 81.1 89.2 158.1 152.0 NA NA Flush Fluids/day (gals) 193.1 185.6 NA NA Capacity Req'd/day (gals) 99.0 108.9 NA Adj. Capacity Req'd w/ Buffer 123.8 136.1 241.3 232.1 NA NA NA 150 Tank Capacity per Car (gals) 100 300 150 NA NA 15 16 Continuous Service Hours Supported 19 53 73% NA NA 21% 22% 27% As a percentage of 72 hours 24 24 24 24 Probable Service Hours per Day 24 24 NA 2.2 0.6 0.6 NA 0.8 Service Days Supported NA 73.45% 20.72% 21.55% NA 26.93% As a percentage of 3 days 0.0 1.0 0.0 0.0 NA NA Consecutive Trips before pumpout **CAPITAL COSTS** NA NA \$8,000 \$24,000 \$12,000 \$12,000 Collection System per Car Toilet Cost per Car \$12,000 \$36,000 \$15,000 \$18,000 <u>NA</u> <u>NA</u> - Total Equip Cost \$20,000 \$60,000 \$27,000 \$30,000 NA NA Equipment Installation NA NA \$864 \$864 Collection System per Car \$576 \$1,728 <u>NA</u> <u>NA</u> \$1,440 \$1,728 Toilet Cost per Car <u>\$1,152</u> <u>\$3,456</u> \$5,184 \$2,304 \$2,592 NA NA - Total Installation Cost \$1,728

\$65,184

\$21,728

\$29,304

\$32,592

NA

NA

**Total Capital Cost** 

	•					•
Amtrak Route:	California Zephyr		Route Number:	#5-6		
Origin/Destination:	Chicago-Oakland			•		
Length in Miles:	2,422					
Length in Hours:	51.17					
Expected Trips per Day:	1					
Manufacturer:	Railtech					
Equipment:	WTS 8300					
Scenario:	Expected					
* All data on per car basis (unless noted of	therwise)					
	39900	32000	31000	34000	NA	NA
	Trans Dorm Coach	Sleeper Super	Bag Coach Super	Coach Super	<u>NA</u>	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	NA
Frequency per Year		•	•		3	
• • •	<u>3</u>	<u>3</u> \$2,592	<u>3</u> \$1,080	<u>3</u> \$1,296	NA NA	<u>3</u> NA
Servicing Cost/Year	\$864					-
Annual spare parts cost per yr	\$600	\$1,800	<u>\$810</u>	\$900	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,464	\$4,392	\$1,890	\$2,196	NA NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing				•		
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$4.20	\$1.09	\$6.73	\$6.66	NA	NA
- Pump out minutes	0.00	1.82	0.72	0.59	NA	NA
- Connect/Disc. minutes	7.0	0.0	10.5	, 10.5	NA	NA
- Waste Disposal	<u>\$3.59</u>	<u>\$3.95</u>	<u>\$7.00</u>	<u>\$6,73</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$31.79	\$77.04	\$43.73	\$49.39	NA	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	100	0	150	150	NA	NA
- # of stops req'd	1	0	1	1	NA	NA
- Pump out minutes	1.7	0.0	2.5	2.5	NA	NA
- Connect/Disc. minutes	<u>7.0</u>	0.0	10.5	<u>10.5</u>	<u>NA</u>	NA.
- Total Time Delay(mins/car)	9		13	13	NA	NA
Average Cost Per Delay	.\$5	\$0	\$8	\$8	NA	NA
Subtotal- Oprtng Trip Related	\$37	\$77	\$52	\$57	NA	NA
					<del></del>	
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Adjusted Total Car-days	9,198	17,374	12,264	23,251	NA	. NA
Days per Trip (min. of 1)	3	3	3	<u>3</u>	<u>3</u>	3
, , , ,		, -	_	_	_	-
Annual Oprtng Trip Related per Car	\$3,150	\$6,561	\$4,389	\$4,870	NA	NA
Annual Non-Trip Related per Car	\$1,464	\$4,392	\$1,890	\$2,196	NA	NA
Annual Oprtng Trip Related per Car Type	\$113,408	\$446,146	\$210,650	\$443,196	NA	NA
Annual Non-Trip Related per Car Type	<u>\$52,704</u>	\$298,656	\$90,720	<u>\$199,836</u>	NA	<u>NA</u>
Total OPRTNG COST per Car	\$4,614	\$10,953	\$6,279	\$7,066	NA	NA
Total CAPITAL COST per Car	\$21,728	\$65,184	\$29,304	\$32,592	NA	NA
·			. ,			
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$166,112 \$782,208	\$744,802 \$4,432,512	\$301,370 \$1,406,592	\$643,032 \$2,965,872	NA NA	

Amtrak Route: Origin/Destination:

Length in Miles:

City of New Orleans

New Orleans-Chicago

924 18.33

Expected Trips per Day:

Length in Hours: Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

	54000 Horizon	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amiounge II</u>	2400(30) <u>Sleeper 10-6</u>
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated	82	48	44	46	49	22
Toilets per car	2	2	3	2	2	17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	39.8	23.3	21.3	22.3	23.8	10.7
Capacity Req'd/day (gals)	58.5	34.2	31.4	32.8	35.0	15.7
Adj. Capacity Req'd w/ Buffer	73.1	42.8	39.2	41.0	43.7	19.6
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	77 107%	132 183%	144 200%	137 191%	129 179%	287 399%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	4.2	7.2	7.8	7.5	7.0	15.7
As a percentage of 3 days	140.26%	239.61%	261.39%	250.02%	234.72%	522.78%
Consecutive Trips before pumpout	4.0	7.0	7.0	7.0	7.0	15.0
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$7,500</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$42,500</u>
- Total Equip Cost	\$26,000	\$26,000	\$28,500	\$26,000	\$26,000	\$63,500
Equipment Installation			•			
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,304	\$2,016	\$2,016	\$6,336
Total Capital Cost	\$28,016	\$28,016	\$30,804	\$28,016	\$28,016	\$69,836

Route Number:

#58

Route Number: #58 Amtrak Route: City of New Orleans Origin/Destination: New Orleans-Chicago Length in Miles: 924 Length in Hours: 18.33 Expected Trips per Day: Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Expected \* All data on per car basis (unless noted otherwise) 4600 9400 28000 2400(30) 4000 Coach (HDCP) Dome Coach **Horizon** Amlounge II Sleeper 10-6 Coach **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$144 \$144 \$216 \$144 \$144 \$1,224 Frequency per Year 3 3 3 3 3 3 Servicing Cost/Year \$432 \$432 \$648 \$432 \$432 \$3,672 \$780 Annual spare parts cost per yr \$780 \$780 \$855 \$780 \$1,905 Total- Oprtng Non-Trip Related \$1,212 \$5,577 \$1,212 \$1,212 \$1,503 \$1,212 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$12 \$12 \$18 \$12 \$12 \$102 - Cleaning - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.59 \$0.34 \$0.31 \$0.33 \$0.35 \$0.16 - Pump out minutes 0.58 0.98 0.57 0.52 0.55 0.26 - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 0.0 - Waste Disposal \$0.99 \$0,58 \$0.56 \$0.59 \$0.53 \$0,27 Subtotal- End of Day/Trip Srvc \$13.58 \$12.92 \$18.85 \$12.89 \$12.94 \$102.42 Train Delay: - Pump out volume reg'd 0 0 0 0 0 0 - # of stops reg'd 0 0 0 0 0 0 - Pump out minutes 0.0 0.0 0.0 0.0 0.0 0.0 - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 0.0

Total Annual Car-days	- 37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	26,317	19,929	5,366	3,066	6,388	20,951
Days per Trip (min. of 1)	1	. 1	1	,1	1	1
Annual Opring Trip Related per Car	\$3,470	\$3,302	\$4,816	\$3,292	\$3,307	\$26,169
Annual Non-Trip Related per Car	\$1,212	\$1,212	\$1,503	\$1,212	\$1,212	\$5,577
Annual Opring Trip Related per Car Type	\$357,365	\$257,574	\$101,126	\$39,509	\$82,679	\$2,145,880
Annual Non-Trip Related per Car Type	<u>\$124.836</u>	<u>\$94,536</u>	<u>\$31,563</u>	<u>\$14.544</u>	\$30,300	<u>\$457.314</u>
Total OPRTNG COST per Car	\$4,682	\$4,514	\$6,319	\$4,504	\$4,519	\$31,746
Total CAPITAL COST per Car	\$28,016	\$28,016	\$30,804	\$28,016	\$28,016	\$69,836

\$2,185,248

0

\$0

\$13

78

0

\$0

\$19

21

\$646,884

0

\$0

\$13

12

\$336,192

0

\$0

25

\$700,400

\$13

0

\$0

82

\$5,726,552

\$102

0

\$0

\$14

103

\$2,885,648

- Total Time Delay(mins/car)

Subtotal-Oprtng Trip Related

Total CAPITAL COST for all cars

Average Cost Per Delay

Total # Cars in fleet

City of New Orleans

Origin/Destination: Length in Miles:

New Orleans-Chicago

Length in Hours:

924 18.33

Expected Trips per Day:

Manufacturer: Equipment:

Monogram

Self-Cont'd Recirc

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

- All data on per car basis (unless noted o	· ·	54000 4600		9400	00 28000		
	Horizon	Coach	4000 Coach (HDCP)	Dome Coach	Amlounge II	2400(30) Sleeper 10-6	
Quantity of cars	1	4	1	1	1	1	
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 2	22 17	
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3	
Car Waste Data (per car)							
Black Water:							
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88	
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00	
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10	
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7	
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000	
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	0.0	0.0	
Capacity Req'd/day (gals)	28.1	16.5	15.1	15.8	16.8	7.5	
Adj. Capacity Req'd w/ Buffer	35.1	20.6	18.9	19.7	21.0	9.4	
Tank Capacity per Car (gals)	27	27	40.5	27	27	229.5	
Continuous Service Hours Supported As a percentage of 72 hours	18 26%	31 44%	52 72%	33 46%	31 43%	584 811%	
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33	
Service Days Supported	1.0	1.7	2.8	1.8	1.7	31.9	
As a percentage of 3 days	33.53%	57.27%	93.72%	59.76%	56.10%	1062.14%	
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	1.0	31.0	
CAPITAL COSTS							
Collection System per Car	\$0	\$0	, <b>\$0</b>	\$0	\$0	\$0	
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$9,750</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$55,250</u>	
- Total Equip Cost	\$6,500	\$6,500	\$9,750	\$6,500	\$6,500	\$55,250	
Equipment Installation							
Collection System per Car	\$0	\$0	- \$0	\$0	<b>\$0</b>	\$0	
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>	
- Total Installation Cost	\$576	\$576	\$864	\$576	\$576	\$4,896	
Total Capital Cost	\$7,076	\$7,076	\$10,614	\$7,076	\$7,076	\$60,146	

Route Number:

#58

•

Amtrak Route: City of New Orleans Route Number: #58

Origin/Destination:

Length in Miles:

Length in Hours:

Sepected Trips per Day:

New Orleans-Chicago

924

18.33

19.33

Manufacturer: Monogram
Fruinment: Self-Cont'd Reci

Equipment: Self-Cont'd Recirc
Scenario: Expected

Scenario:	Expected					
* All data on per car basis (unless noted of	therwise)					
	54000 Horizon	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$864	\$576	\$576	\$4,896
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$1,728	\$1,728	\$2,592	\$1,728	\$1,728	\$14,688
Annual spare parts cost per yr	<u>\$195</u>	<u>\$195</u>	<u>\$293</u>	<u>\$195</u>	<u>\$195</u>	<u>\$1,658</u>
Total- Oprtng Non-Trip Related	\$1,923	\$1,923	\$2,885	\$1,923	\$1,923	\$16,346
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.28	\$0.16	\$0.15	\$0.16	\$0.17	\$0.08
- Pump out minutes	0.47	0.27	0.25	0.26	0.28	0.13
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	. 0.0
- Waste Disposal	<u>\$0.62</u>	<u>\$0.36</u>	<u>\$0.33</u>	<u>\$0.35</u>	<u>\$0.37</u>	<u>\$0,17</u>
Subtotal- End of Day/Trip Srvc	\$12.90	\$12.53	\$18.48	\$12.50	\$12.54	\$102.24
Train Delay:						
- Pump out volume req'd	0	0	0	0	0	0
-# of stops req'd	0	0	0	0	0	0
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
<ul> <li>Connect/Disc. minutes</li> </ul>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
- Total Time Delay(mins/car)	0	0	0	. 0	0	0
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal-Opring Trip Related	\$13	\$13	\$18	\$13	\$13	\$102
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	26,317	19,929	5,366	3,066	6,388	20,951
Days per Trip (min. of 1)	· 1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$3,296	\$3,201	\$4,722	\$3,195	\$3,203	\$26,123
Annual Non-Trip Related per Car	\$1,923	\$1,923	\$2,885	\$1,923	\$1,923	\$16,346
Annual Opring Trip Related per Car Type	\$339,478	\$249,645	\$99,170	\$38,340	\$80,085	\$2,142,060
Annual Non-Trip Related per Car Type	<u>\$198,069</u>	<u>\$149,994</u>	<u>\$60.575</u>	<u>\$23,076</u>	<u>\$48.075</u>	<u>\$1.340.331</u>
Total OPRTNG COST per Car	\$5,219	\$5,124	\$7,607	\$5,118	\$5,126	\$42,468
Total CAPITAL COST per Car	\$7,076	\$7,076	\$10,614	\$7,076	\$7,076	\$60,146
Total OPRTNG COST for all cars	\$537,547	\$399,639	\$159,744	\$61,416	\$128,160	\$3,482,391
Total CAPITAL COST for all cars	\$728,828	\$551,928	\$222,894	\$84,912	\$176,900	\$4,931,972

Amtrak Route: Origin/Destination: Length in Miles:

City of New Orleans

New Orleans-Chicago

924

Length in Hours:

18.33

Expected Trips per Day: Manufacturer:

Equipment:

Microphor

Gravity

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	otherwise)					
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amiounge II</u>	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	· 46 2	49 2	22 17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19 <i>.</i> 76	20.65	22.00	9.88
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	~ 1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	. 7.7	7.7
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	108.6	63.6	58.3	60.9	64.9	29.1
Capacity Req'd/day (gals)	111.1	65.0	59.6	62.3	66.4	29.8
Adj. Capacity Req'd w/ Buffer	138.8	81.3	74.5	77.9	83.0	37.2
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	52 72%	89 123%	97 134%	92 128%	87 121%	193 268%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	2.8	4.8	5.3	5.0	4.7	10.5
As a percentage of 3 days	94.31%	161.12%	175.76%	168.12%	157.83%	351.53%
Consecutive Trips before pumpout	2.0	4.0	5.0	5.0	4.0	10.0
CAPITAL COSTS				•	•	
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$15,000</u>	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$85,000</u>
- Total Equip Cost	\$20,000	\$20,000	\$25,000	\$20,000	\$20,000	\$95,000
Equipment Installation					*	
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,440	\$1,152	\$1,152	\$5,472
Total Capital Cost	\$21,152	\$21,152	\$26,440	\$21,152	\$21,152	\$100,472

Route Number:

#58

## **Arthur D Little**

	City of New Orleans		Route Number:	#58		
Origin/Destination:	New Orleans-Chicag	jo				
_ength in Miles:	924					
ength in Hours:	18.33					
Expected Trips per Day:	1					
Manufacturer:	Microphor					
Equipment:	Gravity		•			
Scenario:	Expected					
* All data on per car basis (unless note	ed otherwise)					
•	54000 <u>Horizon</u>	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,22
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	
Servicing Cost/Year	\$432	\$432	\$648	\$432	\$432	\$3,67
Annual spare parts cost per yr	<u>\$600</u>	<u>\$600</u>	<u>\$750</u>	<u>\$600</u>	<u>\$600</u>	\$2,85
Total- Opring Non-Trip Related	\$1,032	\$1,032	\$1,398	\$1,032	\$1,032	\$6,52
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing		•				
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$10
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$
Pump out and Disposal						
- Pump out Cost	\$1.11	\$0.65	\$0.60	\$0.62	\$0.66	\$0.3
- Pump out minutes	1.85	1.08	0.99	1.04	1.11	0.9
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0
- Waste Disposal	\$1.89	<u>\$1.11</u>	\$1.01	\$1.06	\$1.13	\$0.9
Subtotal- End of Day/Trip Srvc	\$15.00	\$13.76	\$19.61	\$13.68	\$13.79	\$102.8
Train Delay:	<b>V</b> 10.00	<b>V.G</b> 5	<b>\$10.01</b>	7.0.00	*	•
- Pump out volume req'd	0	0	0	0	0	
- # of stops reg'd	0	0	0	o	ō	
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	o
- Connect/Disc, minutes	<u>0.0</u>	0.0	0.0	0.0	0.0	0
- Total Time Delay(mins/car)	0	0	· <u>9.9</u>	<u>9.9</u> 0	<u>0.0</u>	
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	•
Subtotal- Opring Trip Related	\$0 \$15	\$14	\$20	\$14	\$14	\$10
outloan oping hip holdies	ψ13			· • • • • • • • • • • • • • • • • • • •		<b>V</b> (C
Total # Cars in fleet	103	78	. 21	12	25	8
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,90
Adjusted Total Car-days	26,317	19,929	5,366	3,066	6,388	20,9
Days per Trip (min. of 1)	1	1	1	. 1	1	
Annual Oprtng Trip Related per Car	\$3,832	\$3,514	\$5,010	\$3,496	\$3,524	\$26,26
Innual Non-Trip Related per Car	\$1,032	\$1,032	\$1,398	\$1,032	\$1,032	\$6,52
Annual Oprtng Trip Related per Car Ty	/pe \$394,714	\$274,130	\$105,212	\$41,950	\$88,096	\$2,153,8
Annual Non-Trip Related per Car Type		\$80,496	<u>\$29,358</u>	<u>\$12,384</u>	\$25,800	<u>\$534.80</u>
otal OPRTNG COST per Car	\$4,864	\$4,546	\$6,408	\$4,528	\$4,556	\$32,78
Total CAPITAL COST per Car	\$21,152	\$21,152	\$26,440	\$21,152	\$21,152	\$100,47

City of New Orleans

New Orleans-Chicago

Origin/Destination: Length in Miles:

924

Length in Hours: Expected Trips per Day: 18.33 1

Manufacturer:

Evac

Equipment:

Ultimate

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted otherwise)						
· ·	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 2	22 17
Average persons/toilet on train	41.0	24.0	. 14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:				•		
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	29.7	17.4	15.9	16.6	17.7	8.0
Capacity Req'd/day (gals)	50.8	29.7	27.3	28.5	30.3	13.6
Adj. Capacity Req'd w/ Buffer	63.5	37.2	34.1	35.6	37.9	17.0
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	76 105%	129 179%	141 196%	135 187%	127 176%	282 391%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	4.1	7.0	7.7	7.4	6.9	15.4
As a percentage of 3 days	137.50%	234.90%	256.26%	245.12%	230.11%	512.51%
Consecutive Trips before pumpout	4.0	7.0	7.0	7.0	6.0	15.0
CAPITAL COSTS		•				
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$8,700</u>	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$49,300</u>
- Total Equip Cost	\$17,800	\$17,800	\$20,700	\$17,800	\$17,800	\$61,300
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,304	\$2,016	\$2,016	\$6,336
Total Capital Cost	\$19,816	\$19,816	\$23,004	\$19,816	\$19,816	\$67,636

#58

Route Number:

# **Λrthur D Little**

Route Number: #58 Amtrak Route: City of New Orleans Origin/Destination: New Orleans-Chicago Length in Miles: 924 Length in Hours: 18,33 Expected Trips per Day: Manufacturer: Evac Equipment: Ultimate Scenario: Expected \* All data on per car basis (unless noted otherwise) 54000 4600 4000 9400 28000 2400(30) Coach (HDCP) Dome Coach Horizon Coach Amiounge II Sleeper 10-6 OPERATING COSTS Non-Trip Related Costs: \$144 \$144 \$216 \$144 \$144 \$1,224 Labor cost/major servicing Frequency per Year 3 3 3 3 \$432 \$432 \$648 \$432 \$432 \$3,672 Servicing Cost/Year Annual spare parts cost per yr **\$534** \$534 \$621 <u>\$534</u> <u>\$534</u> \$1,839 Total- Opring Non-Trip Related \$966 \$966 \$1,269 \$966 \$966 \$5,511 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$12 \$12 \$102 - Cleaning \$12 \$18 \$12 \$0 - Light Repair \$0 \$0 \$0 \$O 02 Pump out and Disposal - Pump out Cost \$0.51 \$0.30 \$0.27 \$0.28 \$0.30 \$0.14 - Pump out minutes 0.85 0.50 0.45 0.47 0.51 0.23 - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 0.0 - Waste Disposal \$0.86 \$0.51 \$0.46 \$0.48 \$0.52 \$0,23 Subtotal- End of Day/Trip Srvc \$13.37 \$12.80 \$18.74 \$12.77 \$12.82 \$102.37 Train Delay: - Pump out volume req'd n ٥ Ω n O n - # of stops req'd 0 O O O 0 n - Pump out minutes 0.0 0.0 0.0 0.0 0.0 0.0 - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 0.0 - Total Time Delay(mins/car) 0 0 0 0 0 0 \$0 \$0 Average Cost Per Delay \$0 \$0 \$0 \$0 Subtotal-Opring Trip Related \$13 \$19 \$13 \$13 \$13 \$102 25 Total # Cars in fleet 103 78 21 12 82 Total Annual Car-days 37.595 28.470 7.665 4.380 9,125 29.930 Adjusted Total Car-days 26,317 5.366 3.066 6.388 20.951 19.929 Days per Trip (min. of 1) 1 1 1 1 1 1 Annual Opring Trip Related per Car \$3,416 \$4,787 \$3,275 \$3,271 \$3,263 \$26,155 Annual Non-Trip Related per Car \$966 \$966 \$966 \$966 \$1,269 \$5,511 Annual Oprtng Trip Related per Car Type \$351,883 \$255,144 \$100,527 \$81,884 \$2,144,709 \$39,150 Annual Non-Trip Related per Car Type \$99,498 \$75,348 \$26,649 \$11,592 \$24,150 \$451,902 Total OPRTNG COST per Car \$4,382 \$4,237 \$6,056 \$4,229 \$4,241 \$31,666

\$23,004

\$127,176

\$483,084

\$19,816

\$50,742

\$237,792

\$19,816

\$106,034

\$495,400

\$67,636

\$2,596,611

\$5,546,152

\$19,816

\$451,381

\$2,041,048

\$19,816

\$330.492

\$1,545,648

Total CAPITAL COST per Car

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

City of New Orleans

New Orleans-Chicago

Origin/Destination: Length in Miles:

924

Length in Hours: Expected Trips per Day: 18.33

Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Expected

*	All data	on per car	basis (unless	noted otherwise)
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* All data on per car basis (unless noted o	therwise)					
•	54000 Horizon	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 <u>Dome Coach</u>	28000 <u>Amiounge II</u>	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 2	22 17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	166.2	97.3	89.2	93.2	99.3	44.6
Capacity Req'd/day (gals)	155.0	90.7	83.2	87.0	92.6	41.6
Adj. Capacity Req'd w/ Buffer	193.8	113.4	104.0	108.7	115.8	52.0
Tank Capacity per Car (gals)	100	100	100	100	100	450
Continuous Service Hours Supported As a percentage of 72 hours	12 17%	21 29%	23 32%	22 31%	21 29%	208 289%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	0.7	1.2	1.3	1.2	1.1	11.3
As a percentage of 3 days	22.52%	38.48%	41.97%	40.15%	37.69%	377.77%
Consecutive Trips before pumpout	0.0	1.0	1.0	1.0	1.0	11.0
CAPITAL COSTS						
Collection System per Car	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$36,000
Toilet Cost per Car	<u>\$6,000</u>	<u>\$6,000</u>	\$9,000	<u>\$6,000</u>	<u>\$6,000</u>	<u>\$51,000</u>
- Total Equip Cost	\$14,000	\$14,000	\$17,000	\$14,000	\$14,000	\$87,000
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$2,592
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,440	\$1,152	\$1,152	\$7,488
Total Capital Cost	\$15,152	\$15,152	\$18,440	\$15,152	\$15,152	\$94,488

Route Number:

#58

Amtrak Route:	City of New Orleans		Route Number: #	58		·
Origin/Destination:	New Orleans-Chicago					
Length in Miles:	924					
Length in Hours:	18.33					
Expected Trips per Day:	. 1					
Manufacturer:	Railtech					
Equipment:	WTS 8300					
Scenario:	Expected					
* All data on per car basis (unless noted ot	•					
	54000 <u>Horizon</u>	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
OPERATING COSTS					<del></del>	<del></del>
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u> `	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$648	\$432	\$432	\$3,672
Annual spare parts cost per yr	<u>\$420</u>	<u>\$420</u>	<u>\$510</u>	<u>\$420</u>	<u>\$420</u>	<u>\$2,610</u>
Total- Opring Non-Trip Related	\$852	\$852	\$1,158	\$852	\$852	\$6,282
Trip Related Costs:						
Trip Helated Costs.  Toilet maintenance enroute						
End of Day/Trip Servicing		•	•	*		• • • •
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
Pump out and Disposal						,
- Pump out Cost	\$4.75	\$0.91	\$0.83	\$0.87	\$0.93	\$0.42
- Pump out minutes	0.92	1.51	1.39	1.45	1.54	0.69
- Connect/Disc. minutes	7.0	0.0	. 0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$2.64</u>	<u>\$1.54</u>	<u>\$1.41</u>	<u>\$1.48</u>	<u>\$1.57</u>	<u>\$0.71</u>
Subtotal- End of Day/Trip Srvc	\$19.39	\$14.45	\$20.25	\$14.35	\$14.50	\$103.12
Train Delay:						
- Pump out volume req'd	100	0	0	0	0	0
- # of stops req'd	1	0	0	0	0	0
- Pump out minutes	1.7	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	<u>7.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
- Total Time Delay(mins/car)	9	0	0	0	0	0
Average Cost Per Delay	\$5	\$0	\$0	\$0	\$0	<b>\$0</b>
Subtotal- Opring Trip Related	\$25	\$14 	\$20	\$14	\$15	\$103
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	26,317	19,929	5,366	3,066	6,388	20,951
Days per Trip (min. of 1)	1	1	1	1	1	. 1
Annual Oprtng Trip Related per Car	\$6,282	\$3,692	\$5,173	\$3,666	\$3,705	\$26,348
Annual Non-Trip Related per Car	\$852	\$3,692 \$852		\$3,666 \$852	\$852	
Allitua Noti-Trip helateu per Cal	φου <u>∠</u>	φουζ	\$1,158	<b>4002</b>	<b>φ63∠</b>	\$6,282
Annual Opring Trip Related per Car Type	\$647,007	\$287,976	\$108,630	\$43,991	\$92,626	\$2,160,529
Annual Non-Trip Related per Car Type	<u>\$87,756</u>	<u>\$66,456</u>	<u>\$24,318</u>	\$10,224	<u>\$21.300</u>	<u>\$515.124</u>
Total OPRTNG COST per Car	\$7,134	\$4,544	\$6,331	\$4,518	\$4,557	\$32,630
Total CAPITAL COST per Car	\$15,152	\$15,152	\$18,440	\$15,152	\$15,152	\$94,488
	V1	Ţ,-,-sa	<b>4.5,</b>	, ,	Ţ.O,.OL	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Total OPRTNG COST for all cars	\$734,763	\$354,432	\$132,948	\$54,215	\$113,926	\$2,675,653
Total CAPITAL COST for all cars	\$1,560,656	\$1,181,856	\$387,240	\$181,824	\$378,800	\$7,748,016
recording to the procedure of the control positions of APP (1997) Application of the control of	A ROSE TO THE STATE OF THE STAT	,	.,	• • • • • • • • • • • • • • • • • • • •	osa o ittigri tita tilika	ara ning, tu i Tanyida

Amtrak Route: Origin/Destination: Silver Meteor

New York-Tampa

1,270

Length in Miles: Length in Hours:

23.28

Expected Trips per Day:

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Expected

* All data on per car basis (unless noted oth	nerwise)					
	25000 Amcoach II	28000 <u>Amiounge II</u>	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA <u>NA</u>
Quantity of cars	7	1	2	1	1	NA
Capacity (# people) - seated Toilets per car	59 2	49 2	22 17	40 32	34 17	NA NA
Average persons/toilet on train	29.5	24.5	<b>1.3</b>	1.3	2.0	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	28.6	23.8	10.7	19.4	16.5	NA
Capacity Req'd/day (gals)	53.5	44.4	19.9	36.2	30.8	NA
Adj. Capacity Req'd w/ Buffer	66.8	55.5	24.9	45.3	38.5	NA
Tank Capacity per Car (gals)	235	235	235	235	235	∠235
Continuous Service Hours Supported As a percentage of 72 hours	84 117%	102 141%	226 314%	124 173%	146 203%	NA NA
Probable Service Hours per Day	23.28	23.28	23,28	23.28	23.28	23.28
Service Days Supported	3.6	4.4	9.7	5.3	6.3	NA
As a percentage of 3 days	120.85%	145.51%	324.10%	178.25%	209.71%	NA
Consecutive Trips before pumpout	3.0	4.0	9.0	5.0	6.0	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$42,500</u>	<u>\$80,000</u>	<u>\$42,500</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$63,500	\$101,000	\$63,500	NA
Equipment Installation		•				
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9,216</u>	<u>\$4.896</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$6,336	\$10,656	\$6,336	NA
Total Capital Cost =	\$28,016	\$28,016	\$69,836	\$111,656	\$69,836	NA NA

Route Number:

#87-88

Amtrak Route:	Silver Meteor		Route Number:	#87-88		
Origin/Destination:	New-York-Tampa					
Length in Miles:	1,270					
Length in Hours:	23.28					
Expected Trips per Day:	1					
Manufacturer:	Monogram					
Equipment:	Modified Vacuum				_	
Scenario:	Expected			V.	•	
* All data on per car basis (unless noted o	•					
	25000 Amonach II	28000 Amleunes II	2400(30) Slooper 10 6	2080 Siumbercoach 24-	2300	NA NA
OPERATING COSTS	Amcoach II	<u>Amlounge II</u>	Sleeper 10-6	Siumbercoach 24	Alemilial-Sigabet	INA
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$3,672	\$6,912	\$3,672	NA.
Annual spare parts cost per yr	\$780	\$780	\$1,905	\$3,030	\$1,905	<u>NA</u>
Total- Opring Non-Trip Related	\$1,212	\$1,212	\$5,577	\$9,942	\$5,577	NA
		<u></u>		<del></del>		·
Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	. NA
- Light Repair	\$O	\$Q	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.53	\$0.44	\$0.20	\$0.36	\$0.31	NA.
- Pump out minutes	0.89	0.74	0.33	0.60	0.51	· NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	NA
- Waste Disposal	<u>\$0.91</u>	<u>\$0.75</u>	<u>\$0.34</u>	\$0.62	<u>\$0.52</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.44	\$13.20	\$102.54	\$192.98	\$102.83	NA
Train Delay:						
- Pump out volume req'd	0	0	0	0	0	NA
-# of stops req'd	0	0	0	0	0	NA
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	0	0	NA
Average Cost Per Delay	\$O	\$0	\$0	\$0	\$0	NA
Subtotal- Opring Trip Related	\$13	\$13	\$103	\$193	\$103	NA
Total # Cars in fleet	119	25	82	16	2	ŇA
Total Annual Car-days	43,435	9,125	29,930	5,840	730	NA
Adjusted Total Car-days	30,404	6,388	20,951	4,088	511	NA
Days per Trip (min. of 1)	2	2	2	2	2	2
		_	_ ,	_	_	_
Annual Opring Trip Related per Car	\$1,717	\$1,686	\$13,099	\$24,653	\$13,137	NA
Annual Non-Trip Related per Car	\$1,212	\$1,212	\$5,577	\$9,942	\$5,577	NA
Annual Oprtng Trip Related per Car Type	\$204,370	\$42,153	\$1,074,139	\$394,448	\$26,274	NA
Annual Non-Trip Related per Car Type	\$144,228	\$30,300	<u>\$457.314</u>	\$159,072	<u>\$11.154</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,929	\$2,898	\$18,676	<b>\$34,595</b>	\$18,714	NA
Total CAPITAL COST per Car	\$28,016	\$28,016	\$69,836	\$111,656	\$69,836	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$348,598 \$3,333,904	\$72,453 \$700,400	to five this way will be for the first	\$553,520 \$1,786,496	\$37,428 \$139,672	NA NA

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Amtrak Route: Origin/Destination:

Length in Miles:

Silver Meteor

New York-Tampa 1,270

Length in Hours:

23.28

Expected Trips per Day: Manufacturer:

Equipment:

Monogram

Self-Cont'd Recirc

Scenario:

Expected

Page	* All data on per car basis (unless noted of	otherwise)					
Capacity (#) people) - seated   59							
Toilets per car 2 2 2 17 32 17 NA Average persons/toilet on train 29.5 24.5 1.3 1.3 2.0 NA  Average persons/toilet on train 29.5 24.5 1.3 1.3 2.0 NA  Elack Water:  Human Waste/day (gals) 26.49 22.00 9.88 17.96 15.27 NA #Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 7.00  Hushes/Person-day 7.70 7.0 7.0 1.10 1.10 1.10 1.10  Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.	Quantity of cars	7	1	2	1	1	NA
Black Water:   Human Waste/day (gals)   26.49   22.00   9.88   17.96   15.27   NA   #Flushes/Person-day   7.00							
Black Water:   Human Waste/day (gals)   26.49   22.00   9.88   17.96   15.27   NA   Flushes/Person-day   7.00	Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Human Waste/day (gals)   26.49   22.00   9.88   17.96   15.27   NA #Flushes/Person-day   7.00   7.	Car Waste Data (per car)				•		
# Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 7.00 7.0	Black Water:				•		
Flush efficiency adjustment	Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
Adj. # Flushes/Person-day         7.7         7.2         21.2         2.8 </td <td># Flushes/Person-day</td> <td>7.00</td> <td>7.00</td> <td>7.00</td> <td>7.00</td> <td>7.00</td> <td>7.00</td>	# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Fluish Fluids/flush (gals)   0.000	Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Flush Fluids/day (gals)   0.0   0.	Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Capacity Req'd/day (gals)         25.7         21.3         9.6         17.4         14.8         NA           Adj. Capacity Req'd w/ Buffer         32.1         26.7         12.0         21.8         19.5         NA           Tank Capacity per Car (gals)         27         27         229.5         432         229.5         NA           Continuous Service Hours Supported As a percentage of 72 hours         20         24         460         476         298         NA           As a percentage of 72 hours         28%         34%         639%         661%         413%         NA           Probable Service Hours per Day         23.28	Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Adj. Capacity Req'd w/ Buffer       32.1       26.7       12.0       21.8       18.5       NA         Tank Capacity per Car (gals)       27       27       229.5       432       229.5       NA         Continuous Service Hours Supported As a percentage of 72 hours       20       24       460       476       298       NA         As a percentage of 72 hours       28%       34%       639%       661%       413%       NA         Probable Service Hours per Day       23.28       23.28       23.28       23.28       23.28       23.28       23.28       23.28       23.28       23.28       23.28       23.28       23.28       NA       As a percentage of 3 days       28.89%       34.78%       658.47%       681.71%       426.07%       NA       NA         Consecutive Trips before pumpout       0.0       1.0       19.0       20.0       12.0       NA         CAPITAL COSTS       Collection System per Car       \$0       \$0       \$0       \$0       \$0       \$0       \$0         Toilet Cost per Car       \$6,500       \$6,500       \$55,250       \$104,000       \$55,250       NA         Equipment Installation       \$0       \$0       \$0       \$0       \$0       \$0	Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	0.0	NA
Tank Capacity per Car (gals)         27         27         229.5         432         229.5         NA           Continuous Service Hours Supported As a percentage of 72 hours         20         24         460         476         298         NA           As a percentage of 72 hours         28%         34%         639%         661%         413%         NA           Probable Service Hours per Day         23.28         23.28         23.28         23.28         23.28         23.28         23.28         23.28         23.28         23.28         NA         As a percentage of 3 days         28.89%         34.78%         658.47%         681.71%         426.07%         NA           Consecutive Trips before pumpout         0.0         1.0         19.0         20.0         12.0         NA           CAPITAL COSTS         Collection System per Car         \$0<	Capacity Req'd/day (gals)	25.7	21.3	9.6	17.4	14.8	NA
Continuous Service Hours Supported As a percentage of 72 hours 28% 34% 639% 661% 413% NA As a percentage of 72 hours 28% 34% 639% 661% 413% NA Probable Service Hours per Day 23.28	Adj. Capacity Req'd w/ Buffer	32.1	26.7	12.0	21.8	18.5	NÁ
As a percentage of 72 hours 28% 34% 639% 661% 413% NA  Probable Service Hours per Day 23.28 23.28 23.28 23.28 23.28 23.28  Service Days Supported 0.9 1.0 19.8 20.5 12.8 NA As a percentage of 3 days 28.89% 34.78% 658.47% 681.71% 426.07% NA  Consecutive Trips before pumpout 0.0 1.0 19.0 20.0 12.0 NA  CAPITAL COSTS  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$6.500 \$6.500 \$55.250 \$104,000 \$55.250 NA  Equipment Installation  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$0 \$6.500 \$55.250 \$104,000 \$55.250 NA  Equipment Installation  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$576 \$576 \$4.896 \$9.216 \$4.896 NA	Tank Capacity per Car (gals)	27	27	229.5	432	229.5	·NA
Service Days Supported 0.9 1.0 19.8 20.5 12.8 NA As a percentage of 3 days 28.89% 34.78% 658.47% 681.71% 426.07% NA  Consecutive Trips before pumpout 0.0 1.0 19.0 20.0 12.0 NA  CAPITAL COSTS  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$6,500 \$6,500 \$55,250 \$104,000 \$55,250 NA  Equipment Installation  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$6,500 \$6,500 \$55,250 \$104,000 \$55,250 NA  Equipment Installation  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$576 \$576 \$4.896 \$9,216 \$4.896 NA							
As a percentage of 3 days 28.89% 34.78% 658.47% 681.71% 426.07% NA  Consecutive Trips before pumpout 0.0 1.0 19.0 20.0 12.0 NA  CAPITAL COSTS  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$6,500 \$6,500 \$55,250 \$104,000 \$55,250 NA  - Total Equip Cost \$6,500 \$6,500 \$55,250 \$104,000 \$55,250 NA  Equipment Installation  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$50 \$6,500 \$55,250 \$104,000 \$55,250 NA  Equipment Installation  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$576 \$576 \$4.896 \$9.216 \$4.896 NA  - Total Installation Cost \$576 \$576 \$4.896 \$9.216 \$4.896 NA	Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Consecutive Trips before pumpout 0.0 1.0 19.0 20.0 12.0 NA  CAPITAL COSTS  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$6,500 \$6,500 \$55,250 \$104,000 \$55,250 NA  - Total Equip Cost \$6,500 \$6,500 \$55,250 \$104,000 \$55,250 NA  Equipment Installation  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$576 \$576 \$4,896 \$9,216 \$4,896 NA  - Total Installation Cost \$576 \$576 \$4,896 \$9,216 \$4,896 NA	Service Days Supported	0.9	1.0	19.8	20.5	12.8	NA
CAPITAL COSTS  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$6,500 \$6,500 \$55,250 \$104,000 \$55,250 NA  - Total Equip Cost \$6,500 \$6,500 \$55,250 \$104,000 \$55,250 NA  Equipment Installation  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0  Toilet Cost per Car \$576 \$576 \$4,896 \$9,216 \$4,896 NA	As a percentage of 3 days	28.89%	34.78%	658.47%	681.71%	426.07%	NA
Collection System per Car         \$0         \$55,250         \$104,000         \$55,250         \$NA           - Total Equip Cost         \$6,500         \$6,500         \$55,250         \$104,000         \$55,250         \$NA           Equipment Installation         State of the cost of the cos	Consecutive Trips before pumpout	0.0	1.0	19.0	20.0	12.0	NA
Toilet Cost per Car         \$6,500         \$6,500         \$55,250         \$104,000         \$55,250         NA           - Total Equip Cost         \$6,500         \$6,500         \$55,250         \$104,000         \$55,250         NA           Equipment Installation         SO         \$0 </td <td>CAPITAL COSTS</td> <td>·</td> <td></td> <td></td> <td>,</td> <td></td> <td></td>	CAPITAL COSTS	·			,		
- Total Equip Cost \$6,500 \$6,500 \$55,250 \$104,000 \$55,250 NA  Equipment Installation  Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 \$0  Total Cost per Car \$576 \$576 \$4,896 \$9,216 \$4,896 NA  - Total Installation Cost \$576 \$576 \$4,896 \$9,216 \$4,896 NA	Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Equipment Installation         \$0<	Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$55,250</u>	<u>\$104,000</u>	<u>\$55,250</u>	<u>NA</u>
Collection System per Car         \$0	- Total Equip Cost	\$6,500	\$6,500	\$55,250	\$104,000	\$55,250	NA
Toilet Cost per Car         \$576         \$576         \$4,896         \$9,216         \$4,896         NA           - Total Installation Cost         \$576         \$576         \$4,896         \$9,216         \$4,896         NA	Equipment Installation						
- Total Installation Cost \$576 \$576 \$4,896 \$9,216 \$4,896 NA	Collection System per Car	\$0	\$0	- \$0	\$0	\$0	\$0
	Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	\$4.89 <u>6</u>	<u>\$9,216</u>	<u>\$4,896</u>	<u>NA</u>
Total Capital Cost \$7,076 \$60,146 \$113,216 \$60,146 NA		\$576	\$576	\$4,896	\$9,216	\$4,896	NA
	Total Capital Cost	\$7,076	\$7,076	\$60,146	\$113,216	\$60,146	NA_

#87-88

Route Number:

Amtrak Route:	Silver Meteor		Route Number:	#87-88		
Origin/Destination:	New York-Tampa					
Length in Miles:	1,270					
Length in Hours:	23.28					
Expected Trips per Day:	1					
Manufacturer:	Monogram			•		
Equipment:	Self-Cont'd Recirc					
Scenario:	Expected					
* All data on per car basis (unless noted of	therwise)					
•	25000 <u>Amcoach II</u>	28000 <u>Amiounge II</u>	2400(30) Sleeper 10-6	2080 Siumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA NA
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$4,896	\$9,216	\$4,896	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$1,728	\$1,728	\$14,688	\$27,648	\$14,688	NA
Annual spare parts cost per yr	<u>\$195</u>	<u>\$195</u>	<u>\$1,658</u>	<u>\$3,120</u>	\$1,65 <u>8</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,923	\$1,923	\$16,346	\$30,768	\$16,346	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$4.20	\$0.21	\$0.10	\$0.17	\$0.15	NA
- Pump out minutes	0.00	0.36	0.16	0.29	0.25	NA
- Connect/Disc. minutes	7.0	0.0	0.0	0.0	0.0	NA NA
- Waste Disposal	<u>\$0.57</u>	\$0.47	<b>\$0.21</b>	\$0.38	\$0.33	NA
Subtotal- End of Day/Trip Srvc	\$16.77	\$12.68	\$102.31	\$192.56	\$102.47	NA
Train Delay:						
- Pump out volume req'd	27	0	0	0	0	NA
- # of stops req'd	1	0	0	0	0	NA
- Pump out minutes	0.5	0.0	0.0	0.0	0.0	NA
- Connect/Disc. minutes	<u>7.0</u>	0.0	0.0	0.0	0.0	NA
- Total Time Delay(mins/car)	7	0			0	NA
Average Cost Per Delay	\$4	\$0	\$0	\$0	\$0	NA
Subtotal- Oprtng Trip Related	\$21	\$13	\$102	\$193	\$102	<u>NA</u>
Total # Cars in fleet	119	25	82	16	2	NA
Total Annual Car-days	43,435	9,125	29,930	5,840	730	NA
Adjusted Total Car-days	30,404	6,388	20,951	4,088	511	NA
Days per Trip (min. of 1)	2	2	2	2	2	2
Annual Opring Trip Related per Car	\$2,713	\$1,620	\$13,070	\$24,599	\$13,091	NA
Annual Non-Trip Related per Car	\$1,923	\$1,923	\$16,346	\$30,768	\$16,346	NA
Annual Oprtng Trip Related per Car Type	\$322,825	\$40,506	\$1,071,713	\$393,587	\$26,182	NA:
Annual Non-Trip Related per Car Type	<u>\$228,837</u>	<u>\$48,075</u>	<u>\$1,340,331</u>	<u>\$492,288</u>	<u>\$32,691</u>	. <u>NA</u>
Total OPRTNG COST per Car	\$4,636	\$3,543	\$29,415	\$55,367	\$29,437	NA
Total CAPITAL COST per Car	\$7,076	\$7,076	\$60,146	\$113,216	\$60,146	NA
Total OPRTNG COST for all cars	\$551,662	\$88,581	\$2,412,044	\$885,875	\$58,873	NA NA
Total CAPITAL COST for all cars	\$842,044	\$176.900	the control of the co		\$120,292	NA

\$176,900 \$4,931,972

\$1,811,456 \$120,292

Total CAPITAL COST for all cars \$842,044

Silver Meteor

New York-Tampa

Origin/Destination: Length in Miles: Length in Hours:

1,270

Expected Trips per Day:

23.28

Manufacturer:

Microphor

Equipment:

Gravity

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted of	•					
	25000	28000	2400(30)	2080 Slumbercoach 24-	2300	NA NA
	Amcoach II	Amlounge II	Sleeper 10-6			NA
Quantity of cars	7	1	2	1	1	NA
Capacity (# people) - seated Toilets per car	59 2	49 2	22 17	40 32	34 17	NA NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	26.49	22.00 🕫	9.88	17.96	15.27	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	78.1	64.9	29.1	53.0	45.0	NA
Capacity Req'd/day (gals)	101.5	84.3	37.8	68.8	58.5	NA
Adj. Capacity Req'd w/ Buffer	126.9	105.4	47.3	86.0	73.1	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	57 79%	68 95%	152 211%	84 116%	98 137%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	2.4	2.9	6.5	3.6	4.2	NA
As a percentage of 3 days	81.26%	97.85%	217.93%	119.86%	141.01%	NA
Consecutive Trips before pumpout	2.0	2.0	6.0	3.0	4.0	NA
CAPITAL COSTS			•	•		
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	\$10,000	<u>\$10,000</u>	<u>\$85,000</u>	\$160,000	\$85,000	<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$95,000	\$170,000	\$95,000	· NA
Equipment Installation				.*		
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9,216</u>	<u>\$4,896</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$5,472	\$9,792	\$5,472	NA
Total Capital Cost	\$21,152	\$21,152	\$100,472	\$179,792	\$100,472	NA NA

Route Number:

#87-88

Amtrak Route:	Silver Meteor		Route Number:	#87-88		
Origin/Destination:	New York-Tampa				· · · · · · · · · · · · · · · · · · ·	
Length in Miles:	1,270					
Length in Hours:	23.28					
Expected Trips per Day:	1				•	
Manufacturer:	Microphor					
Equipment:	Gravity					
Scenario:	Expected					
* All data on per car basis (unless noted of	•					
	25000	28000	2400(30)	2080 Skyrzbassach 24	2300	NA
OPERATING COSTS	Amcoach II	Amlounge II	Sleeper 10-6	Slumbercoach 24-	viewiner-Sieeper	NA
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$3,672	\$6,912	\$3,672	NA
Annual spare parts cost per yr	<u>\$600</u>	<u>\$600</u>	<u>\$2,850</u>	<u>\$5,100</u>	<u>\$2,850</u>	<u>ŅA</u>
Total- Oprtng Non-Trip Related	\$1,032	\$1,032	\$6,522	\$12,012	\$6,522	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing	•	•				•
- Cleaning	\$12	\$12	\$102	\$192	\$102	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal				•		
- Pump out Cost	\$1.01	\$0.84	\$0.38	\$0.69	\$0.58	NA
- Pump out minutes	1.69	1.40	0.63	1.15	0.97	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	NA
- Waste Disposal	<u>\$1.73</u>	<u>\$1.43</u>	<u>\$0.64</u>	<u>\$1.17</u>	<u>\$0.99</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$14.74	\$14.28	\$103.02	\$193.86	\$103.58	,NA
Train Delay:					•	
- Pump out volume req'd	0	0	0	0	0	NA
- # of stops req'd	0	0	0	0	0	, NA
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	0	. 0	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	<b>\$0</b>	NA
Subtotal- Opring Trip Related	\$15	\$14	\$103	\$194	\$104	NA_
Total # Cars in fleet	119	25	82	16	2	NA
Total Annual Car-days	43,435	9,125	29,930	5,840	730	NA
Adjusted Total Car-days	30,404	6,388	20,951	4,088	511	NA
Days per Trip (min. of 1)	2	2	2	2	2	2
Annual Opring Trip Related per Car	\$1,883	\$1,824	\$13,161	\$24,765	\$13,232	NA
Annual Non-Trip Related per Car	\$1,032	\$1,032	\$6,522	\$12,012	\$6,522	NA
Annual Oprtng Trip Related per Car Type	\$224,085	\$45,593	\$1,079,205	\$396,245	\$26,464	NA
Annual Non-Trip Related per Car Type	\$122,808	\$25,800	<u>\$534,804</u>	<u>\$192.192</u>	\$13.044	NA
Total OPRTNG COST per Car	\$2,915	\$2,856	\$19,683	\$36,777	\$19,754	NA
Total CAPITAL COST per Car	\$21,152	\$21,152	\$100,472	\$179,792	\$100,472	NA
Total OPRTNG COST for all cars	\$346,893	\$71,393	\$1,614,009	\$588,437	\$39,508	NA NA
Total CARITAL COST for all care	\$2.5,000 \$2.517.000	¢500 000	¢0,014,000	¢0.076.670	#00,000 #000,044	NA.

Total CAPITAL COST for all cars

\$2,517,088

\$528,800

\$8,238,704

\$2,876,672

\$200,944

Silver Meteor

Origin/Destination: Length in Miles:

New York-Tampa 1,270

Length in Hours: Expected Trips per Day:

- Total Installation Cost

**Total Capital Cost** 

23.28

\$2,016

\$19,816

Manufacturer:

Evac

Equipment:

Ultimate

Scenario: Expected

\* All data on per car basis (unless noted otherwise) 2300 NA 2400(30) 2080 25000 28000 Amcoach II Amiounge II Sleeper 10-6 Slumbercoach 24- Viewliner-Sleeper NA NA 2 Quantity of cars 1 40 NA 49 22 34 59 Capacity (# people) - seated 17 NA 32 17 Toilets per car 2 2 NA Average persons/toilet on train 29.5 24.5 1.3 1.3 2.0 Car Waste Data (per car) Black Water: Human Waste/day (gals) 26.49 22.00 9.88 17.96 15.27 NA 7.00 # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 0.047 Flush Fluids/flush (gals) 0.047 0.047 0.047 0.047 0.047 12.3 NA Flush Fluids/day (gals) 21.4 17.7 8.0 14.5 38.5 17.3 31.5 26.7 NA Capacity Req'd/day (gals) 46.4 33.4 NA Adj. Capacity Req'd w/ Buffer 58.0 48.2 21.6 39.3 200 200 200 200 200 Tank Capacity per Car (gals) 200 100 222 Continuous Service Hours Supported 83 138% 308% 170% 199% As a percentage of 72 hours 115% 23.28 23.28 23.28 23.28 23.28 23.28 Probable Service Hours per Day 4.3 9.5 5.2 6.2 NΑ Service Days Supported 3.6 118.48% 142.66% 317.74% 174.75% 205.59% NA As a percentage of 3 days Consecutive Trips before pumpout 3.0 4.0 9.0 5.0 6.0 NA CAPITAL COSTS \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 Collection System per Car \$5,800 \$49,300 \$92,800 \$49,300 \$5,800 Toilet Cost per Car <u>NA</u> NA \$17,800 \$17,800 \$61,300 \$104,800 \$61,300 Total Equip Cost Equipment Installation \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 Collection System per Car \$4,896 \$9,216 \$4,896 \$576 Toilet Cost per Car <u>\$576</u> NΑ

\$2,016

\$19,816

\$6,336

\$67,636

\$10,656

\$115,456

\$6,336

\$67,636

NA

NA

Route Number:

#87-88

#### **Arthur D Little**

Amtrak Route:	Silver Meteor		Route Number:	#87-88		
Origin/Destination:	New York-Tampa					
Length in Miles:	1,270					
Length in Hours:	23.28					
Expected Trips per Day:	1					
Manufacturer:	Evac					
Equipment:	Ultimate					•
Scenario:	Expected					
* All data on per car basis (unless noted o	therwise)					
•	25000	28000	2400(30)	2080	2300	NA
•	Amcoach II	<u>Amiounge II</u>	Sleeper 10-6	Slumbercoach 24-	Viewliner-Sleeper	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	NA
Frequency per Year	<u>3</u>	3	3	<u>3</u>	ψ1,224 <u>3</u>	<u>3</u>
Servicing Cost/Year	· \$432	\$432	\$3,672	\$6,912	\$3,672	NA NA
Annual spare parts cost per yr	\$534	\$53 <u>4</u>	\$1,83 <u>9</u>	\$3,14 <u>4</u>	\$1,839	NA NA
Total- Opring Non-Trip Related	\$966	\$966	\$5,511	\$10,056	\$5,511	NA NA
Total Spinig Hen Tip Holada			Ψ0,011	<b>\$10,000</b>	Ψο,οττ	
Trip Related Costs:						
Toilet maintenance enroute		•				
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	NA
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0
Pump out and Disposal					k.	-
- Pump out Cost	\$0.46	\$0.39	\$0.17	\$0.31	\$0.27	. NA
- Pump out minutes	0.77	0.64	0.29	0.52	0.45	NA
- Connect/Disc. minutes	0,0	0.0	0.0	0.0	0.0	NA
- Waste Disposal	<u>\$0.79</u>	<u>\$0.66</u>	<u>\$0.29</u>	<u>\$0.53</u>	<u>\$0.45</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.25	· \$13.04	\$102.47	\$192.85	\$102.72	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	. 0	0	0	0	NA
- # of stops req'd	0	0	Ö	0	· 0	NA
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	0	0	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	NA
Subtotal- Opring Trip Related	\$13	\$13	\$102	\$193	\$103	NA
Total # Cars in fleet	119	25	82	16	2	NA
						4
Total Annual Car-days	43,435	9,125	29,930	5,840	730	NA
				•		
Adjusted Total Car-days	30,404	6,388	20,951	4,088	511	NA .
Days per Trip (min. of 1)	2	2	2	2	· <u>2</u>	2
Annual Ondra Tria Balatad nas Gas	<b>*4.000</b>	04.000	<b>045.000</b>	404.007		
Annual Oprtng Trip Related per Car	\$1,693	\$1,666	\$13,090	\$24,637	\$13,123	NA
Annual Non-Trip Related per Car	\$966	\$966	\$5,511	\$10,056	\$5,511	NA
Applied Ondre Trin Deleted not Cos Time	2001 470		#4 070 00F	0004404	400.045	
Annual Opring Trip Related per Car Type	\$201,476	\$41,649	\$1,073,395	\$394,184	\$26,245	NA
Annual Non-Trip Related per Car Type	<u>\$114.954</u>	\$24,150	<u>\$451,902</u>	<u>\$160,896</u>	<u>\$11,022</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,659	\$2,632	\$18,601	\$34,693	\$18,634	NA
Total CAPITAL COST per Car	\$19,816	\$19,816	\$67,636	\$115,456	\$67,636	NA NA
orn riving o'con poi out	ψ10,010	ψ13,010	Ψ07,030	ψ113, <del>430</del>	ψ01,000	INA
Total OPRTNG COST for all cars	\$316,430	\$65,799	\$1,525,297	\$555,080	\$37,267	NA
Total CAPITAL COST for all cars			10 To 10 HT		. 1,1 to 4 KNOW	\$6567576 64660 J. J. S. 505677
TOTAL OCO FIOR ALL CATS	\$2,358,104	\$495,400	\$5,546,152	\$1,847,296	\$135,272	NA
	•					

Amtrak Route: Origin/Destination:

Silver Meteor

New York-Tampa

Length in Miles: Length in Hours:

Expected Trips per Day:

1,270

23.28

Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Expected

Canality of cars   Canality of cars   Canality of cars   Canality (# people) - seated   Fig.	
Capacity (# people) - seated         59         49         22         40         34           Toilets per car         2         2         17         32         17           Average persons/toilet on train         29.5         24.5         1.3         1.3         2.0           Car Waste Data (per car)           Car Waste Data (per car)           Black Water:           Human Waste/day (gals)         26.49         22.00         9.88         17.96         15.27           # Flushes/Person-day         7.00         6.0         263         0.263         0.263         0.263         0.263         0.263         0.263         0.263         0.263         0.263         0.263         0.263	NA <u>NA</u>
Toilets per car 2 2 17 32 17 Average persons/toilet on train 29.5 24.5 1.3 1.3 2.0  Car Waste Data (per car)  Black Water: Human Waste/day (gals) 26.49 22.00 9.88 17.96 15.27 #Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 1.10 Adj. #Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 1.5 Hush Fluids/flush (gals) 0.263 0.26	NA
Black Water:	NA NA
Black Water: Human Waste/day (gals) 26.49 22.00 9.88 17.96 15.27 # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.263 0.263 0.263 0.263 0.263 Flush Fluids/day (gals) 119.6 99.3 44.6 81.1 68.9  Capacity Req'd/day (gals) 141.7 117.7 52.8 96.0 81.6 Adj. Capacity Req'd w/ Buffer 177.1 147.1 66.0 120.1 102.0 Tank Capacity per Car (gals) 100 100 450 800 450  Continuous Service Hours Supported 14 16 164 160 106 As a percentage of 72 hours 19% 23.28 23.28 23.28 23.28  Service Days Supported 0.6 0.7 7.0 6.9 4.5 As a percentage of 3 days 19.41% 23.37% 234.20% 228.99% 151.54%  Consecutive Trips before pumpout 0.0 0.0 7.0 6.0 4.0	NA
Human Waste/day (gals) 26.49 22.00 9.88 17.96 15.27 # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.263 0.263 0.263 0.263 0.263 0.263 Flush Fluids/day (gals) 119.6 99.3 44.6 81.1 68.9  Capacity Req'd/day (gals) 141.7 117.7 52.8 96.0 81.6 Adj. Capacity Req'd w Buffer 177.1 147.1 66.0 120.1 102.0 Tank Capacity Per Car (gals) 100 100 450 800 450  Continuous Service Hours Supported 14 16 164 160 106 As a percentage of 72 hours 19% 23.28 23.28 23.28 23.28  Service Days Supported 0.6 0.7 7.0 6.9 4.5 As a percentage of 3 days 19.41% 23.37% 234.20% 228.99% 151.54%  Consecutive Trips before pumpout 0.0 0.0 7.0 6.0 4.0	
# Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/Ilush (gals) 0.263 0.263 0.263 0.263 0.263 0.263 Flush Fluids/day (gals) 119.6 99.3 44.6 81.1 68.9  Capacity Req'd/day (gals) 141.7 117.7 52.8 96.0 81.6 Adj. Capacity Req'd w/ Buffer 177.1 147.1 66.0 120.1 102.0 Tank Capacity per Car (gals) 100 100 450 800 450  Continuous Service Hours Supported 14 16 164 160 106 As a percentage of 72 hours 19% 23.28 23.28 23.28  Service Days Supported 0.6 0.7 7.0 6.9 4.5 As a percentage of 3 days 19.41% 23.37% 234.20% 228.99% 151.54%  Consecutive Trips before pumpout 0.0 0.0 7.0 6.0 4.0	
Flush efficiency adjustment         1.10 <t< td=""><td>NA</td></t<>	NA
Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.263 0.26	7.00
Flush Fluids/flush (gals)         0.263         0.263         0.263         0.263         0.263         0.263         0.263         1.263         0.201         0.	1.10
Flush Fluids/day (gals)         119.6         99.3         44.6         81.1         68.9           Capacity Req'd/day (gals)         141.7         117.7         52.8         96.0         81.6           Adj. Capacity Req'd w/ Buffer         177.1         147.1         66.0         120.1         102.0           Tank Capacity per Car (gals)         100         100         450         800         450           Continuous Service Hours Supported As a percentage of 72 hours         14         16         164         160         106           As a percentage of 72 hours         19%         23%         227%         222%         147%           Probable Service Hours per Day         23.28         23.28         23.28         23.28         23.28           Service Days Supported As a percentage of 3 days         0.6         0.7         7.0         6.9         4.5           As a percentage of 3 days         19.41%         23.37%         234.20%         228.99%         151.54%           Consecutive Trips before pumpout         0.0         0.0         7.0         6.0         4.0	7.7
Capacity Req'd/day (gals) 141.7 117.7 52.8 96.0 81.6 Adj. Capacity Req'd w/ Buffer 177.1 147.1 66.0 120.1 102.0 Tank Capacity per Car (gals) 100 100 450 800 450  Continuous Service Hours Supported 14 16 164 160 106 As a percentage of 72 hours 19% 23.28 23.28 23.28 23.28  Probable Service Hours per Day 23.28 23.28 23.28 23.28 23.28  Service Days Supported 0.6 0.7 7.0 6.9 4.5 As a percentage of 3 days 19.41% 23.37% 234.20% 228.99% 151.54%  Consecutive Trips before pumpout 0.0 0.0 7.0 6.0 4.0  CAPITAL COSTS	0.263
Adj. Capacity Req'd w/ Buffer       177.1       147.1       66.0       120.1       102.0         Tank Capacity per Car (gals)       100       100       450       800       450         Continuous Service Hours Supported As a percentage of 72 hours       14       16       164       160       106         As a percentage of 72 hours       19%       23%       227%       222%       147%         Probable Service Hours per Day       23.28       23.28       23.28       23.28       23.28         Service Days Supported As a percentage of 3 days       0.6       0.7       7.0       6.9       4.5         As a percentage of 3 days       19.41%       23.37%       234.20%       228.99%       151.54%         Consecutive Trips before pumpout       0.0       0.0       7.0       6.0       4.0         CAPITAL COSTS	NA
Tank Capacity per Car (gals)         100         100         450         800         450           Continuous Service Hours Supported As a percentage of 72 hours         14 16 16 164 227%         160 106 222%         147%           Probable Service Hours per Day         23.28         23.28         23.28         23.28         23.28           Service Days Supported As a percentage of 3 days         0.6 0.7 7.0 6.9 4.5         4.5 23.37%         234.20%         228.99%         151.54%           Consecutive Trips before pumpout         0.0 0.0 7.0 6.0 4.0         4.0	NA
Continuous Service Hours Supported As a percentage of 72 hours         14 16 23%         164 227%         160 222%         106 147%           Probable Service Hours per Day         23.28         23.28         23.28         23.28         23.28         23.28           Service Days Supported As a percentage of 3 days         0.6         0.7         7.0         6.9         4.5           As a percentage of 3 days         19.41%         23.37%         234.20%         228.99%         151.54%           Consecutive Trips before pumpout         0.0         0.0         7.0         6.0         4.0           CAPITAL COSTS         CAPITAL COSTS	NA
As a percentage of 72 hours 19% 23% 227% 222% 147%  Probable Service Hours per Day 23.28 23.28 23.28 23.28 23.28  Service Days Supported 0.6 0.7 7.0 6.9 4.5 As a percentage of 3 days 19.41% 23.37% 234.20% 228.99% 151.54%  Consecutive Trips before pumpout 0.0 0.0 7.0 6.0 4.0  CAPITAL COSTS	NA
Service Days Supported         0.6         0.7         7.0         6.9         4.5           As a percentage of 3 days         19.41%         23.37%         234.20%         228.99%         151.54%           Consecutive Trips before pumpout         0.0         0.0         7.0         6.0         4.0           CAPITAL COSTS         4.0         4.0         4.0         4.0         4.0         4.0	NA NA
As a percentage of 3 days 19.41% 23.37% 234.20% 228.99% 151.54%  Consecutive Trips before pumpout 0.0 0.0 7.0 6.0 4.0  CAPITAL COSTS	23.28
Consecutive Trips before pumpout 0.0 0.0 7.0 6.0 4.0 CAPITAL COSTS	NA
CAPITAL COSTS	NA
	NA
Collection System per Car \$8,000 \$8,000 \$36,000 \$64,000 \$36,000	
401000 401000 401000 401000 401000	NA
Toilet Cost per Car \$6,000 \$6,000 \$51,000 \$96,000 \$51,000	<u>NA</u>
- Total Equip Cost \$14,000 \$14,000 \$87,000 \$160,000 \$87,000	NA
Equipment Installation	
Collection System per Car         \$576         \$576         \$2,592         \$4,608         \$2,592	NA
Toilet Cost per Car \$576 \$576 \$4.896 \$9.216 \$4.896	<u>NA</u>
- Total Installation Cost \$1,152 \$1,152 \$7,488 \$13,824 \$7,488	NA
Total Capital Cost \$15,152 \$15,152 \$94,488 \$173,824 \$94,488	NA NA

#87-88

Route Number:

		,				•
Amtrak Route:	Silver Meteor		Route Number:	#87-88		
Origin/Destination:	New York-Tampa				•	
Length in Miles: Length in Hours:	1,270 23.28					
Expected Trips per Day:	23.26					,
Manufacturer:	Railtech					• :
Equipment:	WTS 8300				-	
Scenario:	Expected					
* All data on per car basis (unless noted of	herwise)				,	
	25000 Amcoach II	28000 <u>Amlounge II</u>	2400(30) <u>Sleeper 10-6</u>	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:				-		
Labor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$3,672	\$6,912	\$3,672	NA
Annual spare parts cost per yr	<u>\$420</u>	<u>\$420</u>	<u>\$2,610</u>	<u>\$4,800</u>	<u>\$2,610</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$852	\$852	\$6,282	\$11,712	\$6,282	NA NA
Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal					*	,
- Pump out Cost	\$4.62	\$4.38	\$0.53	\$0.96	\$0.82	NA
- Pump out minutes	0.69	0.29	0.88	1.60	1.36	NA
- Connect/Disc. minutes	7.0	7.0	0.0	0.0	0.0	NA
- Waste Disposal	<u>\$2.41</u>	\$2.00	<u>\$0.90</u>	<u>\$1.63</u>	<u>\$1.39</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$19.02	\$18.38	\$103.43	\$194.59	\$104.20	NA
Train Delay:	400		_	_		***
- Pump out volume req'd	100	100	0	0	0	NA
- # of stops req'd	1	1	0	0	0	NA
- Pump out minutes	1.7	1.7	0.0	0.0	0.0	NA
- Connect/Disc. minutes	<u>7.0</u>	<u>7.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>
- Total Time Delay(mins/car)	9	9	0	0	0	NA NA
Average Cost Per Delay	\$5 ************************************	\$5	\$0	\$0	\$0 2424	NA NA
Subtotal- Opring Trip Related	\$24	\$24	\$103	\$195	\$104	NA NA
Total # Cars in fleet	119	25	82	16	2	NA
Total Annual Car-days	43,435	9,125	29,930	5,840	730	NA
Adjusted Total Car-days	30,404	6,388	20,951	4,088	511	NA
Days per Trip (min. of 1)	2	2	2	2	2	2
Annual Oprtng Trip Related per Car	\$3,095	\$3,012	\$13,213	\$24,859	\$13,312	NA
Annual Non-Trip Related per Car	\$852	\$852	\$6,282	\$11,712	\$6,282	NA
. Annual Oprtng Trip Related per Car Type	\$368,273	\$75,298	\$1,083,441	\$397,748	\$26,624	NA
Annual Non-Trip Related per Car Type	<u>\$101,388</u>	\$21,300	<u>\$515,124</u>	<u>\$187,392</u>	<u>\$12,564</u>	<u>NA</u>
Total OPRTNG COST per Car	\$3,947	\$3,864	\$19,495	\$36,571	\$19,594	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$94,488	\$173,824	\$94,488	NA
Total OPRTNG COST for all cars	\$469,661	\$96,598	\$1,598,565		2 301 A330 FOREN 6389	NA
Total CAPITAL COST for all cars	\$1,803,088	\$378,800	\$7,748,016	\$2,781,184	\$188,976	NA

Amtrak Route:	Benjamin Franklin		Route Number:	#193		
Origin/Destination:	Boston-Philadelphia					
Length in Miles:	322					
Length in Hours:	6.55					
Expected Trips per Day:	2					
Manufacturer:	Monogram					
Equipment:	Modified Vacuum		,			
Scenario:	Expected				•	
* All data on per car basis (unless noted	otherwise)					
	20000	21000	20100	NA NA	NA NA	NA NA
•	Amcafe	Amcoach	Amclub	NA	<u>NA</u>	<u>NA</u>
Quantity of cars	1	1	3	NA	NA	NA
Capacity (# people) - seated Toilets per car	53 2	84 2	41 2	NA NA	NA NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:						•
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	25.7	40.7	19.9	NA	NA	NA
Capacity Req'd/day (gals)	27.0	42.8	20.9	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	33.8	53.5	26.1	NA	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	167 232%	105 146%	216 300%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	12.7	8.0	16.5	NA	NA	NA
As a percentage of 3 days	424.86%	268.07%	549.21%	MA NA	NA	NA
Consecutive Trips before pumpout	25.0	16.0	32.0	NA	NA	NA
CAPITAL COSTS	•					
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$26,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
Total Capital Cost	\$28,016	\$28,016	\$28,016	NA NA	NA NA	NA NA

## **Λrtlur D Little**

Length in Miles: Length in Hours: Expected Trips per Day: Manufacturer: Equipment:  M	oston-Philadelphia 322 6.55 2 Ionogram Iodified Vacuum xpected					
Length in Hours:  Expected Trips per Day:  Manufacturer:  Equipment:  Scenario:  E	6.55 2 Ionogram Iodified Vacuum xpected					
Expected Trips per Day:  Manufacturer: Equipment:  Scenario:  Expected Trips per Day:  Manufacturer:  M  Scenario: Expected Trips per Day:	2 lonogram lodified Vacuum xpected					
Manufacturer: M. Equipment: M. Scenario: E	lonogram lodified Vacuum xpected					
Equipment: M Scenario: E	lodified Vacuum xpected					
Scenario; E	xpected					
	•					
* All data on per car basis (unless noted other				•		
	rwise)					
	20000	21000	20100	NA	NA	N.
000047010 00070	Amcafe	<u>Amcoach</u>	Amclub	<u>NA</u>	<u>NA</u>	N <sub>2</sub>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	N.
Frequency per Year	<u>3</u>	3 3	3		<u>3</u>	3
Servicing Cost/Year	<u>□</u> \$432	\$432	\$432	_	NA NA	N/
Annual spare parts cost per yr	\$780	\$78 <u>0</u>	\$780		NA NA	N.
Total- Opring Non-Trip Related	\$1,212	\$1,212	\$1,212		NA NA	N <sub>2</sub>
Total Opining Non-Trip Related	\$1,212	φι,212	91,212	IVA		
Trip Related Costs:						
Trip Helated Costs: Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	N/
- Light Repair	\$0	\$0	\$0		\$0	\$0
Pump out and Disposal	40	Ψ	<b>V</b> 0	Ψ0	Ψ0	ΨΟ
- Pump out Cost	\$0.27	\$0.43	\$0.21	NA	NA	N/
- Pump out minutes	0.45	0.71	0.35		NA NA	N/
- Connect/Disc. minutes	0.0	0.0	0.0		NA NA	N/
- Waste Disposal	\$0.92	\$1.4 <u>6</u>	\$0.71		NA NA	N.
Subtotal- End of Day/Trip Srvc	\$13.19	\$13.88	\$12.92		NA NA	N/
Train Delay:	ψισ.13	Ψ10.00	φ12.92	INA	INO	14/
- Pump out volume reg'd	0	0	0	NA	NA	N/
- # of stops req'd	0	0	0		NA NA	N/
- Pump out minutes	0.0	0.0	0.0		NA NA	N/
- Connect/Disc. minutes	0.0 0.0	0.0	0.0		NA NA	
- Total Time Delay(mins/car)	<u>0.0</u> 0	<u>0.0</u> 0	<u>0.0</u> 0	NA NA	NA NA	<u>N/</u>
Average Cost Per Delay	\$0	\$0	\$0			
Subtotal- Opring Trip Related	\$13	\$14	\$0 \$13	NA NA	NA .	. N/
Subtotal-Opting Trip related	\$13	<b>Φ14</b>	\$13	NA NA	NA NA	N
Total # Cars in fleet	45	266	24	NA	NA	N/
Total Annual Car-days	16,425	97,090	8,760	NA	NA	N/
	70,725	07,000	0,705	147	14/1	147
Adjusted Total Car-days	11,498	67,963	6,132	NA	NA	N/
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$3,370	\$3,547	\$3,301	NA	NA	N
Annual Non-Trip Related per Car	\$1,212	\$1,212	\$1,212	NA	NA	N
Annual Opring Trip Related per Car Type	\$151,641	\$943,629	\$79,224	NA ·	NA	N
Annual Non-Trip Related per Car Type	<u>\$54,540</u>	\$322,392	\$29,088	<u>NA</u>	NA	N/
Total OPRTNG COST per Car	\$4,582	\$4,759	\$4,513	NA	NA	N
Total CAPITAL COST per Car	\$28,016	\$28,016	\$28,016	. NA	NA	N/

Amtrak Route:	Benjamin Franklin		Route Number:	#193		
Origin/Destination:	Boston-Philadelphia					
Length in Miles:	322					
Length in Hours:	6.55					
Expected Trips per Day:	2					
Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc			,		
Scenario:	Expected	•				
* All data on per car basis (unless noted or	therwise)					
·	20000	21000	20100	NA	NA	NA
	<u>Amcafe</u>	<u>Amcoach</u>	<u>Amclub</u>	<u>NA</u>	NA	<u>NA</u>
Quantity of cars	1	1	3	NA	NA	NA
Capacity (# people) - seated	53	84	41	NA	NA	NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
Car Waste Data (per car)					· ·	
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.00	0.0	NA	NA	NA
ridan rididaday (gala)	0.0	0.0	0.0	INA	IVA	NA.
Capacity Req'd/day (gals)	13.0	20.6	10.0	, NA	ŅA	NA
Adj. Capacity Req'd w/ Buffer	16.2	25.7	12.6	NA	NA	NA
Tank Capacity per Car (gals)	27	27	27	NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	40 55%	25 35%	52 72%	, NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	3.0	1.9	3.9	NA	NA	NA
As a percentage of 3 days	101.55%	64.07%	131.28%	NA NA	NA	NA
Consecutive Trips before pumpout	6.0	3.0	7.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$6,500	\$6,500	\$6,500	NA	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$576	\$576	\$576	NA	, NA	NA
T-4-1 O	A7 A7A	AT ATA	AT ATA	A.I.A.		

\$7,076

\$7,076

NA

NA

NA

\$7,076

Amtrak Route:	Benjamin Franklin		Route Number: #	193		
Origin/Destination:	Boston-Philadelphia					
Length in Miles:	322					
Length in Hours:	6.55					
Expected Trips per Day:	2					
Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc					
Scenario:	Expected			•		
* All data on per car basis (unless noted of	therwise)					
	20000	21000	20100	NA	NA	N.
OPERATING COSTS	<u>Amcafe</u>	<u>Amcoach</u>	<u>Amclub</u>	NA	<u>NA</u>	N
Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$576	NA	NA	N
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$1,728	\$1,728	\$1,728	NA	NA	N/
Annual spare parts cost per yr	<u>\$195</u>	\$195	\$195	NA	NA	N
Total- Opring Non-Trip Related	\$1,923	\$1,923	\$1,923	NA	NA NA	N/
			<del></del>			
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	N
- Light Repair	\$0	\$0	\$O	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.13	\$0.21	\$0.10	NA	NA	N
- Pump out minutes	0.22	0.34	0.17	NA	NA	N/
- Connect/Disc. minutes	0.0	0.0	0.0	NA NA	NA	N/
- Waste Disposal	\$0.57	\$0.9 <u>1</u>	\$0.44	NA	NA NA	N/
Subtotal- End of Day/Trip Srvc	\$12.70	\$13.11	\$12.54	NA.	NA NA	, <u>14</u>
Train Delay:	Ψ12.70	φ10.11	<b>\$12.54</b>	INO.	NO.	147
- Pump out volume reg'd	0	0	0	NA	NA	N
- # of stops req'd	0	0	0	NA NA	NA NA	N/
	<del>-</del>	<del>-</del>				
- Pump out minutes	0.0	0.0	0.0	NA.	NA	N/
- Connect/Disc. minutes	<u>0.0</u>	0.0	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>N</u>
- Total Time Delay(mins/car)	0	0	0	NA	NA	N/
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	N
Subtotal- Opring Trip Related	\$13	\$13	\$13	NA NA	NA NA	N/
Total # Cars in fleet	45	266	24	NA	NA	N
Total Annual Car-days	16,425	97,090	8,760	NA	NA	N/
Adjusted Total Car-days	11,498	67,963	6,132	NA	NA	N/
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$3,245	\$3,350	\$3,205	NA	NA	N/
Annual Non-Trip Related per Car	\$1,923	\$1,923	\$1,923	NA	NA	N
Annual Oprtng Trip Related per Car Type	\$146,035	\$891,109	\$76,911-	NA	NA	N/
Annual Non-Trip Related per Car Type	\$86,535	<u>\$511,518</u>	<u>\$46,152</u>	<u>NA</u>	NA	<u>N</u>
Total OPRTNG COST per Car	\$5,168	\$5,273	\$5,128	NA	NA	N.
Total CAPITAL COST per Car	\$7,076	\$7,076	\$7,076	NA NA	NA NA	N.
Jiii iiii Goot pei oai	Ψ1,010	Ψ1,070	φ1,016	INA	NO	147
Total OPRTNG COST for all cars	\$232,570	\$1,402,627	\$123,063	NA	NA	N/
Total CAPITAL COST for all cars	\$318,420	\$1,882,216	\$169,824	IN.	- 10	IN/

Amtrak Route: Origin/Destination:	Benjamin Franklin Boston-Philadelphia	a	Route Number: #1	193		
Length in Miles:	322	-				
Length in Hours:	6.55					
Expected Trips per Day:	2					
Manufacturer:	Microphor					
Equipment:	Gravity					
• •	•					
Scenario:	Expected					
* All data on per car basis (unless noted		04000	00400	NA	NA	NA
	20000 <u>Amcafe</u>	21000 Amcoach	20100 Amclub	NA NA	NA NA	NA NA
0				NA	NA	NA.
Quantity of cars	1	1	3	NA NA	NA NA	NA NA
Capacity (# people) - seated Toilets per car	53 2	84. 2	41 2	NA NA	NA NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA NA	NA NA	NA
Average persons/loner on train	20.3	42.0	20.0	707		
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)		<i>∞</i> 37.72	18.41	NA	NA	· NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	70.2	111.2	54.3	NA	NA	NA
Capacity Req'd/day (gals)	51.3	81.3	39.7	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	64.1	101.6	49.6	NA NA	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
rain capacity per car (gais)		000	333	,		
Continuous Service Hours Supported	112	71	145	NA NA	NA NA	NA . NA
As a percentage of 72 hours	156%	98%	5 202%	NA	IVA	. 146
Probable Service Hours per Day	13.1	13.1	13.1	13.1 "	13.1	13.1
Service Days Supported	8.6	5.4	11.1	NA	NA	NA
As a percentage of 3 days	285.68%	180.25%		NA	NA	NA
Consecutive Trips before pumpout	17.0	10.0	22.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	\$10,000	\$10,000	\$10,000	NA NA	NA NA	NA.
- Total Equip Cost	\$20,000	\$20,000	\$20,000	NA	NA NA	NA NA
Equipment Installation	\$25,500	<b>4.0,000</b>	7,			
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	\$576	\$576	\$57 <u>6</u>	0.00 NA	NA NA	NA NA
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA NA
- Total Capital Cost	\$1,102 \$01.150	\$1,102 \$01.152	\$1,102 \$31,153	NA NA	NA	NA.

\$21,152

NA

\$21,152

NA

NA

# **Λrtlur D Little**

\$21,152

Amtrak Route:	Benjamin Franklin		Route Number: #193			
Origin/Destination:	Boston-Philadelphia		· · · · · · · · · · · · · · · · · · ·			
Length in Miles:	322					
Length in Hours:	6.55					
Expected Trips per Day:	2					
Manufacturer:	Microphor					
Equipment:	Gravity					
Scenario:	Expected					
* All data on per car basis (unless noted of	otherwise)	•				
	20000	21000	20100	NA	NA	NA
	<u>Amcafe</u>	Amcoach	<u>Amciub</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$43 <u>2</u>	NA	NA	NA.
Annual spare parts cost per yr	\$600	\$600	\$600	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,032	\$1,032	\$1,032	NA NA	NA	NA
						<del></del>
Trip Related Costs:	,					
Toilet maintenance enroute	•					
End of Day/Trip Servicing				,		
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0
Pump out and Disposal						
- Pump out Cost	\$0.51	\$0.81	\$0.40	NA	NA	NA
- Pump out minutes	0.86	1.36	0.66	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$1.74</u>	<u>\$2.76</u>	<u>\$1.35</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$14.26	\$15.58	\$13.75	NA	NA	NA
Train Delay:				•		
- Pump out volume req'd	0	. 0	0	NA	NA ·	NA
- # of stops req'd	0	Ò	0	NA	, NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	· NA	NA	NA
Average Cost Per Delay	\$0	\$0	<b>\$0</b>	NA	NA	NA
Subtotal- Oprtng Trip Related	\$14	\$16	\$14	NA NA	NA	NA.
					<u> </u>	
Total # Cars in fleet	45	266	24	NA	NA	NA
						•
Total Annual Car-days	16,425	97,090	8,760	NA	NA	NA
Adjusted Total Car-days	11,498	67,963	6,132	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
		•				
Annual Oprtng Trip Related per Car	\$3,643	\$3,980	\$3,512	NA	NA	NA
Annual Non-Trip Related per Car	\$1,032	\$1,032	\$1,032	NA	NA	NA
Annual Onder Title Publisher Co.	****	A4 655 56 :	40 1	***	***	
Annual Oprtng Trip Related per Car Type		\$1,058,704	\$84,292	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$46,440</u>	<u>\$274.512</u>	<u>\$24,768</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total ODDITALO COOT C	04.075	05.045		414	<b>51</b> *	
Total OPRTNG COST per Car	\$4,675	\$5,012	\$4,544	NA NA	NA NA	NA NA
Total CAPITAL COST per Car	\$21,152	\$21,152	\$21,152	NA	NA	NA
Tetal OPPTNG COST for all	<b>#040.004</b>	#4 500 540	¢400.000	,	a systematics	SELVES OF KITE
Total OPRTNG COST for all cars	\$210,364	\$1,333,216	\$109,060	NA	NA NA	NA
Total CAPITAL COST for all cars	\$951,840	\$5,626,432	\$507,648	NA	NA	NA NA

Amtrak Route:	Benjamin Franklin		Route Number:	#193		
Origin/Destination:	Boston-Philadelphia					•
Length in Miles:	322					
Length in Hours:	6.55					
Expected Trips per Day:	2					
, Manufacturer:	Evac		•			
Equipment:	Ultimate	•		•		
Scenario:	Expected					
* All data on per car basis (unless noted of	therwise)		•			
	20000	21000	20100	NA	NA	NA
	Amcafe	Amcoach	<u>Amclub</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	1	1	3	NA	NA NA	NA
Capacity (# people) - seated Toilets per car	53 2	84 2	41 2	NA NA	NA NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA NA	NA NA	NA NA
Average personationer on train		72.0	20.5	NA	140	I VI
Car Waste Data (per car)						•
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	19.2	30.4	14.8	NA	NA	. NA
Capacity Req'd/day (gals)	23.5	37.2	18.1	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	29.3	46.5	22.7	NA	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	164 227%	103 143%	212 294%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	12.5	7.9	16.2	NA	NA	NA
As a percentage of 3 days	416.52%	262.80%	538.43%	NA	NA	NA
Consecutive Trips before pumpout	24.0	15.0	32.0	NA	. NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$5,800                                   </u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$17,800	NA	NA	· NA
Equipment Installation		_			<b>.</b>	,
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	NA
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA

\$19,816

\$19,816

### **Λrtlur D Little**

Amtrak Rou		Benjamin Franklin Route Number: #193						
Origin/Dest	nation:	Boston-Philadelphia			<del></del>			
Length in M	liles:	322	1	*				
Length in H	ours:	6.55						
Expected T	rips per Day:	2						
Manufactur	• •	Evac						
Equipment:		Ultimate						
Scenario:		Expected						
	n per car basis (unless noted o	•						
All data o	ii pei cai basis (uilless floted o	20000	21000	20100	NA	NA	NA	
		Amcafe	Amcoach	Amclub	NA NA	NA NA	NA NA	
OPERATIN Non-Trip R	G COSTS elated Costs:	- Williams		<u> </u>	<u></u>	1111	141	
•	/major servicing	\$144	\$144	\$144	NA	NA	NA	
Frequency	•	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	
Servicing C	•	\$432	\$43 <u>2</u>	\$43 <b>2</b>	NA NA	NA	NA	
-	are parts cost per yr	\$534	\$ <u>534</u>	\$53 <u>4</u>	NA NA	NA NA		
•					<del></del>		<u>NA</u>	
rotal- Opri	ng Non-Trip Related	\$966	\$966	\$966	NA NA	NA NA	NA NA	
Trip Relate								
End of Da	ntenance enroute y/Trip Servicing							
- Cleaning		\$12	\$12	\$12	NA	NA	NA	
- Light Re	pair	\$0	\$0	\$0	\$0	\$0	\$0	
Pump out	and Disposal							
- Pump ou	t Cost	\$0.23	\$0.37	\$0.18	NA	NA	NA	
- Pump o	ut minutes	0.39	0.62	0.30	NA	NA	NA	
- Connec	t/Disc. minutes	0.0	0.0	0.0	NA	NA	NA	
- Waste D	·	\$0.80	\$1.26	\$0.62	NA NA	<u>NA</u>	<u>NA</u>	
	End of Day/Trip Srvc	· \$13.03	\$13.64	\$12.80	NA	NA	NA	
Train Dela	•	<b>V</b> 10.55	<b>\$10.5</b> 4	Ψ12.00	144	1471	NO.	
	ut volume regid	0	0	. 0	NA	NA	A1A	
•	•						NA	
- # of stop		0	0	0	NA	NA	NA	
•	ut minutes	0.0	0.0	0.0	NA	NA	NA	
	t/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	
	me Delay(mins/car)	0	0	0	NA	NA	NA	
	ost Per Delay	\$0	\$0	\$0	NA	NA	NA	
Subtotal- C	prtng Trip Related	\$13	\$14	\$13	NA	NA NA	NA	
Total # Car	s in fleet	45	266	24	NA	NA	NA	
Total Annua	al Car-days	16,425	97,090	8,760	NA .	NA	NA	
		.0,1.20	0,,000	5,7.00			••••	
Adjusted To	tal Car-days	11,498	67,963	6,132	NA	NA	NA	
Days per Ti	ip (min. of 1)	1	1	1	1	1	1	
Annual Opr	ing Trip Related per Car	\$3,330	\$3,484	\$3,270	NA	NA	NA	
•	-Trip Related per Car	\$966	\$966	\$966	NA	NA	NA	
Annual Opr	ing Trip Related per Car Type	\$149,838	\$926,737	\$78,480	NA	NA	NA	
•	-Trip Related per Car Type	\$43,470	<u>\$256,956</u>	\$23,184	<u>NA</u>	NA	NA NA	
Total OPRT	NG COST per Car	\$4,296	\$4,450	\$4,236	NA	NA	NA	
	TAL COST per Car	\$19,816	\$19,816	\$19,816	NA	NA	NA	
Total OPF	ITNG COST for all cars	\$193,308	\$1,183,693	\$101,664	NA:	NA	NA NA	
	ITAL COST for all cars	·		\$475,584		· · · · · · · · · · · · · · · · · · ·	and the second of the second	

Amtrak Route:	Benjamin Franklin		Route Number:	#193		**
Origin/Destination:	Boston-Philadelphia		•			
Length in Miles:	322					
Length in Hours:	6.55				•	
Expected Trips per Day:	2				34	
Manufacturer:	Railtech					÷
Equipment:	WTS 8300					
Scenario:	Expected					
* All data on per car basis (unless noted	l otherwise)					
	20000	21000	20100	NA	NA	NA.
	<u>Amcafe</u>	<u>Amcoach</u>	<u>Amclub</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	1	1	3	NA	NA	NA
Capacity (# people) - seated Toilets per car	53 2	84 2	41 2	NA NA	NA NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
Car Waste Data (per car)						•
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	107.4	170.2	83.1	. NA	NA	NA
Capacity Req'd/day (gals)	71.6	113.5	. 55.4	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	89.5	141.9	69.2	NA	NA	NA
Tank Capacity per Car (gals)	100	100	100	NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	27 37%	17 23%	35 48%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	2.0	1.3	2.6	NA	NA	NA
As a percentage of 3 days	68.22%	43.05%	88.19%	NA NA	NA	NA
Consecutive Trips before pumpout	4.0	2.0	5.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$8,000	\$8,000	\$8,000	NA	NA	NA
Toilet Cost per Car	<u>\$6,000</u>	\$6,000	<u>\$6,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$14,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	NA	NA	NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$15,152	\$15,152	\$15,152	NA	NA NA	NA

#### **Λrthur D Little**

Amtrak Route: Origin/Destination: Length in Miles: Length in Hours:	Benjamin Franklin Boston-Philadelphia 322 6.55		Route Number:	#193	· 	•
Expected Trips per Day:	2					
Manufacturer: Equipment:	Railtech WTS 8300					
Scenario:	Expected					
* All data on per car basis (unless noted o	therwise)					
	20000 Amcafe	21000 <u>Amcoach</u>	20100 <u>Amclub</u>	NA <u>NA</u>	NA <u>NA</u>	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	· <u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$432	, NA	NA	NA
Annual spare parts cost per yr	<u>\$420</u>	<u>\$420</u>	<u>\$420</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$852	\$852	\$852	NA NA	NA NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing		,				
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.72	\$1.13	\$0.55	NA	NA	NA
- Pump out minutes	1.19	1.89	0.92		NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$2.43</u>	<u>\$3.86</u>	<u>\$1.88</u>	<u>NA</u>	ŅA	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$15.15	\$16.99	\$14.44	NA	NA	NA
Train Delay:	_	_	_			***
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA NA	NA NA	NA
- Pump out minutes	0.0	0.0	0.0	NA NA	NA NA	NA NA
<ul> <li>Connect/Disc. minutes</li> <li>Total Time Delay(mins/car)</li> </ul>	<u>0.0</u> 0	<u>0.0</u> 0	<u>0.0</u> 0	<u>NA</u> NA	<u>NA</u> NA	<u>NA</u> NA
Average Cost Per Delay	\$0	\$0	\$0	NA NA	NA NA	NA NA
Subtotal- Opring Trip Related	\$15	\$17	\$14	NA NA	NA NA	NA NA
Cabical Opining (11) I latered			<b>V14</b>			
Total # Cars in fleet	45	266	24	NA	NA	NA -
Total Annual Car-days	16,425	97,090	8,760	NA	NA	NA
Adjusted Total Car-days	11,498	67,963	6,132	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$3,871	\$4,342	\$3,689	NA	NA	NA
Annual Non-Trip Related per Car	\$852	\$852	\$852	NA NA	NA NA	NA NA
. ,					•	
Annual Oprtng Trip Related per Car Type	<b>\$174,196</b>	\$1,154,943	\$88,530	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$38,340</u>	<u>\$226.632</u>	<u>\$20,448</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$4,723	\$5,194	\$4,541	NA	NA	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$15,152		NA NA	NA
•	•					

NA

NA

NA

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

\$212,536

\$681,840

\$1,381,575

\$4,030,432

\$108,978

\$363,648

Amtrak Route: Route Number: #200 Metroliner Origin/Destination: Washington DC-New York Length in Miles: Length in Hours: 2.78 Expected Trips per Day: Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Expected \* All data on per car basis (unless noted otherwise) 21900 20970 NA NA NA <u>NA</u> Met-Srvc Dinette Met-Srvc Coach Met-Srvc Club NA NA NA Quantity of cars 1 4 NA NA NA 60 33 Capacity (# people) - seated 23 NA NA Toilets per car 2 2 2 NA NA NA NA 11.5 16.5 Average persons/toilet on train 30.0 Car Waste Data (per car) Black Water: Human Waste/day (gals) 10.33 26.94 14.82 NA NA NA # Flushes/Person-day 7:00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.063 0.063 0.063 0.063 0.063 0.063 Flush Fluids/day (gals) 11.2 29.1 16.0 NA NA NA NA NA Capacity Req'd/day (gals) 14.9 39.0 21.4 NA Adj. Capacity Req'd w/ Buffer 18.7 48.7 26.8 NA NA NA 235 235 235 235 235 235 Tank Capacity per Car (gals) NA 302 NA NA Continuous Service Hours Supported 116 211 161% NA 293% NA 420% NA As a percentage of 72 hours 16.68 16.68 16.68 16.68 16.68 16.68 Probable Service Hours per Day 12.6 NA NA NA Service Days Supported 18 1 69 603.87% 231.48% 420.88% NA NA NA As a percentage of 3 days Consecutive Trips before pumpout 108.0 41.0 75.0 NΑ NA NA **CAPITAL COSTS** \$21,000 Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 Toilet Cost per Car \$5,000 \$5,000 \$5,000 <u>NA</u> <u>NA</u> <u>NA</u> NA NA - Total Equip Cost \$26,000 \$26,000 \$26,000 NA Equipment Installation \$1,440 \$1,440 Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 Toilet Cost per Car \$576 <u>\$576</u> <u>\$576</u> <u>NA</u> <u>NA</u> <u>NA</u> - Total Installation Cost \$2,016 \$2,016 \$2,016 NA NA NA

\$28,016

\$28,016

\$28,016

NA

NA

NA

<u> </u>	Metroliner		Route Number:	#200	<u>-</u>	
Origin/Destination:	Washington DC-Ne	ew York				
Length in Miles:	225					
Length in Hours:	2.78	:				
Expected Trips per Day:	6					
Manufacturer:	Monogram					
Equipment:	Modified Vacuum					
Scenario:	Expected		•			
* All data on per car basis (unless noted	d otherwise)					
	20900	.21900	20970	NA	NA	NA
	Met-Srvc Dinette	Met-Srvc Coach	Met-Srvc Club	<u>NA</u>	<u>NA</u>	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	•	3	3	<u>3</u>	3	3
Servicing Cost/Year	3 \$432	\$432	<u>3</u> \$432	NA NA	NA NA	NA NA
Annual spare parts cost per yr	\$780	\$780	\$780	NA NA	NA NA	NA NA
Total- Opring Non-Trip Related	\$1,212	\$1,212	\$1,212	NA NA	NA NA	NA NA
Total- Opining Non-Trip Helated	91,212	\$1,212	\$1,212	IVA	INA .	140
Tto Balancia Control						
Trip Related Costs:				•		
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.15	\$0.39	\$0.21	NA	NA	NA
- Pump out minutes	0.25	0.65	0.36	NA	NA	NA NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA:	NA
- Waste Disposal	<u>\$1.52</u>	<u>\$3.97</u>	<u>\$2.19</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.67	\$16.36	\$14.40	NA	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$14	\$16	\$14	NA NA	NA	NA
Total # On on in flact						
Total # Cars in fleet	13	50	13	NA NA	NA	NA
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
Adjusted Total Car-days	3,322	12,775	3,322	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$3,493	\$4,181	\$3,679	NA	NA	NA
Annual Non-Trip Related per Car	\$1,212	\$1,212	\$1,212	NA	NA	NA
Annual Opring Trip Related per Car Typ	e \$45,413	\$209,032	\$47,828	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$15.756</u>	\$60,600	<u>\$15,756</u>	<u>NA</u>	<u>NA</u>	NA
	\$4,705	\$5,393	\$4,891	NA	NA	NA
Total OPRTNG COST per Car						

Amtrak Route: Metroliner Route Number: #200 Washington DC-New York Origin/Destination: Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Monogram Equipment: Self-Cont'd Recirc Scenario: Expected \* All data on per car basis (unless noted otherwise) 20900 21900 20970 NA NA NA **Met-Srvc Dinette** Met-Srvc Coach Met-Srvc Club <u>NA</u> NA NΑ NA NA NA Quantity of cars Capacity (# people) - seated 23 60 33 NA NA NA NA NA NA 2 Toilets per car 2 2 Average persons/toilet on train 11.5 30.0 16.5 NA NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 10.33 26.94 14.82 NA NA NA 7.00 7.00 7.00 7.00 7.00 # Flushes/Person-day 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 7.7 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 0.000 Flush Fluids/flush (gals) 0.000 0.000 0.000 0.000 0.000 Flush Fluids/day (gals) 0.0 0.0 0.0 NA NA NA Capacity Req'd/day (gals) 7.2 18.7 10.3 NA NA NA Adj. Capacity Req'd w/ Buffer 9.0 23.4 12.9 NA NA NA Tank Capacity per Car (gals) 27 27 27 NA NA NA Continuous Service Hours Supported 72 28 50 NA NA NA As a percentage of 72 hours 100% 38% 70% NA NA NA Probable Service Hours per Day 16.68 16.68 16.68 16.68 16.68 16.68 Service Days Supported 4.3 1.7 3.0 NA NA NA As a percentage of 3 days 144.34% 55.33% 100.60% NA NA NA Consecutive Trips before pumpout 25.0 9.0 18.0 NA NA NA CAPITAL COSTS Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 Toilet Cost per Car \$6,500 \$6,500 \$6,500 <u>NA</u> <u>NA</u> <u>NA</u> \$6,500 - Total Equip Cost \$6,500 \$6,500 NA NA NA Equipment Installation \$0 \$0 \$0 \$0 \$0 \$0 Collection System per Car Toilet Cost per Car \$576 \$576 \$576 NΑ <u>NA</u> <u>NA</u> - Total Installation Cost \$576 NA NA NA \$576 \$576

\$7,076

\$7,076

NA

NA

NA

\$7,076

Route Number: #200 Amtrak Route: Metroliner Washington DC-New York Origin/Destination: Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Monogram Equipment: Self-Cont'd Recirc Scenario: Expected \* All data on per car basis (unless noted otherwise) 20900 21900 20970 NA NA NA Met-Srvc Club <u>NA</u> NA NA Met-Srvc Dinette Met-Srvc Coach OPERATING COSTS Non-Trip Related Costs: \$576 NA Labor cost/major servicing \$576 \$576 NA NA Frequency per Year 3 3 <u>3</u> 3 3 3 Servicing Cost/Year \$1,728 NA NA NA \$1,728 \$1,728 Annual spare parts cost per yr \$195 \$195 \$195 NA NA <u>NA</u> Total- Oprtng Non-Trip Related \$1,923 \$1,923 \$1,923 NA NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing NA - Cleaning \$12 \$12 \$12 NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal \$0.07 \$0.19 \$0.10 NA - Pump out Cost NA NA - Pump out minutes 0.12 0.31 0.17 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA - Waste Disposal \$0.95 \$2.47 \$1.36 NΑ <u>NA</u> NA Subtotal- End of Day/Trip Srvc \$13.02 \$14.66 \$13.46 NA NA NA Train Delay: NA - Pump out volume reg'd 0 0 0 NA NA 0 NA - # of stops reg'd 0 0 NA NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 0.0 <u>NA</u> 0.0 <u>NA</u> <u>NA</u> - Total Time Delay(mins/car) 0 0 0 NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA Subtotal-Opring Trip Related \$13 \$15 \$13 NA NA NA Total # Cars in fleet 13 50 NA NA 13 NA Total Annual Car-days 4,745 18,250 4,745 NA NA NA Adjusted Total Car-days 3.322 12.775 3.322 NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 1 Annual Opring Trip Related per Car \$3,326 \$3,745 \$3,440 NA NA NA Annual Non-Trip Related per Car \$1,923 \$1,923 \$1,923 NA NA NA Annual Opring Trip Related per Car Type \$43,243 \$187,265 \$44,715 NA NA NA Annual Non-Trip Related per Car Type \$24,999 \$96,150 \$24,999 NA. <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$5,249 \$5,668 \$5,363 NA NA NA Total CAPITAL COST per Car \$7,076 \$7,076 \$7,076 NΑ NA NA

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

\$68,242

\$91,988

\$283,415

\$353,800

\$69,714

\$91,988

NA

NA

NA

NA

NA

NA

Amtrak Route: Route Number: #200 Metroliner Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Microphor Equipment: Gravity Scenario: Expected \* All data on per car basis (unless noted otherwise) 20970 20900 21900 NA NA NA Met-Srvc Dinette Met-Srvc Club <u>NA</u> Met-Srvc Coach NA NΑ Quantity of cars 1 4 1 NA NA NA Capacity (# people) - seated NA 23 60 33 NA NA Toilets per car 2 2 2 NA NA NA Average persons/toilet on train 11.5 30.0 16.5 NA NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 10.33 26.94 14.82 NA NA NA # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.172 0.172 0.172 0.172 0.172 0.172 Flush Fluids/day (gals) 30.5 79.5 43.7 NA NA NA Capacity Req'd/day (gals) 28.3 74.0 40.7 NA NA NA Adj. Capacity Reg'd w/ Buffer 35.4 92.4 50.8 NA NA NA Tank Capacity per Car (gals) 300 300 300 300 300 300 Continuous Service Hours Supported 203 142 NA NA 197% As a percentage of 72 hours 282% 108% NA NA NA Probable Service Hours per Day 16.68 16.68 16.68 16.68 16.68 16.68 Service Days Supported 12.2 4.7 8.5 NA NA NA As a percentage of 3 days 406.06% 155.65% 283.01% NA NA NA Consecutive Trips before pumpout 73.0 28.0 50.0 NA NA NA **CAPITAL COSTS** Collection System per Car \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 Toilet Cost per Car \$10,000 \$10,000 \$10,000 <u>NA</u> <u>NA</u> <u>NA</u> - Total Equip Cost \$20,000 \$20,000 \$20,000 NA NA NA Equipment Installation Collection System per Car \$576 \$576 \$576 \$576 \$576 \$576 Toilet Cost per Car \$576 \$576 \$576 NA NA <u>NA</u>

\$1,152

\$21,152

\$1,152

\$21,152

NA

NA

NA

NA

NA

NA

\$1,152

\$21,152

- Total Installation Cost

Amtrak Route:	Metroliner		Route Number: #20	10		
Origin/Destination:	Washington DC-Ne	w York				
Length in Miles:	225.					
Length in Hours:	2.78					
Expected Trips per Day:	6					
Manufacturer:	Microphor					
Equipment:	Gravity			(		
Scenario:	•					
	Expected					
All data on per car basis (unless noted of	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA NA	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:	WOL OIVE BINGRO	MOL ONO GOASII	Wat 5175 Stag	<u></u>	1213	
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$43 <u>2</u>	\$432	\$43 <u>2</u>	NA	NA	NA.
Annual spare parts cost per yr	\$600	\$600	\$600	NA	<u>NA</u>	NA
Total- Opring Non-Trip Related	\$1,032	\$1,032	\$1,032	NA	NA	NA
				<del></del>		
Trip Related Costs: Toilet maintenance enrowte						
End of Day/Trip Servicing	<b>*</b>	<b>*</b> * *	A	***	***	***
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	<b>*</b>					
- Pump out Cost	\$0.28	\$0.74	\$0.41	NA	NA	NA
- Pump out minutes	0.47	1.23	0.68	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$2.89</u>	<u>\$7.54</u>	<u>\$4.15</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$15.17	\$20.28	\$16.56	NA -	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	NA
-# of stops req'd	0	0	0	. NA	NA	NA
- Pump out minutes	0.0	0.0	. 0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	. 0	NA	,NA	· NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$15	\$20	\$17	NA NA	NA NA	NA NA
Total # Cars in fleet	13	50	13	NA	NA	NA
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
Advisted Total Can days	2 200	10:775	2.000	818		A1A
Adjusted Total Car-days  Days per Trip (min. of 1)	3,322	12,775	3,322	NA 1	NA 1	ŅA
Days per Trip (Illin. Of 1)	. '	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$3,877	\$5,182	\$4,230	NA	NA .	NA
Annual Non-Trip Related per Car	\$1,032	\$1,032	\$1,032	NA	NA ·	NA
Annual Opring Trip Related per Car Type	\$50,404	\$259,109	\$54,989	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$13,416</u>	<u>\$51,600</u>	\$13.416	<u>NA</u>	<u>NA</u>	NA
Total OPRTNG COST per Car	\$4,909	\$6,214	ee ooo	NA	NIA	RI A
Total CAPITAL COST per Car	\$21,152	\$21,152	\$5,262 \$21,152	NA NA	NA NA	NA NA
Total OPRTNG COST for all cars	\$63,820	\$310,709	\$68,405	NA:	NA	NA
Total CAPITAL COST for all cars	\$274,976	\$1,057,600	\$274,976	ŇA	NA	NA

Amtrak Route: Metroliner Route Number: #200 Origin/Destination: Washington DC-New York Length in Miles: 225 2.78 Length in Hours: Expected Trips per Day: 6 Manufacturer: Evac Equipment: Ultimate Scenario: Expected \* All data on per car basis (unless noted otherwise) 21900 20970 NA NA Met-Srvc Dinette Met-Srvc Club NA NA NA Met-Srvc Coach NA NA NA Quantity of cars 1 4 NA Capacity (# people) - seated 23 60 33 NA NA Toilets per car 2 2 2 NA NA NA Average persons/toilet on train 11.5 30.0 16.5 NA NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 10.33 26.94 14.82 NA NA NA 7.00 7.00 7.00 7.00 # Flushes/Person-day 7.00 7.00 1.10 1.10 1.10 1.10 Flush efficiency adjustment 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.047 0.047 0.047 0.047 0.047 0.047 Flush Fluids/day (gals) 21.7 11.9 NA NA NA 8.3 Capacity Req'd/day (gals) 13.0 33.8 18.6 NA NA NA Adj. Capacity Reg'd w/ Buffer 16.2 42.3 23.2 NA NA NA 200 200 200 200 Tank Capacity per Car (gals) 200 200 NA NA NA NA Continuous Service Hours Supported 296 114 206 NA As a percentage of 72 hours 411% 158% 287% NA 16.68 16.68 16.68 16.68 16.68 16.68 Probable Service Hours per Day 12.4 NA NA NA Service Days Supported 178 68 NA As a percentage of 3 days 592.02% 226.94% 412.62% NA NA 106.0 40.0 74.0 NA NA NA Consecutive Trips before pumpout CAPITAL COSTS \$12,000 Collection System per Car \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 Toilet Cost per Car \$5,800 \$5,800 \$5,800 <u>NA</u> <u>NA</u> <u>NA</u> - Total Equip Cost \$17,800 \$17,800 \$17,800 NA NA NA Equipment Installation Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 Toilet Cost per Car \$576 **\$576** <u>\$576</u> <u>NA</u> <u>NA</u> <u>NA</u> NA NA NA - Total Installation Cost \$2,016 \$2,016 \$2,016

\$19,816

\$19,816

NA

NA

NA

**Total Capital Cost** 

\$19,816

Amtrak Route: Metroliner Route Number: #200 Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Evac Equipment: Ultimate Expected Scenario: \* All data on per car basis (unless noted otherwise) 21900 20970 NA NA Met-Srvc Coach NA Met-Srvc Dinette Met-Sryc Club NA NA OPERATING COSTS Non-Trip Related Costs: Labor cost/major servicing \$144 \$144 \$144 NA NA NA Frequency per Year 3 3 <u>3</u> 3 NA NA \$432 \$432 NA Servicing Cost/Year \$432 Annual spare parts cost per yr \$534 <u>\$534</u> <u>\$534</u> <u>NA</u> <u>NA</u> <u>NA</u> Total- Opring Non-Trip Related \$966 \$966 \$966 NA NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$12 \$12 \$12 NA NA - Cleaning NA \$0 - Light Repair \$0 \$0 \$0 \$0 \$0 Pump out and Disposal \$0.13 \$0.34 \$0.19 NA NA - Pump out Cost NA - Pump out minutes 0.22 0.56 0.31 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA - Waste Disposal \$1.32 \$3.45 \$1.90 NA NA <u>NA</u> Subtotal- End of Day/Trip Srvc \$13.45 \$15.79 \$14.08 NA NA NA Train Delay: - Pump out volume req'd 0 0 0 NA NΑ NA - # of stops req'd 0 0 0 NA NA NA - Pump out minutes 0.0 0.0 NA NA 0.0 NA - Connect/Disc. minutes 0.0 0.0 0.0 <u>NA</u> <u>NA</u> <u>NA</u> NA NA - Total Time Delay(mins/car) O n n NΔ Average Cost Per Delay \$0 \$0 \$0 NA NA NA Subtotal-Opring Trip Related \$13 \$16 \$14 NA NA NA Total # Cars in fleet 13 50 13 NA NA NA Total Annual Car-days 4,745 18,250 4,745 NA NA NA 3,322 Adjusted Total Car-days 12,775 3,322 NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 Annual Opring Trip Related per Car \$3,437 \$4,034 \$3,598 NA NA NA Annual Non-Trip Related per Car \$966 \$966 \$966 NA NA NA Annual Opring Trip Related per Car Type \$44,680 \$201,682 \$46,777 NA NA NA Annual Non-Trip Related per Car Type \$12,558 \$48,300 \$12,558 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$4,403 \$5,000 \$4,564 NA NA NA Total CAPITAL COST per Car \$19,816 \$19,816 \$19,816 NA NA NA

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

\$57,238

\$257,608

\$249,982

\$990,800

\$59,335

\$257,608

NA

NA

NA

NA

NA

NA

#200 Route Number: Amtrak Route: Metroliner Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: Manufacturer: Railtech WTS 8300 Equipment: Scenario: Expected \* All data on per car basis (unless noted otherwise) NA 20900 21900 20970 NA NA <u>NA</u> NΑ NΑ Met-Srvc Coach Met-Srvc Club Met-Srvc Dinette NA NA NA Quantity of cars 33 NA NΑ NΑ Capacity (# people) - seated 23 60 NA NA NA Toilets per car 2 2 2 16.5 NA NA NA Average persons/toilet on train 11.5 30.0 Car Waste Data (per car) Black Water: NA NA 14.82 NA Human Waste/day (gals) 10.33 26.94 7.00 7.00 7.00 7.00 7.00 7.00 # Flushes/Person-day 1.10 1.10 1.10 1.10 1.10 1.10 Flush efficiency adjustment Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 0.263 0.263 0.263 0.263 0.263 0.263 Flush Fluids/flush (gals) 46.6 121.6 66.9 NA NA NA Flush Fluids/day (gals) Capacity Req'd/day (gals) 39.6 103.2 56.8 NA NA NA 49.5 129.0 71.0 NA NA NA Adj. Capacity Reg'd w/ Buffer 100 100 100 NΑ NA NA Tank Capacity per Car (gals) Continuous Service Hours Supported 19 NA NA As a percentage of 72 hours 67% 26% NA NA Probable Service Hours per Day 16.68 16.68 16.68 16.68 16.68 16.68 2.9 2.0 NA NA NA Service Days Supported 1.1 96.97% 37.17% 67.59% NA NA NA As a percentage of 3 days NA NA NA Consecutive Trips before pumpout 17.0 6.0 12.0 CAPITAL COSTS \$8,000 \$8,000 \$8,000 NA NA NA Collection System per Car Toilet Cost per Car \$6,000 \$6,000 \$6,000 <u>NA</u> <u>NA</u> <u>NA</u> NA NA NA \$14,000 \$14,000 \$14,000 - Total Equip Cost Equipment Installation \$576 \$576 NA NA NA Collection System per Car \$576 Toilet Cost per Car \$576 \$576 \$576 <u>NA</u> <u>NA</u> <u>NA</u> - Total Installation Cost \$1,152 \$1,152 \$1,152 NA NA NA

\$15,152

\$15,152

NA

NA

NA

\$15,152

Amtrak Route:	Metroliner		Route Number:	#200		
Origin/Destination:	Washington DC-Ne	ew York				
Length in Miles:	225				-	
Length in Hours:	2.78					
Expected Trips per Day:	6			•		
Manufacturer:	Railtech					
Equipment:	WTS 8300				•	
Scenario:	Expected					
<ul> <li>All data on per car basis (unless noted</li> </ul>	•					
	20900	21900	20970	NA	NA	NA
OPERATING COSTS	Met-Srvc Dinette	Met-Srvc Coach	Met-Srvc Club	<u>NA</u>	<u>NA</u>	<u>NA</u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>3</u>	3	. <u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$432	NA NA	NA NA	NA
Annual spare parts cost per yr	\$420	\$420	\$4 <u>20</u>	NA.	<u>NA</u>	NA
Total- Opring Non-Trip Related	\$852	\$852	\$852	NA	NA	NA.
Total opining from the foliation						
Trin Bolated Costs:						
Trip Related Costs: Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.40	\$1.03	\$0.57	NA	ŅA	NA
- Pump out minutes	0.66	1.72	0.95	NA	NA	NA
<ul> <li>Connect/Disc. minutes</li> </ul>	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$4.04</u>	<u>\$10.53</u>	<u>\$5.79</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$16.43	\$23.56	\$18.36	NA	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA NA
- Connect/Disc. minutes	0,0	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	NA
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$16	\$24	\$18	NA	NA	NA
					,	
Total # Cars in fleet	13	50	13	NA	NA	NA
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
Adjusted Total Car-days	3,322	12,775	3,322	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
						_
Annual Opring Trip Related per Car	\$4,198	\$6,020	\$4,691	NA	NA	NA
Annual Non-Trip Related per Car	\$852	\$852	\$852	NA	NA	NA
•						
Annual Opring Trip Related per Car Type	e \$54,578	\$300,988	\$60,977	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$11.076</u>	\$42,600	\$11,076	<u>NA</u>	NA	<u>NA</u>
, , ,/			<u>*</u>	<del></del>	<del></del>	
Total OPRTNG COST per Car	\$5,050	\$6,872	\$5,543	NA	NA	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$15,152	NA NA	NA	NA NA

Amtrak Route: Hudson Highlander Route Number: #242 Origin/Destination: Albany-New York City Length in Miles: 142 Length in Hours: 2.62 Expected Trips per Day: Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Expected \* All data on per car basis (unless noted otherwise) 20200 21800 NA NA **Amdinette** NA NA NA Amcoach Amcoach NA NA 3 NA Quantity of cars 1 60 NA NA Capacity (# people) - seated 84 23 NA NA 2 NA NA Toilets per car 2 42.0 11.5 30.0 NA NA NΑ Average persons/toilet on train Car Waste Data (per car) Black Water: Human Waste/day (gals) 37.72 10.33 26.94 NA NA NΑ # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 0.063 0.063 Flush Fluids/flush (gals) 0.063 0.063 0.063 0.063 Flush Fluids/day (gals) 40.7 11.2 29.1 NA NA NA Capacity Req'd/day (gals) 51.4 14 1 36.7 NA NA NA NA NA Adj. Capacity Req'd w/ Buffer 64.2 17.6 45.9 NA Tank Capacity per Car (gals) 235 235 235 235 235 235 Continuous Service Hours Supported As a percentage of 72 hours 321 123 NA នន NA 171% NA NΑ 122% 445% 15.72 15.72 15.72 15.72 15.72 15.72 Probable Service Hours per Day 5.6 20.4 7.8 NA NA NΆ Service Days Supported 186.16% 679.88% 260.62% NA NΑ NA As a percentage of 3 days Consecutive Trips before pumpout 33.0 122.0 46.0 NA NA NA **CAPITAL COSTS** \$21,000 \$21,000 Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 Toilet Cost per Car \$5,000 \$5,000 \$5,000 <u>NA</u> <u>NA</u> <u>NA</u> - Total Equip Cost \$26,000 \$26,000 \$26,000 NA NA NA Equipment Installation \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 Collection System per Car \$1,440 Toilet Cost per Car \$576 <u>\$576</u> <u>\$576</u> NΑ NΑ NA - Total Installation Cost \$2,016 \$2.016 \$2,016 NA NA NA

\$28,016

\$28,016

NA

NA

NA

#### **Λrthur D Little**

**Total Capital Cost** 

\$28.016

Prigin/Destination: ength in Miles:	Albany-New York ( 142	-				
ength in Hours:	2.62					
expected Trips per Day:	6					
lanufacturer:	Monogram					
quipment:	Modified Vacuum					
icenario:	Expected	•				
'All data on per car basis (unless noted o	otherwise) 21000 <u>Amcoach</u>	20200 Amdinette	21800 <u>Amcoach</u>	NA NA	NA NA	N.
PERATING COSTS Non-Trip Related Costs:	<del></del>	<u> </u>		_	<del></del>	
Labor cost/major servicing	\$144	· \$144	\$144	NA	NA	N.
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	3
Servicing Cost/Year	\$432	\$432	\$432	NA	NA	N
Annual spare parts cost per yr	\$780	\$780	<u>\$780</u>	<u>NA</u>	<u>NA</u>	<u>N</u>
Total- Oprtng Non-Trip Related	\$1,212	\$1,212	\$1,212	NA	ŅA	N
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	N
- Light Repair	\$0	\$0	\$0	· \$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.51	\$0.14	\$0.37	NA	NA	N
- Pump out minutes	0.86	0.23	0.61	NA	NA	N
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	N
-Waste Disposal	\$5.24	\$1,44	\$3.74	NA	<u>NA</u>	N
Subtotal- End of Day/Trip Srvc	\$17.76	\$13.58	\$16.11	NA NA	NA NA	N
Train Delay:	*****	•	*			
- Pump out volume req'd	0	0	0	NA	NA	N
- # of stops req'd	0	0	0	NA	NA	N
- Pump out minutes	0.0	0.0	0.0	NA	NA	N
- Connect/Disc. minutes	0.0	0.0	<u>0.0</u>	NA	<u>NA</u>	N
- Total Time Delay(mins/car)	0	0	0	NA NA	NA NA	N
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	N
Subtotal- Oprtng Trip Related	\$18	\$14	\$16	NA NA	NA	N
Total # Cars in fleet	266	25	31	NA	NA	N
otal Annual Car-days	97,090	9,125	11,315	NA	NA	N
djusted Total Car-days	67,963	6,388	7,920	NA	NA	V
Pays per Trip (min. of 1)	1	1	1	1	1	3
Annual Oprtng Trip Related per Car	\$4,537	\$3,469	\$4,116	NA	NA	N
Annual Non-Trip Related per Car	\$1,212	\$1,212	\$1,212	NA <sub>.</sub>	NA	N
Annual Oprtng Trip Related per Car Type	\$1,206,761	\$86,717	\$127,611	NA	NA	N
Annual Non-Trip Related per Car Type	<u>\$322,392</u>	<u>\$30,300</u>	<u>\$37,572</u>	<u>NA</u>	<u>NA</u>	<u>N</u>
Total OPRTNG COST per Car	\$5,749	\$4,681	\$5,328	NA	NA	N
otal CAPITAL COST per Car	\$28,016	\$28,016	\$28,016	NA NA	NA	N
				•		

Amtrak Route: Origin/Destination: Length in Miles:

Hudson Highlander

Albany-New York City

142 2.62

Length in Hours: Expected Trips per Day:

6

Manufacturer:

Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Expected

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted	•					
	21000 Amcoach	20200 Amdinette	21800 Amcoach	NA NA	NA NA	NA NA
Quantity of cars	3	1	1	NA NA	NA NA	NA.
Capacity (# people) - seated	84	23	60	NA.	NA NA	NA NA
Toilets per car	2	. 2	2	NA	NA	NA
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	NA	NA	NA
Capacity Req'd/day (gals)	24.7	6.8	17.6	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	30.9	8.5	22.1	NA	NA	NA
Tank Capacity per Car (gals)	27	27	27	NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	21 29%	77 106%	29 41%	NA NA	NA NA	NA NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Service Days Supported	1.3	4.9	1.9	NA	NA	NA
As a percentage of 3 days	44.50%	162.51%	62.29%	NA	NA	NA
Consecutive Trips before pumpout	8.0	29.0	11.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$6,500	\$6,500	\$6,500	NA	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$576	\$576	\$576	NA	NA	NA
Total Capital Cost	\$7,076	\$7,076	\$7,076	NA	NANA	NA NA

Route Number:

#242

Amtrak Route:	Hudson Highlande		Route Number: #242			
Origin/Destination:	Albany-New York	Σπy				
Length in Miles:	142				-	•
Length in Hours:	2.62				•	
Expected Trips per Day:	6					
Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc	-				
Scenario:	Expected					
* All data on per car basis (unless noted of	otherwise) 21000 <u>Amcoach</u>	20200 Amdinette	21800 Amcoach	NA NA	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:			<del></del>		<u> </u>	_
Labor cost/major servicing	\$576	\$576	\$576	NA	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$1,728	\$1,728	\$1,728	NA	, NA	NA
Annual spare parts cost per yr	<u>\$195</u>	<u>\$195</u>	<u>\$195</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,923	\$1,923	\$1,923	NA.	NA	NA
T. D 10 .						
Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	<b>4</b> 0	••	45	<b>40</b>	<b>V</b> -0	70
- Pump out Cost	\$0.25	\$0.07	\$0.18	NA	NA	NA
- Pump out minutes	0.41	0.11	ψ0.18 0.29	NA NA	NA NA	NA NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA NA	NA NA	NA NA
- Waste Disposal	\$3.26	\$0.89	\$2.3 <u>3</u>	NA NA	NA NA	
Subtotal- End of Day/Trip Srvc	\$3.20 \$15.51	\$12.96	<u>\$2.33</u> \$14.51	NA NA	NA NA	<u>NA</u> NA
Train Delay:	\$15.51	\$12.96	\$14.51	NA	INA	NA
-	0	0	. 0	NA	NA	NA
<ul> <li>Pump out volume req'd</li> <li># of stops req'd</li> </ul>	0	0	0	NA NA	NA NA	NA NA
- # of stops red a - Pump out minutes	0.0	0.0	0.0	NA NA	NA NA	NA NA
- Connect/Disc. minutes						
- Total Time Delay(mins/car)	<u>0.0</u> 0	<u>0.0</u> 0	<u>0.0</u> 0	<u>NA</u> NA	<u>NA</u> NA	<u>NA</u> NA
	\$0	\$0				
Average Cost Per Delay	•	* -	\$0 *15	NA NA	NA NA	NA NA
Subtotal- Opring Trip Related	\$16	\$13	\$15	NA	NA	NA NA
Total # Cars in fleet	266	25	31	NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA	NA
Adjusted Total Car-days	67,963	6,388	7,920	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Americal Construct Trim Deleter disease Cons	<b>**</b> 000	20.044	<b>40.700</b>	<b>514</b>	NA	
Annual Opring Trip Related per Car	\$3,962	\$3,311	\$3,706	NA	NA	NA
Annual Non-Trip Related per Car	\$1,923	\$1,923	\$1,923	NA	NA	NA
Annual Opring Trip Related per Car Type	\$1,053,968	\$82,785	\$114,892	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$511,518</u>	\$48,075	\$59.613	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$5,885	\$5,234	\$5,629	· NA	NA	NA
Total CAPITAL COST per Car	\$7,076	\$7,076	\$7,076	NA ·	NA	NA
Total OPRTNG COST for all cars	\$1,565,486	¢120.000	\$174,505	NIA"	NA NA	°oo Sata
TOTAL OF THING COST IOF All Cars	· ; ; ; ф i , ; ; ; ; , 466 ·	\$130,860	<b>⊅174,5∪5</b>	NA	INA	NA

Amtrak Route:	Hudson Highlande	•	Route Number: #	242		
Origin/Destination:	Albany-New York (					
Length in Miles:	142	,				
Length in Hours:	2.62					
Expected Trips per Day:	6					
Manufacturer:	Microphor					
Equipment:	Gravity					
Scenario:	Expected					
* All data on per car basis (unless noted	•					
All data on por our basis (diffess florer	21000 Amcoach	20200 Amdinette	21800 Amcoach	NA NA	NA NA	NA NA
Occupation of assum	3	1	1	NA	NA	NA.
Quantity of cars	84	23	60	NA NA	NA NA	NA NA
Capacity (# people) - seated Toilets per car	2	2	2	NA	NA	NA NA
Average persons/toilet on train	42.0	11.5	30.0	NA	'NA	NA .
Car Waste Data (per car)						•
Black Water:						
Human Waste/day (gals) -	37.72	10.33	26.94	· NA	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	111.2	30.5	79.5	NA	NA	NA
Capacity Req'd/day (gals)	97.6	26.7	69.7	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	122.0	33.4	87.1	NA	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	. 300	300
Continuous Service Hours Supported As a percentage of 72 hours	59 82%	216 299%	83 115%	NA NA	NA NA	NA NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Service Days Supported	3.8	13.7	5.3	NA	NA	NA
As a percentage of 3 days	125.18%			NA	· NA	NA
Consecutive Trips before pumpout	22.0	82.0	31.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$10,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$20,0 <b>00</b>	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA

\$21,152

\$21,152

NA

NA

\$21,152

Oddala/Daddadladii	Albiant National	,				
	Albany-New York (	any				
Length in Miles:	142	-	•			
Length in Hours:	2.62					
Expected Trips per Day:	6					
	Microphor					
Equipment:	Gravity					
Scenario:	Expected		•	•		
* All data on per car basis (unless noted of	herwise)					
·	21000	20200	21800	NA	NA	
	<u>Amcoach</u>	<u>Amdinette</u>	<u>Amcoach</u>	<u>NA</u>	<u>NA</u>	
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	
Frequency per Year	3	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	
Servicing Cost/Year	<u>□</u> \$432	\$432	\$432	NA	NA <sup>*</sup>	
Annual spare parts cost per yr	\$600	\$600	\$600	NA ·	NA NA	
Total- Opring Non-Trip Related	\$1,032	\$1,032	\$1,032	NA	NA NA	
Total Opining Non-Trip Helated	41,002	Ψ1,03Z	Ψ1,00 <u>2</u>	11/1	197	
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing			•			
- Cleaning	\$12	\$12	\$12	NA	NA	
- Light Repair	\$0	\$0	\$0	\$0	\$0	
Pump out and Disposal	<b>*</b> -	*-	<del>, -</del>	**	**	
- Pump out Cost	\$0.98	\$0.27	\$0.70	NA	NA	
- Pump out minutes	1.63	0.45	1.16	NA NA	NA NA	
- Connect/Disc. minutes	0.0	0.0	0.0	NA NA	NA NA	
- Waste Disposal	\$9.95	\$2.73	\$7.11	NA	NA NA	
Subtotal- End of Day/Trip Srvc	\$22.93	\$14.99	\$19.81	NA	NA	
Train Delay:	<b>422.00</b>	<b>\$14.55</b>				
- Pump out volume req'd	0	0	0	NA	NA	
-# of stops req'd	0	0	o	NA NA	NA NA	
- Pump out minutes	0.0	0.0	0.0	NA NA	NA NA	
- Connect/Disc. minutes	0.0 0.0	<u>0.0</u>	0.0	NA NA	NA NA	
- Total Time Delay(mins/car)	<u>5.5</u> 0	<u>0,0</u>	<u>9.9</u> 0	NA NA	NA	
Average Cost Per Delay	\$0	\$0	\$0	NA NA	NA NA	
Subtotal- Opring Trip Related	\$23	\$15	\$20	NA NA	NA NA	
Subjoidi- Opting Trip Related	\$23	\$15	\$20	IVA	IVA	
Total # Cars in fleet	266	25	31	NA	NA	
Total Annual Car-days	97,090	9,125	11,315	NA	NA	
Adiomas d Tabel Con de	<b>07 4</b> • •	* **	=		****	
Adjusted Total Car-days	67,963	6,388	7,920	NA 1	NA'	
Days per Trip (min. of 1)	1	1	1	1	1	
Annual Opring Trip Related per Car	\$5,858	\$3,831	\$5,060	NA	NA	
Annual Non-Trip Related per Car	\$1,032	\$1,032	\$1,032	NA	NA NA	
	7.,552	¥1,532	4.,002		• • •	
Annual Oprtng Trip Related per Car Type	\$1,558,264	\$95,763	\$156,872	NA	NA	
Annual Non-Trip Related per Car Type	<u>\$274,512</u>	\$25,800	\$31,992	<u>NA</u>	<u>NA</u>	
Total OPRTNG COST per Car	\$6,890	\$4,863	\$6,092	NA	NA	
Total CAPITAL COST per Car	\$21,152	\$21,152	\$21,152	NA	NA	
Total OPRTNG COST for all cars	\$1,832,776	\$121,563	\$188,864	NA	NA	10

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Amtrak Route: Hudson Highlander Route Number: #242 Origin/Destination: Albany-New York City Length in Miles: 142 Length in Hours: 2.62 Expected Trips per Day: 6 Manufacturer: Evac Equipment: Ultimate Scenario: Expected \* All data on per car basis (unless noted otherwise) 20200 21800 <u>NA</u> NA NA Amcoach **Amdinette** Amcoach Quantity of cars 3 1 NA NA NA 60 NA NA Capacity (# people) - seated 84 23 NA Toilets per car 2 NA NA NA 30.0 NA NΑ NA Average persons/toilet on train 42.0 11.5 Car Waste Data (per car) Black Water: Human Waste/day (gals) 37.72 10.33 26.94 ÑΑ NΑ NA # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.047 0.047 0.047 0.047 0.047 0.047 Flush Fluids/day (gals) 30.4 8.3 21.7 NA NA NA Capacity Req'd/day (gals) NA NA 44.6 12.2 31.9 NA 55.8 39.8 Adj. Capacity Req'd w/ Buffer 153 NA NA NA Tank Capacity per Car (gals) 200 200 200 200 200 200 Continuous Service Hours Supported 314 437% 120 NΑ 120% NA NA NA As a percentage of 72 hours 167% Probable Service Hours per Day 15.72 15.72 15.72 15.72 15.72 15.72 Service Days Supported 20.0 7.7 NA 5.5 NA NA As a percentage of 3 days 182.50% 666.53% 255.50% NA NA NA Consecutive Trips before pumpout 32.0 119.0 45.0 NA NA NA **CAPITAL COSTS** \$12,000 Collection System per Car \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 Toilet Cost per Car \$5,800 \$5,800 \$5,800 <u>NA</u> <u>NA</u> <u>NA</u> - Total Equip Cost \$17,800 \$17,800 \$17,800 NA NA NA Equipment Installation \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 Collection System per Car Toilet Cost per Car \$576 \$576 <u>\$576</u> <u>NA</u> <u>NA</u> <u>NA</u> - Total Installation Cost \$2,016 \$2,016 \$2,016 NA NA NA

\$19,816

\$19,816

NA

NA

NA

\$19,816

Amtrak Route:	Hudson Highlande	r	Route Number:	#242		
Origin/Destination:	*Albany-New York (	City				
Length in Miles:	142					
Length in Hours:	2.62					•
Expected Trips per Day:	6					
Manufacturer:	Evac					
Equipment:	Ultimate					
Scenario:	Expected					ą
* All data on per car basis (unless noted o	therwise)					
	21000	20200	21800	NA	NA	N
OPERATING COSTS	Amcoach	<u>Amdinette</u>	Amcoach	<u>NA</u>	<u>NA</u>	<u>N</u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	N
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$432	NA	NA	N
Annual spare parts cost per yr	<u>\$534</u>	<u>\$534</u>	<u>\$534</u>	<u>NA</u>	<u>NA</u>	<u>N</u>
Total- Oprtng Non-Trip Related	\$966	\$966	\$966	NA	NA	N
,		<del></del>				
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	N
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal		·				
- Pump out Cost	\$0.45	\$0.12	\$0.32	NA	NA	N
- Pump out minutes	0.74	0.20	0.53	NA	NA	N
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	N
- Waste Disposal	\$4.55	\$1,25	\$3.25	<u>NA</u>	NA	N
Subtotal- End of Day/Trip Srvc	\$17.00	\$13.37	\$15.57	NA	NA	N
Train Delay:						
- Pump out volume reg'd	0	0	0	NA	NA	N
- # of stops reg'd	0	0	0	NA	NA	N
- Pump out minutes	0.0	0.0	0.0	NA	NA	N
- Connect/Disc. minutes	0.0	0.0	0.0	<u>NA</u>	<u>NA</u>	N
- Total Time Delay(mins/car)			_		NA	N
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	N
Subtotal-Opring Trip Related	\$17	\$13	\$16	NA	NA	N
				,		
Total # Cars in fleet	266	25	31	NA	NA	N
Total Annual Car-days	97,090	9,125	11,315	NA NA	NA	N
Adjusted Total Car-days	67,963	6,388	7,920	NA	NA	N
Days per Trip (min. of 1)	1	1			1	1
• • •		_	_	_	_	•
Annual Opring Trip Related per Car	\$4,343	\$3,416			NA	N
Annual Non-Trip Related per Car	\$966	\$966	\$966	NA	NA	N
Annual Opring Trip Related per Car Type	\$1,155,164	\$85,389	\$123,316	NA	NA	N
Annual Non-Trip Related per Car Type	<u>\$256,956</u>	<u>\$24,150</u>	,		<u>NA</u>	<u>N</u>
Total OPRTNG COST per Car	\$5,309	\$4,382	\$4,944	NA	NA	N
Total CAPITAL COST per Car	\$19,816	\$19,816			NA	N
The state of the s			\$19,816 \$153,262			

Amtrak Route: Origin/Destination: Length in Miles: Length in Hours:	Hudson Highlander Albany-New York C 142 2.62		Route Number:	#242	•	
Expected Trips per Day:	6					
Manufacturer:	Railtech					
Equipment:	WTS 8300					
Scenario:	Expected					
* All data on per car basis (unless noted o	•					
The data of por our busin (billions finited o	21000	20200	21800	NA	NA	NA
,	Amcoach	Amdinette	Amcoach	NA NA	NA NA	NA NA
Quantity of cars	3	1	1	NA NA	NA	NA
Capacity (# people) - seated	84	23	60	NA NA	NA	NA NA
Toilets per car	2	2	2	NA	NA NA	NA
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA
Car Waste Data (per car)				•	,	
Black Water:						
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	170.2	46.6	121.6	NA	NA	NA
Capacity Req'd/day (gals)	136.2	37.3	97.3	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	170.2	46.6	121.6	NA	NA	NA
Tank Capacity per Car (gals)	100	100	100	· NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	14 20%	51 72%	20 27%	NA NA	NA . NA	NA NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Service Days Supported	0.9	3.3	1.3	· NA	NA	NA
As a percentage of 3 days	29.89%	109.18%	41.85%	NA.	NA	NA
Consecutive Trips before pumpout	5.0	19.0	7.0	NA	NA	NA
CAPITAL COSTS .						
Collection System per Car	\$8,000	\$8,000	\$8,000	NA	NA	NA
Toilet Cost per Car	\$6,000	\$6,000	\$6,000	<u>NA</u>	<u>NA</u>	. <u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$14,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	NA	NA	NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA

\$15,152

\$15,152

NA

NA

NA

Total Capital Cost

\$15,152

						•
Amtrak Route:	Hudson Highlander		Route Number:	#242		
Origin/Destination:	Albany-New York C	City				•
Length in Miles:	142			-		
Length in Hours:	2.62					
Expected Trips per Day:	6 Railtech					
Manufacturer:	WTS 8300					
Equipment:				•		
Scenario:	Expected			,		•
* All data on per car basis (unless noted of	•		-1000	***	.,, .	
	21000 Amcoach	20200 Amdinette	21800 Amcoach	NA NA	NA NA	NA <u>NA</u>
OPERATING COSTS			<u></u>	<u></u>		
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$432	\$432	\$432	NA	NA	NA
Annual spare parts cost per yr	<u>\$420</u>	<u>\$420</u>	<u>\$420</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$852	\$852	\$852	NA	NA NA	NA
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	, <b>\$0</b>	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$1.36	\$0.37	\$0.97	NA	NA	NA
- Pump out minutes	2.27	0.62	1.62	NA	NA	-NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$13.89</u>	<u>\$3.80</u>	<u>\$9.92</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$27.25	\$16.18	\$22.90	NA	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	`NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	0.0	0.0	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$27	\$16	\$23	NA NA	NA	NA NA
Total # Cars in fleet	266	25	31	NA ,	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA	NA
Adjusted Total Car-days	67,963	6,388	7,920	NA .	NA	NA .
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Code v Trip Balata de la Cod	<b>*</b> 0.000	<b>*</b> 4.400	<b>#5.050</b>	NIA.	NA	NA
Annual Opring Trip Related per Car	\$6,963	\$4,133	\$5,850	NA	NA	NA
Annual Non-Trip Related per Car	\$852	\$852	\$852	NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$1,852,229	\$103,328	\$181,343	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$226,632</u>	\$21,300	<u>\$26,412</u>	<u>NA</u>	. <u>NA</u>	<u>NA</u>
Total OPRING COST per Car	\$7,815	\$4,985	\$6,702	NA	NA	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$15,152		NA NA	NA NA
	410,102	413,102	¥.0,.0E	1371		

NA

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars \$4,030,432

\$2,078,861

\$124,628

\$378,800

\$207,755

\$469,712

NA .

Amtrak Route: Route Number: #250 **Electric City Express** Origin/Destination: Schenectady-New York City Length in Miles: 160 Length in Hours: 3.03 Expected Trips per Day: Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Expected \* All data on per car basis (unless noted otherwise) 151-Odd 170 170 150-Even NA Turbo Coach Turbo Cafe Turbo Power Club Turbo Power Coac NA NA Quantity of cars 1 3 NA NA 72 2 Capacity (# people) - seated 27 52 40 NA NA Toilets per car NA NA Average persons/toilet on train 27.0 36.0 52.0 40.0 NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 12.12 32.33 23.35 17.96 NA NA # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 Flush Fluids/flush (gals) 0.063 0.063 0.063 0.063 0.063 0.063 Flush Fluids/day (gals) 13.1 34.9 25.2 19.4 NA NA Capacity Req'd/day (gals) 12.7 34.0 24.5 18.9 NA NA Adj. Capacity Req'd w/ Buffer 15.9 42.5 30.7 23.6 NA NA Tank Capacity per Car (gals) 235 235 235 235 235 235 Continuous Service Hours Supported 354 133 184 239 NA NA 255% As a percentage of 72 hours 492% 185% 332% NA NA Probable Service Hours per Day 12.12 12.12 12.12 12.12 12.12 12.12 Service Days Supported 29.2 11.0 152 197 NA NA As a percentage of 3 days 974.31% 365.37% 505.89% 657.66% NA NA Consecutive Trips before pumpout 116.0 60.0 43.0 78.0 NA NA CAPITAL COSTS Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 Toilet Cost per Car \$2,500 \$5,000 \$2,500 \$2,500 ΝÀ <u>NA</u> - Total Equip Cost \$23,500 \$26,000 \$23,500 \$23,500 NA NA Equipment Installation Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440

\$576

\$2,016

\$28,016

\$288

\$1,728

\$25,228

\$288

\$1,728

\$25,228

<u>NA</u>

NA

NA

NA

NA

NA

\$288

\$1,728

\$25,228

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

**Amtrak Route: Electric City Express** Route Number: Origin/Destination: Schenectady-New York City Length in Miles: 160 Length in Hours: 3.03 Expected Trips per Day: Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Expected \* All data on per car basis (unless noted otherwise) 151-Odd 170 170 150-Even NA NA Turbo Power Club Turbo Coach Turbo Cafe Turbo Power Coac NA NΑ **OPERATING COSTS** Non-Trip Related Costs: \$72 \$72 \$72 Labor cost/major servicing \$144 NA NA Frequency per Year 3 3 3 3 <u>3</u> <u>3</u> \$216 \$432 Servicing Cost/Year \$216 \$216 NA NA Annual spare parts cost per yr \$705 \$780 \$705 <u>\$705</u> <u>NA</u> <u>NA</u> NA Total- Oprtng Non-Trip Related \$921 \$1,212 \$921 \$921 NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$6 \$12 \$6 \$6 NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.34 \$0.13 \$0.25 \$0.19 NA NA - Pump out minutes 0.21 0.57 0.41 0.31 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NA NA - Waste Disposal \$0.87 \$2.31 \$1,28 \$1.67 NΑ <u>NA</u> Subtotal- End of Day/Trip Srvc \$6.99 \$14.65 \$7.91 \$7.47 NA NA Train Delay: - Pump out volume req'd 0 0 0 0 NA NA - # of stops req'd 0 0 0 0 NA NA - Pump out minutes 0.0 0.0 0.0 0.0 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NA NA - Total Time Delay(mins/car) 0 0 0 0 NA NA Average Cost Per Delay \$0 \$0 \$0 \$0 NA NA \$7 Subtotal-Oprtng Trip Related \$15 \$7 NA \$8 NA Total # Cars in fleet 6 21 3 14 NA NA Total Annual Car-days 2,190 7,665 1,095 5,110 NA NA Adjusted Total Car-days 1,533 5,366 767 3,577 NA NA Days per Trip (min. of 1) 1 1 1 1 1 1 Annual Oprtng Trip Related per Car \$3,743 \$1,787 \$2,022 \$1,909 NA NA Annual Non-Trip Related per Car \$921 \$1,212 \$921 \$921 NA NA Annual Opring Trip Related per Car Type \$10,721 \$78,600 \$6,066 \$26,727 NA NA Annual Non-Trip Related per Car Type \$5,526 \$25,452 \$2,763 \$12,894 <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$2,708 \$4,955 \$2,943 \$2,830 NA NA Total CAPITAL COST per Car \$25,228 \$28,016 \$25,228 \$25,228 NA NA

Total OPRING COST for all cars

Total CAPITAL COST for all cars

\$16,247

\$151,368

\$104,052

\$588,336

\$8,829

\$75,684

\$39,621

\$353,192

NA

NA

NA

NA

Amtrak Route:

Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles:

160

Length in Hours: Expected Trips per Day: 3.03

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

. tra (%)

Expected

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted	•					
	151-Odd Turbo Power Club	170 Turbo Coach	170 Turbo Cafe	150-Even Turbo Power Coac	NA NA	NA NA
					_	<del></del>
Quantity of cars	1	3	1	1	NA	NA
Capacity (# people) - seated Toilets per car	27 1	72 2	52 1	40 1	NA NA	NA NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA NA	NA NA
Car Waste Data (per car)					`	
Black Water:						
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.000	0.000	0,000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	NA	ŇA
Capacity Req'd/day (gals)	6.1	16.3	11.8	9.1	NA	NA
Adj. Capacity Req'd w/ Buffer	7.7	20.4	14.7	11.3	NA	NA
Tank Capacity per Car (gals)	13.5	27	13.5	13.5	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	42 59%	32 44%	22 31%	29 40%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	3.5	2.6	1.8	2.4	NA	NA
As a percentage of 3 days	116.44%	87.33%	60.46%	6 78.60%	NA	NA
Consecutive Trips before pumpout	13.0	10.0	7.0	9.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	<b>\$0</b> .	\$0	\$0
Toilet Cost per Car	<u>\$3,250</u>	<u>\$6,500</u>	<u>\$3,250</u>	<u>\$3,250</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$3,250	\$6,500	\$3,250	\$3,250	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0	.\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$288	\$576	\$288	\$288	NA	NA
Total Capital Cost	\$3,538	\$7,076	\$3,538	\$3,538	NA	NA

Electric City Express

Schenectady-New York City

Origin/Destination: Length in Miles:

160

Route Number:

#250

Length in Hours:

3.03

Expected Trips per Day:

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Expected

Scenano:	Expected					
* All data on per car basis (unless noted	otherwise)					
	151-Odd	170	170	150-Even	NA	NA
	Turbo Power Club	Turbo Coach	Turbo Cafe	Turbo Power Coac	<u>NA</u>	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$288	\$576	\$288	\$288	NA	NA
Frequency per Year	<del>9</del> 288	\$3,6 <u>3</u>	3	ψ200 <u>3</u>	3	3
Servicing Cost/Year	\$864	\$1,728	\$864	\$864	NA NA	NA NA
_	•	\$1,728 \$195	\$98	\$9 <u>8</u>	NA NA	NA NA
Annual spare parts cost per yr Total- Opring Non-Trip Related	<u>\$98</u> \$962	\$1,923	\$962	\$962	NA NA	NA NA
total- Opting Non-Trip helated	\$902	\$1,923	\$902	φ502	INA .	
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b> .	\$0
Pump out and Disposal	•					
- Pump out Cost	\$0.06	\$0.16	\$0.12	\$0.09	NA	NA
- Pump out minutes	0.10	0.27	0.20	0.15	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$0.54</u>	<u>\$1.44</u>	\$1.04	<u>\$0.80</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$6.60	\$13.60	\$7.16	\$6.89	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	0	NA	NA
- # of stops req'd	0	0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	<u>0.0</u>	<u>NA</u>	NA
- Total Time Delay(mins/car)	0		0		NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$7	\$14	\$7	\$7	NA	NA
Total # Cars in fleet	6	21	. 3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA
Adjusted Total Car-days	1,533	5,366	767	3,577	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
4						
Annual Oprtng Trip Related per Car	\$1,686	\$3,475	\$1,828	\$1,760	NA	NA
Annual Non-Trip Related per Car	\$962	\$1,923	\$962	\$962	NA	NA
Annual Oprtng Trip Related per Car Type	\$10,118	\$72,970	\$5,485	\$24,641	NA	NA
Annual Non-Trip Related per Car Type	<u>\$5,769</u>	<u>\$40,383</u>	<u>\$2,885</u>	<u>\$13,461</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,648	\$5,398	\$2,790	\$2,722	NA	NA
Total CAPITAL COST per Car	\$3,538	\$7,076	\$3,538	\$3,538	NA	NA
Total OPRTNG COST for all cars	\$15.887	\$113,353	\$8,369	\$38,102	NA NA	NA
Total CAPITAL COST for all cars	\$21,228	\$148,596	\$10,614		NA NA	NA NA
- Accession of the Committee Committ	The deposits of the Section	*	, n	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		ren - To y Mes Vill

Amtrak Route: Route Number: #250 Electric City Express Origin/Destination: Schenectady-New York City Length in Miles: 160 Length in Hours: 3.03 Expected Trips per Day: Manufacturer: Microphor Equipment: Gravity Scenario: Expected \* All data on per car basis (unless noted otherwise) NA 151-Odd 170 150-Even NA Turbo Cafe Turbo Power Coac NA <u>NA</u> Turbo Power Club Turbo Coach NΑ NA Quantity of cars 1 3 40 NA NA 27 72 52 Capacity (# people) - seated NA Toilets per car 2 NA 52.0 40.0 NA NA Average persons/toilet on train 27.0 36.0 Car Waste Data (per car) Black Water: Human Waste/day (gals) 12.12 32.33 23.35 17.96 NA NA 7.00 # Flushes/Person-day 7.00 7.00 7.00 7.00 7.00 Flush efficiency adjustment 1.10 1.10 1.10 1.10 1.10 1.10 Adj. # Flushes/Person-day 7.7 7.7 7.7 7.7 7.7 7.7 0.172 0.172 Flush Fluids/flush (gals) 0.172 0.172 0.172 0.172 Flush Fluids/day (gals) 35.8 95.4 68.9 53.0 NA NA 35.8 NA 46.6 NA Capacity Req'd/day (gals) 24.2 64.5 58.2 30.2 80.6 44.8 NA NA Adj. Capacity Req'd w/Buffer 300 300 300 300 300 300 Tank Capacity per Car (gals) Continuous Service Hours Supported 238 124 161 NA 89 NA As a percentage of 72 hours 331% 124% 172% 223% NA 12.12 12,12 Probable Service Hours per Day 12.12 12.12 12.12 12.12

7.4

245.68%

29.0

\$10,000

\$10,000

\$20,000

\$576

<u>\$576</u>

\$1,152

\$21,152

10.2

40.0

\$10,000

\$5,000

\$15,000

\$576

\$288

\$864

\$15,864

340.17%

13.3

53.0

\$10,000

\$5,000

\$576

\$288

\$864

\$15,864

\$15,000

442.22%

NA

NA

NA

<u>NA</u>

NA

<u>NA</u>

NA

NA

\$576

\$10,000

NA

NA

NA

<u>NA</u>

NA

<u>NA</u>

NA

NA

\$576

\$10,000

19.7

78.0

\$10,000

\$5,000

\$15,000

\$576

\$288

\$864

\$15,864

655.14%

Service Days Supported

CAPITAL COSTS

Toilet Cost per Car

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

- Total Equip Cost Equipment Installation

As a percentage of 3 days

Collection System per Car

Collection System per Car

Consecutive Trips before pumpout

Electric City Express

Route Number:

#250

Origin/Destination: Length in Miles:

Schenectady-New York City

160 3.03

Length in Hours: Expected Trips per Day:

Manufacturer:

Microphor

Equipment:

Gravity

Scenario:

Expected

* All data on per car basis (unless noted o	therwise)					
	151-Odd	170	170	150-Even	NA	NA
OPERATING COSTS	Turbo Power Club	Turbo Coach	Turbo Cafe	Turbo Power Coac	NA	<u>NA</u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$72	* \$144	\$72	\$72	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	3	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$21 <del>6</del>	\$432	\$216	_	NA	NA NA
Annual spare parts cost per yr	\$450	\$600	\$450	<u>\$450</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$666	\$1,032	\$666		NA	NA
		,				
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing		•				•
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.24	\$0.64	\$0.47	\$0.36	NA	NA
- Pump out minutes.	0.40	1.07	0.78	0.60	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	\$1,64	<u>\$4.38</u>	<u>\$3.17</u>	<u>\$2.44</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$7.89	\$17.03	. \$9.63	\$8.79	NA	NA
Train Delay:		•				
- Pump out volume req'd	0	0	0	0	NA	NA
- # of stops req'd	. 0	. 0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	. 0	0	0	0 -	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Opring Trip Related	\$8_	\$17	\$10	\$9	NA	NA
Total # Cars in fleet					212	
rota # Cars in lieet	6	21	. 3	14	NA	NA .
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA.
Adjusted Total Car-days	1,533	5,366	767	3,577	NA	NA.
Days per Trip (min. of 1)	1,555	1	1		1	1
bayoper rip (mm. or ry		1	7	Τ.	T	4
Annual Oprtng Trip Related per Car	\$2,015	\$4,351	\$2,461	\$2,247	NA	NA
Annual Non-Trip Related per Car	\$666	\$1,032	\$666	\$666	NA	NA
Annual Opring Trip Related per Car Type	\$12,089	\$91,372	\$7,383	\$31,457	NA	NA
Annual Non-Trip Related per Car Type	<u>\$3,996</u>	\$21,672	\$1,998	\$9,324	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,681	\$5,383	\$3,127	\$2,913	NA	NA
Total CAPITAL COST per Car	\$15,864	\$21,152	\$15,864	•-•	NA	NA
Total OPRTNG COST for all cars	\$16,085	\$113.044	\$9,381	\$40,781	NA	NA NA
Total CAPITAL COST for all cars	\$95,184	\$444,192	\$47,592		NA.	NA NA
	. Eggs ja Waaj toa	عدا وحجب	. Ψτι 1032	ψ <u>εεε,υσυ</u> :		

Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles:

160

Length in Hours:

3.03

Expected Trips per Day: Manufacturer:

Equipment:

Evac

Scenario:

Ultimate Expected

\* All data on per car basis (unless noted otherwise)

<ul> <li>All data on per car basis (unless noted</li> </ul>	otherwise)					
	151-Odd Turbo Power Club	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	3	1	1	NA	NA
Capacity (# people) - seated Toilets per car	27 1	72 2	52 1	40 1	NA NA	NA NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
Car Waste Data (per car)						
Black Water:		•				
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	9.8	26.1	18.8	14.5	NA	NA
Capacity Req'd/day (gals)	11.1	29.5	21.3	16.4	NA	NA
Adj. Capacity Req'd w/Buffer	13.8	36.9	26.6	20.5	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	347 482%	130 181%	180 250%	234 326%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	28.7	10.7	14.9	19.3	NA	NA
As a percentage of 3 days	955.18%	358.19%	495.96%	644.75%	NA	NA
Consecutive Trips before pumpout	114.0	42.0	59.0	77.0	NA.	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$2,900</u>	<u>\$5,800</u>	<u>\$2,900</u>	<u>\$2,900</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$14,900	\$17,800	\$14,900	\$14,900	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	\$288	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,728	\$2,016	\$1,728	\$1,728	NA	NA
Total Capital Cost	\$16,628	\$19,816	\$16,628	\$16,628	NA NA	NA NA

## **Arthur D Little**

Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles: " Length in Hours: 160 3.03

Expected Trips per Day:

4

Manufacturer:

\_

Equipment:

Evac Ultimate

Scenario:

Expected

* All data on per car basis (unless noted o	therwise)					
	151-Odd Turbo Power Club	170 <u>Turbo Coach</u>	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA <u>NA</u>
OPERATING COSTS						
Non-Trip Related Costs:	•==	****	<b>^</b>			
Labor cost/major servicing	\$72	\$144	\$72		ŅA	NA
Frequency per Year	3	3	3		<u>3</u>	<u>3</u>
Servicing Cost/Year	\$216	\$432	\$216	\$216	NA	NA
Annual spare parts cost per yr	<u>\$447</u>	<u>\$534</u>	<u>\$447</u>		<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$663	\$966	\$663	\$663	NA NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing			•			
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.11	\$0.2 <del>9</del>	\$0.21	\$0.16	NA	NA
- Pump out minutes	0.18	0.49	0.35		NA	NA
<ul> <li>Connect/Disc. minutes</li> </ul>	0.0	0.0	0.0		NA	NA
- Waste Disposal	<u>\$0.75</u>	<u>\$2.00</u>	<u>\$1.45</u>		<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$6.86	\$14.30	\$7.66	\$7.28	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	_	NA	NA
-# of stops req'd	0	0	0	<del>-</del>	NA	NA
- Pump out minutes	0.0	0.0	0.0		NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>		<u>NA</u>	, <u>NA</u>
- Total Time Delay(mins/car)	0	0	0		NA	NA
Average Cost Per Delay	\$0	\$0	\$0	· ·	NA	NA
Subtotal- Opring Trip Related	\$7	\$14	\$8	\$7	NA NA	NA NA
Total # Cars in fleet	6	21	3	14	NA	NA .
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA
Adjusted Total Car-days	1,533	5,366	767	3,577	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$1,753	\$3,654	\$1,957	\$1,859	NA	NA
Annual Non-Trip Related per Car	\$663	\$966	\$663	\$663	NA	NA
Annual Oprtng Trip Related per Car Type	\$10,520	\$76,725	\$5,872	\$26,032	NA	NA
Annual Non-Trip Related per Car Type	<u>\$3.978</u>	<u>\$20,286</u>	<u>\$1,989</u>	<u>\$9,282</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,416	\$4,620	\$2,620	\$2,522	NA	NA
Total CAPITAL COST per Car	\$16,628	\$19,816	\$16,628	\$16,628	NA	, NA
Total OPRTNG COST for all cars	\$14,498	\$97,011	\$7,861	1.00	NA	NA
Total CAPITAL COST for all cars	\$99,768	\$416,136	\$49,884	\$232,792	NA NA	NA

Electric City Express

Schenectady-New York City

Origin/Destination: Length in Miles:

160

Length in Hours: Expected Trips per Day: 3.03

Manufacturer:

\*\*\*

Equipment:

Railtech WTS 8300

Scenario:

Expected

* All data on per car basis (unless noted	otherwise)					£.
	151-Odd Turbo Power Club	170 <u>Turbo Coach</u>	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	3	1	1	NA	NA
Capacity (# people) - seated Toilets per car	27 1	72 2	52 1	40 1	NA NA	NA NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	7.00	7.00	7.00	7.00	7.00	7.00
Flush efficiency adjustment	1.10	1.10	1.10	1.10	1.10	1.10
Adj. # Flushes/Person-day	7.7	7.7	7.7	7.7	7.7	7.7
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	54.7	145.9	105.4	81.1	NA	NA
Capacity Req'd/day (gals)	33.8	90.0	65.0	50.0	NA	NA
Adj. Capacity Req'd w/ Buffer	42.2	112.5	81.3	62.5	NA	NA
Tank Capacity per Car (gals)	50	100	50	50	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	28 40%	21 30%	15 21%	19 27%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	2.3	1.8	1.2	1.6	NA	NA
As a percentage of 3 days	78.23%	58.67%	40.62%	52.80%	NA	NA
Consecutive Trips before pumpout	9.0	7.0	4.0	6.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$4,000	\$8,000	\$4,000	\$4,000	NA	NA
Toilet Cost per Car	\$3,000	<u>\$6,000</u>	<u>\$3,000</u>	<u>\$3,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$7,000	\$14,000	\$7,000	\$7,000	NA	NA
Equipment Installation						
Collection System per Car	· \$288	\$576	\$288	\$288	NA	NA
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$576	\$1,152	\$576	\$576	NA	NA
Total Capital Cost	\$7,576	\$15,152	\$7,576	\$7,576	NA	NA NA

#250

Route Number:

## **Arthur D Little**

Amtrak Route:	Electric City Expres	SS	Route Number:	#250		
Origin/Destination:	Schenectady-New					
Length in Miles:	160	· ,				
Length in Hours:	3.03					
Expected Trips per Day:	4		•			
Manufacturer:	Railtech					
Equipment:	WTS 8300					
Scenario:	Expected					
* All data on per car basis (unless noted of	therwise)					
•	151-Odd Turbo Power Club	170 <u>Turbo Coach</u>	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA NA	NA NA
OPERATING COSTS		12132 3321	<u></u>		122	141
Non-Trip Related Costs:		****	<b></b>	<b>^-</b> -		
Labor cost/major servicing	\$72	\$144	\$72	\$72	NA	NA
Frequency per Year	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Servicing Cost/Year	\$216	\$432	\$216	\$216	NA	NA
Annual spare parts cost per yr	<u>\$210</u>	<u>\$420</u>	<u>\$210</u>	<u>\$210</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$426	\$852	\$426	\$426	<u>NA</u>	NA
Trip Related Costs:			·			
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.34	\$0.90	\$0.65	\$0.50	NA	NA
- Pump out minutes	0.56	1.50	1.08	0.83	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	\$2.30	\$6,12	\$4:42	\$3.40	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$8.63	\$19.02	\$11.07	\$9.90	NA	NA
Train Delay:	*****	¥15.52	<b>V-</b> .	<b>V</b> 0.50		
- Pump out volume reg'd	0	0	0	0	NA	NA
- # of stops req'd	0	ō	ō	ō	NA	NA.
- Pump out minutes	0.0	0.0	0.0	0.0	NA NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0 0.0	NA NA	NA NA
- Total Time Delay(mins/car)	. 0	<u>0.0</u> 0	<u>0.0</u> 0	<u>9.9</u> 0	NA NA	NA NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA NA	NA NA
Subtotal- Opring Trip Related	\$9	\$19	\$11	\$10	NA .	
Sublotal- Opining Trip Related	\$9	\$19	\$11	\$10	. NA	NA NA
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA
Adjusted Total Car-days	1,533	5,366	767	3,577	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$2,206	\$4,860	\$2,828	en con	NA	A1A
				\$2,529		NA
Annual Non-Trip Related per Car	\$426	\$852	\$426	\$426	NA	NA
Annual Oprtng Trip Related per Car Type	\$13,234	\$102,053	\$8,485	\$35,413	NA	NA
Annual Non-Trip Related per Car Type	<u>\$2,556</u>	\$17,892	<u>\$1,278</u>	<u>\$5,964</u>	. <u>NA</u>	NA
, , ,		<del>3</del>		4	<del></del>	
Total OPRTNG COST per Car	\$2,632	\$5,712	\$3,254	\$2,955	NA	NA
Total CAPITAL COST per Car	\$7,576	\$15,152	\$7,576	\$7,576	NA NA	NA
	<b></b>				9 (1999) - 1940(1990) - 1980 - 1940 - 1940	. 9 5 3/8/74

\$119,945

\$318,192

\$9,763 \$41,377

\$22,728 \$106,064

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

\$15,790

\$45,456

Amtrak Route: Route Number: #1-2 Sunset Limited Origin/Destination: New Orleans-Los Angeles Length in Miles: 2.033 Length in Hours: 43.00 Expected Trips per Day: Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Favorable \* All data on per car basis (unless noted otherwise) 39970 34000 39940 32000 NA NA Lounge-HEP-HLV <u>NA</u> Coach Super Coach-HEP-HLV Sleeper Super NA Quantity of cars 3 NA NA Capacity (# people) - seated 75 72 44 86 NA NA 12 NA NA Toilets per car 6 Average persons/toilet on train 12.5 18.0 3.7 43.0 NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) NA 33.68 32.33 19.76 38.61 NA 6.00 6.00 6.00 # Flushes/Person-day 6.00 6.00 6.00 1.00 Flush efficiency adjustment 1.00 1.00 1.00 1.00 1.00 Adj. # Flushes/Person-day 6 6 6 6 6 6 Flush Fluids/flush (gals) 0.063 0.063 0.063 0.063 0.063 0.063 32.5 Flush Fluids/day (gals) 28.4 27.2 16.6 'NA NA Capacity Reg'd/day (gals) 62,0 59.5 36.4 71.1 NA NA Adj. Capacity Reg'd w/ Buffer 77.5 74.4 45.5 88.9 NA NA Tank Capacity per Car (gals) 235 235 235 235 235 235 Continuous Service Hours Supported 124 101% 105% As a percentage of 72 hours 172% 88% NA NA Probable Service Hours per Day 24 24 24 24 24 24 3.0 3.2 5.2 2.6 Service Days Supported NA NA 101.03% 105.24% As a percentage of 3 days 172.22% 88.11% NA NA

1.0

\$21,000

\$10,000

\$31,000

\$1,440

\$1,152

\$2,592

\$33,592

2.0

\$21,000

\$30,000

\$51,000

\$1,440

\$3,456

\$4,896

\$55,896

1.0

\$21,000

\$5,000

\$26,000

\$1,440

\$2,016

\$28,016

\$576

NA

<u>NA</u>

NA

<u>NA</u>

NA

NA

\$21,000

\$1,440

NA

<u>NA</u>

NA

NA

NA

NA

\$21,000

\$1,440

1.0

\$21,000

\$15,000

\$36,000

\$1,440

\$1,728

\$3,168

\$39,168

Consecutive Trips before pumpout

Collection System per Car

Collection System per Car

CAPITAL COSTS

- Total Equip Cost

Toilet Cost per Car

Equipment Installation

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

Amtrak Route: Route Number: Sunset Limited Origin/Destination: New Orleans-Los Angeles Length in Miles: Length in Hours: 43.00 Expected Trips per Day: Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Favorable \* All data on per car basis (unless noted otherwise) 32000 34000 39940 39970 NA Coach Super Coach-HEP-HLV Sleeper Super Lounge-HEP-HLV NΑ **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$432 \$288 \$864 \$144 NA Frequency per Year 2 2 2 2 2 Servicing Cost/Year \$864 \$576 \$1,728 \$288 NA Annual spare parts cost per yr \$360 \$310 <u>\$510</u> \$260 <u>NA</u> Total-Opring Non-Trip Related \$548 NA \$1,224 \$886 \$2,238 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$36 \$24 \$72 \$12 NA - Light Repair \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.62 \$0.60 \$0.36 \$0.71 NA - Pump out minutes 1.03 0.99 0.61 NA 1.19 - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NA - Waste Disposal \$1.89 \$1.81 \$1.11 \$2.17 NA Subtotal- End of Day/Trip Srvc \$38.51 \$26.41 \$73.47 \$14.88 NA Train Delay: - Pump out volume reg'd 0 0 0 0 NA - # of stops reg'd 0 0 0 0 NA - Pump out minutes 0.0 0.0 0.0 0.0 NA - Connect/Disc. minutes 0.0 <u>NA</u> 0.0 0.0 0.0 - Total Time Delay(mins/car) 0 0 0 0 NA

\$0

\$26

21

7,665

4.599

\$2.892

\$60,728

\$18,606

\$3,778

\$33,592

\$79,334

\$705,432

\$886

2

\$0

\$73

68

24,820

14,892

\$8.045

\$2,238

\$547,074

\$152,184

\$10,283

\$55,896

\$699,258

\$3,800,928

2

\$0

\$15

6

2,190

1,314

\$1.629

\$9,775

\$3,288

\$2,177

\$28,016

\$13,063

\$168,096

\$548

2

\$0

\$39

91

33,215

19,929

\$4.217

\$1,224

\$383,727

\$111,384

\$5,441

\$39,168

\$495,111

\$3,564,288

2

<u>NA</u>

NA

2

NA

<u>NA</u>

NA

NA

\$0

NA

NA

NA

<u>NA</u>

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NA

NA

<u>NA</u>

NA

NA

NA

NA

NA

NA

2

NA

NA

NA

<u>NA</u>

NA

<u>NA</u>

NA

NA

NA

NA

### **Λrthur D Little**

Average Cost Per Delay

Total # Cars in fleet

Total Annual Car-days

Adjusted Total Car-days

Days per Trip (min. of 1)

Annual Opring Trip Related per Car

Annual Opring Trip Related per Car Type

Annual Non-Trip Related per Car Type

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Annual Non-Trip Related per Car

Total OPRTNG COST per Car

Total CAPITAL COST per Car

Subtotal-Opring Trip Related

Amtrak Route:	Sunset Limited		Route Number:	#1-2		
Origin/Destination:	New Orleans-Los A	Angeles .				
Length in Miles:	2,033					
Length in Hours:	43.00					
Expected Trips per Day:	1					
Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc					
Scenario:	Favorable					
* All data on per car basis (unless noted of	otherwise)					
•	34000	39940	32000	39970	NA	NA
	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	<u>NA</u>	<u>NA</u>
Quantity of cars	4	1	3	1	NA	NA
Capacity (# people) - seated Toilets per car	75 6	72 4	44 12	86 2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
					٠	
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	NA	NA
Capacity Req'd/day (gals)	33.7	32.3	19.8	38.6	NA	NA
Adj. Capacity Req'd w/ Buffer	42.1	40.4	24.7	48.3	NA	NA
Tank Capacity per Car (gals)	81	54	162	27	NA	- NA
Continuous Service Hours Supported As a percentage of 72 hours	46 64%	32 45%	157 219%	13 19%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	1.9	1.3	6.6	0.6	NA	. NA
As a percentage of 3 days	64.14%	44.54%	218.67%	6 18.65%	NA	NA
Consecutive Trips before pumpout	1.0	0.0	3.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$19,500</u>	<u>\$13,000</u>	\$39,000	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$19,500	\$13,000	\$39,000	\$6,500	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$1,728</u>	\$1.152	<u>\$3,456</u>		. NA	<u>NA</u>
- Total Installation Cost	\$1,728	\$1,152	\$3,456	\$576	NA	NA
Total Capital Cost	\$21,228	\$14,152	\$42,456	\$7,076	NA NA	NA NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day: Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted o	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:	· ·	<u> </u>	<u> </u>	<u></u>	1353	<u></u>
Labor cost/major servicing	\$1,728	\$1,152	\$3,456	\$576	NA	NA
Frequency per Year	2	2	2	<u>2</u>	2	<u>2</u>
Servicing Cost/Year	\$3,45 <del>6</del>	\$2,304	\$6,91 <b>2</b>	\$1,15 <u>2</u>	NA	NA.
Annual spare parts cost per yr	<u>\$195</u>	<u>\$130</u>	\$390	\$6 <u>5</u>	NA	<u>NA</u>
Total- Oprtng Non-Trip Related	\$3,651	\$2,434	\$7,302	\$1,217	NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	•-	**	*-	•	•-	• -
- Pump out Cost	\$0.34	\$8.40	\$0.20	\$4.32	NA	NA
- Pump out minutes	0.56	0.00	0.33	0.19	NA NA	NA.
- Connect/Disc. minutes	0.0	14.0	0.0	7.0	NA NA	NA
- Waste Disposal	\$1.33	\$1.27	\$0.78	\$1. <u>52</u>	NA NA	NA NA
Subtotal- End of Day/Trip Srvc	\$37.66	\$33.67	\$72.98	\$17.84	NA NA	NA NA
Train Delay:	Ψ07.00	Ψ00.07	ψ, Z.30	Ψ17.04	1474	
- Pump out volume reg'd	0	54	0	27	NA	NA
- # of stops req'd	0	1	0	1	NA NA	NA.
- Pump out minutes	0.0	0.9	0.0	0.5	NA NA	NA NA
- Connect/Disc. minutes	0.0	14.0	0.0	7.0	NA NA	NA NA
- Total Time Delay(mins/car)	<u>0.0</u> 0	15	<u>0.9</u> 0	<u>7.9</u> 7	NA	NA NA
Average Cost Per Delay	\$0	\$9	\$0	\$4	NA NA	NA NA
Subtotal- Opring Trip Related	\$38	\$43	\$73	\$22	NA NA	NA.
Sublotal- Opting Trip Netated		φ43	Ψ/3	Ψ22	IVA	147
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	19,929	4,599	14,892	1,314	NA	NA
Days per Trip (min. of 1)	2	2	2	2	2	2
	_	-		_	-	
Annual Opring Trip Related per Car	\$4,124	\$4,666	\$7,991	\$2,443	NA	NA
Annual Non-Trip Related per Car	\$3,651	\$2,434	\$7,302	\$1,217	NA	NA
Annual Oprtng Trip Related per Car Type	\$375,304	\$97,991	\$543,381	\$14,656	NA	NA
Annual Non-Trip Related per Car Type	<u>\$332,241</u>	<u>\$51,114</u>	<u>\$496,536</u>	<u>\$7,302</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$7,775	\$7,100	\$15,293	\$3,660	NA	NA
Total CAPITAL COST per Car	\$21,228	\$14,152	\$42,456	\$7,076	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$707,545 \$1,931,748	\$149,105 \$297,192	\$1,039,917 \$2,887,008	\$21,958 \$42,456	NA NA	NA NA

Amtrak Route: Sunset Limited Route Number: New Orleans-Los Angeles Origin/Destination: Length in Miles: 2.033 43.00 Length in Hours: Expected Trips per Day: Manufacturer: Microphor Equipment: Gravity Scenario: Favorable \* All data on per car basis (unless noted otherwise) 34000 39940 32000 39970 NΑ NA Coach Super Coach-HEP-HLV Sleeper Super Lounge-HEP-HLV NA NA Quantity of cars 4 1 3 1 NA NA Capacity (# people) - seated 75 72 86 NA NA Toilets per car 6 12 NA NA Average persons/toilet on train 12.5 18.0 3.7 43.0 NA ÑΑ Car Waste Data (per car) Black Water: Human Waste/day (gals) 19.76 38.61 NA NA 33.68 32.33 # Flushes/Person-day 6.00 6.00 6.00 6.00 6.00 6.00 1.00 1.00 Flush efficiency adjustment 1.00 1.00 1.00 1.00 Adj. # Flushes/Person-day 6 6 6 6 6 6 Flush Fluids/flush (gals) 0.172 0.172 0.172 0.172 0.172 0.172 Flush Fluids/day (gals) 77.4 45.4 88.8 NA NA 74.3 106.6 65.2 127.4 NΑ NA Capacity Req'd/day (gals) 111.1 Adj. Capacity Req'd w/ Buffer 138.8 133.3 81.5 159.2 NA NA Tank Capacity per Car (gals) 300 300 300 300 300 300 Continuous Service Hours Supported 45 NA NA As a percentage of 72 hours 72% 75% 123% 63% NA NA Probable Service Hours per Day 24 24 24 24 24 24 Service Days Supported 3.7 NA NA 2.2 2.3 1.9 75.02% As a percentage of 3 days 72.02% 122.77% 62.81% NA NA 1.0 Consecutive Trips before pumpout 1.0 1.0 2.0 NA NA **CAPITAL COSTS** \$10,000 \$10,000 \$10,000 Collection System per Car \$10,000 \$10,000 \$10,000 \$20,000 Toilet Cost per Car \$30,000 \$60,000 \$10,000 <u>NA</u> NA - Total Equip Cost \$40,000 \$30,000 \$70,000 \$20,000 NA NA Equipment Installation Collection System per Car \$576 \$576 \$576 \$576 \$576 \$576 Toilet Cost per Car \$1,728 \$1,152 \$576 \$3,456 ŇΑ <u>NA</u>

\$1,728

\$31,728

\$4,032

\$74,032

\$1,152

\$21,152

NA

NA

NA

NA

\$2,304

\$42,304

- Total Installation Cost

**Total Capital Cost** 

Sunset Limited

Route Number:

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

Manufacturer: Equipment: Microphor Gravity

Scenario:

Favorable

Scenario: Favorable
All data on per car basis (unless noted otherwise)

	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	N/ N/
OPERATING COSTS					<del></del>	
Non-Trip Related Costs:		<b>.</b>		*		
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA -	N/
Frequency per Year	2	2	2	2	2	2
Servicing Cost/Year	\$864	\$576	\$1,728	\$288	NA	N/
Annual spare parts cost per yr	<u>\$400</u>	<u>\$300</u>	\$700	<u>\$200</u>	<u>NA</u>	<u>N/</u>
Total- Oprtng Non-Trip Related	\$1,264	\$876	\$2,428	\$488	NA NA	N/
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	N/
_	\$36 \$0	•	•	\$12 \$0		
- Light Repair	<b>\$</b> 0	\$0	\$0	<b>\$</b> 0	<b>\$0</b>	\$0
Pump out and Disposal	64.44	64.07	***	64.07		
- Pump out Cost	\$1.11	\$1.07	\$0.65	\$1.27	NA	NA NA
- Pump out minutes	1.85	1.78	1.09	2.12	NA NA	NA NA
- Connect/Disc, minutes	0.0	0.0	0.0	0.0	NA NA	NA NA
- Waste Disposal Subtotal- End of Day/Trip Srvc	<u>\$3.38</u> \$40.49	<u>\$3.25</u> \$28.31	<u>\$1,98</u> \$74,64	<u>\$3.88</u> \$17.15	<u>NA</u> NA	<u>N</u> A NA
Train Delay:	<b>\$40.49</b>	<b>⊅∠</b> 0.31	\$/4. <del>04</del>	\$17.15	INA	INA
- Pump out volume reg'd	0	0	0	0	NA	NA
- # of stops req'd	0	0	0	0	NA NA	NA NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA NA	NA NA
- Connect/Disc. minutes	0.0	0.0 0.0	0.0 0.0	0.0 0.0	NA NA	NA NA
- Total Time Delay(mins/car)	<u>0.0</u> 0	0.0	0.0	<u>0.0</u> 0	NA NA	NA NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA NA	NA NA
Subtotal- Opring Trip Related	\$40	\$28	\$75	\$17	NA NA	NA NA
					· · · · · · · · · · · · · · · · · · ·	
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	19,929	4,599	14,892	1,314	NA	NA
Days per Trip (min. of 1)	2	2	<u>2</u>	<u>2</u>	2	2
Annual Oprtng Trip Related per Car	\$4,434	\$3,100	\$8,173	\$1,878	NA	NA
Annual Non-Trip Related per Car	\$1,264	\$876	\$2,428	\$488	NA	NA
Annual Oprtng Trip Related per Car Type	\$403,502	\$65,108	\$555,743	\$11,270	NA .	NA
Annual Non-Trip Related per Car Type	<u>\$115.024</u>	<u>\$18,396</u>	<u>\$165,104</u>	<u>\$2.928</u>	<u>NA</u> .	<u>NA</u>
Total OPRTNG COST per Car	\$5,698	\$3,976	\$10,601	\$2,366	NA	NA
	\$42,304	\$31,728	\$74,032	\$21,152	NA	NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

Sunset Limited
New Orleans-Los Angeles

Length in Miles:

2,033 43.00

Length in Hours: Expected Trips per Day: Manufacturer:

1

Evac

Manulacurer.	Evac					
Equipment:	Ultimate			•		
Scenario:	Favorable					
* All data on per car basis (unless noted	l otherwise)			•		
	34000	39940	32000	39970	NA	NA
	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	<u>NA</u>	<u>NA</u>
Quantity of cars	4	1	3	1	NA	NA
Capacity (# people) - seated	75	72	44		NA	NA
Toilets per car	6	4	12	· 2 43.0	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	INA	·
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	21.2	20.3	12.4	24.3	NA	NA
Capacity Req'd/day (gals)	54.8	52.6	32.2		NA	NA
Adj. Capacity Req'd w/ Buffer	68.5	65.8	40.2		NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	70 97%	73 101%	119 166%	61 6 85%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	2.9	3.0	5.0	2.5	NA	NA
As a percentage of 3 days	97.28%	101.33%	165.82%	6 84.84%	NA	NA
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	\$17,400	<u>\$11,600</u>	<u>\$34,800</u>	<u>\$5,800</u>	<u>NA</u> -	<u>NA</u>
- Total Equip Cost	\$29,400	\$23,600	\$46,800	\$17,800	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1.152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$3,168	\$2,592	\$4,896	\$2,016	NA	NA
Total Capital Cost	\$32,568	\$26,192	\$51,696	\$19,816	NA	NA

Amtrak Route: Origin/Destination:

Length in Miles:

Sunset Limited

New Orleans-Los Angeles

2,033

43.00

Length in Hours: Expected Trips per Day:

Manufacturer: Equipment:

Evac

Ultimate

Scenario:	Favorable
* All data on per car b	asis (unless noted otherwise)
	0.4000

, in data on por da basis (dinoso notos o	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:	*				<del></del>	
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	NA
Frequency per Year	2	2	<u>2</u>	<u>2</u>	<u>2</u>	2
Servicing Cost/Year	\$864	\$576	\$1,728	\$288	NA	NA
Annual spare parts cost per yr	<u>\$294</u>	<u>\$236</u>	<u>\$468</u>	<u>\$178</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$1,158	\$812	\$2,196	\$466	NA NA	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.55	\$0.53	\$0.32	\$0.63	NA	NA
- Pump out minutes	0.91	0.88	0.54	1.05	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$1.67</u>	<u>\$1.60</u>	\$0.98	<u>\$1.91</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$38.22	\$26.13	\$73.30	\$14.54	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	0	NA	NA
- # of stops req'd	0	· o	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	0	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$38	\$26	.\$73	\$15	NA	NA
Total # Cars in fleet	91	21	68	6	· NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	19,929	4,599	14,892	1,314	,NA	NA
Days per Trip (min. of 1)	2	2	2	<u>2</u>	2	2
Annual Oprtng Trip Related per Car	\$4,185	\$2,861	\$8,026	\$1,593	NA	NA
Annual Non-Trip Related per Car	\$1,158	\$812	\$2,196	\$466	NA	NA
Annual Oprtng Trip Related per Car Type	\$380,825	\$60,085	\$545,801	\$9,555	NA	NA
Annual Non-Trip Related per Car Type	<u>\$105,378</u>	<u>\$17,052</u>	<u>\$149,328</u>	<u>\$2,796</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$5,343	\$3,673	\$10,222	\$2,059	NA	NA
Total CAPITAL COST per Car	\$32,568	\$26,192	\$51,696	\$19,816	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$486,203 \$ <b>2</b> ,963,688	\$77,137 \$550,032	\$695,129 \$3,515,328	\$12,351 \$118,896	NA NA	NA NA

Route Number:

Amtrak Route:	Sunset Limited		Route Number:	#1-2	•	
Origin/Destination:	New Orleans-Los	Angeles -		'		
Length in Miles:	2,033	_				
Length in Hours:	43.00		•			
Expected Trips per Day:	1					
Manufacturer:	Railtech					
Equipment:	WTS 8300					
Scenario:	* Favorable					
* All data on per car basis (unless n	oted otherwise)					
	34000	39940	32000	39970	NA	NA
	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	<u>NA</u>	<u>NA</u>
Quantity of cars	4	1	3	1	NA	NA
Capacity (# people) - seated	75	72	44	86	NA	NA
Toilets per car	6	4	12	2	NA	NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	. NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	118.4	113.7	69.5	135.8	NA	NA
Capacity Req'd/day (gals)	152.1	146.0	89.2	174.4	NA	NA
Adj. Capacity Req'd w/ Buffer	190.1	182.5	111.5	218.0	NA	NA
Tank Capacity per Car (gals)	150	100	300	100	NA	NA
Continuous Service Hours Supporte As a percentage of 72 hours	d 19 26%	13 6 18%	65 90%	11 15%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	0.8	0.5	2.7	0.5	NA	NA
As a percentage of 3 days	26.30%		89.66%	15.29%	NA	NA
Consecutive Trips before pumpout	0.0	0.0	1.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$8,000	\$24,000	\$8,000	NA	NA
Toilet Cost per Car	<u>\$18,000</u>	<u>\$12,000</u>	<u>\$36,000</u>	<u>\$6,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$30,000	\$20,000	\$60,000	\$14,000	NA	NA
Equipment Installation						
Collection System per Car	\$864	\$576	\$1,728	\$576	NA	NA
Toilet Cost per Car	<u>\$1.728</u>	<u>\$1.152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u> .	<u>NA</u>
- Total Installation Cost	\$2,592		\$5,184	\$1,152	NA	NA
Total Capital Cost	\$32,592	\$21,728	\$65,184	\$15,152	NA	NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles:

2,033 43.00

Length in Hours: Expected Trips per Day:

Manufacturer: Equipment:

Railtech

WTS 8300

S

Scenario:	Favorable
* All data on per car basis	(unless noted otherwise)

All data on per car basis (unless noted of	34000	39940	32000	39970	, NA	NA
OPERATING COSTS	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	<u>NA</u>	<u>NA</u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	NA
Frequency per Year	<u>2</u>	<u>2</u>	2	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$864	\$576	\$1,728	\$288	NA	NA
Annual spare parts cost per yr	<u>\$300</u>	<u>\$200</u>	<u>\$600</u>	<u>\$140</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,164	\$776	\$2,328	\$428	NA NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing					æ	
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$6.32	\$4.66	\$0.89	\$4.94	NA	NA
- Pump out minutes	0.03	0.77	1.49	1.24	NA	NA
- Connect/Disc. minutes	10.5	7.0	0.0	7.0	NA	NA
- Waste Disposal	<u>\$4.63</u>	<u>\$4.45</u>	<u>\$2.72</u>	<u>\$5.31</u>	. NA	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$46.95	\$33.11	\$75.61	\$22.26	NA	NA
Train Delay:		•				
<ul> <li>Pump out volume req'd</li> </ul>	150	. 100	. 0	100	NA	NA
- # of stops req'd	1	1	0	1	NA	NA
- Pump out minutes	2.5	1.7	0.0	1.7	NA	NA
- Connect/Disc. minutes	<u>10.5</u>	<u>7.0</u>	0.0	<u>7.0</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	13	9	0	9	NA	NA
Average Cost Per Delay	\$8	. \$5	\$0	\$5	NA	NA
Subtotal- Oprtng Trip Related	\$55	\$38	\$76	\$27	NA NA	NA NA
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	19,929	4,599	14,892	1,314	NA	NA
Days per Trip (min. of 1)	2	<u>2</u>	2	2	2	2
Annual Opring Trip Related per Car	\$5,996	\$4,195	\$8,279	\$3,006	NA	NA
Annual Non-Trip Related per Car	. \$1,164	\$776	\$2,328	\$428	NA	NA
Annual Opring Trip Related per Car Type	\$545,592	\$88,088	\$562,993	\$18,039	NA	NA
Annual Non-Trip Related per Car Type	<u>\$105,924</u>	<u>\$16,296</u>	<u>\$158,304</u>	<u>\$2.568</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$7,160	\$4,971	\$10,607	\$3,434	NA	NA
Total CAPITAL COST per Car	\$32,592	\$21,728	\$65,184	\$15,152	NA	NA
Total OPRTNG COST for all cars	\$651,516	\$104,384	\$721,297	\$20,607	NA	NA
Total CAPITAL COST for all cars	\$2,965,872	\$456,288	\$4,432,512	\$90,912	NA:	NA

Origin/Destination:         Chicago-Oakland           Lorgin in Miles:         2,422           Lorgin in Miles:         2,422           Lorgin in Miles:         5,117           Expected frips per Day:         1           Monorarm         Monogram           Equipment:         Modified Vacuum           *All data on per car basis (unless noted otherwise)         39000           93000         32000           Trane Dom Coats         3leepers Super         3 4000           Cuantity of cars         1         3         3         3         5         NA         NA           Capacity (P people) - seated         40         44         78         75         NA         NA           Average persons/foiled on train         10.0         3.7         15.6         12.5         NA         NA           Elack Water         **         4         12         5         6         NA         NA           ** Flushese/Person-day         6 <td< th=""><th>Amtrak Route:</th><th>California Zephyr</th><th>•</th><th>Route Number:</th><th>#5-6</th><th></th><th>•</th></td<>	Amtrak Route:	California Zephyr	•	Route Number:	#5-6		•
Langth in Miles:   2,422							
Langth N-Lours   1.0	<del>-</del>	=					•
Expected Trips per Day:						*	
Montgram	<del>-</del>						
Regularion   Revoration   Rev		•					
*All data on per car basis (unless noted otherwise) 39000 Trans Dorm Coach 1 32000 1 32000 1 34000 NA NA NA Capacity (#) people) - sealed 40 40 41 25 66 NA NA Average persons/tollet on train 10.0 3.7 15.6 12.5 NA NA Average persons/tollet on train 10.0 17.96 19.76 19.86 19.76 19.86 19.76 19.86 19.76 19.86 19.76 19.86 19.76 19.86		· <del>-</del>					
*All data on per car basis (urliess noted otherwise)    1990	• •						
19900   199000   199000   199000   199000   199000   199000   199000   199000   199000   199000   199000							
Trans   Dorn   Coach   Sleeper   Supar   Slae   Coach   Super   Coach   Super   NA   NA	All data on por our basis (unioso notos		32000	31000	34000	NA	NA
Capacity (#) people) - seated							
Capacity (#) people) - seated	Quantity of cars	1	3	3	5	' NA	NA
Toilet Sper car 4 12 5 6 NA NA NA Average persons/toilet on train 10.0 3.7 15.6 12.5 NA NA NA Average persons/toilet on train 10.0 3.7 15.6 12.5 NA NA NA NA Average persons/toilet on train 10.0 10.0 3.7 15.6 12.5 NA NA NA NA NA WA Flushes/Person-day 6.00 6.00 6.00 6.00 6.00 6.00 6.00 6.0	•						
Black Water:   Human Waste/day (gals)   17.96   19.76   35.02   33.68   NA   NA   NA   Flushes/Person-day   6.00				5	6	NA	NA
Black Water:   Human Waste/day (gals)   17.96   19.76   35.02   33.68	Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA
Black Water:   Human Waste/day (gals)   17.96   19.76   35.02   33.68	•						
Human Waste/day (gals) 17.96 19.76 35.02 33.68 → NA NA #Flushes/Person-day 6.00 6.00 6.00 6.00 6.00 6.00 6.00 6.0	Car Waste Data (per car)						
# Flushes/Person-day 6.00 6.00 6.00 6.00 6.00 6.00 6.00 6.0	Black Water:						
Flush efficiency adjustment	Human Waste/day (gals)	17.96	19.76	35.02	33.68	♥ NA	, NA
Adj. # Flushes/Person-day         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         6         7         7         7         0.063	# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush Fluids/flush (gals) 0.063 0.063 0.063 0.063 0.063 0.063 0.063 0.063   Flush Fluids/day (gals) 15.1 16.6 29.5 28.4 NA NA NA NA Capacity Req'd/day (gals) 33.1 36.4 64.5 62.0 NA NA NA Adj. Capacity Req'd/day (gals) 33.1 36.4 64.5 62.0 NA NA NA Adj. Capacity Req'd w/ Buffer 41.4 45.5 80.6 77.5 NA NA Tank Capacity per Car (gals) 235 235 235 235 235 235 235 235 235 235	Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Flush Fluids/day (gals)  15.1  16.6  29.5  28.4  NA  NA  Capacity Req'd/day (gals)  33.1  36.4  64.5  62.0  NA  NA  Add. Capacity Req'd w Buffer  41.4  45.5  80.6  77.5  NA  NA  Add. Capacity Per Car (gals)  235  235  235  235  235  Continuous Service Hours Supported As a percentage of 72 hours  189%  172%  97%  101%  NA  NA  NA  Probable Service Hours per Day  24  24  24  24  24  24  24  24  24  2	Adj. # Flushes/Person-day	6	6	6	6	6	6
Capacity Req'd/day (gals)         33.1         36.4         64.5         62.0         NA         NA           Adj. Capacity Req'd w Buffer         41.4         45.5         80.6         77.5         NA         NA           Tank Capacity per Car (gals)         235 <t< td=""><td>Flush Fluids/flush (gals)</td><td>0.063</td><td>0.063</td><td>0.063</td><td>0.063</td><td>0.063</td><td>0.063</td></t<>	Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Adj. Capacity Req'd w' Buffer       41.4       45.5       80.6       77.5       NA       NA         Tank Capacity per Car (gals)       235       235       235       235       235       235       235         Continuous Service Hours Supported As a percentage of 72 hours       136       124       70       73       NA       NA         As a percentage of 72 hours       189%       172%       97%       101%       NA       NA         Probable Service Hours per Day       24<	Flush Fluids/day (gals)	15.1	16.6	29.5	28.4	NA	NA
Tank Capacity per Car (gals)         235         236         236         236         236         240         24	Capacity Req'd/day (gals)	33.1	36.4	64.5	62.0	NA	NA
Continuous Service Hours Supported 136 124 70 73 NA NA NA As a percentage of 72 hours 189% 172% 97% 101% NA NA NA NA NA As a percentage of 72 hours 189% 172% 97% 101% NA	Adj. Capacity Req'd w/ Buffer	41.4	45.5	80.6	77.5	NA	NA
As a percentage of 72 hours	Tank Capacity per Car (gals)	235	235	235	235	235	235
Service Days Supported 5.7 5.2 2.9 3.0 NA NA NA As a percentage of 3 days 189.44% 172.22% 97.15% 101.03% NA NA NA NA Consecutive Trips before pumpout 2.0 2.0 1.0 1.0 NA NA NA CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$100 \$21,000 \$							
As a percentage of 3 days 189.44% 172.22% 97.15% 101.03% NA NA  Consecutive Trips before pumpout 2.0 2.0 1.0 1.0 1.0 NA NA  CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000  Toilet Cost per Car \$10,000 \$30,000 \$12,500 \$15,000 NA NA  - Total Equip Cost \$31,000 \$51,000 \$33,500 \$36,000 NA NA  Equipment Installation  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440  Toilet Cost per Car \$1,152 \$3,456 \$1,440 \$1,728 NA NA  - Total Installation Cost \$2,592 \$4,896 \$2,880 \$3,168 NA	Probable Service Hours per Day	24	24	24	24	24	24
Consecutive Trips before pumpout 2.0 2.0 1.0 1.0 1.0 NA NA  CAPITAL COSTS  Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000  Toilet Cost per Car \$10,000 \$30,000 \$12,500 \$15,000 NA NA  - Total Equip Cost \$31,000 \$51,000 \$33,500 \$36,000 NA NA  Equipment Installation  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440  Toilet Cost per Car \$1,152 \$3,456 \$1,440 \$1,728 NA NA  - Total Installation Cost \$2,592 \$4,896 \$2,880 \$3,168 NA	Service Days Supported	5.7	5.2	2.9	3.0	NA	NA
CAPITAL COSTS  Collection System per Car \$21,000 \$21,0	As a percentage of 3 days	189.44%	172.22%	6 97.15%	101.03%	NA	NA NA
Collection System per Car         \$21,000         \$21,0	Consecutive Trips before pumpout	2.0	2.0	1.0	1.0	NA	NA
Toilet Cost per Car         \$10,000         \$30,000         \$12,500         \$15,000         NA         NA           - Total Equip Cost         \$31,000         \$51,000         \$33,500         \$36,000         NA         NA           Equipment Installation         S1,440         \$1,440 </td <td>CAPITAL COSTS</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	CAPITAL COSTS						
- Total Equip Cost \$31,000 \$51,000 \$33,500 \$36,000 NA NA Equipment Installation  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1.00 \$1	Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
- Total Equip Cost \$31,000 \$51,000 \$33,500 \$36,000 NA NA Equipment Installation  Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1.00 \$1	Toilet Cost per Car	<u>\$10,000</u>	\$30,000	<u>\$12,500</u>	<u>\$15,000</u>	<u>NA</u>	<u>NA</u>
Collection System per Car         \$1,440	- Total Equip Cost	\$31,000	\$51,000	\$33,500	\$36,000		NA
Toilet Cost per Car         \$1.152         \$3.456         \$1.440         \$1.728         NA         NA           - Total Installation Cost         \$2,592         \$4,896         \$2,880         \$3,168         NA         NA	- ·						•
- Total Installation Cost \$2,592 \$4,896 \$2,880 \$3,168 NA NA		\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Total Capital Cost \$33,592 \$55,896 \$36,380 \$39,168 NA NA		\$2,592	\$4,896			NA	NA
	Total Capital Cost	\$33,592	\$55,896	\$36,380	\$39,168	NA	NA_

Amtrak Route: Route Number: #5-6 California Zephyr Origin/Destination: Chicago-Oakland Length in Miles: 2,422 Length in Hours: 51.17 Expected Trips per Day: Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Favorable \* All data on per car basis (unless noted otherwise) 31000 34000 32000 Trans Dorm Coach Sleeper Super Bag Coach Super Coach Super NA NA OPERATING COSTS Non-Trip Related Costs: Labor cost/major servicing \$288 \$864 \$360 \$432 NA NA Frequency per Year 2 2 2 2 2 2 Servicing Cost/Year \$576 \$1,728 \$720 \$864 NA NA Annual spare parts cost per yr \$310 <u>\$510</u> \$335 \$360 <u>NA</u> <u>NA</u> NA Total- Opring Non-Trip Related \$886 \$2,238 \$1,055 \$1,224 NΑ Trip Related Costs: End of Day/Trip Servicing - Cleaning \$24 \$72 \$30 \$36 ŇA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal \$0.65 - Pump out Cost \$0.33 \$0.36 \$0.62 NA NA - Pump out minutes 0.55 0.61 1 08 1.03 NA NA - Connect/Disc, minutes 0.0 0.0 NA NA 0.0 0.0 - Waste Disposal \$1.20 \$1.32 \$2.34 \$2,25 NA <u>NA</u> Subtotal- End of Day/Trip Srvc \$25.53 \$73.68 \$32.98 \$38.87 NA NA Train Delay: - Pump out volume reg'd 0 0 0 0 NA NA - # of stops req'd 0 0 0 0 NA NA - Pump out minutes 0.0 0.0 0.0 0.0 NA NA - Connect/Disc. minutes 0.0 0.0 <u>NA</u> NA 0.0 0.0 - Total Time Delay(mins/car) 0 0 0 0 NA NA Average Cost Per Delay \$0 \$0 \$0 \$0 NA NA Subtotal-Oprtng Trip Related \$74 \$33 NA \$26 \$39 NA Total # Cars in fleet 36 68 48 91 NA NA Total Annual Car-days 13,140 24,820 17,520 33,215 NA NA Adjusted Total Car-days 7,884 14,892 10,512 19,929 NA NA Days per Trip (min. of 1) 3 3 3 <u>3</u> \$2,408 Annual Oprtng Trip Related per Car \$1.864 \$5,379 \$2,837 NA NA Annual Non-Trip Related per Car \$886 \$2,238 \$1,055 \$1,224 NA NA Annual Opring Trip Related per Car Type \$67.092 \$365,761 \$115,573 NA \$258,203 NΑ \$152,184 Annual Non-Trip Related per Car Type \$31,896 \$50,640 \$111,384 <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$2,750 \$7,617 \$3,463 \$4,061 NA NA Total CAPITAL COST per Car \$55,896 \$36,380 \$33,592 \$39,168 NA NA Total OPRTNG COST for all cars \$98,988 \$517,945 \$166,213 \$369,587 NA NA Total CAPITAL COST for all cars

## **Arthur D Little**

\$1,209,312

\$3,800,928

\$1,746,240

\$3,564,288

NA

Amtrak Route: Origin/Destination: Length in Miles: Length in Hours: Expected Trips per Day: Manufacturer: Equipment: Scenario: * All data on per car basis (unless noted of	California Zephyr Chicago-Oakland 2,422 51.17 1 Monogram Self-Cont'd Recirc Favorable therwise) 39900 Trans Dorm Coach	32000 Sjeoper Super	Route Number: 31000 Bag Coach Super	#5-6	NA NA	
Quantity of cars	1	3	3	5	NA	NA
Capacity (# people) - seated	40	44	78	75	NA NA	NA NA
Toilets per car	4	12	5	6	NA NA	NA NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA
Car Waste Data (per car)	10.5	<b>0.</b> ,,	10.0		141	141
Black Water:						
Human Waste/day (gals)	17.96	19.76	35.02	33.68	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0,0	NA	NA
Capacity Req'd/day (gals)	18.0	19.8	35.0	33.7	NA	NA
Adj. Capacity Req'd w/ Buffer	22.5	24.7	43.8	42.1	NA	NA
Tank Capacity per Car (gals)	. 54	. 162	67.5	81	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	58 80%	157 219%	37 6 51%	46 64%	NA NA	· NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	2.4	6.6	1.5	1.9	NA	NA
As a percentage of 3 days	80.18%	218.67%			NA	NA
Consecutive Trips before pumpout	1.0	3.0	0.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$13,000</u>	\$39,000	<u>\$16,250</u>	<u>\$19,500</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$13,000	\$39,000	\$16,250	\$19,500	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$1.152</u>	<u>\$3,456</u>	<u>\$1,440</u>	<u>\$1,728</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$3,456	\$1,440	\$1,728	. NA	NA
Total Capital Cost	\$14,152	\$42,456	\$17,690	\$21,228	NA NA	NA

Origin/Destination: Chicago-Oakland Length in Miles: 2,422 Length in Hours: 51.17 Expected Trips per Day: Manufacturer: Monogram Equipment: Self-Cont'd Recirc Scenario: Favorable \* All data on per car basis (unless noted otherwise) 34000 32000 NA 39900 31000 NA NΑ NA Trans Dorm Coach Sleeper Super Bag Coach Super Coach Super OPERATING COSTS Non-Trip Related Costs: Labor cost/major servicing \$1,152 \$3,456 \$1,440 \$1,728 NA NA Frequency per Year 2 2 2 2 2 \$2,304 \$6,912 \$2,880 \$3,456 NA NA Servicing Cost/Year <u>NA</u> Annual spare parts cost per yr \$130 \$390 \$163 \$195 <u>NA</u> Total- Opring Non-Trip Related \$2,434 \$7,302 \$3,043 \$3,651 NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$24 \$72 \$30 \$36 NA NA Cleaning - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.18 \$0.20 \$10.50 \$12.60 NA NA - Pump out minutes 0.30 0.33 0.00 0.00 NA NA - Connect/Disc. minutes 0.0 0.0 17.5 21.0 NA NA - Waste Disposal \$0.84 \$0.93 **\$1.64** <u>\$1.58</u> <u>NA</u> <u>NA</u> Subtotal- End of Day/Trip Srvc \$25.02 \$73.12 \$42.14 \$50.18 NA NA Train Delay: 0 0 68 81 NA NA - Pump out volume req'd 0 0 NA NA - # of stops req'd - Pump out minutes 0.0 0.0 1.1 1.4 NA NA - Connect/Disc. minutes 0.0 0.0 17.5 21.0 NA NA 22 NA - Total Time Delay(mins/car) 0 0 19 NA Average Cost Per Delay \$0 \$0 \$11 \$13 NA NA Subtotal-Opring Trip Related \$25 \$73 \$53 \$64 NA NA Total # Cars in fleet 36 48 91 NA NA 68 24,820 17,520 Total Annual Car-days 13,140 33,215 NA NA Adjusted Total Car-days 7,884 14,892 10,512 19,929 NA NA Days per Trip (min. of 1) 3 3 3 <u>3</u> <u>3</u> 3 \$3,892 \$4,642 NA NA Annual Opring Trip Related per Car \$1,827 \$5,338 \$3,651 Annual Non-Trip Related per Car \$7,302 \$3,043 NA \$2,434 NA \$65,758 \$186,825 \$422,425 NA Annual Oprtng Trip Related per Car Type \$362,989 NA Annual Non-Trip Related per Car Type \$496,536 \$146,040 \$332,241 \$87,624 <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$6.935 NA NA \$4,261 \$12,640 \$8,293 Total CAPITAL COST per Car \$14,152 \$42,456 \$17,690 \$21,228 NA NA Total OPRTNG COST for all cars \$754,666 \$153,382 \$859,525 \$332,865 NA ΝÁ Total CAPITAL COST for all cars \$509,472 \$2,887,008 \$849,120 \$1,931,748 NA

Route Number:

California Zephyr

#5-6

#### **Arthur D Little**

Amtrak Route:

Amtrak Route: California Zephyr Route Number: #5-6 Origin/Destination: Chicago-Oakland Length in Miles: 2,422 Length in Hours: 51.17 Expected Trips per Day: Manufacturer: Microphor Equipment: Gravity Scenario: Favorable \* All data on per car basis (unless noted otherwise) 32000 31000 34000 Trans Dorm Coach Sleeper Super Bag Coach Super Coach Super NA <u>NA</u> Quantity of cars 1 3 3 5 NA NA 78 75 40 44 NA NA Capacity (# people) - seated Toilets per car 12 5 6 NA NA 10.0 3.7 15.6 12.5 NA NA Average persons/toilet on train Car Waste Data (per car) Black Water: Human Waste/day (gals) 17.96 19.76 35.02 33.68 NA NA # Flushes/Person-day 6.00 6.00 6.00 6.00 6.00 6.00 Flush efficiency adjustment 1.00 1.00 1.00 1.00 1.00 1.00 Adj. # Flushes/Person-day 6 6 6 6 6 6 Flush Fluids/flush (gals) 0.172 0.172 0.172 0.172 0.172 0.172 Flush Fluids/day (gals) 41.3 45.4 80.5 77.4 NA NA Capacity Req'd/day (gals) 59.2 65.2 115.5 111.1 NA NA Adj. Capacity Req'd w/ Buffer 74.1 81.5 144.4 138.8 NA NA Tank Capacity per Car (gals) 300 300 300 300 300 300 Continuous Service Hours Supported 97 88 50 52 NA NA NA As a percentage of 72 hours 135% 123% 72% NA 69% Probable Service Hours per Day 24 24 24 24 24 24 Service Days Supported 4.1 3.7 2.1 2.2 NA NA As a percentage of 3 days 135.04% 122.77% 69.25% 72.02% NA NA Consecutive Trips before pumpout 1.0 1.0 0.0 1.0 NA NA **CAPITAL COSTS** \$10,000 Collection System per Car \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 Toilet Cost per Car \$20,000 \$60,000 \$25,000 \$30,000 <u>NA</u> <u>NA</u> - Total Equip Cost \$30,000 \$70,000 \$35,000 \$40,000 NA NA Equipment Installation Collection System per Car \$576 \$576 \$576 \$576 \$576 \$576

\$3,456

\$4,032

\$74,032

\$1,440

\$2,016

\$37,016

\$1,728

\$2,304

\$42,304

<u>NA</u>

NA

NA

<u>NA</u>

NA

NA

\$1,152

\$1,728

\$31,728

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

Amtrak Route:	California Zephyr		Route Number:	#5-6		
Origin/Destination:	Chicago-Oakland					
Length in Miles:	2,422					•
Length in Hours:	51.17					
Expected Trips per Day:	1					
Manufacturer:	Microphor					
Equipment:	Gravity			·		
Scenario:	Favorable					
* All data on per car basis (unless noted of	39900	32000	31000	34000	, NA	NA
	Trans Dorm Coach		Bag Coach Super	Coach Super	NA NA	NA NA
OPERATING COSTS	TILLIO DOTTI COLOTI	Olochol Ochol	And Assess Assists	TOTAL	1111	
Non-Trip Related Costs:						
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	NA
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$576	\$1,728	\$720	\$864	NA NA	ÑA
Annual spare parts cost per yr	\$300	\$700	\$350	\$400	NA	. <u>NA</u>
Total- Oprtng Non-Trip Related	\$876	\$2,428	\$1,,070	\$1,264	NA NA	NA
		<b>7</b> -, 1-5	71,1010	-		
Trip Related Costs:						
•						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	•					
- Pump out Cost	\$0.59	\$0.65	\$0.00	\$1.11	NA	NA
- Pump out minutes	0.99	1.09	0.00	1.85	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$2,15</u>	\$2.36	<u>\$4.19</u>	<u>\$4.03</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$26.74	\$75.01	\$34.19	\$41.14	NA	NA NA
Train Delay:						•
- Pump out volume reg'd	0	0	300	0	NA	NA
- # of stops req'd	0	0	1	0	NA	NA
- Pump out minutes	0.0	0.0	5.0	0.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	0.0	<u>0.0</u>	0.0	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	_				NA	NA.
Average Cost Per Delay	\$0	\$0	\$3	\$Ó	NA NA	NA
Subtotal- Opring Trip Related	\$27	\$75	\$37	\$41	NA	NA
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Adjusted Total Car-days	7,884	14,892	10,512	19,929	NA	NA
Days per Trip (min. of 1)	3	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
ē						
Annual Opring Trip Related per Car	\$1,952	\$5,476	\$2,715	\$3,003	NA	. NA
Annual Non-Trip Related per Car	\$876	\$2,428	\$1,070	\$1,264	NA	NA
•						
Annual Oprtng Trip Related per Car Type	\$70,272	\$372,367	\$130,303	\$273,271	NA	NA
Annual Non-Trip Related per Car Type	\$31,536	\$165,104	\$51,360	<u>\$115,024</u>	NA	<u>NA</u>
	<u> </u>	<u> </u>		<u> </u>		
Total OPRTNG COST per Car	\$2,828	\$7,904	\$3,785	\$4,267	NA	NA
Total CAPITAL COST per Car	\$31,728	\$74,032	\$37,016	\$42,304	NA NA	NA NA
The season is the season of th	<b>\$01,720</b>	Ψ, 4,002	407,010	ψ+z,υυ <del>+</del>	144	1413
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$101,808 \$1,142,208	\$537,471 \$5,034,176	\$181,663 \$1,776,768	\$388,295 \$3,849,664	NA NA	NA NA

# **Λrtlur D Little**

California Zephyr

Route Number:

#5-6

N<u>A</u>

NA

Origin/Destination: Length in Miles:

Chicago-Oakland 2,422

Length in Hours:

Total Capital Cost

51.17 1

\$26,192

Expected Trips per Day: Manufacturer:

Evac

Manufacturer:	Evac					
Equipment:	Ultimate		٠			
Scenario:	Favorable					
* All data on per car basis (unless noted	otherwise)			, .		
	39900 Trans Dorm Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1.	3	3	5	NA	NA
Capacity (# people) - seated Toilets per car	40 4	44 12	78 5	75 6	NA NA	NA NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA
Car Waste Data (per car)	,		•			
Black Water:						
Human Waste/day (gals)	17.96	19.76	35.02	33,68	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	11.3	12.4	22.0	21.2	NA	NA
Capacity Req'd/day (gals)	29.2	32.2		54.8	NA	NA
Adj. Capacity Req'd w/ Buffer	36.6	40.2		68.5	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	131 182%	119 166%		70 97%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	5.5	5.0	2.8	2.9	NA	NA
As a percentage of 3 days	182.40%	165.82%		97.28%	NA	NA
Consecutive Trips before pumpout	2.0	2.0	1.0	1.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$11,600</u>	<u>\$34,800</u>	<u>\$14,500</u>	<u>\$17,400</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$23,600	\$46,800	\$26,500	\$29,400	NA	NA
Equipment Installation		_				
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$1.440</u>	<u>\$1,728</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,592	\$4,896	\$2,880	\$3,168	NA	NA
T-4-1-0	800 400	054.000	000.000	000 500	A14	

\$51,696

\$29,380

\$32,568

Route Number: #5-6 Amtrak Route: California Zephyr. Origin/Destination: Chicago-Oakland Length in Miles: 2,422 Length in Hours: 51.17 Expected Trips per Day: Manufacturer: Evac Equipment: Ultimate Scenario: Favorable \* All data on per car basis (unless noted otherwise) 31000 34000 39900 32000 NA Trans Dorm Coach Sleeper Super Bag Coach Super Coach Super NA NA OPERATING COSTS Non-Trip Related Costs: Labor cost/major servicing \$288 \$864 \$360 \$432 NA NA Frequency per Year 2 2 2 2 2 2 Servicing Cost/Year \$576 \$1,728 \$720 \$864 NA NA Annual spare parts cost per yr \$236 \$468 \$265 \$294 <u>NA</u> <u>NA</u> \$985 NA NA Total- Opring Non-Trip Related \$812 \$2,196 \$1,158 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$24 \$72 \$30 \$36 NA NA - Cleaning - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.29 \$0.32 \$0.57 \$0.55 NA NA - Pump out minutes 0.49 0.54 0.95 0.91 NA NA - Connect/Disc. minutes NA NA 0.0 0.0 0.0 0.0 - Waste Disposal \$1.06 \$1.17 \$2.07 \$1.99 <u>NA</u> <u>NA</u> Subtotal- End of Day/Trip Srvc \$25.35 \$32.64 \$38.54 NA NA \$73.49 Train Delay: 0 - Pump out volume req'd ٥ 0 0 NA NA - # of stops reg'd 0 0 0 0 NA NA - Pump out minutes 0.0 0.0 0.0 0.0 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NΑ <u>NA</u> - Total Time Delay(mins/car) 0 0 NA NA 0 Average Cost Per Delay \$0 \$0 \$0 \$0 NA NA Subtotal-Oprtng Trip Related \$25 \$73 \$33 \$39 NA NA Total # Cars in fleet 36 68 48 91 NA ŇΑ Total Annual Car-days 13,140 24,820 17,520 33,215 NA NA Adjusted Total Car-days 7,884 14,892 10,512 19,929 NA NA Days per Trip (min. of 1) 3 <u>3</u> <u>3</u> <u>3</u> Annual Opring Trip Related per Car \$1,851 \$5,365 \$2,382 \$2,813 NA NA Annual Non-Trip Related per Car \$812 \$2,196 \$985 \$1,158 NA NA

\$66,626

\$29,232

\$2,663

\$26,192

\$95,858

\$942,912

\$364,792

\$149,328

\$7,561

\$51,696

\$514,120

\$3,515,328

\$114,359

\$47,280

\$3,367

\$29,380

\$161,639

\$1,410,240

\$255,991

\$105,378

\$3.971

\$32,568

\$361,369

\$2,963,688

NA

<u>NA</u>

NA

NA

NA

NA

<u>NA</u>

NA

NA

NA

NA

Annual Oprtng Trip Related per Car Type

Annual Non-Trip Related per Car Type

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Total OPRTNG COST per Car

Total CAPITAL COST per Car

California Zephyr

Route Number:

#5-6

Origin/Destination: Length in Miles:

Chicago-Oakland

2,422 51.17

Length in Hours: Expected Trips per Day:

Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Favorable

* All data on per car basis (unless noted	d otherwise)					
	39900 Trans Dorm Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	3	3	5	NA	NA
Capacity (# people) - seated	40	44	78	75	NA	NA
Toilets per car	4	12	5	6	NA	NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	17.96	19.76	35.02	33.68	NA	NA
# Flushes/Person-day	6.00	6,00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	63.2	69.5	123.2	118,4	NA	NA
Capacity Req'd/day (gals)	81.1	89.2	158.2	152.1	NA	NA
Adj. Capacity Req'd w/ Buffer	101.4	111.5	197.7	190.1	NA	NA
Tank Capacity per Car (gals)	100	300	150	150	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	24 33%	65 90%	18 6 25%	19 26%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	1.0	2.7	0.8	0.8	NA	NA
As a percentage of 3 days	32.87%	89.66%	<b>25.29%</b>	26.30%	NA	NA
Consecutive Trips before pumpout	0.0	1.0	0.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$8,000	\$24,000	\$12,000	\$12,000	NA	NA
Toilet Cost per Car	<u>\$12,000</u>	\$36,000	<u>\$15,000</u>	\$18,000	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$60,000	\$27,000	\$30,000	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$1,728	\$864	\$864	NA	NA
Toilet Cost per Car	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$1,440</u>	\$1,728	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,728	\$5,184	\$2,304	\$2,592	NA	NA
Total Capital Cost	\$21,728	\$65,184	\$29,304	\$32,592	NA	NA

Route Number: #5-6 Amtrak Route: California Zephyr Origin/Destination: Chicago-Oakland Length in Miles: 2,422 Length in Hours: 51.17 Expected Trips per Day: Manufacturer: Railtech Equipment: WTS 8300 Scenario: Favorable \* All data on per car basis (unless noted otherwise) 39900 32000 31000 34000 NA NA Trans Dorm Coach Sleeper Super Bag Coach Super Coach Super NA NΑ **OPERATING COSTS** Non-Trip Related Costs: \$432 NA NA Labor cost/major servicing \$288 \$864 \$360 Frequency per Year 2 2 2 2 2 2 Servicing Cost/Year \$576 \$720 \$864 NA NA \$1,728 Annual spare parts cost per yr \$200 \$300 <u>NA</u> \$600 \$270 <u>NA</u> Total-Opring Non-Trip Related \$776 \$2,328 \$990 \$1,164 NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing NA Cleaning \$24 \$72 \$30 \$36 NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$4.20 \$0.89 \$6.38 \$6.32 NA NA - Pump out minutes 0.00 1.49 0.14 0.03 NA NA - Connect/Disc. minutes 7.0 0.0 10.5 10.5 NA NA - Waste Disposal \$2.94 \$3.23 \$5.73 \$5.51 <u>NA</u> <u>NA</u> Subtotal- End of Day/Trip Srvc \$31.14 \$42.12 \$47.83 NA NA \$76.13 Train Delay: - Pump out volume req'd 100 0 150 150 NA NA - # of stops req'd O NA NA - Pump out minutes 1.7 2.5 2.5 NA NÁ 0.0 - Connect/Disc. minutes 7.0 10.5 10,5 <u>NA</u> 0.0 <u>NA</u> - Total Time Delay(mins/car) 9 0 13 13 NA NA Average Cost Per Delay \$5 \$0 \$8 \$8 NA NA Subtotal-Oprtng Trip Related \$36 \$76 \$50 \$56 NA NA Total # Cars in fleet 36 NA 68 48 91 NA Total Annual Car-days 13,140 24,820 17,520 33,215 NA NA Adjusted Total Car-days 7,884 10,512 19,929 14,892 NA NA Days per Trip (min. of 1) 3 3 3 3 3 3 Annual Opring Trip Related per Car \$2,653 \$5,557 \$3,644 \$4,061 NA NA Annual Non-Trip Related per Car \$776 \$2,328 \$990 \$1,164 NA NA Annual Oprtng Trip Related per Car Type \$95,502 \$377,892 \$174,902 \$369,575 NA NA Annual Non-Trip Related per Car Type \$27,936 \$158,304 \$47,520 \$105,924 NΑ <u>NA</u> Total OPRTNG COST per Car \$3,429 \$7,885 \$4,634 \$5,225 NA NA Total CAPITAL COST per Car \$21,728 \$65,184 \$29,304 \$32,592 NA NA Total OPRTNG COST for all cars \$123,438 \$536,196 \$222,422 \$475,499 NA NA Total CAPITAL COST for all cars \$782,208 \$4,432,512 \$1,406,592 \$2,965,872 NA NA

#### **Arthur D Little**

City of New Orleans

New Orleans-Chicago

Origin/Destination: Length in Miles:

924

Length in Hours: Expected Trips per Day: 18.33 1

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Favorable

* All data on per car basis (unless noted of	otherwise)					
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 2	22 17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1,3
Car Waste Data (per car)						
Black Water:						. •
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	. 6	6	6	6	6	6
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	31.0	18.1	16.6	17.4	18.5	8.3
Capacity Req'd/day (gals)	51.8	30.3	27.8	29.1	30.9	13.9
Adj. Capacity Req'd w/ Buffer	64.7	37.9	34.7	36.3	38.7	17.4
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	87 121%	149 207%	162 225%	155 216%	146 202%	325 451%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	4.8	8.1	8.9	8.5	8.0	17.7
As a percentage of 3 days	158.42%	270.64%	295.24%	282.40%	265.11%	590.48%
Consecutive Trips before pumpout	4.0	8.0	8.0	8.0	7.0	17.0
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$7,500</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$42,500</u>
- Total Equip Cost	\$26,000	\$26,000	\$28,500	\$26,000	\$26,000	\$63,500
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,304	\$2,016	\$2,016	\$6,336
Total Capital Cost	\$28,016	\$28,016	\$30,804	\$28,016	\$28,016	\$69,836

Route Number: #58

City of New Orleans

Origin/Destination: Length in Miles:

New Orleans-Chicago

Length in Hours:

924 18.33

Expected Trips per Day: Manufacturer:

Equipment:

Monogram Modified Vacuum

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

An data on per car basis (unless noted of	54000 <u>Horizon</u>	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	. 2	<u>2</u>
Servicing Cost/Year	\$288	\$288	\$432	\$288	\$288	\$2,448
Annual spare parts cost per yr	<u>\$260</u>	<u>\$260</u>	<u>\$285</u>	\$260	<u>\$260</u>	<u>\$635</u>
Total- Oprtng Non-Trip Related	\$548	\$548	\$717	\$548	\$548	\$3,083
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.52	\$0.30	\$0.28	\$0.29	\$0.31	\$0.14
- Pump out minutes	0.86	0.51	0.46	0.48	0.52	0.23
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$0.88</u>	<u>\$0:52</u>	<u>\$0.47</u>	<u>\$0.49</u>	<u>\$0.53</u>	<u>\$0.24</u>
Subtotal- End of Day/Trip Srvc	\$13.40	\$12.82	\$18.75	\$12.78	· \$12.84	\$102.38
Train Delay:						
- Pump out volume req'd	0	0	0	0	0	0
- # of stops req'd	0	0	0	0	0	0
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	0	0	0
Average Cost Per Delay	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
Subtotal- Oprtng Trip Related	\$13	\$13	\$19	\$13	\$13	\$102
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	22,557	17,082	4,599	2,628	5,475	17,958
Days per Trip (min. of 1)	. 1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$2,934	\$2,807	\$4,106	\$2,800	\$2,811	\$22,420
Annual Non-Trip Related per Car	\$548	\$548	\$717	\$548	\$548	\$3,083
Annual Oprtng Trip Related per Car Type	\$302,228	\$218,967	\$86,233	\$33,598	\$70,275	\$1,838,454
Annual Non-Trip Related per Car Type	<u>\$56,444</u>	<u>\$42,744</u>	<u>\$15,057</u>	<u>\$6,576</u>	<u>\$13,700</u>	<u>\$252,806</u>
Total OPRTNG COST per Car	\$3,482	\$3,355	\$4,823	\$3,348	\$3,359	\$25,503
Total CAPITAL COST per Car	\$28,016	\$28,016	\$30,804	\$28,016	\$28,016	\$69,836
Total OPRTNG COST for all cars	\$358,672	\$261,711	\$101,290	\$40,174	\$83,975	\$2,091,260
Total CAPITAL COST for all cars	\$2,885,648	\$2,185,248	\$646,884	\$336,192	\$700,400	\$5,726,552

Route Number:

City of New Orleans

New Orleans-Chicago

924

1

18.33

Origin/Destination: Length in Miles:

Length in Hours: Expected Trips per Day:

Manufacturer:

Equipment:

Monogram Self-Cont'd Recirc

Scenario:

Favorable

Oceliaio.	1 avoiable					
* All data on per car basis (unless noted	•	4600	4000	9400	28000	0400(00)
	54000 <u>Horizon</u>	Coach	Coach (HDCP)	Dome Coach	Amiounge II	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated	82	· 48	44	46	49	22
Toilets per car	2	2	3	2	2	17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Req'd/day (gals)	28.1	16.5	15.1	15.8	16.8	7.5
Adj. Capacity Req'd w/ Buffer	35.1	20.6	18.9	. 19.7	21.0	9.4
Tank Capacity per Car (gals)	27	27	40.5	27	27	229.5
Continuous Service Hours Supported As a percentage of 72 hours	18 26%	31 44%	52 72%	33 46%	31 43%	584 811%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	1.0	1.7	2.8	1.8	1.7	31.9
As a percentage of 3 days	33.53%	57.27%	93.72%	59.76%	56.10%	1062.14%
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	1.0	31.0
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	<b>\$</b> 0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$9,750</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$55,250</u>
- Total Equip Cost	\$6,500	\$6,500	\$9,750	\$6,500	\$6,500	\$55,250
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>
- Total Installation Cost	\$576	\$576	\$864	\$576	\$576	\$4,896
Total Capital Cost	\$7,076	\$7,076	\$10,614	\$7,076	\$7,076	\$60,146

Route Number:

City of New Orleans

Origin/Destination: Length in Miles: Length in Hours:

New Orleans-Chicago 924

18.33

Expected Trips per Day: Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	54000 Horizon	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$864	\$576	\$576	\$4,896
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$1,152	\$1,152	\$1,728	\$1,152	\$1,152	\$9,792
Annual spare parts cost per yr	<u>\$65</u>	<u>\$65</u>	<u>\$98</u>	<u>\$65</u>	<u>\$65</u>	<u>\$553</u>
Total- Oprtng Non-Trip Related	\$1,217	\$1,217	\$1,826	\$1,217	\$1,217	\$10,345
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing			•		•	
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0:28	\$0.16	\$0.15	\$0.16	\$0.17	\$0.08
- Pump out minutes	0.47	0.27	0.25	0.26	0.28	0.13
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$0.62</u>	<u>\$0.36</u>	<u>\$0,33</u>	\$0.35	<u>\$0.37</u>	<u>\$0.17</u>
Subtotal- End of Day/Trip Srvc	\$12.90	\$12.53	\$18.48	\$12.50	\$12.54	\$102.24
Train Delay:						
- Pump out volume req'd	0	0	0	0	0	0
- # of stops req'd	0	0	0	0	0	0
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	<u>0.0</u>	0.0	<u>0.0</u>	0.0	<u>0.0</u>	<u>0.0</u>
- Total Time Delay(mins/car)	0	0	0	0	0	0
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal- Opring Trip Related	\$13	\$13	\$18	\$13	\$13	\$102
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	22,557	17,082	4,599	2,628	5,475	17,958
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$2,825	\$2,743	\$4,048	\$2,739	\$2,746	\$22,391
Annual Non-Trip Related per Car	\$1,217	\$1,217	\$1,826	\$1,217	\$1,217	\$10,345
Annual Opring Trip Related per Car Type	\$290,982	\$213,982	\$85,003	\$32,863	\$68,644	\$1,836,051
Annual Non-Trip Related per Car Type	<u>\$125,351</u>	\$ <u>94,926</u>	<u>\$38,336</u>	<u>\$14.604</u>	<u>\$30,425</u>	<u>\$848,249</u>
Total OPRTNG COST per Car	\$4,042	\$3,960	\$5,873	\$3,956	\$3,963	\$32,735
Total CAPITAL COST per Car	\$7,076	\$7,076	\$10,614	\$7,076	\$7,076	\$60,146
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$416,333 \$728,828	\$308,908 \$551,928	\$123,338 \$222,894	\$47,467 \$84,912	\$99,069 \$176,900	\$2,684,300 \$4,931,972

Route Number:

City of New Orleans

New Orleans-Chicago

Origin/Destination: Length in Miles:

924

Length in Hours:

18.33 1

Expected Trips per Day:

Manufacturer: Equipment:

Microphor

Gravity

Scenario:

Favorable

Scenano:	ravorable					
* All data on per car basis (unless noted of	otherwise)					
	54000	4600	4000	9400	28000	2400(30)
	<u>Horizon</u>	<u>Coach</u>	Coach (HDCP)	Dome Coach	Amlounge II	Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 2	22 17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1,3
Car Waste Data (per car)						
<u> </u>						
Black Water:						_
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	84.6	49.5	45.4	47.5	50.6	22.7
Capacity Req'd/day (gals)	92.8	54.3	49.8	52.0	55.4	24.9
Adj. Capacity Req'd w/ Buffer	115.9	67.9	62.2	65.0	69.3	, 31.1
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	62 86%	106 147%	116 161%	111 154%	104 144%	231 321%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	3.4	5.8	6.3	6.0	5.7	12.6
As a percentage of 3 days	112.93%	192.93%	210.46%	201.31%	188.99%	420.93%
Consecutive Trips before pumpout	3.0	5.0	. 6.0	6.0	5.0	12.0
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$15,000</u>	<u>\$10,000</u>	<u>\$10,000</u>	\$85,000
- Total Equip Cost	\$20,000	\$20,000	\$25,000	\$20,000	\$20,000	\$95,000
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	\$576	\$864	\$576	<u>\$576</u>	\$4.89 <u>6</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,440	\$1,152	\$1,152	\$5,472
Total Capital Cost	\$21,152	\$21,152	\$26,440	\$21,152	\$21,152	\$100,472
•						

Route Number:

City of New Orleans

Origin/Destination: Length in Miles:

New Orleans-Chicago 924

Length in Hours:

18.33

Expected Trips per Day: Manufacturer:

Equipment:

Microphor

Gravity

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted of	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$288	\$288	\$432	\$288	\$288	\$2,448
Annual spare parts cost per yr	\$200	<u>\$200</u>	<u>\$250</u>	<u>\$200</u>	<u>\$200</u>	<u>\$950</u>
Total- Oprtng Non-Trip Related	.\$488	\$488	\$682	\$488	\$488	\$3,398
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						•
- Pump out Cost	\$0.93	\$0.54	\$0.50	\$0.52	\$0.55	\$0.25
- Pump out minutes	1.55	0.90	0.83	0.87	0.92	0.41
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$1.58</u>	<u>\$0.92</u>	<u>\$0.85</u>	<u>\$0.88</u>	<u>\$0.94</u>	\$0.42
Subtotal- End of Day/Trip Srvc	\$14.50	\$13.47	\$19.34	\$13.40	\$13.50	\$102.67
Train Delay:						
- Pump out volume req'd	0	0	0	0	0	0
- # of stops req'd	0	0	0.	0	0	0
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
- Total Time Delay(mins/car)	0	0	0	0	0	0
Average Cost Per Delay	\$0	\$0	\$0	\$0	. \$0	\$0
Subtotal- Oprtng Trip Related	\$15	\$13	\$19	\$13	\$13	\$103
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	22,557	17,082	4,599	2,628	5,475	17,958
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$3,176	\$2,949	\$4,236	\$2,936	\$2,956	\$22,485
Annual Non-Trip Related per Car	\$488	\$488	\$682	\$488	\$488	\$3,398
Annual Oprtng Trip Related per Car Type	\$327,173	\$230,025	\$88,962	\$35,228	\$73,893	\$1,843,782
Annual Non-Trip Related per Car Type	<u>\$50,264</u>	<u>\$38,064</u>	<u>\$14,322</u>	\$5,85 <u>6</u>	\$12,200	<u>\$278,636</u>
Total OPRTNG COST per Car	\$3,664	\$3,437	\$4,918	\$3,424	\$3,444	\$25,883
Total CAPITAL COST per Car	\$21,152	\$21,152	\$26,440	\$21,152	\$21,152	\$100,472

Route Number:

City of New Orleans

New Orleans-Chicago

Origin/Destination: Length in Miles:

Oneans-Chicago 924

Length in Hours:

18.33

Expected Trips per Day:

1

Manufacturer:

Evac

Equipment:

Ultimate

Scenario: Favorable

Scenario:	Favorable			*		
* All data on per car basis (unless noted	d otherwise)	•	•			
	54000 Horizon	4600 Coach	4000 Coach (HDCP)	9400 Dome Coach	28000 Amiounge II	2400(30) Sleeper 10-6
Quantity of cars	<u>1 10112011</u>	<u>COACH</u> 4	1	1	1	<u>0.00000 10-0</u>
Capacity (# people) - seated	82 82	. 48	44	46	49	22
Toilets per car	2	2	3	2	2	17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	23.1	13.5	12.4	13.0	13.8	6.2
Capacity Req'd/day (gals)	45.8	26.8	24.6	25.7	27.4	12.3
Adj. Capacity Req'd w/ Buffer	57.2	33.5	30.7	32.1	34.2	15.4
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	84 116%	143 199%	156 217%	150 208%	140 195%	313 434%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	4.6	7.8	8.5	8.2	7.7	17.1
As a percentage of 3 days	152.53%	260.58%	284.27%	271.91%	255.26%	568.53%
Consecutive Trips before pumpout	4.0	7.0	8.0	8.0	7.0	17.0
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$8,700</u>	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$49,300</u>
- Total Equip Cost	\$17,800	\$17,800	\$20,700	\$17,800	\$17,800	\$61,300
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,304	\$2,016	\$2,016	\$6,336
Total Capital Cost	\$19,816	\$19,816	\$23,004	\$19,816	\$19,816	\$67,636

Route Number:

Amtrak Route: Origin/Destination:

Length in Miles:

City of New Orleans

New Orleans-Chicago

924

Length in Hours:

18.33

Expected Trips per Day:

Manufacturer: Equipment:

Evac Ultimate

Scenario:

Favorable

* All data on per car basis (unless noted otl	ierwise)		•			
•	54000 Horizon	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6
OPERATING COSTS		-	-		<del></del>	
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	2	<u>2</u>	2	2	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$288	\$288	\$432	\$288	\$288	\$2,448
Annual spare parts cost per yr	<u>\$178</u>	<u>\$178</u>	<u>\$207</u>	<u>\$178</u>	<u>\$178</u>	<u>\$613</u>
Total- Oprtng Non-Trip Related	\$466	\$466	\$639	\$466	\$466	\$3,061
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing				-		
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.46	\$0.27	\$0.25	\$0.26	\$0.27	\$0.12
- Pump out minutes	0.76	0.45	0.41	0.43	0.46	0.20
- Connect/Disc. minutes	. 0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$0.78</u>	\$0.46	<u>\$0.42</u>	<u>\$0.44</u>	\$0.47	\$0.21
Subtotal- End of Day/Trip Srvc	\$13.24	\$12.72	\$18.66	\$12.69	\$12.74	\$102.33
Train Delay:						
- Pump out volume req'd	0	0	0	0	0	0
- # of stops req'd	0	0	0	0	0	0
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	0.0	<u>0.0</u>	<u>0.0</u>
- Total Time Delay(mins/car)	0	0	0	0	0	0
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal- Oprtng Trip Related	\$13	\$13	\$19	\$13	\$13	\$102
Total # Cars in fleet	103	78	21	12.	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	22,557	17.082	4,599	2.628	5.475	17,958
Days per Trip (min. of 1)	1	<u>1</u>	1	<u>1</u>	1	1
Annual Opring Trip Related per Car	\$2.899	\$2,786	\$4,087	\$2,780	\$2,790	\$22,411
Annual Non-Trip Related per Car	\$466	\$466	\$639	\$466	\$466	\$3,061
Annual Opring Trip Related per Car Type	\$298,566	\$217,344	\$85,832	\$33,358	\$69,744	\$1,837,671
Annual Non-Trip Related per Car Type	\$47,998	\$36,348	\$13,419	\$5,592	\$11,650	\$251,002
74maa Non Inp Helalog per oa Typo	<u> </u>	<u> </u>	<u>\$10,415</u>	<u>\$5,532</u>	<u> </u>	<u>\$201,002</u>
Total OPRTNG COST per Car	\$3,365	\$3,252	\$4,726	\$3,246	\$3,256	\$25,472
Total CAPITAL COST per Car	\$19,816	\$19,816	\$23,004	\$19,816	\$19,816	\$67,636
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$346,564 \$2,041,048	\$253,692 \$1,545,648	\$99,251 \$483,084	\$38,950 \$237,792	\$81,394 \$495,400	\$2,088,673 \$5,546,152

#58

Route Number:

# **Λrthur D Little**

City of New Orleans

Origin/Destination: Length in Miles:

New Orleans-Chicago 924

Length in Hours:

18.33

1

Expected Trips per Day:

Manufacturer: Equipment:

Railtech

WTS 8300

Scenario:

Favorable

* All data on per	car basis	(unless noted	otherwise)
			EACC

* All data on per car basis (unless noted of	otherwise)					
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated Toilets per car	82 2	48 <sup>-</sup> 2	44 3	46 2	49 2	22 17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	. 1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	129.5	75.8	69.5	72.6	77.4	34.7
Capacity Req'd/day (gals)	127.0	74.3	68.1	71.2	75.9	34.1
Adj. Capacity Req'd w/ Buffer	158.8	92.9	85.2	89.1	94.9	42.6
Tank Capacity per Car (gals)	100	100	100	100	100	450
Continuous Service Hours Supported As a percentage of 72 hours	15 21%	26 36%	28 39%	27 37%	25 35%	254 352%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	0.8	1.4	1.5	1.5	1.4	13.8
As a percentage of 3 days	27.49%	46.96%	51.23%	49.01%	46.01%	461.10%
Consecutive Trips before pumpout	0.0	1.0	1.0	1.0	1.0	13.0
CAPITAL COSTS						
Collection System per Car	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$36,000
Toilet Cost per Car	<u>\$6,000</u>	<u>\$6,000</u>	<u>\$9,000</u>	<u>\$6,000</u>	<u>\$6,000</u>	<u>\$51,000</u>
- Total Equip Cost	\$14,000	\$14,000	\$17,000	\$14,000	\$14,000	\$87,000
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$2,592
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,440	\$1,152	\$1,152	\$7,488
Total Capital Cost	\$15,152	\$15,152	\$18,440	\$15,152	\$15,152	\$94,488

Route Number:

#58

Amtrak Route: Origin/Destination: City of New Orleans

Length in Miles: Length in Hours: New Orleans-Chicago 924

18.33

Expected Trips per Day:

Manufacturer: Equipment:

Railtech

Scenario:

WTS 8300 Favorable

Scenario:	Favorable					
* All data on per car basis (unless noted of	herwise)			*		
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$288	\$288	\$432	\$288	\$288	\$2,448
Annual spare parts cost per yr	<u>\$140</u>	<u>\$140</u>	<u>\$170</u>	<u>\$140</u>	<u>\$140</u>	<u>\$870</u>
Total- Oprtng Non-Trip Related	\$428	\$428	\$602	\$428	\$428	\$3,318
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing				cp		
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$4.47	\$0.74	\$0.68	\$0.71	\$0.76	\$0.34
- Pump out minutes	0.45	1.24	1.14	1.19	1.26	0.57
- Connect/Disc. minutes	7.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	<u>\$2.16</u>	<u>\$1.26</u>	<u>\$1.16</u>	<u>\$1.21</u>	<u>\$1.29</u>	<u>\$0.58</u>
Subtotal- End of Day/Trip Srvc	\$18.63	\$14.01	\$19.84	\$13.92	\$14.05	\$102.92
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	100	0	0	0	0	0
- # of stops req'd	1	0	0	0	0	. 0
- Pump out minutes	1.7	0.0	0.0	0.0	0.0	0.0
- Connect/Disc. minutes	<u>7.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	9	0	0	0	0	0
Average Cost Per Delay	\$5	\$0	\$0	\$0	\$0	\$0
Subtotal- Oprtng Trip Related	\$24	\$14	\$20	\$14	. \$14	\$103
Total # Cars in fleet	103	78	21	. 12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	22,557	17,082	4,599	2,628	5,475	17,958
Days per Trip (min. of 1)	1 1	1	1	1	. 1	1
Annual Oprtng Trip Related per Car	\$5,219	\$3,068	\$4,345	\$3,049	\$3,077	\$22,539
Annual Non-Trip Related per Car	\$428	\$428	\$602	\$428	\$428	\$3,318
Annual Opring Trip Related per Car Type	\$537,514	\$239,273	\$91,244	\$36,591	\$76,919	\$1,848,238
Annual Non-Trip Related per Car Type	<u>\$44,084</u>	<u>\$33,384</u>	<u>\$12,642</u>	<u>\$5,136</u>	<u>\$10,700</u>	<u>\$272,076</u>
Total OPRTNG COST per Car	\$5,647	\$3,496	\$4,947	\$3,477	\$3,505	\$25,857
Total CAPITAL COST per Car	\$15,152	\$15,152	\$18,440	\$15,152	\$15,152	\$94,488
Total OPRTNG COST for all cars	\$581,598	\$272,657	\$103,886	\$41,727	\$87,619	\$2,120,314
Total CAPITAL COST for all cars	\$1,560,656	\$1,181,856	\$387,240	\$181,824	\$378,800	\$7,748,016

#58

Route Number:

Silver Meteor

Origin/Destination: Length in Miles:

New York-Tampa

Length in Hours:

1,270 23.28

Expected Trips per Day:

Manufacturer: Equipment:

Monogram Modified Vacuum

Scenario:

Favorable

* All data on per car basis (unless noted of	otherwise)					
	25000 Amcoach II	28000 <u>Amiounge II</u>	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA <u>NA</u>
Quantity of cars	7	1	2	1	1	NA
Capacity (# people) - seated	59	49	22	40	34	NA
Toilets per car	2	2	17	32	17	NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	<b>2.0</b>	NA .
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6,00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	22.3	18.5	8.3	15.1	12.9	NA
Capacity Req'd/day (gals)	47.3	39.3	17.6	32.1	27.3	NA
Adj. Capacity Req'd w/ Buffer	59.2	49.1	22.1	40.1	34.1	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	95 132%	115 159%	256 355%	141 5 195%	165 230%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	4.1	4.9	11.0	6.0	7.1	NA
As a percentage of 3 days	136.50%	164.36%	366.07%	201.34%	236.87%	NA
Consecutive Trips before pumpout	4.0	4.0	10.0	6.0	7.0	NA
CAPITAL COSTS			•			
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$42,500</u>	\$80,000	<u>\$42,500</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$63,500	\$101,000	\$63,500	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>	<u>\$9,216</u>	<u>\$4,896</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$6,336	\$10,656	\$6,336	NA
Total Capital Cost	\$28,016	\$28,016	\$69,836	\$111,656	\$69,836	NA
				<del> </del>		

Route Number:

#87-88

Origin/Destination: New York-Tampa Length in Miles: 1.270 Length in Hours: 23.28 Expected Trips per Day: Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Favorable \* All data on per car basis (unless noted otherwise) 28000 2400(30) 2080 2300 Amcoach II Amlounge II Sleeper 10-6 Slumbercoach 24- Viewliner-Sleeper NA **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$144 \$144 \$1,224 \$2,304 \$1.224 NA Frequency per Year 2 2 2 \$4,608 NA Servicing Cost/Year \$288 \$288 \$2,448 \$2,448 \$1,010 Annual spare parts cost per yr \$260 \$260 <u>\$635</u> \$635 <u>NA</u> \$5,618 \$548 NA Total- Oprtng Non-Trip Related \$548 \$3,083 \$3,083 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$12 \$12 \$102 \$192 \$102 ÑΑ - Cleaning - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.47 \$0.39 \$0.18 \$0.32 \$0.27 NA - Pump out minutes 0.79 0.66 0.29 0.53 0.45 NA NΑ - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 - Waste Disposal \$0.80 \$0.67 \$0.55 \$0.46 <u>NA</u> \$0.30 \$102.74 Subtotal- End of Day/Trip Srvc \$13.28 \$13.06 \$102.48 \$192.87 NA Train Delay: - Pump out volume req'd 0 0 0 0 0 ΝA 0 0 0 - # of stops reg'd 0 a NA - Pump out minutes 0.0 0.0 0.0 0.0 0.0 NA - Connect/Disc. minutes 0.0 NA 0.0 0.0 0.0 0.0 - Total Time Delay(mins/car) 0 0 0 0 0 NA Average Cost Per Delay \$0 \$0 \$0 \$0 \$0 NA \$103 Subtotal-Oprtng Trip Related \$13 \$13 \$102 \$193 NA Total # Cars in fleet 119 25 82 16 2 NA Total Annual Car-days 43,435 9,125 29,930 5,840 730 NA Adjusted Total Car-days 5,475 17,958 3,504 438 26,061 NA Days per Trip (min. of 1) 2 2 2 2 2 Annual Opring Trip Related per Car \$1,454 \$1,430 \$11,221 \$21,119 \$11,250 NA \$548 Annual Non-Trip Related per Car \$548 \$3,083 \$5,618 \$3,083 NA Annual Opring Trip Related per Car Type \$173,018 \$35,755 \$920,137 \$337,902 \$22,499 NA Annual Non-Trip Related per Car Type \$65,212 \$13,700 \$252,806 \$89,888 \$6,166 <u>NA</u> Total OPRTNG COST per Car \$2,002 \$1,978 \$26,737 \$14.333 \$14,304 NA \$28,016 Total CAPITAL COST per Car \$28,016 \$69,836 \$111,656 \$69,836 NA Total OPRING COST for all cars \$238,230 \$49,455 \$1,172,943 \$427,790 \$28,665 NA

Route Number:

Silver Meteor

#87-88

\$3,333,904

\$700,400

\$5,726,552

\$1,786,496

\$139,672

NA

Total CAPITAL COST for all cars

Amtrak Route:

Amtrak Route: Origin/Destination: Length in Miles:

Silver Meteor

New York-Tampa

1,270 23.28

Length in Hours: Expected Trips per Day:

1

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Favorable

* All data on per car basis (unless noted of	therwise)					÷
• •	25000 Amcoach II	28000 <u>Amiounge II</u>	2400(30) Sleeper 10-6	2080 Slumbercoach 24	2300 <u>Viewliner-Sleeper</u>	NA <u>NA</u>
Quantity of cars	7	1	2	1	1	NA
Capacity (# people) - seated	59	49	22	40	34	NA
Toilets per car	2	2	17	32	17	NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)	,					
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1,00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	0.0	NA
Capacity Req'd/day (gals)	25.7	21.3	9.6	17.4	14.8	NA
Adj. Capacity Req'd w/ Buffer	32.1	26.7	12.0	21.8	18.5	NA
Tank Capacity per Car (gals)	27	27	229.5	432	229.5	NA
Continuous Service Hours Supported As a percentage of 72 hours	20 28%	24 34%	460 639%	476 661%	298 413%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	0.9	1.0	19.8	20.5	12.8	NA
As a percentage of 3 days	28.89%	34.78%	658.47%	681.71%	426.07%	NA
Consecutive Trips before pumpout	0.0	1.0	19.0	20.0	12.0	NA
CAPITAL COSTS	-					
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$55,250</u>	<u>\$104,000</u>	<u>\$55,250</u>	<u>NA</u>
- Total Equip Cost	\$6,500	\$6,500	\$55,250	\$104,000	\$55,250	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>	<u>\$9,216</u>	<u>\$4.896</u>	<u>NA</u>
- Total Installation Cost	\$576	\$576	\$4,896	\$9,216	\$4,896	NA
Total Capital Cost	\$7,076	\$7,076	\$60,146	\$113,216	\$60,146	NA

Route Number:

#87-88

Amtrak Route: Origin/Destination:

Silver Meteor

New York-Tampa

Length in Miles: Length in Hours: 1,270 23.28

Expected Trips per Day:

Manufacturer: Equipment:

Monogram

Self-Cont'd Recirc

_1_1_						
Scenario:	Favorable					
* All data on per car basis (unless noted of	therwise)					
	25000	28000	2400(30)	2080	2300	NA.
	Amcoach II	<u>Amiounge li</u>	Sleeper 10-6	Slumbercoach 24-	Viewliner-Sleeper	ŇA
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$4,896	\$9,216	\$4,896	NA
Frequency per Year	2	2	2	2	2	<u>2</u>
Servicing Cost/Year	\$1,152	\$1,152	= \$9,792	_	= \$9,792	NA.
Annual spare parts cost per yr	\$65	\$65	<u>\$553</u>	\$1,040	<u>\$553</u>	NA.
Total- Opring Non-Trip Related	\$1,217	\$1,217	\$10,345	\$19,472	\$10,345	NA
Total Opining Hon Trip Hotalou		V.,	V.0,0.10		, \$15,515	
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$4.20	\$0.21	\$0.10	\$0.17	\$0.15	NA
- Pump out minutes	0.00	0.36	0.16	0.29	0.25	NA
- Connect/Disc. minutes	7.0	0.0	0.0	0.0	0.0	NA
- Waste Disposal	\$0.57	\$0.47	\$0.21	<u>\$0,38</u>	<u>\$0.33</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$16.77	\$12.68	\$102.31	\$192.56	\$102.47	NA
Train Delay:	·	·				
- Pump out volume req'd	27	0	0	0	0	NA
- # of stops reg'd	1	. 0	0	0	0	NA
- Pump out minutes	0.5	0.0	0.0	0.0	0.0	NA
- Connect/Disc, minutes	<u>7.0</u>	0.0	0.0	0.0	0.0	<u>NA</u>
- Total Time Delay(mins/car)	7	0	0	0	0	NA NA
Average Cost Per Delay	\$4	\$0	\$0	\$0	\$0	NA
Subtotal- Opring Trip Related	\$21	\$13	\$102	\$193	\$102	NA NA
Cubicial Opining Trip Ticlated			<b>\$10</b> L			
Total # Cars in fleet	119	25	82	16 <sup>°</sup>	2	NA
Total Annual Car-days	43,435	9,125	29,930	. 5,840	730	NA
		5 475	47.050	0.504	400	514
Adjusted Total Car-days	26,061	5,475	17,958	3,504	438	NA .
Days per Trip (min. of 1)	2	2	2	<u>2</u>	2	2
Annual Opring Trip Related per Car	\$2,325	\$1,389	\$11,203	\$21,085	\$11,221	NA
Annual Non-Trip Related per Car	\$1,217	\$1,217	\$10,345	\$19,472	\$10,345	NA
Annual Oprtng Trip Related per Car Type	\$276,707	\$34,719	\$918,611	\$337,361	\$22,442	NA
			\$848,249	\$311,552	\$20,689	NA NA
Annual Non-Trip Related per Car Type	<u>\$144.823</u>	<u>\$30,425</u>	<u> </u>	<u>\$011,33€</u>	<u>420.009</u>	INA
Total OPRTNG COST per Car	\$3,542	\$2,606	\$21,547	\$40,557	\$21,565	NA
Total CAPITAL COST per Car	\$7,076	\$7,076	\$60,146	\$113,216	\$60,146	NA
	mana makaziran 1990		oo alamaa aa	of		
Total OPRTNG COST for all cars	\$421,530	\$65,144	\$1,766,860	\$648,913	\$43,131	NA NA

\$842,044 \$176,900 \$4,931,972 \$1,811,456

Route Number:

#87-88

# **Arthur D Little**

Total CAPITAL COST for all cars

Amtrak Route: Origin/Destination:

Length in Miles:

Silver Meteor

New York-Tampa

1,270

Length in Hours:

23.28

Expected Trips per Day: Manufacturer:

Equipment:

Microphor

Gravity

Scenario:	Favorable					
* All data on per car basis (unless noted	otherwise)				•	
	25000 Amcoach II	28000 Amiounge II	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA <u>NA</u>
Quantity of cars	7	1	2	1	1	NA
Capacity (# people) - seated Toilets per car	59 2	49 2	22 17	40 32	34 17	NA NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)			•	٨	٠.	
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	60.9	50.6	22.7	41.3	35.1	NA
Capacity Req'd/day (gals)	84.8	70.4	31.6	57.5	48.8	NA
Adj. Capacity Req'd w/ Buffer	105.9	88.0	39.5	71.8	61.1	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	68 94%	82 114%	182 253%	100 139%	118 164%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23,28
Service Days Supported	2.9	3.5	7.8	4.3	5.1	NA
As a percentage of 3 days	97.31%	117.16%	260.96%	143.53%	168.85%	NA
Consecutive Trips before pumpout	2.0	3.0	7.0	4.0	5.0	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$85,000</u>	\$160,000	<u>\$85,000</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$95,000	\$170,000	\$95,000	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9,216</u>	<u>\$4,896</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$5,472	\$9,792	\$5,472	NA
Total Capital Cost	\$21,152	\$21,152	\$100,472	\$179,792	\$100,472	NA

Route Number:

. #87-88

Amtrak Route: Route Number: #87-88 Silver Meteor Origin/Destination: New York-Tampa Length in Miles: 1,270 Length in Hours: 23.28 Expected Trips per Day: Manufacturer: Microphor Equipment: Gravity Scenario: Favorable \* All data on per car basis (unless noted otherwise) 2080 2300 NA 28000 2400(30) Amcoach II Amlounge II Sleeper 10-6 Slumbercoach 24- Viewliner-Sleeper NA **OPERATING COSTS** Non-Trip Related Costs: \$2,304 \$1,224 \$1,224 ŇΑ Labor cost/major servicing \$144 \$144 Frequency per Year 2 2 2 2 2 Servicing Cost/Year \$4,608 \$2,448 NA \$288 \$288 \$2,448 \$200 \$200 \$950 \$1,700 \$950 NA Annual spare parts cost per yr Total- Oprtng Non-Trip Related \$488 \$488 \$3.398 \$6,308 \$3,398 NΑ Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$192 \$102 NA \$102 - Cleaning \$12 \$12 \$0 \$0 \$0 \$0 \$0 - Light Repair \$0 Pump out and Disposal - Pump out Cost \$0.85 \$0.70 \$0.32 \$0.57 \$0.49 NA 0.81 NA - Pump out minutes 1.41 1.17 0.53 0.96 0.0 NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 - Waste Disposal \$1.44 \$1.20 \$0.54 \$0.98 \$0.83 NA Subtotal- End of Day/Trip Srvc \$14.29 \$13.90 \$102.85 \$193.55 \$103.32 NA Train Delay: - Pump out volume req'd 0 0 0 0 ٥ NA - # of stops reg'd 0 ۵ ٥ ٥ ٥ NA 0.0 0.0 NA 0.0 0.0 0.0 - Pump out minutes - Connect/Disc. minutes 0.0 0.0 <u>NA</u> 0.0 0.0 0.0 0 NA - Total Time Delay(mins/car) o 0 0 ٥ Average Cost Per Delay \$0 \$0 \$0 \$0 \$0 NA Subtotal-Opring Trip Related \$14 \$14 \$103 \$194 \$103 NA Total # Cars in fleet 119 25 82 16 2 NA 730 Total Annual Car-days 43,435 9,125 29,930 5,840 NA Adjusted Total Car-days 26.061 5,475 17,958 3,504 438 NA Days per Trip (min. of 1) 2 2 2 2 2 2 Annual Opring Trip Related per Car \$1,565 \$1,522 \$11,262 \$11,313 NΑ \$21,194 Annual Non-Trip Related per Car \$488 \$488 \$3,398 \$6,308 \$3,398 NA Annual Opring Trip Related per Car Type \$186,186 \$38,053 \$923,520 \$339,102 \$22,627 NA Annual Non-Trip Related per Car Type \$58,072 \$12,200 \$278,636 \$100,928 \$6,796 <u>NA</u> Total OPRTNG COST per Car \$2,053 \$2,010 \$14,660 \$27,502 \$14,711 NA Total CAPITAL COST per Car \$21,152 \$21,152 \$100,472 \$179,792 \$100,472 NA

\$244,258

\$2,517,088

\$50,253

\$528,800

\$1,202,156

\$8,238,704

\$440,030

\$2,876,672

\$29,423

\$200,944

NA

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Silver Meteor

New York-Tampa

Origin/Destination: Length in Miles: Length in Hours:

1,270 23.28

Expected Trips per Day:

Manufacturer:

Evac

Equipment:

Ultimate<sup>\*</sup>

Scenario:

Favorable

Scenario:	Favorable					
* All data on per car basis (unless noted	otherwise)	£.			,	
•	25000	28000	2400(30)	2080	2300	ŅA
	Amcoach II	<u>Amlounge II</u>	Sleeper 10-6	Slumbercoach 24-	<u>Viewliner-Sleeper</u>	. NA
Quantity of cars	, 7	1	2	1	1	NA
Capacity (# people) - seated Toilets per car	59 2	49 2	22 17	40 32	34 17	NA NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)		•				
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1,00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	16.6	13.8	6.2	11.3	9.6	NA
Capacity Req'd/day (gals)	41.8	34.7	15.6	28.4	24.1	NA
Adj. Capacity Req'd w/ Buffer	52.3	43.4	19.5	35.5	30.1	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	92 127%	111 154%	246 342%	135 188%	159 221%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	3.9	4.7	10.6	5.8	6.8	NA
As a percentage of 3 days	131.43%	158.25%	352.46%	193.86%	228.07%	NA.
Consecutive Trips before pumpout	3.0	4.0	10.0	5.0	6.0	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$49,300</u>	\$92,800	<u>\$49,300</u>	<u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$61,300	\$104,800	\$61,300	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9.216</u>	<u>\$4,896</u>	. <u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$6,336	\$10,656	\$6,336	NA
Total Capital Cost	\$19,816	\$19,816	\$67,636	\$115,456	\$67,636	NA
		<del></del>	<del></del>			

Route Number:

#87-88

Silver Meteor

Origin/Destination: Length in Miles:

New York-Tampa

Length in Hours:

1,270 23.28

Expected Trips per Day:

Manufacturer:

Equipment:

Evac

Scenario:

Ultimate Favorable

* All data on per car basis (unless noted of	herwise)					
	25000 Amcoach II	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6	2080 Slumbercoach 24	2300 <u>Viewliner-Sleeper</u>	NA <u>NA</u>
OPERATING COSTS						
Non-Trip Related Costs:	***	بنبه		<b>10.004</b>	04.004	114
Labor cost/major servicing	\$144	. \$144	\$1,224	\$2,304	\$1,224	NA C
Frequency per Year	<u>2</u>	<u>2</u>	. 2	<u>2</u>	<u>2</u>	<u>2</u> NA
Servicing Cost/Year	\$288	\$288	\$2,448	\$4,608 \$1,048	\$2,448	
Annual spare parts cost per yr	<u>\$178</u> \$466	<u>\$178</u> \$466	\$613 ***	<u>\$1,048</u> \$5,656	<u>\$613</u> \$3,061	<u>NA</u> NA
Total- Opring Non-Trip Related	\$466	\$466	\$3,061	\$5,056	\$3,061	- NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	<b>\$0</b>
Pump out and Disposal						
- Pump out Cost	\$0.42	\$0.35	\$0.16	\$0.28	\$0.24	NA
- Pump out minutes	0.70	0.58	0.26	0.47	0.40	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	NA
- Waste Disposal	\$0.71	<u>\$0.59</u>	<u>\$0.27</u>	<u>\$0.48</u>	<u>\$0.41</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.13	\$12.94	\$102.42	\$192.77	\$102.65	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	0	0	NA
- # of stops req'd	0	0	0	0	0	NA
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	NA
<ul> <li>Connect/Disc. minutes</li> </ul>	<u>0.0</u>	<u>0.0</u>	0.0	0.0	<u>0.0</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	0	0	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	NA
Subtotal- Oprtng Trip Related	\$13	\$13	\$102	\$193	\$103	NA NA
Total # Cars in fleet	119	25	82	16	2	NA
Total Annual Car-days	43,435	9,125	29,930	5,840	730	NA
Adjusted Total Car-days	26,061	5,475	17,958	3,504	438	NA
Days per Trip (min. of 1)	2	<u>2</u>	2	<u>2</u>	2	2
Annual Opring Trip Related per Car	\$1,438	\$1,417	\$11,215	\$21,108	\$11,240	· NA
Annual Non-Trip Related per Car	\$466	\$466	\$3,061	\$5,656	\$3,061	NA NA
Annual Opring Trip Related per Car Type	\$171,085	\$35,418	\$919,640	\$337,726	\$22,481	NA
Annual Non-Trip Related per Car Type	<u>\$55,454</u>	<u>\$11,650</u>	<u>\$251,002</u>	<u>\$90,496</u>	<u>\$6,122</u>	<u>NA</u>
Total OPRTNG COST per Car	\$1,904	\$1,883	\$14,276	\$26,764	\$14,301	NA
Total CAPITAL COST per Car	\$19,816	\$19,816	\$67,636	\$115,456	\$67,636	NA
Total OPRTNG COST for all cars	\$226,539	\$47,068	\$1,170,642	\$428,222	\$28,603	NA
Total CAPITAL COST for all cars	\$2,358,104	\$495,400	\$5,546,152	\$1,847,296	\$135,272	NA

Route Number:

#87-88

Silver Meteor

New York-Tampa

Origin/Destination: Length In Miles:

1,270

Length in Hours: Expected Trips per Day: 23.28

Manufacturer:

Equipment:

Railtech

WTS 8300

Scenario:

Favorable

* All data on per car basis (unless noted of	therwise)					
•	25000	28000	2400(30)	2080	2300	NA
•	Amcoach II	Amlounge II	Sleeper 10-6	Slumbercoach 24-	<u>Viewliner-Sleeper</u>	<u>NA</u>
Quantity of cars	7	1	2	1	1	NA
Capacity (# people) - seated	59	49	22	40	34	NA
Toilets per car	2	2	17	32	17	NA NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)				,		
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	93.2	77.4	34.7	63.2	53.7	NA
Capacity Req'd/day (gals)	116.1	96.4	43.3	78.7	66.9	NA
Adj. Capacity Req'd w/ Buffer	145.1	120.5	54.1	98.4	83.6	NA
Tank Capacity per Car (gals)	100	100	450	800	450	NA
Continuous Service Hours Supported As a percentage of 72 hours	17 23%	20 28%	200 277%	195 271%	129 179%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	0.7	0.9	8.6	8.4	5.5	NA
As a percentage of 3 days	23.69%	28.52%	285.86%	279.51%	184.97%	NA
Consecutive Trips before pumpout	0.0	0.0	8.0	8.0	5.0	NA
CAPITAL COSTS						
Collection System per Car	\$8,000	\$8,000	\$36,000	\$64,000	\$36,000	NA
Toilet Cost per Car	<u>\$6,000</u>	\$6,000	<u>\$51,000</u>	\$96,000	<u>\$51,000</u>	<u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$87,000	\$160,000	\$87,000	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$2,592	\$4,608	\$2,592	NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9,216</u>	\$4,89 <u>6</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$7,488	\$13,824	\$7,488	NA
Total Capital Cost	\$15,152	\$15,152	\$94,488	\$173,824	\$94,488	ŇA

#87-88

Route Number:

Amtrak Route: Origin/Destination: Length in Miles:

Length in Hours:

Silver Meteor

New York-Tampa

1,270 23.28

Expected Trips per Day: Manufacturer:

Railtech WTS 8300

Equipment: Scenario: Favorable

* All data on per car basis (unless noted oth	erwise)					
	25000 Amcoach II	28000 Amlounge II	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA <u>NA</u>
OPERATING COSTS	9					
Non-Trip Related Costs: Labor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	NA
Frequency per Year	2 2	2 <u>2</u>	\$1,224 <u>2</u>	φ2,504 <u>2</u>	\$1,224 <u>2</u>	<u>2</u>
Servicing Cost/Year	\$288	\$288	\$2,448	\$4,608	\$2,448	NA
Annual spare parts cost per yr	\$140	\$140	\$870	\$1,600	\$870	NA NA
Total- Oprtng Non-Trip Related	\$428	\$428	\$3,318	\$6,208	\$3,318	NA NA
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$4.36	\$4.20	\$0.43	\$0.79	\$0.67	NA
- Pump out minutes	0.27	0.00	0.72	1.31	1.11	NA
- Connect/Disc. minutes	7.0	7.0	0.0	0.0	0.0	NA
- Waste Disposal	<u>\$1.97</u>	<u>\$1.64</u>	<u>\$0.74</u>	<u>\$1.34</u>	<u>\$1.14</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$18.33	\$17.84	\$103.17	\$194.12	\$103.81	NA
Train Delay:	400	400	_	_		
- Pump out volume req'd	100	100	0	0	0	NA
- # of stops req'd	1	1	0	. 0	0	NA
- Pump out minutes	1.7	1.7	. 0,0	0.0	0.0	NA
<ul> <li>Connect/Disc. minutes</li> <li>Total Time Delay(mins/car)</li> </ul>	<u>7.0</u> 9	<u>7.0</u> 9	<u>0.0</u> . 0	<u>0.0</u>	<u>0.0</u>	<u>NA</u>
• • • • • • • • • • • • • • • • • • • •	\$5	\$5	\$0	0	0	NA NA
Average Cost Per Delay Subtotal- Opring Trip Related	\$24	\$23°	\$103	\$0 \$194	\$0 \$104	NA NA
Sublotal-Opting Trip Related =	- <del> </del>	\$23	\$103	\$194	\$104	IVA
Total # Cars in fleet	119	25	. 82	16	2	NA
Total Annual Car-days	43,435	9,125	29,930	5,840	730.	NA
Adjusted Total Car-days	26,061	5,475	17,958	3,504	438	NA
Days per Trip (min. of 1)	2	2	2	2	2	2
Annual Oprtng Trip Related per Car	\$2,577	\$2,523	\$11,297	\$21,257	\$11,367	NA
Annual Non-Trip Related per Car	\$428	\$428	\$3,318	\$6,208	\$3,318	NA NA
Annual Oprtng Trip Related per Car Type	\$306,655	\$63,068	\$926,350	\$340,106	\$22,733	NA
Annual Non-Trip Related per Car Type	<u>\$50,932</u>	<u>\$10,700</u>	<u>\$272,076</u>	<u>\$99,328</u>	<u>\$6,636</u>	<u>NA</u>
Total OPRTNG COST per Car	\$3,005	\$2,951	\$14,615	\$27,465	\$14,685	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$94,488	\$173,824	\$94,488	. NA
Total OPRTNG COST for all cars	\$357,587	\$73,768	\$1,198,426	\$439,434	\$29,369	NA NA
Total CAPITAL COST for all cars	\$1,803,088	\$378,800	\$7,748,016	\$2,781,184	\$188,976	NA

Route Number:

#87-88

Amtrak Route: Benjamin Franklin Route Number: #193 Origin/Destination: Boston-Philadelphia Length in Miles: 322 6.55 Length in Hours: Expected Trips per Day: 2 Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Favorable \* All data on per car basis (unless noted otherwise) 20000 21000 20100 NA NA NA **Amcafe Amcoach Amclub** NΑ <u>NA</u> NA NΑ NA NA Quantity of cars 1 1 3 Capacity (# people) - seated 53 84 2 41 NΑ NA NA NA NA NA Toilets per car 2 2 26.5 42.0 20.5 NA NA NA Average persons/toilet on train Car Waste Data (per car) Black Water: 37.72 NA Human Waste/day (gals) 23.80 18.41 NA NA 6.00 6.00 6.00 # Flushes/Person-day 6.00 6.00 6.00 Flush efficiency adjustment 1.00 1.00 1.00 1.00 1.00 1.00 Adj. # Flushes/Person-day 6 6 6 6 6 6 0.063 Flush Fluids/flush (gals) 0.063 0.063 0.063 0.063 0.063 Flush Fluids/day (gals) 20.0 31.8 15.5 NA NA NA NA Capacity Req'd/day (gals) 23.9 37.9 18,5 NA NA Adj. Capacity Req'd w/ Buffer 29.9 47.4 23.1 NA NA NA Tank Capacity per Car (gals) 235 235 235 235 235 235 Continuous Service Hours Supported 189 119 244 NA As a percentage of 72 hours 262% 165% 339% NA NA NA Probable Service Hours per Day 13.1 13.1 13.1 13.1 13.1 13.1 Service Days Supported 14.4 NA NA 9.1 18.6 NA As a percentage of 3 days 479.88% 302.78% 620.34% NA NΑ NA Consecutive Trips before pumpout 28.0 18.0 37.0 NΑ NA NA **CAPITAL COSTS** 

\$21,000

\$5,000

\$26,000

\$1,440

\$2,016

\$28,016

\$576

\$21,000

\$1,440

<u>NA</u>

NA

<u>NA</u>

NA

NA

\$21,000

\$5,000

\$26,000

\$1,440

\$2,016

\$28,016

\$576

\$21,000

\$1,440

.<u>NA</u>

NA

<u>NA</u>

NA

NA

\$21,000

\$1,440

<u>NA</u>

NA

<u>NA</u>

NA

NA

\$21,000

\$5,000

\$26,000

\$1,440

\$2,016

\$28,016

\$576

Collection System per Car

Toilet Cost per Car

Equipment Installation Collection System per Car

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

- Total Equip Cost

Amtrak Route: Route Number: #193 Benjamin Franklin Origin/Destination: Boston-Philadelphia Length in Miles: 322 Length in Hours: 6.55 Expected Trips per Day: 2 Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Favorable \* All data on per car basis (unless noted otherwise) 21000 20100 NA NA **Amcafe** Amcoach <u>Amclub</u> NΑ NA NA **OPERATING COSTS** Non-Trip Related Costs: NA NA Labor cost/major servicing \$144 \$144 \$144 NA Frequency per Year 2 2 2 NA Servicing Cost/Year \$288 \$288 \$288 NA NA <u>NA</u> \$260 \$260 <u>NA</u> Annual spare parts cost per yr <u>\$260</u> NΑ \$548 \$548 \$548 NA NA NA Total- Opring Non-Trip Related Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$12 NA NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost NA \$0.24 \$0.38 \$0.19 NA NA 0.31 NA NA NA - Pump out minutes 0.40 0.63 - Connect/Disc. minutes NA NA NA 0.0 0.0 0.0 - Waste Disposal \$0.81 \$1.29 NA NA NA \$0.63 Subtotal- End of Day/Trip Srvc \$13.05 \$13.67 \$12.81 NA NA NA Train Delay: 0 0 NA - Pump out volume reg'd 0 NA NA - # of stops req'd 0 0 0 NA NA NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 0.0 <u>NA</u> <u>NA</u> <u>NA</u> 0.0 - Total Time Delay(mins/car) 0 0 0 NA NA NA NA \$0 \$0 NA NA Average Cost Per Delay \$0 NA NA NA Subtotal-Oprtng Trip Related \$13 \$14 \$13 Total # Cars in fleet 45 266 24 ÑΑ NA NA Total Annual Car-days 16,425 97,090 8,760 NA NA NA Adjusted Total Car-days 9,855 58,254 5,256 NA NA NA Days per Trip (min. of 1) 1 1 1 1 Annual Oprtng Trip Related per Car \$2.806 NA \$2.859 \$2,993 NA NA Annual Non-Trip Related per Car \$548 \$548 NA \$548 NA NA Annual Oprtng Trip Related per Car Type \$128,634 \$796,238 \$67,352 NA NA NA \$24,660 Annual Non-Trip Related per Car Type **\$145,768** \$13,152 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$3,407 \$3,541 \$3,354 NÁ NA NA Total CAPITAL COST per Car \$28,016 \$28,016 \$28,016 NA NA NA Total OPRTNG COST for all cars \$153,294 \$942,006 \$80,504 NA NA NA Total CAPITAL COST for all cars

\$1,260,720

\$7,452,256

\$672,384

NA

Amtrak Route: Origin/Destination: Length in Miles:

Benjamin Franklin

Boston-Philadelphia

322 6.55

\$7,076

Length in Hours: Expected Trips per Day:

2

Total Capital Cost

Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc			•		
Scenario:	Favorable					
* All data on per car basis (unless noted	d otherwise)					
	20000	21000	20100	NA	NĀ	NA
	<u>Amcafe</u>	Amcoach	<u>Amclub</u>	NA	<u>NA</u>	<u>NA</u>
Quantity of cars	1	1	3	NA	NA	NA
Capacity (# people) - seated	53 2	84	41	NA NA	NA NA	NA NA
Toilets per car  Average persons/toilet on train	26.5	2 42.0	2 20.5	NA NA	NA NA	NA NA
Average persons toller on trails	26.5	42.0	20.3	NA.	INO	INA
Car Waste Data (per car)		v				
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	NA	NA	NA
Capacity Req'd/day (gals)	13.0	20.6	10.0	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	16.2	25.7	12.6	NA	NA	NA
Tank Capacity per Car (gals)	27	27	27	NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	40 55%	25 35%	52 <b>72%</b>	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	3.0	1.9	<b>3.9</b>	NA	NA	NA
As a percentage of 3 days	101.55%	64.07%	131.28%	NA	NA	NA
Consecutive Trips before pumpout	6.0	3.0	7.0	NA	NA	NA
CAPITAL COSTS	u			,		
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$6,50 <b>0</b>	\$6,500	\$6,500	NA	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$576	\$576	\$576	NA	NA	NA

\$7,076

\$7,076

NA

Route Number:

#193

NA

NA

Amtrak Route: Route Number: #193 Benjamin Franklin Origin/Destination: Boston-Philadelphia Length in Miles: 322 Length in Hours: 6.55 Expected Trips per Day: Manufacturer: Monogram Equipment: Self-Cont'd Recirc Scenario: Favorable \* All data on per car basis (unless noted otherwise) 20000 21000 20100 NA NA NA Amclub NA NA <u>NA</u> **Amcafe** Amcoach OPERATING COSTS Non-Trip Related Costs: \$576 Labor cost/major servicing \$576 \$576 NA NA NA Frequency per Year 2 2 2 <u>2</u> <u>2</u> <u>2</u> NA NA NA Servicing Cost/Year \$1,152 \$1,152 \$1,152 NA Annual spare parts cost per yr \$65 \$65 <u>\$65</u> <u>NA</u> NA Total-Oprtng Non-Trip Related \$1,217 \$1,217 NA NA NA \$1,217 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$12 NA NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal NA - Pump out Cost \$0.13 \$0.21 \$0.10 NA NA - Pump out minutes 0.22 0.34 0.17 NA NA NA - Connect/Disc. minutes NA NA 0.0 0.0 0.0 NA - Waste Disposal \$0.57 \$0.91 \$0.44 <u>NA</u> <u>NA</u> <u>NA</u> Subtotal- End of Day/Trip Srvc \$12.70 \$13.11 \$12.54 NA NA NA Train Delay: - Pump out volume reg'd 0 0 NΑ NA NA 0 - # of stops reg'd 0 0 0 NA NA NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 <u>NA</u> <u>NA</u> <u>NA</u> NA - Total Time Delay(mins/car) 0 0 0 NA NA Average Cost Per Delay \$0 \$0 NA NA NA \$0 Subtotal- Oprtng Trip Related NA NA NA \$13 \$13 \$13 Total # Cars in fleet 45 266 24 NA NA NA

97,090

58,254

\$2.871

\$1,217

\$763,808

\$323,722

\$4,088

\$7,076

\$1,087,530

\$1,882,216

1

8,760

5,256

\$2,747

\$1,217

\$65,924

\$29,208

\$3,964

\$7,076

\$95.132

\$169,824

1

NA

NA

1

NA

NA

NA

<u>NA</u>

NA

NA

NA

NA

NA

1

NA

NA

NA

<u>NA</u>

NA

NA

NA

NA

NA

NA

1

NA

NA

NA

<u>NA</u>

NA

NA

NA

NA

16,425

9,855

\$2,782

\$1,217

\$125,172

<u>\$54,765</u>

\$3,999

\$7,076

\$179.937

\$318,420

1

Total Annual Car-days

Adjusted Total Car-days

Days per Trip (min. of 1)

Annual Opring Trip Related per Car

Annual Opring Trip Related per Car Type

Annual Non-Trip Related per Car Type

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Annual Non-Trip Related per Car

Total OPRTNG COST per Car

Total CAPITAL COST per Car

Benjamin Franklin

Origin/Destination: Length in Miles:

Boston-Philadelphia

Length in Hours:

322 6.55

Expected Trips per Day:

2

Manufacturer:

Microphor

Equipment:

Gravity

Scenario:

Favorable

* All data on per car basis (unless noted	otherwise)					
	20000 Amcafe	21000 Amcoach	20100 Amclub	NA <u>NA</u>	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars		1	3	NA NA	NA	NA
Capacity (# people) - seated	53	84	41	NA	NA	NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	54.7	86.7	42.3	NA	NA	NA
Capacity Req'd/day (gals)	42.8	67.9	33.1	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	53.6	84.9	41.4	NA	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	134 187%	.85 118%	174 241%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	10.3	6.5	13.3	NA	NA	NA
As a percentage of 3 days	342.09%	215.84%	442.21%	NA	NA	NA
Consecutive Trips before pumpout	20.0	12.0	26.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	<u>\$10,000</u>	\$10,000	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$20,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$21,152	\$21,152	\$21,152	NA	NA	NA

Route Number:

#193

Amtrak Route: Benjamin Franklin Route Number: #193 Origin/Destination: Boston-Philadelphia Length in Miles: 322 Length in Hours: 6.55 Expected Trips per Day: Manufacturer: Microphor Equipment: Gravity Scenario: Favorable \* All data on per car basis (unless noted otherwise) 20100 NA NA 20000 NA 21000 <u>NA</u> <u>NA</u> **Amcafe Amcoach** <u>Amclub</u> NA **OPERATING COSTS** Non-Trip Related Costs: \$144 \$144 \$144 NA NA NA Labor cost/major servicing Frequency per Year 2 2 2 <u>2</u> \$288 \$288 \$288 NA NA NA Servicing Cost/Year \$200 Annual spare parts cost per yr \$200 \$200 NA NA <u>NA</u> Total- Opring Non-Trip Related \$488 \$488 \$488 NA NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$12 \$12 NA NA NA \$12 - Cleaning - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal \$0.33 NA - Pump out Cost \$0.43 \$0.68 NA NA 0.71 0.55 NA NA - Pump out minutes 1.13 NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA - Waste Disposal \$1.46 \$2.31 \$1.13 NA NA NA Subtotal- End of Day/Trip Srvc \$13.89 \$14.99 \$13.46 NA NA NA Train Delay: - Pump out volume req'd 0 0 0 NA NA NA ٥ 0 NΑ NA NA - # of stops req'd ٥ 0.0 NA NΑ NA - Pump out minutes 0.0 0.0 0.0 - Connect/Disc. minutes 0.0 NA <u>NA</u> NA 0.0 NA NA - Total Time Delay(mins/car) 0 0 0 NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA Subtotal- Oprtng Trip Related \$14 \$15 \$13 NA NA NA Total # Cars in fleet 45 266 24 NA NA NA Total Annual Car-days 16,425 97,090 8,760 NA NA NA Adjusted Total Car-days 9,855 58,254 5,256 NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 Annual Opring Trip Related per Car \$3,041 \$3,282 \$2,947 NA NA NA Annual Non-Trip Related per Car \$488 \$488 \$488 NA NA NA Annual Opring Trip Related per Car Type \$136,838 \$873,098 \$70,737 NA NA NA Annual Non-Trip Related per Car Type \$21,960 \$129,808 \$11,712 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$3,529 \$3,770 \$3,435 NA NA NA Total CAPITAL COST per Car \$21,152 NA \$21,152 \$21,152 NA NA Total OPRTNG COST for all cars NA NA NA \$158,798 \$1,002,906 \$82,449 Total CAPITAL COST for all cars \$951,840 \$5,626,432 \$507,648 NA NA

Amtrak Route: Benjamin Franklin Origin/Destination:

Boston-Philadelphia

Length in Miles: Length in Hours: Expected Trips per Day:

6.55 2

322

Manufacturer:

Evac

Equipment:

Ultimate

Equipment:	Ultimate					
Scenario:	Favorable			•		
* All data on per car basis (unless noted	d otherwise)	·				
	20000 <u>Amcafe</u>	21000 Amcoach	20100 <u>Amclub</u>	NA <u>NA</u>	NA <u>NA</u>	NA NA
Quantity of cars		1	3	NA	NA	NA
Capacity (# people) - seated Toilets per car	53 2	84 2	41 2	NA NA	NA NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	14.9	23.7	11.6	NA	NA	NA
Capacity Req'd/day (gals)	21.1	33.5	16.4	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	26.4	41.9	20.4	· NA	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	182 252%		235 326%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	13.9	8.7	17.9	NA	NA	NA
As a percentage of 3 days	462.05%	% 291.53%	597.28%	NA	NA	NA
Consecutive Trips before pumpout	27.0	17.0	35.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	\$5,800	\$5,800	\$5,800	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$17,800	NA	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
Total Capital Cost	\$19,816	\$19,816	\$19,816	NA	NA	NA

Route Number:

#193

Amtrak Route: Benjamin Franklin Route Number: #193 Origin/Destination: Boston-Philadelphia Length in Miles: 322 Length in Hours: 6.55 Expected Trips per Day: Manufacturer: Evac Equipment: Ultimate Scenario: Favorable \* All data on per car basis (unless noted otherwise) 20100 NA NA NA 20000 21000 NA NA NΑ Amcafe Amcoach <u>Amclub</u> **OPERATING COSTS** Non-Trip Related Costs: NA Labor cost/major servicing \$144 \$144 \$144 NA NA Frequency per Year 2 2 2 2 2 2 \$288 \$288 \$288 NA NA NA Servicing Cost/Year Annual spare parts cost per yr \$178 \$178 \$178 <u>NA</u> <u>NA</u> <u>NA</u> Total- Oprtng Non-Trip Related \$466 \$466 \$466 NA NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing NA - Cleaning \$12 \$12 \$12 NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.21 \$0.34 \$0.16 NA NA NA 0.35 0.56 0.27 NA NA NA - Pump out minutes - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA - Waste Disposal \$0.72 \$1.14 \$0.56 <u>NA</u> ΝА <u>NA</u> Subtotal- End of Day/Trip Srvc \$12.93 \$13.47 \$12.72 NA NA NA Train Delay: NA - Pump out volume req'd ٥ 0 0 NA NA 0 0 0 NA NA NA - # of stops req'd NΑ - Pump out minutes 0.0 0.0 0.0 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 <u>NA</u> NA NA - Total Time Delay(mins/car) 0 0 0 NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA Subtotal-Oprtng Trip Related \$13 \$13 \$13 NA NA ŇΑ Total # Cars in fleet 45 266 24 NA NA NA Total Annual Car-days 16,425 97,090 8,760 NA NA NA Adjusted Total Car-days 9,855 58,254 5,256 NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 Annual Oprtng Trip Related per Car \$2,832 \$2,951 \$2,786 NA NA NA Annual Non-Trip Related per Car \$466 NA NA \$466 \$466 NA NA \$127,430 \$66,855 NA NA Annual Oprtng Trip Related per Car Type \$784,956 \$20,970 Annual Non-Trip Related per Car Type \$123,956 <u>NA</u> <u>NA</u> <u>NA</u> <u>\$11,184</u> \$3,298 NA NA Total OPRTNG COST per Car \$3,417 \$3,252 NA Total CAPITAL COST per Car \$19,816 \$19,816 \$19,816 NA NA NA Total OPRTNG COST for all cars NA: NA \$148,400 \$908,912 \$78,039 NA Total CAPITAL COST for all cars \$891,720 \$5,271,056 \$475,584 NA

## **Λrthur D Little**

Amtrak Route: Origin/Destination: Length in Miles:

Benjamin Franklin

Boston-Philadelphia 322

6.55 2

Length in Hours: Expected Trips per Day: Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Favorable

* All data on per car basis (unless noted of	otherwise)					
	20000 Amcafe	21000 Amcoach	20100 Amclub	NA NA	NA NA	NA <u>NA</u>
Quantity of cars		1	3	NA NA	NA	NA.
Capacity (# people) - seated	53	84	41	NA	NA	NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
Car Waste Data (per car)	•					
Black Water:						
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	. 6	6	6	6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	83.7	132.6	64.7	NA	NA	NA
Capacity Req'd/day (gals)	58.7	93.0	45.4	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	73.3	116.2	56.7	NA	NA	NA
Tank Capacity per Car (gals)	100	100	100	NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	33 45%	21 29%	42 59%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	2.5	1.6	3.2	NA	NA	NA
As a percentage of 3 days	83.28%	52.54%	107.65%	NA	NA	NA
Consecutive Trips before pumpout	4.0	3.0	6.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$8,000	\$8,000	\$8,000	NA	NA	NA
Toilet Cost per Car	\$6,000	<u>\$6,000</u>	<u>\$6,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$14,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	NA	NA	NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	NA
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$15,152	\$15,152	\$15,152	NA NA	NA NA	NA NA

Route Number:

#193

Amtrak Route:	Benjamin Franklin		Route Number:	#193		
Origin/Destination:	Boston-Philadelphia					
Length in Miles:	322					•
Length in Hours:	6.55			•		
Expected Trips per Day:	2					
Manufacturer:	Railtech					
Equipment:	WTS 8300	,				
Scenario:	Favorable					
* All data on per car basis (unless noted of	•					
	20000 <u>Amcafe</u>	21000 Amcoach	20100 <u>Amclub</u>	NA <u>NA</u>	NA <u>NA</u>	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>2</u> .	2	2		2	2
Servicing Cost/Year	\$288	\$288	\$288	NA NA	NA NA	NA NA
Annual spare parts cost per yr	\$140	\$140	\$140		NA	<u>NA</u>
Total- Opring Non-Trip Related	\$428	\$428	\$428		NA NA	NA
, - ,		<del>,-:</del>				
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing		Φ				
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0		\$0	\$0
Pump out and Disposal	**		• •		•-	• -
- Pump out Cost	\$0.59	\$0.93	\$0.45	NA	NA	NA
- Pump out minutes	0.98	1.55	0.76		NA NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0		NA	NA
- Waste Disposal	<u>\$1.99</u>	\$3,16	\$1.54		NA NA	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$14.58	\$16.09	\$14.00		NA	NA NA
Train Delay:	V	<b>V.0.00</b>	<b>V</b>		• • • •	
- Pump out volume reg'd	0	0	0	NA	NA .	NA
- # of stops req'd	0	0	ō		NA	. NA
- Pump out minutes	0.0	0.0	0.0		NA NA	NA NA
- Connect/Disc. minutes	<u>0.0</u>	0.0	0.0		NA	NA NA
- Total Time Delay(mins/car)	. 0	0	0		· NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA NA	- NA	NA NA
Subtotal- Opring Trip Related	\$15	\$16	\$14		NA NA	NA NA
Substituti Spring Trip Florida			Ψ.14	10//	100	107
Total # Cars in fleet	45	266	24	NA	NA	NA
Total Annual Car-days	16,425	97,090	8,760	NA	NA	NA
Adjusted Total Car-days	9,855	58,254	5,256	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	. 1	1	1
Annual Opring Trip Related per Car	\$3,193	\$3,524	\$3,065	NA	NA	NA
Annual Non-Trip Related per Car	\$428	\$428	\$428	NA	NA	NA
, ,						
Annual Oprtng Trip Related per Car Type	\$143,699	\$937,376	\$73,568	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$19,260</u>	<u>\$113,848</u>	<u>\$10,272</u>	NA	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$3,621	\$3,952	\$3,493	NA	NA	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$15,152	NA	NA	NA
Tetal OPPTNG COST for all assets	#160 0E0	#1 0E4:004	#00 0.40°	ា ។ ។	on the second second	Sees Sees Sees
Total OPRING COST for all cars	\$162,959	\$1,051,224	\$83,840	1	NA NA	NA NA
Total CAPITAL COST for all cars	\$681,840	\$4,030,432	\$363,648	NA	NA	NA NA

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York

Length in Miles:

225 2.78

6

Length in Hours: Expected Trips per Day:

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Favorable

* All data on per car basis	(unless noted otherwise)
All data on per car basis	(uniess noted otherwise)

* All data on per car basis (unless noted	d otherwise)					
	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA <u>NA</u>	NA <u>N</u> A	NA <u>NA</u>
Quantity of cars	1	4	1	NA	NA	NA
Capacity (# people) - seated Toilets per car	23 2	60 2	33 2	NA NA	NA NA	NA NA
Average persons/toilet on train	11.5	30.0	16.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	<sup>®</sup> 10.33	26.94	14.82	NA	· NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	8.7	22.7	12.5	NA	NA	·NA
Capacity Req'd/day (gals)	13.2	34.5	19.0	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	16.5	43.1	23.7	NA	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	341 474%	131 182%	238 330%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16.68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	20.5	7.8	14.3	NA	NA	NA
As a percentage of 3 days	682.08%	261.46%	475.39%	NA	NA	NA
Consecutive Trips before pumpout	122.0	47.0	85.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$26,000	NA	NA	NA
Equipment Installation		*				
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
Total Capital Cost	\$28,016	\$28,016	\$28,016	NA	NA	NA

Amtrak Route: Metroliner Route Number: #200 Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Favorable \* All data on per car basis (unless noted otherwise) 20900 21900 20970 NA Met-Srvc Dinette Met-Srvc Coach Met-Srvc Club NA NA **OPERATING COSTS** Non-Trip Related Costs: NA NA Labor cost/major servicing \$144 \$144 \$144 Frequency per Year 2 2 2 NA NA Servicing Cost/Year \$288 \$288 \$288 Annual spare parts cost per yr \$260 \$260 \$260 <u>NA</u> <u>NA</u> Total- Opring Non-Trip Related \$548 \$548 \$548 NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$12 NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.13 \$0.34 \$0.19 NA NA - Pump out minutes 0.22 0.57 0.32 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA - Waste Disposal \$1.35 \$3.52 \$1.93 NA NA Subtotal- End of Day/Trip Srvc \$13.48 \$15.86 \$14.12 NA NA Train Delay: - Pump out volume req'd 0 0 0 NA NA - # of stops req'd 0 0 0 NA NA - Pump out minutes 0.0 0.0 0.0 NA NA

NA

NA

2

NA

<u>NA</u>

NA

NA

### \$0 NA NA NA NA NA NΑ NA ÑΑ - Connect/Disc. minutes 0.0 0.0 0.0 <u>NA</u> <u>NA</u> <u>NA</u> - Total Time Delay(mins/car) 0 0 0 NA NA NA NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA Subtotal-Opring Trip Related \$13 \$16 \$14 NA Total # Cars in fleet 13 50 13 NA NA NA Total Annual Car-days 4,745 18,250 4,745 NA NA NA Adjusted Total Car-days 2,847 10 950 2,847 NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 1 Annual Opring Trip Related per Car \$2.952 \$3,474 \$3,093 NA NA NA Annual Non-Trip Related per Car \$548 \$548 \$548 NA NA NA Annual Opring Trip Related per Car Type \$38,379 \$173.694 \$40,212 NA NA NA \$27,400 Annual Non-Trip Related per Car Type \$7,124 \$7,124 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$3,500 \$4,022 \$3,641 NA NA NA Total CAPITAL COST per Car \$28,016 \$28,016 \$28,016 NA NA NA Total OPRTNG COST for all cars \$45,503 \$201,094 \$47,336 NA NA NA Total CAPITAL COST for all cars \$364,208 \$1,400,800 \$364,208 NA NA

### **Arthur D Little**

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York

Length in Miles: Length in Hours:

225 2.78

6

Expected Trips per Day:

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Favorable

* All data on per car basis (unless noted	d otherwise)					
	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA <u>NA</u>	NA NA	NA <u>NA</u>
Quantity of cars	1	4	1	NA	NA	NA
Capacity (# people) - seated	23	60	33	NA	NA	NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	11.5	30.0	16.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:	× .					
Human Waste/day (gals)	10.33	26.94	14.82	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	NA	NA ·	NA
Capacity Req'd/day (gals)	7.2	18.7	10.3	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	9.0	23.4	12.9	NA	NA	NA
Tank Capacity per Car (gals)	27	27	27	NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	72 100%	28 38%	50 70%	NA NA	NA · NA	NA NA
Probable Service Hours per Day	16.68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	4.3	1.7	3.0	NA	NA	NA
As a percentage of 3 days	144.34%	55.33%	100.60%	NA	NA	NA
Consecutive Trips before pumpout	25.0	9.0	18.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	. \$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$6,500	\$6,500	\$6,500	NA	NA	NA
Equipment Installation						*
Collection System per Car	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	NA	<u>NA</u>
- Total Installation Cost	. \$576	\$576	\$576	NA	NA	NA
Total Capital Cost	\$7,076	\$7,076	\$7,076	NA	NA NA	NA NA

Amtrak Route: Metroliner Route Number: #200 Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Monogram Equipment: Self-Cont'd Recirc Scenario: Favorable \* All data on per car basis (unless noted otherwise) 20900 21900 20970 Met-Srvc Dinette Met-Srvc Coach Met-Srvc Club NA NA NA **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$576 \$576 \$576 NA NA NA Frequency per Year 2 2 2 Servicing Cost/Year NA NA \$1,152 \$1,152 \$1,152 NA <u>NA</u> Annual spare parts cost per yr <u>\$65</u> \$65 <u>\$65</u> <u>NA</u> <u>NA</u> \$1,217 NA NA NA Total- Opring Non-Trip Related \$1,217 \$1,217 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$12 NA NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal NA \$0.07 \$0.19 \$0.10 NA NA - Pump out Cost NA NA NA - Pump out minutes 0.12 0.31 0.17 - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA \$0.95 - Waste Disposal \$2.47 \$1.36 NA NA NA Subtotal- End of Day/Trip Srvc \$13.02 \$14.66 \$13.46 NA NA NA Train Delay: - Pump out volume reg'd 0 0 0 NΑ NA NΑ - # of stops req'd 0 0 0 NA NΑ NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 <u>NA</u> <u>NA</u> ΝA 0.0 0.0 - Total Time Delay(mins/car) 0 0 0 NA NA NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA \$15 NA Subtotal-Opring Trip Related \$13 \$13 NA NA Total # Cars in fleet 13 50 13 NA NA NA Total Annual Car-days 4,745 18,250 4,745 NA NA NA Adjusted Total Car-days 10,950 2,847 2,847 NA NA NA Days per Trip (min. of 1) 1 1 1 1 Annual Opring Trip Related per Car \$2.851 \$3,210 \$2,948 NA NA NA \$1,217 \$1,217 Annual Non-Trip Related per Car \$1,217 NA NA NA Annual Opring Trip Related per Car Type \$37,066 \$160.513 \$38,327 NA NA NA Annual Non-Trip Related per Car Type \$15,821 \$60,850 \$15,821 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$4,068 \$4,427 \$4,165 NA NA NA Total CAPITAL COST per Car \$7,076 \$7,076 \$7,076 NA NA NA

NA

NA

NA

NA

\$52,887

\$91,988

\$221,363

\$353,800

\$54,148

\$91,988

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York 225

Length in Miles:

Length in Hours: Expected Trips per Day: 2.78 6

Manufacturer:

Microphor

Equipment:

Gravity

Scenario:

Favorable

* All data on per car basis (unless noted	•					
	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	. NA <u>NA</u>	NA NA	NA <u>NA</u>
Overtity of some						
Quantity of cars	1	4 60	1 33	NA NA	NA NA	NA NA
Capacity (# people) - seated Toilets per car	23 2	2	აა 2	NA NA	NA NA	NA NA
Average persons/toilet on train	11.5	30.0	16.5	NA	NA	NA .
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	10.33	26.94	14.82	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	23.7	61.9	34.1	NA	NA	NA
Capacity Req'd/day (gals)	23.7	61.8	34.0	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	29.6	77.2	42.5	NA	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	243 338%	93 130%	170 236%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16.68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	14.6	5.6	10.2	NA	NA	NA
As a percentage of 3 days	486.23%	186.39%	338.88%	NA	NA	NÁ
Consecutive Trips before pumpout	87.0	33.0	60.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$10,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$20,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$21,152	\$21,152	\$21,152	NA NA	NA NA	NA NA

Route Number: #200 Amtrak Route: Metroliner Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Microphor Equipment: Gravity Scenario: Favorable \* All data on per car basis (unless noted otherwise) 20900 21900 20970 NA NA NA Met-Srvc Club NA NA NA **Met-Srvc Dinette** Met-Srvc Coach **OPERATING COSTS** Non-Trip Related Costs: \$144 Labor cost/major servicing \$144 \$144 NA NA NA 2 Frequency per Year 2 2 2 2 2 NA NA NA \$288 \$288 \$288 Servicing Cost/Year \$200 \$200 \$200 <u>NA</u> NA. NΑ Annual spare parts cost per yr NA Total- Opring Non-Trip Related \$488 \$488 \$488 NA NΑ Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing NA NA \$12 \$12 NA - Cleaning \$12 \$0 \$0 \$0 \$0 \$0 \$0 - Light Repair Pump out and Disposal \$0.24 \$0.62 \$0.34 NA NA NA - Pump out Cost 0.39 1.03 0.57 NA NA NA - Pump out minutes NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA - Waste Disposal \$2.41 \$6.30 \$3.46 <u>NA</u> NΑ NΑ Subtotal- End of Day/Trip Srvc \$14.65 \$18.92 \$15.80 NA NA NA Train Delay: - Pump out volume req'd 0 0 0 NA NA NA - # of stops req'd 0 ۵ 0 NA NA NA NA NA - Pump out minutes 0.0 0.0 0.0 NA <u>NA</u> - Connect/Disc. minutes 0.0 0.0 <u>NA</u> <u>NA</u> 0.0 NA NA NA ٥ - Total Time Delay(mins/car) ٥ O \$0 \$0 \$0 NA NA NA Average Cost Per Delay Subtotal-Oprtng Trip Related \$15 \$19 \$16 NA NA NA NA Total # Cars in fleet 50 NA NA 13 13 4,745 4,745 Total Annual Car-days 18,250 NA NA NA 2,847 10,950 2,847 NA NA NA Adjusted Total Car-days

1

\$4,143

\$207,140

\$24,400

\$4,631

\$21,152

\$231,540

\$1,057,600

\$488

1

\$3,461

\$44,995

\$6,344

\$3,949

\$21,152

\$51,339

\$274,976

\$488

1

NA

NA

NA

<u>NA</u>

NA

NA

NA

NA

1

NA

NA

NA

NΑ

NA

NA

NA

1

NA

NA

NA

<u>NA</u>

NA

NA

NA

NA

1

\$3,209

\$41,713

\$6,344

\$3,697

\$21,152

\$48,057

\$274,976

\$488

Days per Trip (min. of 1)

Annual Oprtng Trip Related per Car

Annual Oprtng Trip Related per Car Type

Annual Non-Trip Related per Car Type

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Annual Non-Trip Related per Car

Total OPRTNG COST per Car

Total CAPITAL COST per Car

Metroliner

Route Number:

#200

Amtrak Route: Origin/Destination:

Washington DC-New York

Length in Miles:

225 2.78

Length in Hours: Expected Trips per Day:

Manufacturer:

Evac

Equipment:

Ultimate

Scenario:

Favorable

* All data on per car basis (unless noted otherwise	All data	data on per car basis	(unless noted otherwise
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Quantity of cars Capacity (# people) - seated	20900 Met-Srvc Dinette	21900 Met-Srvc Coach	20970 Met-Srvc Club	NA NA	NA NA	NA
Quantity of cars		MAI-21AC CORCI				AIA.
				<del></del>	<del></del>	NA · · · ·
Capacity (# people) - seated	1	4	1	NA	NA	NA
Toilets per car	23 2	60 2	33 2	NA NA	NA NA	NA NA
Average persons/toilet on train	11.5	30.0	16.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:		·				
Human Waste/day (gals)	10.33	26.94	14.82	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	6.5	16.9	9.3	NA	NA	NA.
Capacity Req'd/day (gals)	11.7	30.5	16.8	NA	.NA	NA
Adj. Capacity Req'd w/ Buffer	14.6	38.1	21.0	NA	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	329 456%	126 175%	229 318%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16.68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	19.7	7.6	13.7	NA	NA	NA
As a percentage of 3 days	656.73%	251.74%	457.72%	NA	NA	NA
Consecutive Trips before pumpout	118.0	45.0	82.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	\$5,800	\$5,80 <u>0</u>	<u>\$5,800</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$17,800	NA	NA	NA
Equipment Installation	-					
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
Total Capital Cost	\$19,816	\$19,816	\$19,816	NA	NA	. NA

Origin/Destination: Washington DC-New York Length in Miles: 225 2.78 Length in Hours: Expected Trips per Day: 6 Manufacturer: Evac Ultimate Equipment: Scenario: Favorable \* All data on per car basis (unless noted otherwise) NA NA 20900 21900 20970 NA NΑ NΑ Met-Srvc Dinette Met-Srvc Coach Met-Srvc Club NΑ OPERATING COSTS Non-Trip Related Costs: NA NA \$144 NA \$144 Labor cost/major servicing \$144 <u>2</u> 2 <u>2</u> <u>2</u> Frequency per Year 2 2 NA \$288 NA NA \$288 \$288 Servicing Cost/Year \$178 NA <u>NA</u> \$178 \$178 <u>NA</u> Annual spare parts cost per yr \$466 \$466 \$466 NA NA NA Total- Opring Non-Trip Related Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing NA \$12 \$12 NA NA - Cleaning \$12 \$0 \$0 \$0 \$0 - Light Repair \$0 \$0 Pump out and Disposal NA \$0.12 \$0.30 \$0.17 NA NA - Pump out Cost 0.19 0.51 0.28 NA NA NA - Pump out minutes 0.0 NA NA NA ~ Connect/Disc. minutes 0.0 0.0 \$1.71 <u>NA</u> - Waste Disposal \$1.19 \$3.11 <u>NA</u> <u>NA</u> \$13.31 \$15.41 \$13.88 NA NA NA Subtotal- End of Day/Trip Srvc Train Delay: - Pump out volume reg'd 0 0 0 NA NA NA - # of stops reg'd 0 0 ٥ NA NA NA 0.0 NA NA NA - Pump out minutes 0.0 0.0 <u>NA</u> <u>NA</u> <u>NA</u> - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA 0 0 ٥ - Total Time Delay(mins/car) NA \$0 \$0 \$0 NA NA Average Cost Per Delay NA NA Subtotal-Oprtng Trip Related \$13 \$15 \$14 NA 50 NA NA NA 13 13 Total # Cars in fleet 4.745 NA NA NA Total Annual Car-days 4,745 18,250 2,847 Adjusted Total Car-days 10,950 2,847 NA NA NA 1 Days per Trip (min. of 1) 1 1 1 <u>1</u> 1 NA \$2,915 \$3,376 \$3,039 NA NA Annual Oprtng Trip Related per Car Annual Non-Trip Related per Car NA \$466 \$466 \$466 NA NA Annual Opring Trip Related per Car Type \$37,890 \$168,784 \$39,510 NA NA NA Annual Non-Trip Related per Car Type \$6,058 \$23,300 \$6,058 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$3,381 \$3,842 \$3,505 NA NA NA NA NA Total CAPITAL COST per Car \$19,816 \$19,816 \$19,816 NA Total OPRTNG COST for all cars \$45,568 NA NA NA \$43,948 \$192,084 Total CAPITAL COST for all cars \$257,608 \$990,800 \$257,608 NA NA NA

Route Number:

#200

Amtrak Route:

Metroliner

Metroliner

Route Number:

#200

Origin/Destination:

Washington DC-New York

Length in Miles:

225 2.78

Length in Hours: Expected Trips per Day:

6

Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Favorable

OOTHERS.	, avoiable					
* All data on per car basis (unless noted	d otherwise)					
	20900	21900	20970	NA	NA	NA
	Met-Srvc Dinette	Met-Srvc Coach	Met-Srvc Club	· <u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	1	4	1	NA	NA	NA
Capacity (# people) - seated	23	60	33	NA	NA	NA
Toilets per car	2	. 2	2	NA	NA	NA
Average persons/toilet on train	11.5	30.0	16.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:		·				
Human Waste/day (gals)	10.33	26.94	14.82	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	36.3	94.7	52.1	NA	NA	NA
Capacity Req'd/day (gals)	32.4	84.6	46.5	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	40.5	105.7	58.1	NA	NA	NA
Tank Capacity per Car (gals)	100	100	100	NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	59 82%	23 32%	41 57%	NA NA	NA NA	NA NA
Probable Service Hours per Day	16.68	16.68	16.68	16.68	16.68	16.68
Service Days Supported	3.6	1.4	2.5	NA	NA	NA
As a percentage of 3 days	118.36%	45.37%	82.50% <sup>-</sup>	NA	NA	NA
Consecutive Trips before pumpout	21.0	8.0	14.0	NA	NA	NA
CAPITAL COSTS				•		
Collection System per Car	\$8,000	\$8,000	\$8,000	NA	NA	NA
Toilet Cost per Car	<u>\$6,000</u>	<u>\$6,000</u>	<u>\$6,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$14,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	NA -	NA	NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$15,152	\$15,152	\$15,152	NA	NA	NA

Amtrak Route: Route Number: #200 Metroliner Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Railtech Equipment: WTS 8300 Scenario: Favorable \* All data on per car basis (unless noted otherwise) 20900 21900 20970 NA NA Met-Srvc Dinette Met-Srvc Coach Met-Srvc Club NA NA NA **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$144 \$144 \$144 NA NA NA Frequency per Year 2 2 2 2 Servicing Cost/Year \$288 \$288 \$288 NA NA NA Annual spare parts cost per yr \$140 <u>\$140</u> \$140 <u>NA</u> <u>NA</u> <u>NA</u> Total- Opring Non-Trip Related \$428 \$428 \$428 NA NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$12 NA NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.32 \$0.85 \$0.47 NA NA NA - Pump out minutes 0.54 0.78 NA 1.41 NA NA - Connect/Disc. minutes NA 0.0 0.0 0.0 NA NA - Waste Disposal \$3.31 \$8.63 \$4.74 <u>NA</u> NΑ <u>NA</u> Subtotal- End of Day/Trip Srvc \$15.63 \$21.47 \$17.21 NA NA NA Train Delay: - Pump out volume req'd 0 0 0 NA NA NA - # of stops req'd 0 0 0 NA NA NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA <u>NA</u> <u>NA</u> - Total Time Delay(mins/car) 0 0 0-NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA Subtotal-Oprtng Trip Related \$16 \$21 \$17 NA NA NA Total # Cars in fleet 13 50 13 NA NA NA Total Annual Car-days 4,745 18,250 4,745 NA NA NA Adjusted Total Car-days 2.847 10,950 2,847 NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 Annual Oprtng Trip Related per Car \$3,423 \$4,702 \$3,769 NA NA NA Annual Non-Trip Related per Car \$428 \$428 \$428 NA NA NA Annual Opring Trip Related per Car Type \$44,501 \$235,111 \$48,995 NA NA NA Annual Non-Trip Related per Car Type \$5,564 \$21,400 \$5,564 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$3,851 \$5,130 \$4,197 NA NA NA Total CAPITAL COST per Car \$15,152 \$15,152 \$15,152 NA NA NA Total OPRTNG COST for all cars \$50,065 \$256,511 \$54,559 NA NA NA Total CAPITAL COST for all cars \$196,976 \$757,600 \$196,976 NA NA

Hudson Highlander

Origin/Destination: Length in Miles:

Albany-New York City 142

Length in Hours:

2.62

Expected Trips per Day:

6

Manufacturer:

Monogram

Equipment:

Modified Vacuum

_4_b						
Scenario:	Favorable					
* All data on per car basis (unless noted	d otherwise)					
	21000	20200	21800	NA	NA	NA
	<u>Amcoach</u>	<u>Amdinette</u>	<u>Amcoach</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	3	1	1	NA	NA	NA
Capacity (# people) - seated Toilets per car	84 2	23 2	60 2	NA NA	NA NA	NA NA
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	31.8	8.7	22.7	NA	NA	NA
Capacity Req'd/day (gals)	45.5	12.5	32.5	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	56.9	15.6	40.6	NA	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	99 138%	362 503%	139 193%	NA NA	NA NA	NA NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Service Days Supported	6.3	23.0	8.8	NA	NA	NA
As a percentage of 3 days	210.27%	767.93%	294.37%	NA	NA	NA
Consecutive Trips before pumpout	37.0	138.0	52.0	NA	NA	NA
CAPITAL COSTS					•	ē
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$26,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
Total Capital Cost	\$28,016	\$28,016	\$28,016	NA	NA	NA NA

Route Number:

#242

Origin/Destination: Albany-New York City Length in Miles: 142 Length in Hours: 2.62 Expected Trips per Day: Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Favorable \* All data on per car basis (unless noted otherwise) 21800 21000 20200 NA NΑ NA Amcoach **Amdinette** Amcoach OPERATING COSTS Non-Trip Related Costs: \$144 \$144 \$144 NA NA NA Labor cost/major servicing Frequency per Year 2 2 2 2 2 2 NA NA Servicing Cost/Year \$288 \$288 \$288 NA <u>NA</u> <u>NA</u> Annual spare parts cost per yr \$260 \$260 \$260 <u>NA</u> NA NA NA Total- Opring Non-Trip Related \$548 \$548 \$548 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$12 NA NA NA \$0 \$0 \$0 \$0 \$0 - Light Repair \$0 Pump out and Disposal NA - Pump out Cost \$0.46 \$0.12 \$0.33 NA NA NA - Pump out minutes 0.76 0.21 0.54 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA NA <u>NA</u> - Waste Disposal \$4.64 \$1.27 \$3.32 <u>NA</u> \$17.10 \$13.40 \$15.64 NA NA Subtotal- End of Day/Trip Srvc NA Train Delay: ٥ 0 0 NA NA NA - Pump out volume req'd - # of stops reg'd 0 0 0 NA NA NA 0.0 NA NA NA - Pump out minutes 0.0 0.0 - Connect/Disc. minutes NA 0.0 0.0 0.0 NA NA. - Total Time Delay(mins/car) 0 ٥ 0 NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA NA NA Subtotal- Oprtng Trip Related \$17 \$13 \$16 NA 31 NA NA NA Total # Cars in fleet 266 25 Total Annual Car-days 97,090 9,125 11,315 NA NA NA Adjusted Total Car-days 58,254 5,475 6,789 NA NA NA Days per Trip (min. of 1) 1 1 1 1 \$3,744 NA NA NA Annual Opring Trip Related per Car \$2,934 \$3,425 NA NA Annual Non-Trip Related per Car \$548 \$548 \$548 NA \$995,920 \$73,340 \$106,181 NA NA NA Annual Oprtng Trip Related per Car Type Annual Non-Trip Related per Car Type \$145,768 \$13,700 \$16,988 NA <u>NA</u> <u>NA</u> Total OPRTNG COST per Car NΑ NΑ \$4,292 \$3,482 \$3,973 NΑ Total CAPITAL COST per Car \$28,016 \$28,016 \$28,016 NA NA NA

Route Number:

Hudson Highlander

#242

NA

NA

NA

### **Λrthur D Little**

\$1,141,688

\$7,452,256

\$87,040

\$700,400

\$123,169

\$868,496

Total OPRING COST for all cars

Total CAPITAL COST for all cars

Amtrak Route:

Hudson Highlander Albany-New York City Route Number:

#242

Length in Miles:

Origin/Destination:

142 2.62

Length in Hours: Expected Trips per Day:

6

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Favorable

Scenano:	Favorable					
* All data on per car basis (unless noted	otherwise)					
	21000	20200	21800	NA	· NA	NA
	<u>Amcoach</u>	<u>Amdinette</u>	<u>Amcoach</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	.3	1	1	NA	NA	NA
Capacity (# people) - seated	84	23	60	NA	NA	NA
Toilets per car	2	2	2	NA NA	NA NA	NA NA
Average persons/toilet on train	. 42.0	11.5	30.0	INA	NA .	INA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	NA	NA	NA
Capacity Req'd/day (gals)	24.7	6.8	17.6	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	30.9	8.5	22.1	NA	NA	NA
Tank Capacity per Car (gals)	27	27	27	NA	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	21 29%	77 106%	29 41%	NA NA	NA NA	NA NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Service Days Supported	1.3	4.9	1.9	NA	NA:	NA
As a percentage of 3 days	44.50%	162.51%	62.29%	NA	NA	NA
Consecutive Trips before pumpout	8.0	29.0	11.0	NA	NA ·	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$6,500	\$6,500	\$6,500	NA	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	<b>\$</b> O	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$576	\$576	\$576	NA	NA	NA
Total Capital Cost	\$7,076	\$7,076	\$7,076	NA	NA NA	NA NA

Amtrak Route: Origin/Destination:	Hudson Highlande		Route Number: #2	.42		
•	Albany-New York (	Σπy				
Length in Miles:	142					
Length in Hours:	2.62					
Expected Trips per Day:	6					
Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc					
Scenario:	Favorable					
<ul> <li>All data on per car basis (unless note</li> </ul>	•					
	21000	20200	21800	NA	NA NA	Ņ
	<u>Amcoach</u>	<u>Amdinette</u>	Amcoach	<u>NA</u>	<u>NA</u>	1
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$576	NA	NA	1
Frequency per Year	\$376 <u>2</u>	4576 <u>2</u>	4373 <u>2</u>	<u>2</u>	2	•
Servicing Cost/Year	£ \$1,152	£ \$1,152	£ \$1,152	NA	<u>≤</u> NA	
Annual spare parts cost per yr	\$1,152 \$65	\$1,152 \$65	\$1,152 \$65	NA NA	NA NA	!
Total- Opring Non-Trip Related				NA NA	NA NA	<u>.</u>
Total-Opting Non-Trip Related	\$1,217	\$1,217	\$1,217	INA	INA	<del>,</del>
Trin Deleted Contro						
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	1
- Light Repair	\$0	\$0	\$0	<b>\$0</b>	<b>\$0</b>	\$
Pump out and Disposal		•				
- Pump out Cost	\$0.25	\$0.07	\$0.18	NA	NA	1
- Pump out minutes	0.41	0.11	0.29	NA	NA	ı
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	1
- Waste Disposal	<u>\$3.26</u>	<u>\$0.89</u>	<u>\$2.33</u>	<u>NA</u>	<u>NA</u>	1
Subtotal- End of Day/Trip Srvc	\$15.51	\$12.96	\$14.51	NA	NA	1
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	1
- # of stops req'd	0	0	0	NA	NA	1
- Pump out minutes	0.0	0.0	0.0	NA	NA	1
- Connect/Disc. minutes	0.0	0.0	0.0	<u>NA</u>	<u>NA</u>	1
- Total Time Delay(mins/car)			0	NA	NA NA	1
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	1
Subtotal- Oprtng Trip Related	\$16	\$13	\$15	NA	NA	١
· •. ·		<del></del>	· · · · · · · · · · · · · · · · · · ·			
Total # Cars in fleet	266	25	31	NA	NA	N
otal Annual Car-days	97,090	9,125	11,315	NA	NA	1
	07,000	5,125	11,010			•
djusted Total Car-days	58,254	5,475	6,789	NA	NA	i
ays per Trip (min. of 1)	1	1	1	1	1	
nnual Oprtng Trip Related per Car	\$3,396	\$2,838	\$3,177	. NA	NA	ŀ
nnual Non-Trip Related per Car	\$1,217	\$1,217	\$1,217	NA	NA	1
nnual Oprtng Trip Related per Car Typ	\$903,401	\$70,959	\$98,479	NA	NA	ı
nnual Non-Trip Related per Car Type	<u>\$323,722</u>	<u>\$30,425</u>	<u>\$37.727</u>	<u>NA</u>	<u>NA</u>	1
	\$4,613	\$4,055	\$4,394	NA	NA	. 1
otal OPRTNG COST per Car						

Amtrak Route: Origin/Destination: Hudson Highlander

Route Number:

#242

Albany-New York City

Length in Miles:

142 2.62 6

Length in Hours: Expected Trips per Day:

Manufacturer: Equipment:

Microphor

Scenario:

Gravity

Scenario:	Favorable					
* All data on per car basis (unless note	d otherwise)					
	21000 <u>Amcoach</u>	20200 Amdinette	21800 <u>Amcoach</u>	NA <u>NA</u>	NA NA	NA <u>N</u> A
Quantity of cars	3	1	1	NA	NA	NA
Capacity (# people) - seated Toilets per car	84 2	23 2	60 2	NA NA	NA NA	NA NA
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	86.7	23.7	61.9	NA	NA	NA
Capacity Req'd/day (gals)	81.5	22.3	58.2	NA	NA	· NA
Adj. Capacity Req'd w/ Buffer	101.9	27.9	72.8	NA	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	71 98%	258 359%	99 137%	NA NA	NA NA	NA NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Service Days Supported	4.5	16.4	6.3	NA	NA	NA
As a percentage of 3 days	. 149.89%	547.42%	209.85%	NA	NA	NA
Consecutive Trips before pumpout	26.0	98.0	37.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	\$10,000	<u>\$10,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$20,000	\$20,000	\$20,000	NA	NA	NA
Equipment Installation	•					
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$21,152	\$21,152	\$21,152	NA	NA	NA

Amtrak Route: Route Number: Hudson Highlander Origin/Destination: Albany-New York City Length in Miles: 142 Length in Hours: 2.62 Expected Trips per Day: 6 Manufacturer: Microphor Equipment: Gravity Scenario: Favorable \* All data on per car basis (unless noted otherwise) 21800 20200 Amcoach NA NΑ NA **Amdinette** Amcoach **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$144 \$144 \$144 NA NA NA Frequency per Year 2 2 2 2 2 2 \$288 NA NA Servicing Cost/Year \$288 \$288 NA Annual spare parts cost per yr \$200 <u>NA</u> <u>NA</u> \$200 \$200 <u>NA</u> Total- Oprtng Non-Trip Related \$488 \$488 \$488 NA NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$12 \$12 \$12 NA NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.81 \$0.22 \$0.58 NA NA NA - Pump out minutes 1.36 0.37 0.97 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA - Waste Disposal \$8.31 \$2.28 \$5.94 NA NA NA Subtotal- End of Day/Trip Srvc \$21,13 \$18.52 \$14.50 NA NA NA Train Delay: - Pump out volume reg'd 0 0 0 NA NA NA - # of stops regid 0 0 0 NA NA NA - Pump out minutes 0.0 0.0 0.0 NA NA NΑ - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA - Total Time Delay(mins/car) 0 0 0 NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA Subtotal-Oprtng Trip Related \$21 \$14 \$19 NA NA NA Total # Cars in fleet 266 25 31 NA NA NA Total Annual Car-days 97,090 9,125 11,315 NΑ NA NΑ Adjusted Total Car-days 58,254 5,475 6,789 NA NA NA Days per Trip (min. of 1) 1 1 1 Annual Opring Trip Related per Car \$4,627 \$3,175 \$4,056 NA NA NA Annual Non-Trip Related per Car \$488 \$488 \$488 NA NA NA Annual Oprtng Trip Related per Car Type \$1,230,690 \$79,381 \$125,724 NA NA NA Annual Non-Trip Related per Car Type \$129,808 \$12,200 \$15,128 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$5,115 \$3,663 \$4 544 NA NA NA Total CAPITAL COST per Car \$21,152 \$21,152 \$21,152 NA NA NA Total OPRING COST for all cars \$91,581 \$140.852 NA \$1,360,498 NA NA Total CAPITAL COST for all cars \$5,626,432 \$528,800 \$655,712 NA

## **Λrtlur D Little**

Origin/Destination:	Albany-New York C	ity	•			
Length in Miles:	142	•				
Length in Hours:	2.62					
Expected Trips per Day:	. 6					
Manufacturer:	Evac					
Equipment:	Ultimate					
Scenario:	Favorable	•				
* All data on per car basis (unless noted						
All data on per dai basis (dilless noted	21000	20200	21800	NA	NA	N
	Amcoach	Amdinette	Amcoach	NA	NA	<u>N</u>
Quantity of cars	3	1	1	NA	NA	N
Capacity (# people) - seated	84	23	60	NA	NA	N
Toilets per car	2	2	2	NA	NA	Ň
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	N
Car Waste Data (per car)						
Black Water:			•			
luman Waste/day (gals)	37.72	10.33	26.94	NA	NA	N
Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.0
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.0
Adj. # Flushes/Person-day	6	6	6	6	6	(
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	23.7	6.5	16.9	NA	NA	N
Capacity Req'd/day (gals)	40.2	11.0	28.7	NA	NA	N
Adj. Capacity Req'd w/ Buffer	50.3	13.8	35.9	NA	NA	1
Fank Capacity per Car (gals)	200	200	200	200	200	20
Continuous Service Hours Supported As a percentage of 72 hours	95 133%	349 484%	134 186%	NA NA	NA NA	<b>N</b>
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.7
Service Days Supported	6.1	22.2	8.5	NA	NA	١
As a percentage of 3 days	202.45%	739.39%	283.43%	NA	NA	Ŋ
Consecutive Trips before pumpout	36.0	133.0	51.0	NA	NA	N
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,00
Toilet Cost per Car	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$5,800</u>	<u>NA</u>	<u>NA</u>	7
Total Equip Cost	\$17,800	\$17,800	\$17,800	NA	NA	1
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,44
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>!</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	t
Total Capital Cost	\$19,816	\$19,816	\$19,816	NA	NA	١

Route Number: Amtrak Route: Hudson Highlander Origin/Destination: Albany-New York City Length in Miles: 142 Length in Hours: 2.62 Expected Trips per Day: 6 Manufacturer: Evac Ultimate Equipment: Scenario: Favorable \* All data on per car basis (unless noted otherwise) 21800 20200 NA <u>NA</u> Amcoach NA Amcoach **Amdinette OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$144 \$144 \$144 NA NA NA Frequency per Year 2 2 2 2 2 2 NA \$288 \$288 NA NA Servicing Cost/Year \$288 Annual spare parts cost per yr \$178 \$178 <u>NA</u> <u>NA</u> <u>NA</u> <u>\$178</u> \$466 NA NA NA Total- Opring Non-Trip Related \$466 \$466 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$12 \$12 \$12 NA NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal NΑ - Pump out Cost \$0.40 \$0.11 \$0.29 NA NA 0.67 NA NA NA - Pump out minutes 0.18 0.48 - Connect/Disc. minutes NA NA NA 0.0 0.0 0.0 - Waste Disposal \$2.93 <u>NA</u> \$4.10 \$1.12 NA <u>NA</u> Subtotal- End of Day/Trip Srvc \$16.50 \$13.23 \$15.22 NA NA NA Train Delay: 0 NA - Pump out volume reg'd 0 0 NA NA - # of stops reg'd 0 0 0 NA NA NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA <u>NA</u> NA NA - Total Time Delay(mins/car) 0 0 0 NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA Subtotal-Oprtng Trip Related \$17 \$13 \$15 NA NA NA Total # Cars in fleet 266 25 31 NA NA NA Total Annual Car-days 97,090 9,125 11,315 NA NA NA 6,789 NA Adjusted Total Car-days 58.254 5,475 NA NA Days per Trip (min. of 1) 1 1 1 1 1 1

\$2.898

\$72,453

\$11,650

\$3,364

\$19,816

\$84,103

\$495,400

\$466

\$3,333

\$103,312

\$14,446

\$3,799

\$19,816

\$117,758

\$466

\$3.615

\$961,459

\$123,956

\$4,081

\$19,816

\$1.085.415

\$5,271,056

\$466

NA

Annual Opring Trip Related per Car

Annual Opring Trip Related per Car Type

Annual Non-Trip Related per Car Type

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Annual Non-Trip Related per Car

Total OPRTNG COST per Car

Total CAPITAL COST per Car

Amtrak Route:	Hudson Highlander	•	Route Number: #	242		
Origin/Destination:	Albany-New York C		170710 . 141115411			
Length in Miles:	142	·,				
Length in Hours:	2.62					
Expected Trips per Day:	6					
Manufacturer:	Railtech					
Equipment:	WTS 8300					
Scenario:	Favorable		•			
* All data on per car basis (unless noted o						
All data on per dar basis (unless noted o	21000	20200	21800	NA	NA	NA
	Amcoach	Amdinette	Amcoach	NA NA	NA NA	NA NA
Quantity of cars	3	1	1	NA	NA	NA.
Capacity (# people) - seated	84	23	60	NA NA	NA NA	NA NA
Toilets per car	2	2	2	NA	NA	NA NA
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	132.6	36.3	94.7	NA	NA	NA
Capacity Req'd/day (gals)	111.6	30.6	79.7	NA	NA	NA
Adj. Capacity Reg'd w/ Buffer	139.5	38.2	99.6	NA NA	. NA	NA NA
Tank Capacity per Car (gals)	100	100	100	NA	NA	NA
Continuous Service Hours Supported	17	63	24	NA	NA	NA
As a percentage of 72 hours	24%	87%	33%	NA	NA	NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Service Days Supported	1.1	4.0	1.5	NA	NA	NA
As a percentage of 3 days	36.49%	133.26%	51.08%	NA	NA	NA
Consecutive Trips before pumpout	6.0	23.0	9.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$8,000	\$8,000	\$8,000	ŅA	NA	NA
Toilet Cost per Car	<u>\$6,000</u>	\$6,000	\$6,000	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$14,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	NA	NA	NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$15,152	\$15,152	\$15,152	NA	NA	NA

Amtrak Route: Origin/Destination: Length in Miles:

Hudson Highlander

Albany-New York City

142 2.62 6

Length in Hours: Expected Trips per Day:

Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Favorable

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted our	21000 Amcoach	20200 <u>Amdinette</u>	21800 Amcoach	NA <u>NA</u>	NA NA	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$288	\$288	\$288	NA	NA	NA
Annual spare parts cost per yr	<u>\$140</u>	\$140	<u>\$140</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$428	\$428	\$428	NA	NA	NA
Trip Related Costs:						
Toilet maintenance enroute  ### Comparison of Comparison o				•		
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$1.12	\$0.31	\$0.80	NA	NA	NA
- Pump out minutes	1.86	0.51	1.33	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA NA	NA	NA
- Waste Disposal	\$11.38	\$3.12	\$8.13	NA	NA	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$24.50	\$15.42	\$20.93	NA NA	. NA	NA NA
Train Delay:	<b>42</b> 1.00	V10.42	<b>\$20.00</b>		, , , , , ,	
- Pump out volume reg'd	0	0	, о	NA	NA	NA
- # of stops req'd	0	ō	0	NA NA	NA NA	NA NA
- Pump out minutes	0.0	0.0	0.0	NA NA	NA NA	NA NA
- Connect/Disc. minutes	0.0	0.0 0.0	0.0	NA NA	NA NA	NA NA
- Total Time Delay(mins/car)	<u>9.9</u> 0	· <u>9.9</u>	<u>9:9</u> 0	NA NA	NA NA	NA NA
Average Cost Per Delay	. \$0	\$0	\$0	NA NA	NA NA	NA NA
Subtotal- Opring Trip Related	\$24 .	\$15	\$0 \$21	NA NA	NA NA	NA NA
Subtotal- Opting 11th Helated =	Ψ24	915	Φ21	INA	IVA	11/4
Total # Cars in fleet	266	25	31	NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA	NA
Adjusted Total Car-days	58,254	5,475	6,789	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$5,365	\$3,377	\$4,583	NA	NA	NA
Annual Non-Trip Related per Car	\$428	\$428	\$428	NA	NA	NA
Annual Opring Trip Related per Car Type	\$1,427,031	\$84,434	\$142,068	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$113,848</u>	<u>\$10,700</u>	<u>\$13,268</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$5,793	\$3,805	\$5,011	NA	NA	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$15,152	NA	NA	NA
•						
Total OPRTNG COST for all cars	\$1,540,879	\$95,134	\$155,336	N <b>A</b>	NA	NA
Total CAPITAL COST for all cars	\$4,030,432	\$378,800	\$469,712	NA	NA	NA

Route Number:

#242

Amtrak Route:	Electric City Expres	SS	Route Number:	#250 ·		•
Origin/Destination:	Schenectady-New	York City				
Length in Miles:	160					
Length in Hours:	3.03					
Expected Trips per Day:	4					
Manufacturer:	Monogram					
Equipment:	Modified Vacuum					
Scenario:	Favorable					
* All data on per car basis (unless note	d otherwise)					
	151-Odd Turbo Power Club	170 Turbo Coach	170 Turbo Cafe	150-Even Turbo Power Coac	NA <u>NA</u>	NA NA
Quantity of cars	1	3	1	1	NA	NA.
Capacity (# people) - seated	27	72	52	40	NA	NA.
Toilets per car	1	2	1	1	NA	NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA 	NA .
Car Waste Data (per car)					·	
Black Water:						
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6-	6	6	6	6
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	10.2	27.2	19.7	15.1	NA	NA
Capacity Req'd/day (gals)	11.3	30.1	21.7	16.7	NA	NA
Adj. Capacity Req'd w/ Buffer	14.1	37.6	27.1	20.9	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	400 556%	150 208%	208 289%	270 375%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	33.0	12.4	17.1	22.3	NA	NA NA
As a percentage of 3 days	1100.49%	412.68%			NA	NA
Consecutive Trips before pumpout	132.0	49.0	68.0	89.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	\$2,500	\$5,00 <u>0</u>	<u>\$2,500</u>	<u>\$2,500</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$23,500	\$26,000	\$23,500	\$23,500	NA	NA
Equipment Installation	•					
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,728	\$2,016	\$1,728	\$1,728	NA	NA ·
Total Capital Cost	\$25,228	\$28,016	\$25,228	\$25,228	NA	NA

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**Electric City Express** Origin/Destination: Schenectady-New York City Length in Miles: 160 Length in Hours: 3.03 Expected Trips per Day: Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Favorable \* All data on per car basis (unless noted otherwise) 170 150-Even NA NA 151-Odd 170 <u>NA</u> Turbo Cafe Turbo Power Coac Turbo Power Club Turbo Coach NA **OPERATING COSTS** Non-Trip Related Costs: \$72 \$72 \$72 NA Labor cost/major servicing \$144 NA Frequency per Year 2 2 2 2 2 \$144 \$144 NA NA Servicing Cost/Year \$144 \$288 Annual spare parts cost per yr \$235 \$260 \$235 \$235 NA NA Total- Oprtng Non-Trip Related \$379 \$548 \$379 \$379 NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing NA \$12 \$6 \$6 NA - Cleaning \$6 \$0 \$0 \$0 \$0 \$0 - Light Repair \$0 Pump out and Disposal \$0.11 \$0.30 \$0.22 \$0.17 NA NA - Pump out Cost NA - Pump out minutes 0.19 0.50 0.36 0.28 NA - Connect/Disc. minutes NA NA 0.0 0.0 0.0 0.0 - Waste Disposal \$0,77 \$2.04 \$1.48 \$1.14 NA NA Subtotal- End of Day/Trip Srvc \$6.88 \$14.35 \$7.69 \$7.30 NA NA Train Delay: - Pump out volume req'd 0 0 0 0 NA NA - # of stops req'd 0 0 0 0 NA NA - Pump out minutes 0.0 0.0 0.0 0.0 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 <u>NA</u> <u>NA</u> - Total Time Delay(mins/car) NA NA n n n O Average Cost Per Delay \$0 \$0 \$0 \$0 NA NA Subtotal-Opring Trip Related \$7 \$14 \$8 \$7 NΆ NA NA Total # Cars in fleet 6 21 3 14 NA Total Annual Car-days 7,665 1,095 NA 2,190 5,110 NA 4,599 Adjusted Total Car-days 1.314 657 3,066 NA NA Days per Trip (min. of 1) 1 1 1 1 1 Annual Opring Trip Related per Car \$1,507 \$1.599 NA \$3,142 \$1,685 NA Annual Non-Trip Related per Car \$379 \$548 \$379 \$379 NA NA Annual Opring Trip Related per Car Type \$9,040 \$65,975 \$5,055 \$22,391 NA NA Annual Non-Trip Related per Car Type <u>\$1,137</u> \$2,274 \$11,508 \$5,306 NA <u>NA</u> Total OPRTNG COST per Car \$1,886 \$2,064 \$1,978 \$3,690 NA NA Total CAPITAL COST per Car \$25,228 \$25,228 \$25,228 \$28,016 NA NA Total OPRTNG COST for all cars \$11.314 \$77.483 NA NA \$6.192 \$27,697 Total CAPITAL COST for all cars \$75,684 \$151,368 \$588,336 \$353,192

**Route Number:** 

#250

Amtrak Route:

Amtrak Route:	Electric City-Expres	s	Route Number:	#250		
Origin/Destination:	Schenectady-New		•	•		
Length in Miles:	160			•		
Length in Hours:	3.03					
Expected Trips per Day:	. 4					
Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc					
Scenario:	Favorable					·
* All data on per car basis (unless noted	l otherwise)					•
	151-Odd Turbo Power Club	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	N. N.
Quantity of cars	1	3	1	1	NA	. N
Capacity (# people) - seated Toilets per car	27 1	72 2	52 1	40 1	NA NA	N/ N/
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	N
			,		•	
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA .	N <sub>i</sub>
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	NA	N
Capacity Req'd/day (gals)	6.1	16.3	11.8	9.1	NA	N
Adj. Capacity Req'd w/ Buffer	7.7	20.4	14.7	11.3	NA.	N/
Tank Capacity per Car (gals)	13.5	27	13.5	13.5	NA	N
Continuous Service Hours Supported As a percentage of 72 hours	42 59%	32 44%	22 31%	29 40%	NA NA	N. N.
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	3.5	2.6	1.8	2.4	NA	N
As a percentage of 3 days	116.44%		60.46%		NA	N
Consecutive Trips before pumpout	13.0	10.0	7.0	9.0	NA	N
CAPITAL COSTS		•				
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	\$3,250	<u>\$6,500</u>	\$3,250	\$3,250	<u>NA</u>	<u>N</u> .
- Total Equip Cost	\$3,250	\$6,500	\$3,250	\$3,250	NA	N/
Equipment Installation			•			
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	<u>N</u>
- Total Installation Cost	\$288	\$576	\$288	\$288	NA	N
Total Capital Cost	\$3,538	\$7,076	\$3,538	\$3,538	NA	N/

Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles: Length in Hours:

160 3.03

Expected Trips per Day:

Manufacturer: Equipment:

Monogram Self-Cont'd Recirc

Favorable

Scenario:

* All data on per car basis (unless noted					•	
	151-Odd <u>Turbo Power Club</u>	170 <u>Turbo Coach</u>	170 Turbo Cafe	150-Even Turbo Power Coac	NA NA	NA <u>NA</u>
OPERATING COSTS	Tuibo i ottor ottob	14100 004011	10100 0000	101001 01101 0000	1321	1373
Non-Trip Related Costs:	•					
Labor cost/major servicing	\$288	\$576	\$288	\$288	NA	· NA
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$576	\$1,152	\$576	\$576	NA	NA
Annual spare parts cost per yr	<u>\$33</u>	<u>\$65</u>	<u>\$33</u>	<u>\$33</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$609	\$1,217	\$609	\$609	NA .	NA
Trip Related Costs:				•		
Toilet maintenance enroute						
End of Day/Trip Servicing			•			
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.06	\$0.16	\$0.12	•	NA	NA
- Pump out minutes	0.10	0.27	0.20	0.15	NA	NA
- Connect/Disc. minutes	. 0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$0.54</u>	<u>\$1,44</u>	<u>\$1.04</u>	<u>\$0.80</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$6.60	\$13.60	\$7.16	\$6.89	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	0	ŇA	NA
- # of stops req'd	0	0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	0	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$7	\$14	\$7	\$7	NA	NA
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA
Adjusted Total Car-days	1,314	4,599	657	3,066	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$1,445	\$2,978	\$1,567	\$1,509	NA	NA
Annual Non-Trip Related per Car	\$609	\$1,217	\$609	\$609	NA	NA
Annual Oprtng Trip Related per Car Type	\$8,672	\$62,546	\$4,701	\$21,121	NA	NA
Annual Non-Trip Related per Car Type	<u>\$3,651</u>	<u>\$25,557</u>	<u>\$1,826</u>	<u>\$8.519</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,054	\$4,195	\$2,176	\$2,117	NA	NA
Total CAPITAL COST per Car	\$3,538	\$7,076	\$3,538	\$3,538	NA	NA
Total OPRTNG COST for all cars	\$12,323	\$88,103	\$6,527	\$29,640	NA	NA
Total CAPITAL COST for all cars	\$21,228	\$148,596	\$10,614	\$49,532	NA NA	NA

Amtrak Route:	Electric City Expres	s	Route Number:	#250		
Origin/Destination:	Schenectady-New	<del>-</del>				
Length in Miles:	160	•				
Length in Hours:	3.03					
Expected Trips per Day:	4					
Manufacturer:	Microphor					
Equipment:	Gravity				•	
Scenario:	Favorable					
* All data on per car basis (unless noted of	otherwise)					£
	151-Odd	170	170	150-Even	NA	NA
	Turbo Power Club	Turbo Coach	<u>Turbo Cafe</u>	Turbo Power Coac	<u>NA</u>	<u>NA</u>
Quantity of cars	1	3	1	1	NA	NA
Capacity (# people) - seated	27	72	52	40	NA	NA
Toilets per car	1	2	1	1	NA	NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	27.9	74.3	53.7	41.3	NA	NA
Capacity Req'd/day (gals)	20.2	53.8	38.9	29.9	NA	NA
Adj. Capacity Req'd w/ Buffer	25.2	67.3	48.6	37.4	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	285 396%	107 149%	148 206%	193 267%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	23.5	8.8	12.2	15.9	NÁ	NA
As a percentage of 3 days	784.49%	294.18%	407.33%	529.53%	NA	NA
Consecutive Trips before pumpout	94.0	35.0	48.0	63.0	NA	NA
CAPITAL COSTS						·
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	\$5,000	\$10,000	\$5,000	<u>\$5,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$15,000	\$20,000	\$15,000	\$15,000	NA NA	NA NA
Equipment Installation	•	•	•			
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	\$288	<u>\$576</u>	\$288	<u>\$288</u>	NA	NA
- Total Installation Cost	\$864	\$1,152	\$864	\$864	NA	NA
Total Capital Cost	\$15,864	\$21,152	\$15,864	\$15,864	NA	NA

Electric City Express

Schenectady-New York City

Origin/Destination: Length in Miles: Length in Hours:

160

3.03

Expected Trips per Day: Manufacturer:

Equipment:

Microphor

Scenario:

Gravity Favorable

* All data on per car basis (unless noted of	otherwise)					
<b>.</b>	151-Odd Turbo Power Club	170 <u>Turbo Coach</u>	170 Turbo Cafe	150-Even Turbo Power Coac	NA NA	NA. <u>NA</u>
OPERATING COSTS		<del></del>	<u>-</u> -		<del></del>	<del>_</del>
Non-Trip Related Costs:						
Labor cost/major servicing	\$72	\$144	\$72		NA	NA
Frequency per Year	· <u>2</u>	<u>2</u>	2	<u>2</u>	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$144	\$288	\$144	\$144	NA	NA
Annual spare parts cost per yr	<u>\$150</u>	<u>\$200</u>	<u>\$150</u>	<u>\$150</u>	<u>NA</u>	<u>ŅA</u>
Total- Oprtng Non-Trip Related	\$294	\$488	\$294	\$294	NA NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.20	\$0.54	\$0.39	\$0.30	NA	NA
- Pump out minutes	0.34	0.90	0.65	0.50	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$1.37</u>	<u>\$3.66</u>	<u>\$2.64</u>	<u>\$2.03</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$7.58	\$16.20	\$9.03	\$8.33	NA	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	0	NA	NA
- # of stops req'd	0	0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	.0	0	0	0	NA	NA
Average Cost Per Delay	\$0	\$O	\$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$8	\$16	\$9	\$8	NA NA	NA NA
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA
Adjusted Total Car-days	1,314	4,599	657	3,066	NA .	NA
Days per Trip (min. of 1)	. 1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$1,659	\$3,548	\$1,978	\$1,825	NA	NA
Annual Non-Trip Related per Car	\$294	\$488	\$294	\$294	NA	NA
Annual Oprtng Trip Related per Car Type	\$9,954	\$74,505	\$5,935	\$25,550	NA	NA
Annual Non-Trip Related per Car Type	<u>\$1,764</u>	<u>\$10,248</u>	<u>\$882</u>	<u>\$4,116</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$1,953	\$4,036	\$2,272	\$2,119	NA	NA
Total CAPITAL COST per Car	\$15,864	\$21,152	\$15,864	\$15,864	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$11,718 \$95,184	\$84,753 \$444,192	\$6,817 \$47,592	\$29,666 \$222,096	NA NA	NA NA

#250

Route Number:

		•				
-Amtrak Route:	Electric City Expres	:9	Route Number:	#250		
Origin/Destination:	Schenectady-New					
Length in Miles:	160					
Length in Hours:	3.03					
Expected Trips per Day:	4					
Manufacturer:	Evac					
Equipment:	Ultimate					
Scenario:	Favorable	*				
* All data on per car basis (unless noted	otherwise)					
	151-Odd	_ 170	170	150-Even	NA	NA
	Turbo Power Club	Turbo Coach	<u>Turbo Cafe</u>	Turbo Power Coac	<u>NA</u>	<u>NA</u>
Quantity of cars	1	3	1	1	NA	NA
Capacity (# people) - seated Toilets per car	27 1	72 2	52 1	40 1	NA NA	NA NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA 🕶
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	7.6	20.3	14.7	11.3	NA	NA
Capacity Req'd/day (gals)	10.0	26.6	19.2	14.8	· NA	NA
Adj. Capacity Req'd w/ Buffer	12.5	33.2	24.0	18.5	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	385 535%	144 201%	200 278%	260 361%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	31.8	11.9	16.5	21.5	NA	NA
As a percentage of 3 days	1059.58%		550.17%		NA	NA
Consecutive Trips before pumpout	127.0	47.0	66.0	85.0	NA	NA ·
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	\$2,900	<u>\$5,800</u>	\$2,900	<u>\$2,900</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$14,900	\$17,800	\$14,900	\$14,900	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,728	\$2,016	\$1,728	\$1,728	NA	NA
Total Capital Cost	\$16,628	\$19,816	\$16,628	\$16,628	NA	NA NA

Electric City Express

Schenectady-New York City

Origin/Destination: Length in Miles:

Length in Hours:

160 3.03

Manufacturer:

Equipment:

Evac

Scenario:

Ultimate

Expected Trips per Day:

Favorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted o	•		4==	450 5	***	314
•	151-Odd Turbo Power Club	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA NA	NA <u>NA</u>
OPERATING COSTS					<del></del>	
Non-Trip Related Costs:						
Labor cost/major servicing	\$72	\$144	\$72		NA	NA
Frequency per Year	<u>2</u>	<u>2</u>	<u>2</u>	2	<u>2</u>	<u>2</u>
Servicing Cost/Year	\$144	\$288	\$144	\$144	NA	NA
Annual spare parts cost per yr	<u>\$149</u>	<u>\$178</u>	<u>\$149</u>	<u>\$149</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$293	\$466	\$293	\$293	NA NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing			_			
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	. \$0
Pump out and Disposal						
- Pump out Cost	. \$0.10	\$0.27	\$0.19	\$0.15	NA	NA
- Pump out minutes	0.17	0.44	0.32		NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$0.68</u>	<u>\$1.81</u>	<u>\$1.31</u>	<u>\$1.00</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$6.78	\$14.07	\$7.50	\$7.15	NA	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	0 -	NA	NÁ
- # of stops req'd	0	0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	0	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$7	\$14	\$7	\$7	NA NA	NA NA
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA
Adjusted Total Car-days	1,314	4,599	657	3,066	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$1,484	\$3,082	\$1,642	\$1,566	NA	NA
Annual Non-Trip Related per Car	\$293	\$466	\$293	\$293	NA	NA
Annual Oprtng Trip Related per Car Type	\$8,906	\$64,723	\$4,926	\$21,927	NA	NA
Annual Non-Trip Related per Car Type	<u>\$1,758</u>	<u>\$9,786</u>	<u>\$879</u>	<u>\$4,102</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	- \$1,777	\$3,548	\$1,935	<b>\$1</b> ,859	NA	NA
Total CAPITAL COST per Car	\$16,628	\$19,816	\$16,628	\$16,628	NA	NA .
Total OPRTNG COST for all cars	\$10,664	\$74,509	\$5,805	\$26,029	NA NA	NA NA
Total CAPITAL COST for all cars	\$99,768	\$416,136	\$49,884	\$232,792	NA	NA

Route Number:

#250

Amtrak-Route:	Electric City Express		Route Number:			
Origin/Destination:	Schenectady-New '	York City				
Length in Miles:	160					
Length in Hours:	3.03					
Expected Trips per Day:	4					
Manufacturer:	Railtech					
Equipment:	WTS 8300					
Scenario:	Favorable					
* All data on per car basis (unless noted	•			,		
	151-Odd <u>Turbo Power Club</u>	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	3	1	1	NA	NA
Capacity (# people) - seated Toilets per car	27 1	72 2	52 1	40 1	NA NA	NA NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
Car Waste Data (per car)				· .		
Black Water:						
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	6.00	6.00	6.00	6.00	6.00	6.00
Flush efficiency adjustment	1.00	1.00	1.00	1.00	1.00	1.00
Adj. # Flushes/Person-day	6	6	6	6	6	6
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	42.6	113.7	82.1	63.2	NA	NA
Capacity Req'd/day (gals)	27.7	73.7	53.3	41.0	NA	NA
Adj. Capacity Req'd w/ Buffer	34.6	92.2	66.6	51.2	NA	NA
Tank Capacity per Car (gals)	50	100	50	<b>50</b> .	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	35 48%	26 36%	18 25%	23 33%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	2.9	2.1	1.5	1.9	NA	NA
As a percentage of 3 days	95.49%	71.61%	49.58%	64.45%	NA	NA
Consecutive Trips before pumpout	11.0	8.0	5.0	7.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$4,000	\$8,000	\$4,000	\$4,000	NA	NA
Toilet Cost per Car	\$3,000	<u>\$6,000</u>	\$3,000	<u>\$3,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$7,000	\$14,000	\$7,000	\$7,000	NA	NA
Equipment Installation		•				
Collection System per Car	\$288	\$576	\$288	\$288	NA	NA
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$576	\$1,152	\$576	\$576	NA	NA
Total Capital Cost	\$7,576	\$15,152	\$7,576	\$7,576	NA	NA

Electric City Express

Schenectady-New York City

Origin/Destination: Length in Miles:

160

Length in Hours:

3.03

Expected Trips per Day: Manufacturer:

Equipment:

Railtech

WTS 8300

Scenario:

Favorable

* All data on per car basis (unless noted of	otherwise)					
	151-Odd Turbo Power Club	170 Turbo Coach	170 Turbo Cafe	150-Even <u>Turbo Power Coac</u>	NA <u>NA</u>	NA <u>N</u> A
OPERATING COSTS					_	
Non-Trip Related Costs:				A==		
Labor cost/major servicing	\$72	\$144	\$72		NA -	N/
Frequency per Year	2	.2	<u>2</u>	<u>2</u>	<u>2</u>	2
Servicing Cost/Year	\$144	\$288	\$144	\$144	NA NA	N/
Annual spare parts cost per yr	<u>\$70</u>	<u>\$140</u>	<u>\$70</u>	<u>\$70</u>	<u>NA</u>	N/
Total- Opring Non-Trip Related	\$214	\$428	\$214	\$214	NA NA	NA.
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	N/
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.28	\$0.74	\$0.53	\$0.41	NA	NA
- Pump out minutes	0.46	1.23	0.89	` 0.68	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$1.88</u>	<u>\$5.01</u>	<u>\$3.62</u>	<u>\$2,79</u>	<u>NA</u>	<u>N</u> A
Subtotal- End of Day/Trip Srvc	\$8.16	\$17.75	\$10.15	\$9.20	ŇA	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	0	NA	N/
- # of stops req'd	0	0	0	0	NA	N/
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
<ul> <li>Connect/Disc. minutes</li> </ul>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>N/</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	0	NA	N/
Average Cost Per Delay	<b>\$0</b>	\$0	\$0	\$0	NA	NA
Subtotal- Oprtng Trip Related	\$8	\$18	\$10	\$9	NA NA	NA NA
Total # Cars in fleet	6	21	3	14	NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NÁ	NA
Adjusted Total Car-days	1,314	4,599	657	3,066	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Oprtng Trip Related per Car	\$1,786	\$3,888	\$2,224	\$2,014	NA	NA
Annual Non-Trip Related per Car	\$214	\$428	\$214	\$214	NA	NA
Annual Opring Trip Related per Car Type	\$10,718	\$81,639	\$6,671	\$28,193	NA	NA
Annual Non-Trip Related per Car Type	\$1,284	\$8,988	\$642	\$2,996	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$2,000	\$4,316	\$2,438	\$2,228	NA	NA
Total CAPITAL COST per Car	\$7,576	\$15,152	\$7,576	\$7,576	NA	NA
Total OPRTNG COST for all cars	\$12,002	\$90,627	\$7,313	\$31,189	NA	NA
Total CAPITAL COST for all cars	\$45,456	\$318,192	\$22,728	\$106,064	NA NA	NA

#250

Route Number:

Amtrak Route: Sunset Limited Origin/Destination: New Orleans-Los Angeles Length in Miles: 2,033 Length in Hours: 43.00

Route Number:

\$21,000

\$15,000

\$36,000

\$1,440

\$1,728

\$3,168

\$39,168

Expected Trips per Day: Manufacturer: Monogram Modified Vacuum Equipment: Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 34000 39940 32000 39970 Coach Super Sleeper Super Lounge-HEP-HLV NA NA Quantity of cars 1 3 NA NA 86 NA NA Capacity (# people) - seated 75 72 44 Toilets per car 6 12 2 NA NA Average persons/toilet on train 12.5 18.0 3.7 43.0 NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 33.68 32.33 19.76 38.61 NA NA 8.00 8.00 8.00 8.00 # Flushes/Person-day 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 0.063 Flush Fluids/flush (gals) 0.063 0.063 0.063 0.063 0.063 Flush Fluids/day (gals) 47.3 45.4 27.7 54.2 NA NA 47.5 92.8 NA NA Capacity Req'd/day (gals) 80.9 77.7 116.0 Adj. Capacity Req'd w/ Buffer 101.2 59.3 NA NA 97.1 235 235 235 Tank Capacity per Car (gals) 235 235 235 Continuous Service Hours Supported 56 58 95 49 NA NA NA 77% 81% 132% 68% NA As a percentage of 72 hours 24 24 24 24 24 Probable Service Hours per Day 24 2.3 2.4 4.0 2.0 NA NA Service Days Supported 77.44% 132.00% 67.53% As a percentage of 3 days 80.66% NA NA Consecutive Trips before pumpout 1.0 1.0 2.0 1.0 NA NA

\$21,000

\$10,000

\$31,000

\$1,440

\$1,152

\$2,592

\$33,592

\$21,000

\$30,000

\$51,000

\$1,440

\$3,456

\$4,896

\$55,896

\$21,000

\$5,000

\$26,000

\$1,440

<u>\$576</u>

\$2,016

\$28,016

#1-2

\$21,000

\$1,440

<u>NA</u>

NA

<u>NA</u>

NA

NA

\$21,000

\$1,440

NA

NΑ

NA

NA

## **Arthur D Little**

**CAPITAL COSTS** 

- Total Equip Cost

**Equipment Installation** 

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

Collection System per Car Toilet Cost per Car

Collection System per Car

Amtrak Route:	Sunset Limited		Route Number:	#1-2		
Origin/Destination:	New Orleans-Los	Angeles				
Length in Miles:	2,033					
Length in Hours:	43.00					
Expected Trips per Day:	1					
Manufacturer:	Monogram					
Equipment:	Modified Vacuum					
Scenario:	Unfavorable					
* All data on per car basis (unless noted of	therwise)				*	
	34000	39940	32000	39970	NA NA	NA
OPERATING COSTS	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	<u>NA</u>	<u>NA</u>
Non-Trip Related Costs:						
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	NA
Frequency per Year	4	<u>4</u>	4	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$1,728	\$1,152	\$3,45 <del>6</del>	\$576	NA	NA
Annual spare parts cost per yr	\$1,800	\$1,550	\$2,550	\$1,30 <u>0</u>	NA NA	<u>NA</u>
Total- Opring Non-Trip Related	\$3,528	\$2,702	\$6,006	\$1,876	NA	NA
rotal opining tron impriorated		42,702	- 40,500	7.,5.0		
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal					·	
- Pump out Cost	\$0.81	\$0.78	\$0.47	\$0.93	NA	NA
- Pump out minutes	1.35	1.29	0.79	1.55	NA ·	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	\$2.46	\$2,37	\$1,45	\$2.83	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$39.27	\$27.14	\$73.92	\$15.75	NA	NA NA
Train Delay:	*****	<b>*=</b> ····	*****	******		
- Pump out volume req'd	0	0	0	0	NA	NA
- # of stops req'd	. 0	0	Ö	o	NA.	NA NA
- Pump out minutes	0.0	0.0	0.0	0.0	· NA	NA NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA NA	NA
- Total Time Delay(mins/car)	<u>0.9</u> 0	<u>9.9</u> 0	<u>9.9</u> 0	<u>9.9</u> 0	NA NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA NA	NA NA
Subtotal- Opring Trip Related	\$39	\$27	\$74	<del>40</del> \$16	NA NA	NA NA
Oublotal-Opining 11th Neisted	φ09	921	9/4	<b>\$10</b>	INA	
Total # Cars in fleet	91	, <u>,</u> 21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	26,572	6,132	19,856	1,752	NA	NA
Days per Trip (min. of 1)	20,572	3	2	2	2	2
Annual Opring Trip Related per Car	\$5,734	\$3,963	\$10,792	\$2,300	, NA	NA
Annual Non-Trip Related per Car	\$3,528	\$2,702	\$6,006	\$1,876	NA .	NA
Annual Opring Trip Related per Car Type	\$521,796	\$83,221	\$733,886	\$13,801	NA	NA
Annual Non-Trip Related per Car Type	<u>\$321,048</u>	<u>\$56,742</u>	<u>\$408,408</u>	<u>\$11,256</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$9,262	\$6,665	\$16,798	\$4,176	NA	NA
Total CAPITAL COST per Car	\$39,168	\$33,592	\$55,896	\$28,016	NA ´	NA NA
	400,100	400,002	<b>\$00,030</b>	420,010	141	
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$842,844 \$3,564,288	\$139,963 \$705,432	\$1,142,294 \$3,800,928	\$25,057 \$168,096	NA NA	NA NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Unfavorable

* All data on per car basis (unless noted	otherwise)					
	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	4	1	3	1	NA	NA
Capacity (# people) - seated Toilets per car	75 6	72 4	44 12	86 2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
Car Waste Data (per car)				÷		
Black Water:						
Human Waste/day (gals)	33.68	32.33	. 19.76	38.61	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	· 10	10	10	10	10
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	NA	NA
Capacity Req'd/day (gals)	33.7	32.3	19.8	38.6	NA	NA
Adj. Capacity Req'd w/ Buffer	42.1	40.4	24.7	48.3	NA	NA
Tank Capacity per Car (gals)	81	54	162	27	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	46 64%	32 45%	157 219%	13 19%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	1.9	1.3	6.6	0.6	NA	NA
As a percentage of 3 days	64.14%	44.54%	218.67%	18.65%	NA	NA
Consecutive Trips before pumpout	1.0	0.0	3.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
Toilet Cost per Car	<u>\$19,500</u>	<u>\$13,000</u>	\$39,000	<u>\$6,500</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$19,500	\$13,000	\$39,000	\$6,500	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total installation Cost	\$1,728	\$1,152	\$3,456	\$576	NA	NA
Total Capital Cost	\$21,228	\$14,152	\$42,456	\$7,076	NANA	NA

\_Sunset Limited

Route Number:

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

43.00

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Unfavorable

Scenano:	Uniavorable					
* All data on per car basis (unless noted of	therwise)					
•	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA
OPERATING COSTS					<del></del>	_
Non-Trip Related Costs:						
Labor cost/major servicing	\$1,728	\$1,152	\$3,456	\$576	NA	NA
Frequency per Year	<u>4</u>	4	4	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$6,912	\$4,608	\$13,824	\$2,304	NA	NA.
Annual spare parts cost per yr	\$975	<u>\$650</u>	\$1,950	\$32 <u>5</u>	<u>NA</u>	. NA
Total- Oprtng Non-Trip Related	\$7,887	\$5,258	\$15,774	\$2,629	NA ,	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	ΨΟ	ΨΟ	<b>4</b> 0	40	<b>~~</b>	40
- Pump out Cost	\$0.34	\$8.40	\$0.20	\$4.32	NA	NA
- Pump out minutes	0.56	0.00	0.33	•	NA	NA.
- Connect/Disc. minutes	0.0	14.0	0.0		NA	NA.
- Waste Disposal	\$1.3 <u>3</u>	\$1.27	\$0.78		NA	NA
Subtotal- End of Day/Trip Srvc	\$37.66	\$33.67	\$72.98		NA	ŅA
Train Delay:	Ψ07.00	Ψ00.01	ψ/ <b>L</b> .33	Ψ17.04	140	1,47.1
- Pump out volume reg'd	0	54	0	27	NA	NA
- # of stops req'd	o	1	.0		NA NA	NA NA
- Pump out minutes	0.0	0.9	0.0		NA NA	NA NA
- Connect/Disc. minutes	0.0	14.0	0.0		NA NA	NA NA
- Total Time Delay(mins/car)	<u>0.0</u> 0	15	<u>0.0</u> 0		NA NA	NA
Average Cost Per Delay	\$0	\$9	\$0	\$4	NA NA	NA NA
•	\$38	\$43	\$0 \$73		NA NA	NA NA
Subtotal- Oprtng Trip Related	\$38	<b>D43</b>	\$73	<b>\$22</b>	INA .	- NA
Total # Cars in fleet	91	21	68	6	NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	26,572	6,132	19,856	1,752	NA	NA
Days per Trip (min. of 1)	2	<u>2</u>	<u>2</u>	<u>2</u>	2	<u>2</u>
Annual Oprtng Trip Related per Car	\$5,499	\$6,222	\$10,655	\$3,257	NA	NA
Annual Non-Trip Related per Car	\$7,887	\$5,258	\$15,774	\$2,629	NA	NA
Annual Opring Trip Related per Car Type	\$500,405	\$130,655	\$724,508	\$19,542	NA	NA
Annual Non-Trip Related per Car Type	<u>\$717,717</u>	<u>\$110.418</u>	<u>\$1,072,632</u>	<u>\$15,774</u>	. <b>NA</b>	<u>NA</u>
Total OPRTNG COST per Car	\$13,386	\$11,480	\$26,429	\$5,886	. NA	NA
Total CAPITAL COST per Car	\$21,228	\$14,152	\$42,456	\$7,076	NA	NA
Total OPRTNG COST for all cars	\$1,218,122	\$241,073	\$1,797,140	2.4	NA	NA
Total CAPITAL COST for all cars	\$1,931,748	\$297,192	\$2,887,008	\$42,456	NA NA	NA.

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

Manufacturer:

Equipment:

Microphor

Gravity

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

	34000	39940	32000	39970	NA	A14
						NA NA
	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	<u>NA</u>	<u>NA</u>
Quantity of cars	4	1	3	1	NA	NA
Capacity (# people) - seated Toilets per car	75 6	72 4	44 12	86 2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA :
Car Waste Data (per car)						
Black Water:				•		
Human Waste/day (gals)	33.68	32.33	.19.76	38.61	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	129.0	123.8	75.7	147.9	NA	NA
Capacity Req'd/day (gals)	162.7	156.2	95.4	186.5	NA	NA
Adj. Capacity Req'd w/ Buffer	203.3	195.2	119.3	233.2	NA	NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	35 49%	37 51%	60 84%	31 43%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	1.5	1.5	2.5	1.3	NA NA	NA
As a percentage of 3 days	49.18%	51.23%	83.83%	42.89%	NA	NA
Consecutive Trips before pumpout	0.0	0.0	1.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	\$30,000	\$20,000	\$60,000	\$10,000	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$40,000	\$30,000	\$70,000	\$20,000	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,304	\$1,728	\$4,032	\$1,152	NA	NA
Total Capital Cost	\$42,304	\$31,728	\$74,032	\$21,152	NA	NA

Amtrak Route:	_Sunset_Limited		Route Number:	_#1-2		
Origin/Destination:	New Orleans-Los	Angeles				
Length in Miles:	2,033					
Length in Hours:	43.00				•	
Expected Trips per Day:	1					
Manufacturer:	Microphor				•	
Equipment:	Gravity					
Scenario:	Unfavorable	•				
* All data on per car basis (unless noted of	therwise)					
	34000	39940	32000	39970	NA	NA
	Coach Super	Coach-HEP-HLV	Sleeper Super	Lounge-HEP-HLV	<u>NA</u>	<u>N</u> A
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	NA
Frequency per Year	4	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$1,728	\$1,152	\$3,456	\$576	· NA	NA
Annual spare parts cost per yr	\$2,000	\$1,500	\$3,500	\$1,000	<u>NA</u>	NA
Total- Oprtng Non-Trip Related	\$3,728	\$2,652	\$6,956	\$1,576	NA	NA
		<del></del>				
Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$36	\$24	\$72	\$12	NA	N/A
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	ΨΟ	ΨΟ	ΨΟ	Ψ	ΨΟ	ΨΟ
- Pump out Cost	£0.00	20.00	<b>ድ</b> ስ ስይ	<b>ድ</b> ስ ስለ	NA	NIA
•	\$0.00	\$0.00	\$0.95	\$0.00		NA
- Pump out minutes	0.00	0.00	1.59	0.00	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	<u>\$4.95</u>	<u>\$4.76</u>	<u>\$2.91</u>	<u>\$5.68</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$40.95	\$28.76	\$75.86	\$17.68	NA .	NA
Train Delay:						
- Pump out volume req'd	300	300	0	300	, NA	NA
- # of stops req'd	1	1	0	1	NA	NA
- Pump out minutes	5.0	5.0	0.0	5.0	NA	NA
<ul> <li>Connect/Disc. minutes</li> </ul>	<u>0.0</u>	0.0	<u>0.0</u>	0.0	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	5	5	0	5	NA	NA
Average Cost Per Delay	\$3	\$3	\$0	\$3	NA	NA
Subtotal- Oprtng Trip Related	\$44	\$32	\$76	\$21	NA	NA
Total # Cars in fleet		04	20	•	<b></b>	
rota # Cars in neet	91	21	68	6	. NA	NA
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA
Adjusted Total Car-days	26,572	6,132	19,856	1,752	NA .	NA
Days per Trip (min. of 1)	2	2	2	2	2	2
Annual Opring Trip Related per Car	\$6,417	\$4,636	\$11,076	\$3,020	NA	NA
Annual Non-Trip Related per Car	\$3,728	\$2,652	\$6,956	\$1,576	NA	NA
Annual Oprtng Trip Related per Car Type	\$583,984	\$97,366	\$753,150	\$18,117	NA	NA
Annual Non-Trip Related per Car Type	\$339,248	\$55,692	\$473,008	\$ <u>9,456</u>	<u>NA</u>	<u>NA</u>
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	32721210	<del>\$30,00E</del>	<u> </u>	\$0,.00	1414	13/2
Total OPRTNG COST per Car	\$10,145	\$7,288	\$18,032	\$4,596	NA	NA
Total CAPITAL COST per Car	\$42,304	\$31,728	\$74,032	\$21,152	NA	NA
Total OPRTNG COST for all cars	\$923,232	\$153,058	\$1,226,158	\$27,573	NA	NA
Total CAPITAL COST for all cars	\$3,849,664	\$666,288	\$5,034,176		NA NA	NA

Route Number: #1-2 Amtrak Route: Sunset Limited Origin/Destination: New Orleans-Los Angeles Length in Miles: 2,033 Length in Hours: 43.00 Expected Trips per Day: Manufacturer: Evac Equipment: Ultimate Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 39970 Lounge-HEP-HLV NA <u>NA</u> 34000 39940 32000 Coach Super Coach-HEP-HLV Sleeper Super NA 3 Quantity of cars 44 12 Capacity (# people) - seated Toilets per car 86 NA 75 72 2 NA 6 3.7 43.0 NA Average persons/toilet on train 12.5 18.0 Car Waste Data (per car)

NA <u>NA</u>

NA

NA

NA

NA

Cai Wasie Dala (Dei Cai)						
Black Water:						
Human Waste/day (gals)	33,68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	35.3	33.8	20.7	40.4	NA	NA
Capacity Req'd/day (gals)	68.9	66.2	40.4	79.0	NA	NA
Adj. Capacity Req'd w/ Buffer	86.2	82.7	50.5	98.8	NA	- NA
Tank Capacity per Car (gals)	200	200	200	. 200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	56 77%	58 81%	95 132%	49 67%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	2.3	2.4	4.0	2.0	NA	NA
As a percentage of 3 days	77:38%	80.60%	131.90%	67.48%	NA	NA
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$17,400</u>	<u>\$11,600</u>	<u>\$34,800</u>	<u>\$5,800</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$29,400	\$23,600	\$46,800	\$17,800	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	. <u>NA</u>
- Total Installation Cost	\$3,168	\$2,592	\$4,896	\$2,016	NA	, NA
Total Capital Cost	\$32,568	\$26,192	\$51,696	\$19,816	· NA	. NA

Route Number: Amtrak Route: #1-2 Sunset Limited Origin/Destination: New Orleans-Los Angeles Length in Miles: 2.033 Length in Hours: 43.00 Expected Trips per Day: Manufacturer: Evac Ultimate Equipment: Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 32000 39970 34000 39940 Coach-HEP-HLV Sleeper Super Lounge-HEP-HLV NA NA Coach Super OPERATING COSTS Non-Trip Related Costs: Labor cost/major servicing \$432 \$288 \$864 \$144 NA NA Frequency per Year 4 4 4 \$576 NA NA Servicing Cost/Year \$1,728 \$1,152 \$3,456 \$890 Annual spare parts cost per yr \$1,470 \$1,180 \$2,340 NA <u>NA</u> \$5,796 \$1,466 NA NA \$3,198 \$2,332 Total- Opring Non-Trip Related Trip Related Costs: Tailet maintenance enroute End of Day/Trip Servicing \$36 \$72 \$12 NA NA - Cleaning \$24 \$0 \$0 \$0 - Light Repair \$0 \$0 \$0 Pump out and Disposal . - Pump out Cost \$0.69 \$0.66 \$0.40 \$0.79 NA NA - Pump out minutes 1.15 1.10 0.67 1.32 NA NA - Connect/Disc. minutes 0.0 NA NΑ 0.0 0.0 0.0 - Waste Disposal \$2.10 \$2.02 \$1.23 \$2.41 NA <u>NA</u> Subtotal- End of Day/Trip Srvc \$15.20 NA NA \$38.79 \$26.68 \$73.64 Train Delay: - Pump out volume reg'd 0 0 0 0 NA NA - # of stops reg'd 0 0 0 0 NA NA 0.0 0.0 0.0 NA NA - Pump out minutes 0.0 - Connect/Disc. minutes <u>NA</u> 0.0 0.0 0.0 0.0 <u>NA</u> - Total Time Delay(mins/car) 0 0 0 0 NA NA Average Cost Per Delay \$0 \$0 \$0 \$0 NA NA Subtotal-Opring Trip Related \$39 \$27 \$74 \$15 NA NΑ Total # Cars in fleet 91 21 68 6 NA NA Total Annual Car-days 33,215 7.665 24,820 2,190 NA NA 1,752 Adjusted Total Car-days 26,572 6,132 19,856 NA NA Days per Trip (min. of 1) 2 2 2 2 Annual Opring Trip Related per Car \$5,663 \$3,895 \$10,751 \$2,219 NA NA Annual Non-Trip Related per Car \$3,198 \$2,332 \$5,796 \$1,466 NA NA NA NA Annual Opring Trip Related per Car Type \$515,345 \$81,792 \$731,058 \$13,313 Anatial Non-Trip Related per Car Type \$291,018 \$48,972 \$394,128 \$8,796 <u>NA</u> <u>NA</u> Total OPRING COST per Car \$8,861 \$6,227 \$16,547 \$3,685 NA NA Total CAPITAL COST per Car \$32,568 \$19,816 \$26,192 \$51,696 NA NA Total OPRING COST for all cars \$806,363 \$130,764 \$1,125,186 \$22,109 NA NA

Total CAPITAL COST for all cars

\$2,963,688

\$550,032

\$3,515,328

\$118,896

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day: Manufacturer:

ltaah

Manutacturer Equipment: Railtech WTS 8300

Scenario:

Unfavorable

\* All data on per car basis (unless noted other

* All data on per car basis (unless noted	otherwise)				•	
	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	4	1	. 3	1	NA	NA
Capacity (# people) - seated Toilets per car	75 6	72 4	44 12	86 2	NA NA	NA NA
Average persons/toilet on train	12.5	18.0	3.7	43.0	NA	NA
Car Waste Data (per car)					•	
Black Water:					•	
Human Waste/day (gals)	33.68	32.33	19.76	38.61	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	197.4	189.5	115.8	226.3	NA	NA
Capacity Req'd/day (gals)	231.0	221.8	135.5	264.9	NA	NA
Adj. Capacity Req'd w/ Buffer	288.8	277.3	169.4	331.2	NA	NA
Tank Capacity per Car (gals)	150	100	300	100	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	12 17%	9 5 12%	42 59%	7 6 10%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	0.5	0.4	1.8	0.3	NA	NA
As a percentage of 3 days	17.31%	6 12.02%	59.02%	4 10.07%	NA	NA
Consecutive Trips before pumpout	0.0	0.0	. 0.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$8,000	\$24,000	\$8,000	NA	NA
Toilet Cost per Car	\$18,00 <u>0</u>	<u>\$12,000</u>	<u>\$36,000</u>	<u>\$6,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$30,000	\$20,000	\$60,000	\$14,000	NA	NA
Equipment Installation						
Collection System per Car	\$864	\$576	\$1,728	\$576	NA	NA
Toilet Cost per Car	<u>\$1,728</u>	<u>\$1,152</u>	<u>\$3,456</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,592	\$1,728	\$5,184	\$1,152	NA	, NA
Total Capital Cost	\$32,592	\$21,728	\$65,184	\$15,152	NA	NA

Sunset Limited

Route Number:

#1-2

Origin/Destination:

New Orleans-Los Angeles

Length in Miles: Length in Hours: 2,033 43.00

Expected Trips per Day:

Railtech

Manufacturer: Equipment:

WTS 8300

Scenario:

Unfavorable

<ul> <li>All data on per car basis (un</li> </ul>	iless noted otherwise)
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" All data on per car basis (unless noted other				·			
•	34000 Coach Super	39940 Coach-HEP-HLV	32000 Sleeper Super	39970 Lounge-HEP-HLV	NA NA	NA NA	
OPERATING COSTS Non-Trip Related Costs:	<del></del>	<del></del>			<u></u>		
Labor cost/major servicing	\$432	\$288	\$864	\$144	NA	NA	
Frequency per Year	4	<u>4</u>	<u>4</u>	4	4	<u>4</u>	
Servicing Cost/Year	\$1,728	\$1,152	\$3,45 <b>6</b>	_	NA	NA	
Annual spare parts cost per yr	\$1,500	\$1,000	\$3,000	\$700	<u>NA</u>	<u>NA</u>	
Total- Opring Non-Trip Related	\$3,228	\$2,152	\$6,456		NA NA	NA	
Trip Related Costs:							
Toilet maintenance enroute End of Day/Trip Servicing							
- Cleaning	\$36	\$24	\$72	\$12	NA	NA	
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0	
Pump out and Disposal							
- Pump out Cost	\$7.11	\$5.42	\$12.60	\$5.85	NA	NA	
- Pump out minutes	1.35	2.03	0.00	2.75	NA	NA	
- Connect/Disc. minutes	10.5	7.0	21.0		NA	NA	
- Waste Disposal	\$7.04	\$6.76	\$4.13	\$8.07	NA	<u>NA</u>	
Subtotal- End of Day/Trip Srvc	\$50.15	\$36.17	\$88.73	\$25.92	NA	NA	
Train Delay:	•	******	•	• • • • • •			
- Pump out volume req'd	150	100	300	100	NA	NA	
-# of stops req'd	1	1	1	1	NA	NA.	
- Pump out minutes	2.5	1.7	5.0	1.7	NA.	NA NA	
- Connect/Disc. minutes	10.5	7.0	21.0	7.0	NA NA	NA NA	
- Total Time Delay(mins/car)	13	, <u>, , , , , , , , , , , , , , , , , , </u>	<u>21.0</u> 26	9	NA NA	NA NA	
Average Cost Per Delay	\$8	\$5	\$16		NA NA	NA NA	
Subtotal- Opring Trip Related	\$58	\$41	\$104	\$31	NA NA	NA NA	
==	φ36	- Ψ+1	\$104	ΨΟΙ	IVA	- NA	
Total # Cars in fleet	91	21	68	6	NA	NA	
Total Annual Car-days	33,215	7,665	24,820	2,190	NA	NA	
Adjusted Total Car-days	26,572	6,132	19.856	1,752	NA	NA	
Days per Trip (min. of 1)	2	2	2	2	2	2	
Approxi Operator Tale Polated and Operator	<b>***</b> 400	00.044	<b>#45</b> 000	<b>04.540</b>	<b></b>	313	
Annual Opring Trip Related per Car	\$8,460	\$6,041	\$15,232		NA	NA	
Annual Non-Trip Related per Car	\$3,228	\$2,152	\$6,456	\$1,276	NA	NA	
Annual Oprtng Trip Related per Car Type	\$769,892	\$126,852	\$1,035,773	\$27,260	NA	NA	
Annual Non-Trip Related per Car Type	<u>\$293,748</u>	<u>\$45,192</u>	<u>\$439,008</u>	<u>\$7.656</u>	<u>NA</u>	<u>NA</u>	
Total OPRTNG COST per Car	\$11,688	\$8,193	\$21,688	\$5,819	NA	NA	
Total CAPITAL COST per Car	\$32,592	\$21,728	\$65,184	\$15,152	NA	NA	
Total OPRTNG COST for all cars	\$1,063,640	\$172,044	\$1,474,781	\$34,916	NA	NA NA	
Total CAPITAL COST for all cars	\$2,965,872	• • • • • • • • • • • • • • • • • • • •	\$4,432,512	\$90,912	NA	NA NA	
The second secon	ΨΕ,ΟΟΟ,Ο12.	. ψ-συ,ευσ	ψ-1,40 <b>2,</b> 512	ψ30,312			

Amtrak Route: California Zephyr Route Number: #5-6 Origin/Destination: Chicago-Oakland Length in Miles: 2,422 Length in Hours: 51.17 Expected Trips per Day: Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 39900 32000 31000 34000 NA Trans Dorm Coach Sleeper Super **Bag Coach Super** Coach Super NA NA 3 NA NA Quantity of cars 3 5 1 Capacity (# people) - seated 40 78 75 NA NA 44 Toilets per car 12 NA NA 4 5 6 Average persons/toilet on train 10.0 3.7 15.6 12.5 ΝA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 17.96 19.76 35.02 33.68 NA NA # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 . 10 10 10 10 10 Flush Fluids/flush (gals) 0.063 0.063 0.063 0.063 0.063 0.063 Flush Fluids/day (gals) 25.2 27.7 49.1 47.3 NA NA Capacity Req'd/day (gals) 43.2 47.5 84.2 80.9 NA NA Adj. Capacity Req'd w/ Buffer 54.0 59.3 105.2 101.2 NA NA Tank Capacity per Car (gals) 235 235 235 235 235 235 Continuous Service Hours Supported 105 56 77% 95 NA NA NA NA 54 145% 132% 74% As a percentage of 72 hours Probable Service Hours per Day 24 24 24 24 24 24 Service Days Supported 4.0 2.2 4.4 2.3 NA NA As a percentage of 3 days 145.20% 132.00% 74.46% 77.44% NA NA Consecutive Trips before pumpout 2.0 1.0 1.0 1.0 NΑ NA **CAPITAL COSTS** Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 Toilet Cost per Car \$10,000 \$30,000 \$12,500 \$15,000 NA - Total Equip Cost \$31,000 \$51,000 \$33,500 \$36,000 NA NA Equipment Installation Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 Toilet Cost per Car \$1,152 \$3,456 \$1,440 \$1,728 NΑ NΑ - Total Installation Cost \$2,592 NA \$4,896 \$2,880 \$3,168 NA

\$55,896

\$36,380

\$39,168

NA

NA

\$33,592

ş:

**Total Capital Cost** 

	•					
Amtrak Route:	California Zephyr		Route Number:	#5-6		
Origin/Destination:	Chicago-Oakland				·	
Length in Miles:	2,422		-			
Length in Hours:	51.17		•			
Expected Trips per Day:	1					
Manufacturer:	Monogram	•		•		
Equipment:	Modified Vacuum		•			
Scenario:	Unfavorable					
* All data on per car basis (unless noted of	therwise)					
	39900	32000	31000	34000	NA	NA
	Trans Dorm Coach	Sleeper Super	Bag Coach Super	Coach Super	<u>NA</u>	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	NA
Frequency per Year	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$1,152	\$3,456	\$1,440	\$1,728	NA:	NA
Annual spare parts cost per yr	<u>\$1,550</u>	<u>\$2,550</u>	<u>\$1,675</u>	<u>\$1,800</u>	<u>NA</u>	<u>N</u> A
Total- Opring Non-Trip Related	\$2,702	\$6,006	\$3,115	\$3,528	NA NA	NA.
Trip Related Costs: Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.43	\$0.47	\$0.84	\$0.81	NA	N/
- Pump out minutes	0.72	0.79	1.40	1.35	NA NA	N/
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	N/A
- Waste Disposal	<u>\$1.56</u>	<u>\$1.72</u>	\$3.0 <u>5</u>	\$2.93	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$26.00	\$74.20	\$33.89	\$39.74	NA NA	NA
Train Delay:						
- Pump out volume reg'd	0	0	0	0	NA	NA
- # of stops req'd	0	0	0	0	NA	NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	<u>NA</u>	NA
- Total Time Delay(mins/car)	0		0	0	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	NA
Subtotal- Opring Trip Related	\$26	\$74	\$34	\$40	NA NA	NA
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
·	10,110	21,020		30,210	,	
Adjusted Total Car-days	10,512	19,856	14,016	26,572	NA	NA
Days per Trip (min. of 1)	3	3	. <u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Annual Oprtng Trip Related per Car	\$2,530	\$7,222	\$3,299	\$3,868	NA	NA
Annual Non-Trip Related per Car	\$2,702	\$6,006	\$3,115	\$3,528	NA	NA
Annual Oprtng Trip Related per Car Type	\$91,090	\$491,076	\$158,344	\$352,012	NA	NA
Annual Non-Trip Related per Car Type	<u>\$97,272</u>	\$408,408	<u>\$149.520</u>	\$321,048	NA	<u>NA</u>
Total OPRTNG COST per Car	\$5,232	\$13,228	\$6,414	\$7,396	NA	NA
Total CAPITAL COST per Car	\$33,592	\$55,896	\$36,380	\$39,168	NA	NA
Total OPRING COST for all cars	\$188,362	\$899,484	\$307.864	\$673.060	NA	NA
Total CAPITAL COST for all cars	* * * * * * * * * * * * * * * * * * * *				CUM TO THE THE SECTION OF THE SECTIO	NA
	*** A. I-10010 . F	45,000,000	wiji mojemo:	<b>\$0,007,600</b>		
			\$36,380 \$307,864	\$39,168 \$673,060		

Amtrak Route: California Zephyr Route Number: #5-6 Origin/Destination: Chicago-Oakland Length in Miles: 2,422 Length in Hours: 51.17 Expected Trips per Day: Manufacturer: Monogram Equipment: Self-Cont'd Recirc Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 34000 32000 31000 Trans Dorm Coach Sleeper Super Bag Coach Super Coach Super NΑ <u>NA</u> NA NA Quantity of cars 3 3 NA 44 78 75 NA Capacity (# people) - seated 40 5 NA. 12 6 NA Toilets per car 15.6 NA Average persons/toilet on train 10.0 3.7 12.5 NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 17.96 19.76 35.02 33.68 NA NA # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 1.25 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 0.000 Flush Fluids/flush (gals) 0.000 0.000 0.000 0.000 0.000 NA Flush Fluids/day (gals) 0.0 0.0 0.0 0.0 NA 18.0 35.0 33.7 NA NA 19.8 Capacity Req'd/day (gals) 22.5 24.7 43.8 42.1 NA NA Adj. Capacity Req'd w/ Buffer Tank Capacity per Car (gals) 54 162 67.5 81 NA NA 58 157 37 46 NA NA Continuous Service Hours Supported As a percentage of 72 hours 80% 219% 51% 64% NA NA 24 24 Probable Service Hours per Day 24 24 24 24 Service Days Supported 2.4 6.6 1.5 1.9 NA NA As a percentage of 3 days 80.18% 218.67% 51.40% 64.14% NA NA NA Consecutive Trips before pumpout 1.0 3.0 0.0 0.0 NA **CAPITAL COSTS** \$0 \$0 Collection System per Car \$0 \$0 \$0 \$0 \$13,000 Toilet Cost per Car \$16,250 \$19,500 \$39,000 <u>NA</u> <u>NA</u> - Total Equip Cost \$13,000 \$39,000 \$16,250 \$19.500 NA NA Equipment Installation \$0 \$0 \$0 \$0 Collection System per Car \$0 \$0 Toilet Cost per Car \$1,152 \$3,456 \$1,440 \$1,728 NA NΑ - Total Installation Cost \$1,152 \$1,440 \$1,728 NA NA \$3,456 **Total Capital Cost** \$14,152 \$42,456 \$17,690 \$21,228 NA NA

Amtrak Route:	California Zephyr		Route Number:	#5-6 		
Origin/Destination:	Chicago-Oakland					
Length in Miles:	2,422					
Length in Hours:	51.17					
Expected Trips per Day:	1					
Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc					
Scenario:	Unfavorable					
* All data on per car basis (unless noted of			04000	0.4000	A1A	814
	39900 Trans Dorm Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA NA	NA NA
OPERATING COSTS	Hall boll codell	Oldapor Oupor	pag oodon oapar	<u>SSAOT SAPOT</u>		1.4.
Non-Trip Related Costs:	£1 1E0	\$3,456	£1 440	\$1,728	NA	NA
Labor cost/major servicing	\$1,152	· ·	\$1,440			
Frequency per Year	<u>4</u>	4	<u>4</u>	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$4,608	\$13,824	\$5,760	\$6,912	NA	NA
Annual spare parts cost per yr	<u>\$650</u>	\$1,950	<u>\$813</u>	<u>\$975</u>	<u>NA</u>	<u>NA</u>
Total- Oprtng Non-Trip Related	\$5,258	\$15,774	\$6,573	\$7,887	NA	NA NA
Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing					•	
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	. \$0	\$0	\$0	\$0
Pump out and Disposal	ΨΟ	ΨΟ	ΨΟ	ΨΟ	ΨΟ	40
•	£0.10	<b>\$0.00</b>	\$10.50	\$12.60	NA	NA
- Pump out Cost	\$0.18	\$0.20	·	•		
- Pump out minutes	0.30	0.33	0.00	0.00	NA	NA
- Connect/Disc. minutes	0.0	0.0	17.5	21.0	NA	NA
- Waste Disposal	<u>\$0.84</u>	<u>\$0.93</u>	<u>\$1.64</u>	<u>\$1.58</u>	<u>NA</u>	<u>N</u> A
Subtotal- End of Day/Trip Srvc	\$25.02	\$73.12	\$42.14	\$50.18	NA	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	68	81	NA	NA
- # of stops req'd	0	0	1	1	NA	NA
- Pump out minutes	0.0	0.0	1.1	1.4	NA	NA
<ul> <li>Connect/Disc. minutes</li> </ul>	<u>0.0</u>	0.0	<u>17.5</u>	<u>21.0</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	19	22	NA	NA
Average Cost Per Delay	\$0	\$0	\$11	\$13	NA	NA
Subtotal- Opring Trip Related	\$25	\$73	\$53	\$64	NA	. NA
Total # Cars in fleet	36	68	40	91	NA NA	NA
Total # Cars III lieet	36	68	48	91	NA	NA.
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Adjusted Total Car-days	10,512	19,856	14,016	26,572	NA	NA
Days per Trip (min. of 1)	3	3	<u>3</u>	<u>3</u>	<u>3</u>	. <u>3</u>
Annual Opring Trip Related per Car	\$2,435	\$7,117	\$5,190	\$6,189	NA	NA
Annual Non-Trip Related per Car	\$5,258	\$15,774	\$6,573	\$7,887	NA	NA
Annual Opring Trip Related per Car Type	\$87,677	\$483,985	\$249,100	\$563,234	NA	NA
Annual Non-Trip Related per Car Type	\$189,288	\$1,072,632	\$315,480	\$717,717	NA NA	NA.
Trip Holado per oar Type	<u>₩103,200</u>	<u>Ψ1,012,002</u>	<u> </u>	<u> </u>	<u>144</u>	14/
Total OPRTNG COST per Car	\$7,693	\$22,891	\$11,762	\$14,076	NA	NA.
Total CAPITAL COST per Car	\$14,152	\$42,456	\$17,690	\$21,228	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$276,965 \$509,472	\$1,556,617 \$2,887,008	\$564,580 \$849,120		NA NA	NA NA

Amtrak Route: Origin/Destination: Length in Miles: Length in Hours: Expected Trips per Day: Manufacturer: Equipment:	California Zephyr Chicago-Oakland 2,422 51.17 1 Microphor Gravity		Route Number:	#5-6		
Scenario:	Unfavorable					
* All data on per car basis (unless noted	otherwise) 39900 <u>Trans Dorm Coach</u>	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA NA	NA <u>NA</u>
Quantity of cars	1	3	3	5	. <b>NA</b>	NA
Capacity (# people) - seated Toilets per car	40 4	44 12	78 5	75 6	NA NA	NA NA
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	17.96	19.76	35.02	33.68	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	68.8	75.7	134.2	129.0	NA	NA
Capacity Req'd/day (gals)	86.8	95.4	169.2	162.7	NA	NA
Adj. Capacity Req'd w/:Buffer	108.5	119.3	211.5	203.3	NA 222	NA 200
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	66 92%	60 84%	34 47%	35 49%	NA NA	NA NA
Probable Service Hours per Day	24	24	24	24	24	24
Service Days Supported	2.8	2.5	1.4	1.5	NA	NA
As a percentage of 3 days	92.21%	83.83%	47.29%	49.18%	NA	NA
Consecutive Trips before pumpout	1.0	1.0	0.0	0.0	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$20,000</u>	<u>\$60,000</u>	<u>\$25,000</u>	<u>\$30,000</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$30,000	\$70,000	\$35,000	\$40,000	NA	NA
Equipment Installation	A	A	A	A-7-	A.730	A-74
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car - Total Installation Cost	\$1,152 \$1,739	\$3,456 \$4,033	\$1,440 \$2,016	\$1,728 \$3,204	<u>NA</u> NA	NA NA
- Lotal Installation Cost  Total Capital Cost	\$1,728 \$31,728	\$4,032 \$74,032	\$2,016 \$37,016	\$2,304 \$42,304	NA NA	. NA NA
rotal Capital Cost	<del>φυ1,728</del>	\$74,U3Z	\$37,00	<b>⊅4∠,3∪4</b>	- AVI	AVI

Origin/Destination:	Chicago-Oakland			*		
Length in Miles:	2,422					
Length in Hours:	51.17					•
Expected Trips per Day:	1					
Manufacturer:	Microphor					
Equipment:	Gravity					
Scenario:	Unfavorable					
* All data on per car basis (unless noted o	therwise)					
	39900	32000	31000	34000	NA	N.
	Trans Dorm Coach	Sleeper Super	Bag Coach Super	Coach Super	<u>NA</u>	<u>N</u>
OPERATING COSTS Non-Trip Related Costs:	,					
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	N.
Frequency per Year	<u>4</u>	<u>4</u>	. <u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$1,152	\$3,456	\$1,440	\$1,728	NA	N.
Annual spare parts cost per yr	\$1,500	\$3,500	\$1,750	\$2,000	<u>NA</u>	N.
Total- Opring Non-Trip Related	\$2,652	\$6,956	\$3,190	\$3,728	NA NA	N/
Trip Related Costs: Toilet maintenance enroute						
End of Day/Trip Servicing	_	_	_			
- Cleaning	\$24	\$72	\$30	\$36	NA	N
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.87	\$0.95	\$0.00	\$0.00	NA	N
- Pump out minutes	1.45	1.59	0.00	0.00	NA	N
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	N
- Waste Disposal	<u>\$3.14</u>	<b>\$3.46</b>	<u>\$6.13</u>	<u>\$5,90</u>	<u>NA</u>	N/
Subtotal- End of Day/Trip Srvc	\$28.01	\$76.41	\$36.13	\$41.90	NA	N.
Train Delay:						
- Pump out volume reg'd	0	0	300	300	NA	N <sub>i</sub>
- # of stops req'd	0	0	1	1	NA	N.
- Pump out minutes	0.0	0.0	5.0	5.0	NA	N.
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	N
- Total Time Delay(mins/car)	0	0	5	5	NA	N.
Average Cost Per Delay	- \$0	\$0	\$3	\$3	NA NA	N/
Subtotal- Oprtng Trip Related	\$28	\$76	\$39	\$45	NA NA	N <sub>i</sub>
Cubicial Opining Trip Helated	<b>—</b> • • • • • • • • • • • • • • • • • • •	\$70	φυθ	<del></del>	INA	
Total # Cars in fleet	36	68	48	91	NA	N
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	N
Adjusted Total Car-days	10,512	19,856	14,016	26,572	NA	N
Days per Trip (min. of 1)	10,512		•			
payapar rip (min. or t)	ა	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Annual Opring Trip Related per Car	\$2,727	\$7,438	\$3,809	\$4,370	NA	N.
Annual Non-Trip Related per Car	\$2,652	\$6,956	\$3,190	\$3,728	NA	N
Annual Oprtng Trip Related per Car Type	\$98,155	\$505,755	\$182,825	\$397,661	NA	N
Annual Non-Trip Related per Car Type	<u>\$95,472</u>	<u>\$473,008</u>	<u>\$153,120</u>	\$339,248	NA	<u>N</u>
Total OPRTNG COST per Car	\$5,379	\$14,394	\$6,999	\$8,098	NA	N
Total CAPITAL COST per Car	\$31,728	\$74,032	\$37,016	\$42,304	NA	N
·	•			•		
Total OPRTNG COST for all cars	\$193,627	\$978,763	\$335,945	\$736,909	NA	N.
Total CAPITAL COST for all cars	\$1,142,208	\$5,034,176	\$1,776,768	\$3,849,664	NA	N

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Amtrak Route: Origin/Destination: Length in Miles: Length in Hours: Expected Trips per Day: Manufacturer: Equipment:	California Zephyr Chicago-Oakland 2,422 51.17 1 Evac Ultimate		Route Number:	#5-6			
Scenario:	Unfavorable						
* All data on per car basis (unless noted o	therwise)						
	39900	32000	31000	34000	NA	NA	
	Trans Dorm Coach	Sleeper Super	Bag Coach Super	Coach Super	<u>NA</u>	<u>NA</u>	
Quantity of cars	. 1	3	3	-5	NA .	NA	
Capacity (# people) - seated	40	44	78	75	NA NA	NA	
Toilets per car	4	12	5	6	NA	NA	
Average persons/toilet on train	10.0	3.7	15.6	12.5	NA	NA	
Car Waste Data (per car)		,					
Black Water:				•			
Human Waste/day (gals)	17.96	19.76	35.02	33.68	. NA	NA	
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00	
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25	
Adj. # Flushes/Person-day	10	10	10	10	10	10	
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047	
Flush Fluids/day (gals)	18.8	20.7	36,7	35.3	NA NA	NA NA	_
, inchi i inco day (gaio)	10.0	20.7	00.7	00.0	147	IVA	
Capacity Req'd/day (gals)	36.8	40.4	71.7	68.9	NA	NA	
Adj. Capacity Req'd w/ Buffer	46.0	50.5	89.6	86.2	NA	NA	
Tank Capacity per Car (gals)	200	200	200	200	200	200	
Continuous Service Hours Supported As a percentage of 72 hours	104 145%	95 132%	54 74%	56 77%	NA NA	NA NA	
Probable Service Hours per Day	24	24	24	24	24	24	
Service Days Supported	4.4	4.0	2.2	2.3	NA	· NA	
As a percentage of 3 days	145.09%	131.90%		77.38%	NA	NA.	
Consecutive Trips before pumpout	2.0	1.0	1.0	1.0	NA	NA	
CAPITAL COSTS							
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	
Toilet Cost per Car	\$11,600	\$34,800	\$14,500	\$17,400	NA	NA NA	
- Total Equip Cost	\$23,600	\$46,800	\$26,500	\$29,400	NA	NA	
Equipment Installation			,	··			
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	
Toilet Cost per Car	\$1,152	\$3,456	\$1,440	\$1,728	NA	NA	
- Total Installation Cost	\$2,592	\$4,896	\$2,880	\$3,168	NA	· NA	
	·	.,	+-,-J <del>-</del>	<b>\$</b> -1			

\$26,192

\$51,696

\$29,380

\$32,568

NA

NA

**Total Capital Cost** 

 Amtrak Route:	California Zephyr		Route Number:	#5-6		
Origin/Destination:	Chicago-Oakland					
Length in Miles:	2,422	•				
Length in Hours:	51.17	•				
Expected Trips per Day:	1					
Manufacturer:	Evac					
Equipment:	Ultimate					
Scenario:	Unfavorable					
* All data on per car basis (unless noted o	39900	32000	31000	34000	NA	
	Trans Dorm Coach		Bag Coach Super	Coach Super	NA NA	
OPERATING COSTS Non-Trip Related Costs:	Trans Botti Goddi	Oldopor Oupor	Dag Godon Gopen	<u> </u>		
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	
Frequency per Year	4	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	
Servicing Cost/Year	\$1,152	\$3,456	\$1,440	\$1,728	NA.	
<del>-</del>						
Annual spare parts cost per yr	\$1,180 \$0,222	\$2,34 <u>0</u>	\$1,32 <u>5</u>	\$1,470 \$2,109	<u>NA</u> NA	
Total- Opring Non-Trip Related	\$2,332	\$5,796	\$2,765	\$3,198	NA NA	<del></del>
Trip Related Costs:	-	,				
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b>	
Pump out and Disposal						
- Pump out Cost	\$0.37	\$0.40	\$0.72	\$0.69	NA	
- Pump out minutes	0.61	0.67	1.19	1.15	NA.	
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA NA	
- Waste Disposal	\$1.33	\$1.47	\$2.60	\$2.50	NA	
Subtotal- End of Day/Trip Srvc	\$25.70	\$73.87	\$33.31	\$39.19	NA	
· •	<b>⊉25.70</b>	\$/3.8/	φ33.31	ФОЭ. 19	IVM	
Train Delay:	-	_	_	•	b i A	
- Pump out volume req'd	0	0	0	0	NA	
- # of stops req'd	0	0	0	0	NA	
- Pump out minutes	0.0	0.0	0.0	0.0	NA	
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	
- Total Time Delay(mins/car)	0	0	0	0	NA	
Average Cost Per Delay	\$0	\$0	\$0	\$0	NA	
Subtotal- Opring Trip Related	\$26	\$74	\$33	\$39	NANA	
Total # Cars in fleet	36	68	48	91	NA	
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	
A Possa di Wakali Mari	, <b></b>		, . <del>.</del>			
Adjusted Total Car-days	10,512	19,856		26,572	NA	
Days per Trip (min. of 1)	3	<u>3</u> .	<u>3</u>	<u>3</u>	<u>3</u>	
Annual Oprtng Trip Related per Car	\$2,501	\$7,190	\$3,243	\$3,814	NA	
Annual Non-Trip Related per Car	\$2,332	\$5,796	\$2,765	\$3,198	NA	
Annual Opring Trip Related per Car Type	\$90,053	\$488,921	\$155,648	\$347,096	NA	
Annual Non-Trip Related per Car Type	\$83,952	\$394,128	\$132,720	<u>\$291,018</u>	<u>NA</u>	
Total OPRTNG COST per Car	\$4,833	\$12,986	\$6,008	\$7,012	NA	
		\$51,696	\$29,380	\$32,568	NA	

Amtrak Route: California Zephyr Route Number: #5-6 Origin/Destination: Chicago-Oakland Length in Miles: 2,422 Length in Hours: 51.17 Expected Trips per Day: Manufacturer: Railtech Equipment: WTS 8300 Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 34000 39900 32000 31000 NA NA Trans Dorm Coach Sleeper Super Bag Coach Super Coach Super NA NA Quantity of cars 3 3 5 NA NA 44 12 Capacity (# people) - seated 78 75 NA NA 40 Toilets per car 5 6 NΑ NA Average persons/toilet on train 10.0 3.7 15.6 12.5 NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 17.96 19.76 35.02 33.68 NA NA # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.263 0.263 0.263 0.263 0.263 0.263 Flush Fluids/day (gals) 105.3 115.8 205.3 197.4 NA NA Capacity Req'd/day (gals) 123.2 135.5 240.3 231.0 NA NA Adj. Capacity Req'd w/ Buffer 154.0 169.4 300.4 288.8 NA NA Tank Capacity per Car (gals) 100 300 150 150 NA NA Continuous Service Hours Supported 16 42 12 NA NA As a percentage of 72 hours 22% 59% 17% 17% NA NA Probable Service Hours per Day 24 24 24 24 24 . 24 Service Days Supported 0.6 1.8 0.5 0.5 NA NA As a percentage of 3 days 21.64% 59.02% 16.65% 17.31% NA NA Consecutive Trips before pumpout 0.0 0.0 0.0 0.0 NA NA **CAPITAL COSTS** Collection System per Car \$8,000 \$24,000 \$12,000 \$12,000 NA NΑ Toilet Cost per Car \$15,000 \$12,000 \$36,000 \$18,000 <u>NA</u> <u>NA</u> \$20,000 \$60,000 - Total Equip Cost \$27,000 \$30,000 NA NA

\$1,728

\$3,456

\$5,184

\$65,184

\$864

\$1,440

\$2,304

\$29,304

\$864

\$1,728

\$2,592

\$32,592

NA

<u>NA</u>

NA

NA

NA

<u>NA</u>

NA

NA

\$576

\$1,152

\$1,728

\$21,728

Equipment Installation
Collection System per Car

Toilet Cost per Car

**Total Capital Cost** 

- Total Installation Cost

Amtrak Route:	alifornia Zephyr		Route Number:	#5-6		
Origin/Destination:	hicago-Oakland					
Length in Miles:	2,422					
Length in Hours:	51.17					
Expected Trips per Day:	1					
Manufacturer: F	Railtech					_
Equipment: V	VTS 8300					·
Scenario:	Infavorable					
* All data on per car basis (unless noted other	erwise)					
	39900 rans Dorm Coach	32000 Sleeper Super	31000 Bag Coach Super	34000 Coach Super	NA NA	NA NA
OPERATING COSTS Non-Trip Related Costs:						,
Labor cost/major servicing	\$288	\$864	\$360	\$432	NA	NA
Frequency per Year	4	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$1,152	\$3,456	\$1,440	\$1,728	NA NA	NA
Annual spare parts cost per yr	\$1,000	\$3,000	\$1,350	\$1,500	NA	NA
Total- Opring Non-Trip Related	\$2,152	\$6,456	\$2,790	\$3,228	NA	NA
=	· · · · · · · · · · · · · · · · · · ·					
Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$24	\$72	\$30	\$36	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	**	***	44	**	***	•
- Pump out Cost	\$4.43	\$12.60	\$7.20	\$7.11	NA	NA
- Pump out minutes	0.39	0.00	1.50	1.35	NA NA	NA NA
- Connect/Disc. minutes	7.0	21.0	10.5	10.5	NA NA	NA NA
- Waste Disposal	<u>\$4.47</u>	\$4.91 ************************************	\$8.71 *45.01	<u>\$8.37</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$32.90	\$89.51	\$45.91	\$51.48	NA	NA
Train Delay:	400	200	450	450		
- Pump out volume req'd	100	300	150	150	NA	NA
- # of stops req'd	1	1	1	1	NA	NA
- Pump out minutes	1.7	5.0	2.5	2.5	NA	NA
- Connect/Disc. minutes	<u>7.0</u>	<u>21.0</u>	<u>10.5</u>	<u>10.5</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	9	26	13	13	NA	NA
Average Cost Per Delay	\$5	\$16	\$8	\$8	NA	NA
Subtotal- Oprtng Trip Related	\$38	\$105	\$54	\$59	NA NA	NA NA
Total # Cars in fleet	36	68	48	91	NA	NA
Total Annual Car-days	13,140	24,820	17,520	33,215	NA	NA
Adjusted Total Car-days	10,512	19,856	14,016	26,572	NA	NA
Days per Trip (min. of 1)	3	3 3	3 3	3	3	3
			•			¥
Annual Oprtng Trip Related per Car	\$3,708	\$10,231	\$5,228	\$5,770	NA	NA
Annual Non-Trip Related per Car	\$2,152	\$6,456	\$2,790	\$3,228	NA	NA
Annual Opring Trip Related per Car Type	\$133,497	\$695,707	\$250,943	\$525,104	NA	NA
Annual Non-Trip Related per Car Type	\$77,472	\$439,008	\$133,920	\$293,748	<u>NA</u>	NA
Total OPRTNG COST per Car	\$5,860	\$16,687	\$8,018	\$8,998	. <b>NA</b>	NA
Total CAPITAL COST per Car	\$21,728	\$65,184	\$29,304	\$32,592	NA	NA
Total OPRTNG COST for all cars	.\$210,969	\$1,134,715	\$384,863	\$818,852	NA	NA
Total CAPITAL COST for all cars	\$782,208	\$4,432,512	\$1,406,592		NA NA	3.60×100000000000000000000000000000000000
TOTAL ON THE COST IOI AII CAIS	φ/0Z,ZU0.	φ4,432,31Z	φ1,400,392	\$2,965,872	NA.	NA

Amtrak Route: Origin/Destination:

Length in Miles:

City of New Orleans

New Orleans-Chicago

924

Length in Hours: Expected Trips per Day: 18.33

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

Quantity of cars Capacity (# people) - sealed Toilets per car	54000 <u>Horizon</u> 1 82 2 41.0	4600 Coach 4 48 2 24.0	4000 Coach (HDCP) 1 44	9400 Dome Coach 1 46	28000 Amlounge II 1	2400(30) Sleeper 10-6
Capacity (# people) - sealed Toilets per car	82 2	48 2	44	-	1	1
Toilets per car	2	2		16		
	41.0	24.0	3	2	49 2	22 17
Average persons/toilet on train		24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	-0.063	0.063
Flush Fluids/day (gals)	51.7	30.2	27.7	29.0	30,9	13.9
Capacity Req'd/day (gals)	67.6	39.6	36.3	37.9	40.4	18.1
Adj. Capacity Req'd w/ Buffer	84.5	49.4	45.3	, 47.4	50.5	22.7
Tank Capacity per Car (gals)	235	235	235	. 235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	67 93%	114 158%	124 173%	119 165%	112 155%	249 346%
Probable Service Hours per Day	18.33		18.33	18.33	18.33	18.33
Service Days Supported	3.6	6.2	6.8	6.5	6.1	13.6
As a percentage of 3 days	121.42%	207.43%	226.29%	216.45%	203.20%	452.57%
Consecutive Trips before pumpout	3.0	6.0	6.0	6.0	6.0	13.0
CAPITAL COSTS		٠				
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	\$5,000	<u>\$7,500</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$42,500</u>
- Total Equip Cost	\$26,000	\$26,000	\$28,500	\$26,000	\$26,000	\$63,500
Equipment Installation			•			
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,304	\$2,016	\$2,016	\$6,336
Total Capital Cost	\$28,016	\$28,016	\$30,804	\$28,016	\$28,016	\$69,836

Route Number:

#58

Amtrak Route:	City of New Orleans		Route Number: #	<b>#58</b>		
Origin/Destination:	New-Orleans-Chicago					
Length in Miles:	924					
Length in Hours:	18,33					
Expected Trips per Day:	1					
Manufacturer:	Monogram					
Equipment:	Modified Vacuum					
Scenario:	Unfavorable					
* All data on per car basis (unless noted of						
	54000	4600	4000	9400	28000	2400(30)
	<u>Horizon</u>	Coach	Coach (HDCP)	Dome Coach	<u>Amiounge II</u>	Sleeper 10-6
OPERATING COSTS						
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$216	\$144	\$144	\$1,224
Frequency per Year	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$576	\$576	\$864	\$576	\$576	\$4,896
Annual spare parts cost per yr	<u>\$1,300</u>	<u>\$1,300</u>	<u>\$1,425</u>	<u>\$1,300</u>	<u>\$1,300</u>	<u>\$3,175</u>
Total- Oprtng Non-Trip Related	\$1,876	\$1,876	\$2,289	\$1,876	\$1,876	\$8,071
·						
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing		٠				•
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.68	\$0.40	\$0.36	\$0.38	\$0.40	\$0.18
- Pump out minutes	1.13	0.66	0.60	0.63	0.67	0.30
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	\$1.15	\$0.67	\$0.62	\$0.64	\$0.69	\$0.31
Subtotal- End of Day/Trip Srvc	\$13.82	\$13.07	\$18.98	\$13.02	\$13.09	\$102.49
Train Delay:	Ψ,0.02	Ψ.υ.υ.		Ψ10.0 <u>L</u>	<b>\$10.00</b>	<b>4102.40</b>
- Pump out volume req'd	0	0	. 0	0	0	0
•	0	0	0	0	0	o
- # of stops req'd	0.0	0.0	0.0	0.0	0.0	0.0
- Pump out minutes	·· <u>0.0</u>	0.0 0.0	0.0 0.0	0.0	0.0 0.0	0.0 0.0
- Connect/Disc. minutes	· 0.0	0.0	<u>0.0</u> 0	<u>0.0</u> .0	<u>0.0</u> 0	<u>0.0</u> 0
- Total Time Delay(mins/car)						
Average Cost Per Delay	\$0	\$0	\$0 *10	\$0 *10	,\$0 *10	\$0 *100
Subtotal- Opring Trip Related	\$14	\$13	\$19	\$13	\$13	\$102
Total # Cars in fleet	103	78	21	12 <sup>.</sup>	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	30,076	22,776	6,132	3,504	7,300	23,944
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$4,037	\$3,816	\$5,542	\$3,803	\$3,822	\$29,927
Annual Non-Trip Related per Car	\$1,876	\$1,876	\$2,289	\$1,876	\$1,876	\$8,071
				·	•	
Annual Opring Trip Related per Car Type	\$415,786	\$297,637	\$116,379	\$45,634	\$95,559	\$2,454,009
Annual Non-Trip Related per Car Type	<u>\$193,228</u>	<u>\$146,328</u>	<u>\$48,069</u>	<u>\$22,512</u>	<u>\$46,900</u>	\$661.822
Total OPRTNG COST per Car	\$5,913	\$5,692	\$7,831	\$5,679	\$5,698	\$37,998
Total CAPITAL COST per Car	\$28,016	\$28,016	\$30,804	\$28,016	\$28,016	\$69,836
	\$,-·-	y==,= . •	*,·	,, - · ·	V,- / W	71-30
Total OPRTNG COST for all cars	\$609,014	\$443,965	\$164,448	\$68,146	\$142,459	\$3,115,831
Total CAPITAL COST for all cars	\$2,885,648	\$2,185,248		\$336,192	\$700,400	\$5,726,552
Total Orthogram October 101 dil calls	ΨΕ,ΟΟΟ,ΟΤΟ	ψε, 100,270	Ψ0-10-100-4	, φου <b>υ, ισε</b>		ψο, ευ,υυε

Amtrak Route: Origin/Destination:

Length in Miles:

City of New Orleans

New Orleans-Chicago

NCO

924

18.33

Length in Hours: Expected Trips per Day:

1

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

All data on per car basis (unless noted o	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 Amlounge II	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	1
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 2	22 17
Average persons/toilet on train	41.0	24,0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	· 10
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0,000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	0.0	0.0
Capacity Req'd/day (gals)	28.1	16.5	15.1	15.8	16.8	7.5
Adj. Capacity Req'd w/ Buffer	35.1	20.6	18.9	19.7	21.0	9.4
Tank Capacity per Car (gals)	27	27	40.5	27	27	229.5
Continuous Service Hours Supported As a percentage of 72 hours	18 26%	31 44%	.52 72%	33 46%	31 43%	584 811%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	1.0	1.7	2.8	1.8	1.7	31.9
As a percentage of 3 days	33.53%	57.27%	93.72%	59.76%	56.10%	1062.14%
Consecutive Trips before pumpout	1.0	1.0	2.0	1.0	1.0	31.0
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$9,750</u>	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$55,250</u>
- Total Equip Cost	\$6,500	\$6,500	\$9,750	\$6,500	\$6,500	\$55,250
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4.896</u>
- Total Installation Cost	\$576	\$576	\$864	\$576	\$576	\$4,896
Total Capital Cost	\$7,076	\$7,076	\$10,614	\$7,076	\$7,076	\$60,146

#58

Route Number:

Amtrak Route: City of New Orleans
Origin/Destination: New Orleans-Chicago
Length in Miles: 924
Length in Hours: 18.33
Expected Trips per Day: 1
Manufacturer: Monogram
Equipment: Self-Cont'd Recirc

Total CAPITAL COST for all cars \$728,828

Route Number: #58

Manufacturer:	Managem					
	Monogram Self-Cont'd Recirc					
Equipment:						
Scenario:	Unfavorable					
* All data on per car basis (unless noted o	•	4600	4000	9400	28000	2400(30)
	54000 <u>Horizon</u>	<u>Coach</u>	Coach (HDCP)	Dome Coach	Amiounge II	Sleeper 10-6
OPERATING COSTS						
Non-Trip Related Costs:	<b>4</b>		****		A==0	*4.000
Labor cost/major servicing	\$576	\$576	\$864	\$576	\$576	\$4,896
Frequency per Year	<u>4</u>	4	4	<u>4</u>	4	4
Servicing Cost/Year	\$2,304	\$2,304	\$3,456	\$2,304	\$2,304	\$19,584
Annual spare parts cost per yr	<u>\$325</u>	<u>\$325</u>	<u>\$488</u>	<u>\$325</u>	<u>\$325</u>	<u>\$2,763</u>
Total- Oprtng Non-Trip Related	\$2,629	\$2,629	\$3,944	\$2,629	\$2,629	\$22,347
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	<del>*-</del>	,	<b>~~</b>	**	<b>*</b> -	••
- Pump out Cost	\$0.28	\$0.16	\$0,15	\$0.16	\$0.17	\$0.08
- Pump out minutes	0.47	0.27	0.25	0.26	0.28	0.13
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	0.0
- Waste Disposal	\$0.62	\$0.3 <u>6</u>	\$0.33	\$0.3 <u>5</u>	\$0.37	\$0.17
Subtotal- End of Day/Trip Srvc	\$12.90	\$12.53	\$18.48	\$12.50	\$12.54	\$102.24
Train Delay:	<b>\$12.50</b>	V12.50	<b>\$10,40</b>	Ų12.00	Ψ12.04	Ψ102.2 <del>1</del>
- Pump out volume req'd	0	0	0	0	0	0
- # of stops reg'd	0	0	0	0	0	0
- Pump out minutes	0.0	0.0	0.0	0,0	0.0	0.0
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	0.0	0.0	0.0
- Total Time Delay(mins/car)	0	0	0	0	0	0
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal- Oprtng Trip Related	\$13	\$13	\$18	\$13	\$13	\$102
Total # Cars in fleet	103	78	21	12	25	82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	30,076	22,776	6,132	3,504	7,300	23,944
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$3,767	\$3,658	\$5,397	\$3,651	\$3,661	\$29,854
Annual Non-Trip Related per Car	\$2,629	\$2,629	\$3,944	\$2,629	\$2,629	\$22,347
Allida Non-Imp Nelated per Cal	Ψ2,023	Ψ2,029	φυ,544	φ <b>2,</b> 029	ψ2,029	φε <b>ε</b> ,υ <del>4</del> 1
Annual Oprtng Trip Related per Car Type	\$387,975	\$285,309	\$113,337	\$43,817	\$91,525	\$2,448,069
Annual Non-Trip Related per Car Type	<u>\$270.787</u>	<u>\$205,062</u>	<u>\$82,814</u>	<u>\$31.548</u>	<u>\$65,725</u>	<u>\$1,832,413</u>
Total OPRTNG COST per Car	\$6,396	\$6,287	\$9,340	\$6,280	\$6,290	\$52,201
Total CAPITAL COST per Car	\$7,076	\$7,076	\$10,614	\$7,076	\$7,076	\$60,146
Total OPRTNG COST for all cars	\$658,762	\$490,371	\$196,150	\$75,365	\$157,250	\$4,280,482

\$551,928

\$222,894

\$176,900

\$4,931,972

\$84,912

Amtrak Route:

City of New Orleans

Route Number:

#58

Origin/Destination: Length in Miles:

New Orleans-Chicago

Length in Hours:

924 18.33

Expected Trips per Day:

Manufacturer: Equipment:

Microphor Gravity

Scenario:

Unfavorable

* All data on per car basis (unless noted o	•					
<b>,</b>	54000 <u>Ногізоп</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 Dome Coach	28000 Amiounge II	2400(30) Sleeper 10-6
Quantity of cars	1	4	1	1	1	. 1
Capacity (# people) - seated	82	48	44	46	49	22
Toilets per car	2	2	3	2	2	17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)						٠
Black Water:				•		•
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	141.0	82.6	75.7	79.1	84.3	37.8
Capacity Req'd/day (gals)	135.8	79.5	72.9	76.2	81.2	36.4
Adj. Capacity Req'd w/ Buffer	169.8	99.4	91.1	95.3	101.5	45.6
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported As a percentage of 72 hours	42 59%	72 101%	79 110%	76 105%	71 99%	158 220%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	2.3	4.0	4.3	4.1	3.9	8.6
As a percentage of 3 days	77.11%	131.73%	143.71%	137.46%	129.04%	287.41%
Consecutive Trips before pumpout	2.0	3.0	4.0	4.0	3.0	8.0
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$15,000</u>	<u>\$10,000</u>	<u>\$10,000</u>	\$85,000
- Total Equip Cost	\$20,000	\$20,000	\$25,000	\$20,000	\$20,000	\$95,000
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,440	\$1,152	\$1,152	\$5,472
Total Capital Cost	\$21,152	\$21,152	\$26,440	\$21,152	\$21,152	\$100,472

**Amtrak Route:** City of New Orleans Route Number: #58 Origin/Destination: New Orleans-Chicago Length in Miles: 924 18.33 Length in Hours: Expected Trips per Day: Manufacturer: Microphor Equipment: Gravity Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 54000 9400 28000 2400(30) 4600 4000 **Horizon** Coach Coach (HDCP) Dome Coach Amlounge II Sleeper 10-6 **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$144 \$144 \$216 \$144 \$144 \$1,224 Frequency per Year 4 4 4 \$864 \$576 \$4.896 Servicing Cost/Year \$576 \$576 \$576 Annual spare parts cost per yr \$1,250 \$1,000 \$1,000 \$4,750 \$1,000 \$1,000 Total- Oprtng Non-Trip Related \$1,576 \$1,576 \$2,114 \$1,576 \$1,576 \$9,646 Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$12 \$18 \$12 \$12 \$102 - Cleaning \$12 - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal \$0.73 \$0.76 \$0.81 - Pump out Cost \$1.36 \$0.80 \$0.36 - Pump out minutes 2.26 1.21 1.27 1.35 0.61 1.33 - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 0.0 - Waste Disposal <u>\$2.31</u> \$1.24 \$1.30 \$1.38 \$0.62 \$1.35 Subtotal- End of Day/Trip Srvc \$15.67 \$14.15 \$19.97 \$14.06 \$14.19 \$102.98 Train Delay: - Pump out volume req'd 0 0 0 0 0 0 - # of stops req'd 0 0 0 0 0 0 - Pump out minutes 0.0 0.0 0.0 0.0 0.0 0.0 - Connect/Disc. minutes <u>0.0</u> 0.0 0.0 0.0 0.0 0.0 - Total Time Delay(mins/car) a ٥ ٥ 0 0 0 Average Cost Per Delay \$0 \$0 \$0 \$0 \$0 \$0 Subtotal-Oprtng Trip Related \$16 \$20 \$14 \$14 \$103 \$14 Total # Cars in fleet 103 78 21 12 25 82 Total Annual Car-days 37,595 28,470 7,665 4,380 9,125 29,930 22,776 Adjusted Total Car-days 30,076 6,132 3,504 7,300 23,944 Days per Trip (min. of 1) 1 1 1 1 1 1

\$4,131

\$1,576

\$322,210

\$122,928

\$5,707

\$21,152

\$445,138

\$1,649,856

\$5,831

\$2,114

\$122,444

\$44,394

\$7,945

\$26,440

\$166,838

\$555,240

\$4,105

\$1,576

\$49,257

\$18,91<u>2</u>

\$5,681

\$21,152

\$68,169

\$253,824

\$30,071

\$2,465,849

\$790,972

\$39,717

\$100,472

\$3,256,821

\$8,238,704

\$9,646

\$4,144

\$1,576

\$103,599

\$39,400

\$5,720

\$21,152

\$142,999

\$528,800

\$4,575

\$1,576

\$471,220

\$162,328

\$6,151

\$21,152

\$633,548

\$2,178,656

Annual Opring Trip Related per Car

Annual Oprtng Trip Related per Car Type

Annual Non-Trip Related per Car Type

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Annual Non-Trip Related per Car

Total OPRTNG COST per Car

Total CAPITAL COST per Car

Amtrak Route: Origin/Destination:

Length in Miles:

City of New Orleans

New Orleans-Chicago

924

Length in Hours: Expected Trips per Day: 18.33

Manufacturer:

Evac

Equipment:

Scenario:

Ultimate

Unfavorable

* All data on per car basis (unless noted of	otherwise)					
	54000 <u>Horizon</u>	4600 <u>Coach</u>	4000 Coach (HDCP)	9400 <u>Dome Coach</u>	28000 Amiounge II	2400(30) Sleeper 10-6
Quantity of cars	1	. 4	1	1	1	1
Capacity (# people) - seated Toilets per car	82 2	48 2	44 3	46 2	49 2	22 17
Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3
Car Waste Data (per car)			,			
Black Water:						
Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	. 10	10
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	38.5	22.6	20.7	21.6	23.0	10.3
Capacity Req'd/day (gals)	57.6	33.7	30.9	32.3	34.4	15.4
Adj. Capacity Req'd w/ Buffer	71.9	42.1	38.6	40.4	43.0	19.3
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	67 93%	114 158%	124 173%	119 165%	112 155%	249 345%
Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33
Service Days Supported	3.6	6.2	6.8	6.5	6.1	13.6
As a percentage of 3 days	121.33%	207.27%	226.11%	216.28%	203.04%	452.23%
Consecutive Trips before pumpout	3.0	6.0	6.0	6.0	6.0	13.0
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	\$5,800	<u>\$5,800</u>	<u>\$8,700</u>	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$49,300</u>
- Total Equip Cost	\$17,800	\$17,800	\$20,700	\$17,800	\$17,800	\$61,300
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$864</u>	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,304	\$2,016	\$2,016	\$6,336
Total Capital Cost	\$19,816	\$19,816	\$23,004	\$19,816	\$19,816	\$67,636
•	<del></del>				· · · · · · · · · · · · · · · · · · ·	

#58

Route Number:

Route Number: Amtrak Route: City of New Orleans #58 Origin/Destination: New Orleans-Chicago Length in Miles: 924 18.33 Length in Hours: Expected Trips per Day: 1 Manufacturer: Evac Ultimate Equipment: Unfavorable Scenario: \* All data on per car basis (unless noted otherwise) 54000 4600 4000 9400 28000 2400(30) Coach (HDCP) <u>Horizon</u> Coach Dome Coach Amiounge II Sleeper 10-6 **OPERATING COSTS** Non-Trip Related Costs: \$1,224 Labor cost/major servicing \$144 \$144 \$216 \$144 \$144 Frequency per Year 4 4 \$576 \$576 Servicing Cost/Year \$576 \$864 \$576 \$4,896 \$890 \$890 \$1,035 \$890 \$3,065 Annual spare parts cost per yr \$890 \$1,466 \$1,466 \$1,899 \$1,466 \$1,466 \$7,961 Total- Opring Non-Trip Related Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$18 \$12 \$12 \$102 - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal \$0.34 \$0.32 \$0.15 - Pump out Cost \$0.58 \$0.34 \$0.31 - Pump out minutes 0.96 0.56 0.51 0.54 0.57 0.26 - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 0.0 - Waste Disposal \$0.98 \$0.57 \$0.53 \$0.55 \$0.58 \$0,26 Subtotal- End of Day/Trip Srvc \$13.55 \$12.91 \$18.83 \$12.87 \$12.93 \$102.42 Train Delay: 0 0 0 0 0 - Pump out volume reg'd 0 - # of stops req'd 0 0 0 0 0 0 - Pump out minutes 0.0 0.0 0.0 0.0 0.0 0.0 - Connect/Disc. minutes 0.0 0.0 0.0 0.0 0.0 0.0 - Total Time Delay(mins/car) 0 0 0 0 0 0 Average Cost Per Delay \$0 \$0 \$0 \$0 \$0 \$0 Subtotal-Oprtng Trip Related \$14 \$13 \$19 \$13 \$13 \$102 Total # Cars in fleet 103 78 21 12 25 82 Total Annual Car-days 37,595 28,470 7,665 4,380 9,125 29,930 Adjusted Total Car-days 30,076 3,504 7,300 22,776 6,132 23,944 Days per Trip (min. of 1) 1 1 1 1 1 Annual Opring Trip Related per Car \$3.958 \$3,770 \$5,499 \$3.759 \$3,775 \$29,906 Annual Non-Trip Related per Car \$1,466 \$1,466 \$1,899 \$1,466 \$1,466 \$7,961

\$294,030

\$114,348

\$5,236

\$19,816

\$408,378

\$1,545,648

\$115,489

\$39,879

\$7,398

\$23,004

\$155,368

\$483,084

\$45,103

\$17,592

\$5,225

\$19,816

\$62,695

\$237,792

\$94,379

\$36,650

\$5,241

\$19,816

\$131,029

\$495,400

\$2,452,271

\$652,802

\$37,867

\$67,636

\$3,105,073

\$5,546,152

Annual Oprtng Trip Related per Car Type

Annual Non-Trip Related per Car Type

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

Total OPRTNG COST per Car

Total CAPITAL COST per Car

\$407,649

\$150,998

\$5,424

\$19,816

\$558,647

\$2,041,048

Amtrak Route:

City of New Orleans

New Orleans-Chicago

Origin/Destination: Length in Miles:

Length in Hours:

924 18.33

Expected Trips per Day: Manufacturer:

Equipment:

Railtech

WTS 8300

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

Tank Capacity per Car (gals)         100         100         100         100         100         100         450           Continuous Service Hours Supported As a percentage of 72 hours         10         17         19         18         17         167           As a percentage of 72 hours         14%         24%         26%         25%         23%         232%           Probable Service Hours per Day         18.33	* All data on per car basis (unless noted of	·						
Capacity (# people) - seated         82         48         44         46         49         22           Toilets per car         2         2         3         2         2         17           Average persons/toilet on train         41.0         24.0         14.7         23.0         24.5         1.3           Car Waste Data (per car)           Black Water:           Human Waste/day (gals)         36.82         21.55         19.76         20.65         22.00         9.88           # Flushes/Person-day         8.00         9.00         1.0         1.0         1.0         1.0         1.0         <	•							
Toilet sper car 2 2 2 3 2 2 17 Average persons/toilet on train 41.0 24.0 14.7 23.0 24.5 1.3  **Cart Waste Data (per car)**  **Black Water:** Human Waste/day (gals) 36.82 21.55 19.76 20.65 22.00 9.88 #*Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.0	Quantity of cars	1	4	1	1	. 1	1	
Black Water:								
Black Water:   Human Waste/day (gals)   36.82   21.55   19.76   20.65   22.00   9.88   Flushes/Person-day   8.00	Average persons/toilet on train	41.0	24.0	14.7	23.0	24.5	1.3	
Human Waste/day (gals) 36.82 21.55 19.76 20.65 22.00 9.88 #Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.0	Car Waste Data (per car)							
# Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.0	Black Water:							
# Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.0	Human Waste/day (gals)	36.82	21.55	19.76	20.65	22.00	9.88	
Adj. # Flushes/Person-day         10         57.9           Capacity Req'd/day (gals)         192.9         112.9         103.5         108.2         115.3         51.8           Adj. Capacity Req'd w/ Buffer         241.2         141.2         129.4         135.3         144.1         64.7           Tank Capacity per Car (gals)         100         100         100         100         100         100         100         450           Continuous Service Hours Supported         10         17         19         18         17         167         As a percentage of 72 hours         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33         18.33 <t< td=""><td></td><td>8.00</td><td></td><td>8.00</td><td>8.00</td><td>8.00</td><td></td></t<>		8.00		8.00	8.00	8.00		
Fluish Fluids/lush (gals)         0.263         0.264         0.	Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25	
Fluish Fluids/day (gals) 215.8 126.3 115.8 121.1 128.9 57.9  Capacity Req'd/day (gals) 192.9 112.9 103.5 108.2 115.3 51.8  Adj. Capacity Req'd w' Buffer 241.2 141.2 129.4 135.3 144.1 64.7  Tank Capacity per Car (gals) 100 100 100 100 100 100 100 450  Continuous Service Hours Supported 10 17 19 18 17 167  As a percentage of 72 hours 14% 24% 26% 25% 23% 23%  Probable Service Hours per Day 18.33 18.33 18.33 18.33 18.33 18.33 18.33  Service Days Supported 0.5 0.9 1.0 1.0 0.9 9.1  As a percentage of 3 days 18.10% 30.92% 33.73% 32.26% 30.29% 303.55%  Consecutive Trips before pumpout 0.0 0.0 1.0 0.0 0.0 0.0 9.0  CAPITAL COSTS  Collection System per Car \$8,000 \$8,000 \$8,000 \$8,000 \$8,000 \$36,000  Total Equip Cost \$14,000 \$14,000 \$17,000 \$14,000 \$14,000 \$87,000  Equipment Installation  Collection System per Car \$576 \$576 \$576 \$576 \$576 \$576 \$4,992  Total Cost per Car \$576 \$576 \$576 \$576 \$576 \$576 \$576 \$4,992  Total Cost per Car \$576 \$576 \$576 \$576 \$576 \$576 \$576 \$4,992  Total Cost per Car \$576 \$576 \$576 \$576 \$576 \$576 \$576 \$4,992  Total Cost per Car \$576 \$576 \$576 \$576 \$576 \$576 \$576 \$4,992  Total Cost per Car \$576 \$576 \$576 \$576 \$576 \$576 \$576 \$4,992  Total Installation Cost \$11,152 \$1,152 \$1,152 \$1,440 \$1,152 \$1,152 \$7,488	Adj. # Flushes/Person-day	10	10	10	10	10	10	
Capacity Req'd/day (gals) 192.9 112.9 103.5 108.2 115.3 51.8 Adj. Capacity Req'd w/ Buffer 241.2 141.2 129.4 135.3 144.1 64.7 Tank Capacity per Car (gals) 100 100 100 100 100 100 450  Continuous Service Hours Supported 10 17 19 18 17 167 As a percentage of 72 hours 14% 24% 26% 25% 23% 232%  Probable Service Hours per Day 18.33 18.33 18.33 18.33 18.33 18.33 18.33  Service Days Supported 0.5 0.9 1.0 1.0 0.9 9.1 As a percentage of 3 days 18.10% 30.92% 33.73% 32.26% 30.29% 303.55%  Consecutive Trips before pumpout 0.0 0.0 1.0 0.0 0.0 0.0 9.0  CAPITAL COSTS  Collection System per Car \$8,000 \$8,000 \$8,000 \$8,000 \$8,000 \$36,000 Toilet Cost per Car \$6,000 \$6,000 \$14,000 \$14,000 \$14,000 \$14,000  Equipment Installation  Collection System per Car \$576 \$576 \$576 \$576 \$576 \$2,592 Toilet Cost per Car \$576 \$576 \$576 \$576 \$576 \$576 \$2,592 Toilet Cost per Car \$576 \$576 \$576 \$576 \$576 \$576 \$2,592 Toilet Cost per Car \$576 \$576 \$576 \$576 \$576 \$576 \$4,488	Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263	
Adj. Capacity Req'd w/ Buffer       241.2       141.2       129.4       135.3       144.1       64.7         Tank Capacity per Car (gals)       100       100       100       100       100       100       450         Continuous Service Hours Supported As a percentage of 72 hours       10       17       19       18       17       167         As a percentage of 72 hours       14%       24%       26%       25%       23%       232%         Probable Service Hours per Day       18.33       18.09       9.00       9.00       9.00       9.00 <td>Flush Fluids/day (gals)</td> <td>215.8</td> <td>126.3</td> <td>115.8</td> <td>121.1</td> <td>128.9</td> <td>57.9</td>	Flush Fluids/day (gals)	215.8	126.3	115.8	121.1	128.9	57.9	
Tank Capacity per Car (gals)         100         100         100         100         100         450           Continuous Service Hours Supported As a percentage of 72 hours         10         17         19         18         17         167           As a percentage of 72 hours         14%         24%         26%         25%         23%         232%           Probable Service Hours per Day         18.33         18.03         19.09         9.0         1.0         0.9         9.0         9.0         1.0         0.0         0.0         0.0         9.0         0.0         9.0         0.0	Capacity Req'd/day (gals)	192.9	112.9	103.5	108.2	115.3	51.8	
Continuous Service Hours Supported 10 17 19 18 17 167 As a percentage of 72 hours 14% 24% 26% 25% 23% 232% 232% 24% 26% 25% 23% 23% 232% 25% 25% 25% 23% 232% 25% 25% 25% 25% 23% 232% 25% 25% 25% 25% 25% 25% 25% 25% 25% 2	Adj. Capacity Req'd w/ Buffer	241.2	141.2	129.4	135.3	144.1	64.7	
As a percentage of 72 hours 14% 24% 26% 25% 23% 232%  Probable Service Hours per Day 18.33	Tank Capacity per Car (gals)	100	100	100	100	100	450	
Service Days Supported         0.5         0.9         1.0         1.0         0.9         9.1           As a percentage of 3 days         18.10%         30.92%         33.73%         32.26%         30.29%         303.55%           Consecutive Trips before pumpout         0.0         0.0         1.0         0.0         0.0         9.0           CAPITAL COSTS         Collection System per Car         \$8,000         \$8,000         \$8,000         \$8,000         \$8,000         \$36,000           Toilet Cost per Car         \$6,000         \$6,000         \$9,000         \$6,000         \$6,000         \$51,000           - Total Equip Cost         \$14,000         \$14,000         \$17,000         \$14,000         \$14,000         \$87,000           Equipment Installation         Collection System per Car         \$576         \$576         \$576         \$576         \$576         \$4,896           Toilet Cost per Car         \$576         \$576         \$64         \$576         \$576         \$4,896           - Total Installation Cost         \$1,152         \$1,152         \$1,440         \$1,152         \$1,152         \$7,488	Continuous Service Hours Supported As a percentage of 72 hours							
As a percentage of 3 days 18.10% 30.92% 33.73% 32.26% 30.29% 303.55% Consecutive Trips before pumpout 0.0 0.0 1.0 0.0 0.0 0.0 9.0 CAPITAL COSTS  Collection System per Car \$8,000 \$8,000 \$8,000 \$8,000 \$8,000 \$36,000 Toilet Cost per Car \$6,000 \$6,000 \$14,00	Probable Service Hours per Day	18.33	18.33	18.33	18.33	18.33	18.33	
Consecutive Trips before pumpout 0.0 0.0 1.0 0.0 0.0 9.0  CAPITAL COSTS  Collection System per Car \$8,000 \$8,000 \$8,000 \$8,000 \$8,000 \$36,000 Toilet Cost per Car \$6,000 \$14,000 \$17,000 \$14,000 \$14,000 \$87,000 Equipment Installation  Collection System per Car \$576 \$576 \$576 \$576 \$576 \$576 \$2,592 Toilet Cost per Car \$576 \$576 \$576 \$1,152 \$1,440 \$1,152 \$1,152 \$7,488	Service Days Supported	0.5	0.9	1.0	1.0	0,9	9.1	
CAPITAL COSTS  Collection System per Car \$8,000 \$8,000 \$8,000 \$8,000 \$8,000 \$36,000 \$36,000 Toilet Cost per Car \$6,000 \$14,000 \$17,000 \$14,000 \$14,000 \$87,000 Equipment Installation  Collection System per Car \$576 \$576 \$576 \$576 \$576 \$576 \$2,592 Toilet Cost per Car \$576 \$576 \$576 \$576 \$4,896 - Total Installation Cost \$1,152 \$1,152 \$1,440 \$1,152 \$1,152 \$7,488	As a percentage of 3 days	18.10%	30.92%	33.73%	32.26%	30.29%	303.55%	
Collection System per Car         \$8,000         \$8,000         \$8,000         \$8,000         \$8,000         \$36,000           Toilet Cost per Car         \$6,000         \$6,000         \$9,000         \$6,000         \$6,000         \$51,000           - Total Equip Cost         \$14,000         \$14,000         \$17,000         \$14,000         \$14,000         \$87,000           Equipment Installation         Collection System per Car         \$576         \$576         \$576         \$576         \$576         \$2,592           Toilet Cost per Car         \$576         \$576         \$864         \$576         \$576         \$4,896           - Total Installation Cost         \$1,152         \$1,152         \$1,440         \$1,152         \$1,152         \$7,488	Consecutive Trips before pumpout	0.0	0.0	1.0	0.0	0.0	9.0	
Toilet Cost per Car         \$6,000         \$6,000         \$9,000         \$6,000         \$6,000         \$51,000           - Total Equip Cost         \$14,000         \$14,000         \$17,000         \$14,000         \$14,000         \$87,000           Equipment Installation         Collection System per Car         \$576         \$576         \$576         \$576         \$576         \$2,592           Toilet Cost per Car         \$576         \$576         \$864         \$576         \$576         \$4.896           - Total Installation Cost         \$1,152         \$1,152         \$1,440         \$1,152         \$1,152         \$7,488	CAPITAL COSTS							
- Total Equip Cost \$14,000 \$14,000 \$17,000 \$14,000 \$14,000 \$87,000 Equipment Installation  Collection System per Car \$576 \$576 \$576 \$576 \$576 \$2,592 Toilet Cost per Car \$576 \$576 \$576 \$576 \$1,152 \$1,440 \$1,152 \$1,152 \$7,488	Collection System per Car	\$8,000	\$8,000	\$8,000	\$8,000	\$8,000	\$36,000	
Equipment Installation           Collection System per Car         \$576         \$576         \$576         \$576         \$576         \$2,592           Toilet Cost per Car         \$576         \$576         \$864         \$576         \$576         \$4,896           - Total Installation Cost         \$1,152         \$1,152         \$1,440         \$1,152         \$1,152         \$7,488	•	<u>\$6,000</u>	\$6,000	<u>\$9,000</u>	<u>\$6,000</u>	<u>\$6,000</u>	<u>\$51,000</u>	
Collection System per Car         \$576         \$576         \$576         \$576         \$576         \$2,592           Toilet Cost per Car         \$576         \$576         \$864         \$576         \$576         \$4,896           - Total Installation Cost         \$1,152         \$1,152         \$1,440         \$1,152         \$1,152         \$7,488	- Total Equip Cost	\$14,000	\$14,000	\$17,000	\$14,000	\$14,000	\$87,000	
Toilet Cost per Car         \$576         \$576         \$864         \$576         \$576         \$4,896           - Total Installation Cost         \$1,152         \$1,152         \$1,440         \$1,152         \$1,152         \$7,488	Equipment Installation							
- Total Installation Cost \$1,152 \$1,152 \$1,440 \$1,152 \$1,152 \$7,488	•	· · · · · · · · · · · · · · · · · · ·	*	•	•	•	\$2,592	
Total Capital Cost \$15,152 \$15,152 \$18,440 \$15,152 \$15,152 \$94,488		• •			· ·			
	Total Capital Cost	\$15,152	\$15,152	\$18,440	\$15,152	\$15,152	\$94,488	

#58

Route Number:

Amtrak Route:	City of New Orleans		Route Number:	#58	<u> </u>	
Origin/Destination:	New Orleans-Chicag	90				1
Length in Miles:	924					
Length in Hours:	18.33					
Expected Trips per Day:	1					
Manufacturer:	Railtech					
Equipment:	WTS 8300					
Scenario:	Unfavorable					
* All data on per car basis (unless noted of	therwise)					
	54000	4600	4000	9400 Domo Consh	28000	2400(30) Sleeper 10-6
OPERATING COSTS	<u>Horizon</u>	Coach	Coach (HDCP)	Dome Coach	<u>Amlounge II</u>	Sieeber 10-0
Non-Trip Related Costs:		•		<b>.</b>	****	*
Labor cost/major servicing	\$144	\$144		\$144	\$144	\$1,224
Frequency per Year	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	. <u>4</u>	<u>4</u>
Servicing Cost/Year	\$576	\$576	\$864	\$576	\$576	\$4,896
Annual spare parts cost per yr	<u>\$700</u>	<u>\$700</u>	<u>\$850</u>	<u>\$700</u>	<u>\$700</u>	<u>\$4,350</u>
Total- Oprtng Non-Trip Related	\$1,276	\$1,276	\$1,714	\$1,276	\$1,276	\$9,246
Trip Related Costs:						<del></del>
Toilet maintenance enroute End of Day/Trip Servicing						
Cleaning	\$12	\$12	\$18	\$12	\$12	\$102
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						•
- Pump out Cost	\$5.13	\$4.33	\$1.04	\$4.28	\$4.35	\$0.52
- Pump out minutes	1.55	0.22	1.73	. 0.14	0.25	0.86
- Connect/Disc. minutes	7.0	7.0	0.0	7.0	7.0	0.0
- Waste Disposal	\$3.28	<b>\$1.92</b>	<b>\$1.76</b>	<u>\$1.84</u>	<u>\$1.96</u>	\$0.88
Subtotal- End of Day/Trip Srvc	\$20.41	\$18.25	\$20.80	\$18.12	\$18.31	\$103.40
Train Delay:						
- Pump out volume req'd	100	100	0	100	100	0
- # of stops reg'd	1	1	0	1	. 1	0
- Pump out minutés	1.7	1.7	0.0	1.7	1.7	0.0
- Connect/Disc. minutes	<u>7.0</u>	7.0	0.0	7.0	7.0	0.0
- Total Time Delay(mins/car)	9	9	0	9	9	<u>9.9</u> 0
Average Cost Per Delay	\$5	\$5	. \$0	\$5	\$5	\$0
Subtotal- Opring Trip Related	\$26	\$23	\$21	\$23	\$24	\$103
Subtotal- Opting Trip Related	Ψ20	\$23	Ψ21	Ψ20	Ψ24	\$103
Total # Cars in fleet	103	78	21	12	25	. 82
Total Annual Car-days	37,595	28,470	7,665	4,380	9,125	29,930
Adjusted Total Car-days	30,076	22,776	6,132	3,504	7,300	23,944
Days per Trip (min. of 1)	1	1	.1	1	1	1
Annual Opring Trip Related per Car	\$7,478	\$6,847	\$6,072	\$6,810	\$6,866	\$30,192
Annual Non-Trip Related per Car	\$1,276	\$1,276	\$1,714	\$1,276	\$1,276	\$9,246
Annual Oprtng Trip Related per Car Type	\$770,219	\$534,079	\$127,516	\$81,721	\$171,643	\$2,475,751
Annual Non-Trip Related per Car Type	\$131,428	\$99,528	<u>\$35,994</u>	\$15,312	\$31,900	\$758,172
Total OPRTNG COST per Car	\$8,754	\$8,123	\$7,786	\$8,086	\$8,142	\$39,438
Total CAPITAL COST per Car	\$15,152	\$15,152	\$18,440	\$15,152	\$15,152	\$94,488
Total OPPTNO COST (III	Φ004∶04 <b>7</b>	¢enn co⊒	<b>#</b> 460 E40	. #A7 A4A 1	SOUTH POND PROCES	<i></i>
Total OPRTNG COST for all cars	\$901,647	\$633,607	\$163,510	\$97,033	\$203,543	
Total CAPITAL COST for all cars	\$1,560,656	\$1,181,856	\$387,240	\$181,824	\$378,800	\$7,748,016

Amtrak Route: Silver Meteor
Origin/Destination: New York-Tampa
Length in Miles: 1,270
Length in Hours: 23.28
Expected Trips per Day: 1
Manufacturer: Monogram

Modified Vacuum

Equipment:

Route Number: #87-88

Scenario:	Unfavorable					
* All data on per car basis (unless noted	otherwise)					
	25000	28000	2400(30)	2080	2300	NA
	Amcoach II	Amlounge II	Sleeper 10-6	Slumbercoach 24-	<u>Viewliner-Sleeper</u>	<u>NA</u>
Quantity of cars	7	1	2	1	1	NA
Capacity (# people) - seated	59	49	22	40	34	NA
Toilets per car	2	2	17	32	17	NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.063	0.063	0,063	0.063	0.063	0.063
Flush Fluids/day (gals)	37.2	30.9	13.9	25.2	21.4	NA
Capacity Req'd/day (gals)	61.8	51.3	23.0	41.9	35.6	NA
Adj. Capacity Req'd w/ Buffer	77.2	64.1	28.8	52.3	44.5	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	73 101%	88 122%	196 272%	108 150%	127 176%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	3.1	3.8	8.4	4.6	5.4	NA
As a percentage of 3 days	104.62%	125.97%	280,58%	154.32%	181.55%	NA
Consecutive Trips before pumpout	3,0	3.0	8.0	4.0	5.0	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$42,500</u>	<u>\$80,000</u>	<u>\$42,500</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$63,500	\$101,000	\$63,500	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9,216</u>	\$4,896	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$6,336	\$10,656	\$6,336	· NA
Total Capital Cost	\$28,016	\$28,016	\$69,836	\$111,656	\$69,836	NA

Amtrak Route: Origin/Destination:	Silver Meteor New York-Tampa		Route Number:	_#0/-00		
Length in Miles:	1,270					
ength in Hours:	23.28					
expected Trips per Day:	1					
lanufacturer:	Monogram					
quipment:	Modified Vacuum					
cenario:	Unfavorable					
All data on per car basis (unless noted of	•					
_	25000	28000	2400(30)	2080	2300	!
DED 1711/2 20072	Amcoach il	Amlounge II	Sleeper 10-6	Siumbercoach 24-	<u>Viewliner-Sleeper</u>	]
PERATING COSTS Ion-Trip Related Costs:			•		•	
_abor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	
Frequency per Year	4	4	4	4	4	•
ervicing Cost/Year	± \$576	± \$576	\$4,896	\$9,216	\$4,896	1
Annual spare parts cost per yr	\$1,300	\$1,300	\$3,17 <u>5</u>	\$5,050	\$3,17 <u>5</u>	·
otal- Opring Non-Trip Related	\$1,876	\$1,876	\$8,071	\$14,266	\$8,071	<u>-</u> 1
bia- Oping Non-mp herated	\$1,070	\$1,076	Ψ0,071	ψ14,200	ΨΟ,Ο/ Ι	
rip Related Costs:						
Foilet maintenance enroute						
End of Day/Trip Servicing	•			•		
Cleaning	\$12	\$12	\$102	\$192	\$102	i
Light Repair	\$0	\$0	\$0	\$0	\$0	· •
Pump out and Disposal						
Pump out Cost	\$0.62	\$0.51	\$0.23	\$0.42	\$0.36	
- Pump out minutes	1.03	0.85	0.38	0.70	0.59	
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	
Waste Disposal	\$1.05	\$0.87	\$0.39	\$0.71	\$0.60	
Subtotal- End of Day/Trip Srvc	\$13.67	\$13.38	\$102.62	\$193,13	\$102.96	
rain Delay:	*	7.0.00	***************************************	******	•	
- Pump out volume reg'd	0	0	0	0	0	
- # of stops req'd	0	Ō	0	0	0	
- Pump out minutes	0.0	0.0	. 0.0	0.0	0.0	
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	j
- Total Time Delay(mins/car)	0	<u>9.9</u> 0	<u>9.9</u> 0	0	0	<u>.</u> 1
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	į
Subtotal- Opring Trip Related	\$14	\$13	\$103	\$193	\$103	
Publicial- Opining Trip Helated	Ψ14	Ψ10	<b>\$100</b>	<b>4133</b>	¥100	
otal # Cars in fleet	119	25	82	16	2	1
otal Annual Car-days	43,435	9,125	29,930	5,840	730	
fjusted Total Car-days	34,748	7,300	23,944	4,672	584	
ays per Trip (min. of 1)	2	2	2	2	2	
nnual Oprtng Trip Related per Car	\$1,995	\$1,954	\$14,983	\$28,197	\$15,032	
nnual Non-Trip Related per Car	\$1,876	. \$1,876	\$8,071	\$14,266	\$8,071	
nnual Oprtng Trip Related per Car Type	\$237,455	\$48,854	\$1,228,587	\$451,153	\$30,065	
nnual Non-Trip Related per Car Type	\$223,244	\$46,900		\$228,256	\$16.142	j
			<u></u>			
otal OPRTNG COST per Car	\$3,871	\$3,830	\$23,054	\$42,463	\$23,103	
otal CAPITAL COST per Car	\$28,016	\$28,016	\$69,836	\$111,656	\$69,836	ı

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Amtrak Route:
Origin/Destination:
Length in Miles:
Length in Hours:
Length in Hours:
Expected Trips per Day:
Manufacturer:
Equipment:
Scenario:

All data on per car basis (unless noted otherwise)

Route Number: #87-88

,	25000 Amcoach <u>II</u>	28000 <u>Amiounge II</u>	2400(30) Sleeper 10-6	2080 Siumbercoach 24- V	2300 jewliner-Sleeper	NA NA
Quantity of cars	7	1	2	1	1	N/
Capacity (# people) - seated	59	49	22	40	34	NA.
Toilets per car	2	2	17	32	17	NA NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA.
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	. 10	10	10	10
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	0.0	NA
Capacity Req'd/day (gals)	25.7	21.3	9.6	17.4	14.8	NA.
Adj. Capacity Req'd w/ Buffer	32.1	26.7	12.0	21.8	18.5	NA
Tank Capacity per Car (gals)	27	27	229.5	432	229.5	NA
Continuous Service Hours Supported As a percentage of 72 hours	20 28%	24 34%	460 639%	476 661%	298 413%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	0.9	. 1.0	19.8	20.5	12.8	NA
As a percentage of 3 days	28.89%	34.78%	658.47%	681.71%	426.07%	NA
Consecutive Trips before pumpout	0.0	1.0	19.0	20.0	12.0	NA
CAPITAL COSTS						
Collection System per Car	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0
Toilet Cost per Car	<u>\$6,500</u>	<u>\$6,500</u>	<u>\$55,250</u>	<u>\$104,000</u>	<u>\$55,250</u>	<u>NA</u>
- Total Equip Cost	\$6,500	\$6,500	\$55,250	\$104,000	\$55,250	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9.216</u>	<u>\$4.896</u>	<u>NA</u>
Total Installation Cost	\$576	\$576	\$4,896	\$9,216	\$4,896	· NA
Total Capital Cost	\$7,076	\$7,076	\$60,146	\$113,216	\$60,146	NA

Amtrak Route:	Silver Meteor	•	Route Number:	#87-88		
Origin/Destination:	New York-Tampa		Hodre isquiper.	#07-00		
Length in Miles:	1,270					
Length in Hours:	23.28					
Expected Trips per Day:	20.20					
Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc					
, ,						
Scenario:	Unfavorable					
* All data on per car basis (unless noted of	herwise) 25000	28000	2400(30)	2080	2300	NA
	Amcoach II	Amlounge II	Sleeper 10-6	Slumbercoach 24-	Viewliner-Sleeper	NA
OPERATING COSTS						
Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$4,896	\$9,216	\$4,896	NA
Frequency per Year	4	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$2,304	\$2,304	\$19,584	\$36,864	\$19,584	· NA
Annual spare parts cost per yr	<u>\$325</u>	<u>\$325</u>	<u>\$2,763</u>	<u>\$5,200</u>	<u>\$2,763</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$2,629	\$2,629	\$22,347	\$42,06 <u>4</u>	\$22,347	NA
			· · · · · · · · · · · · · · · · · · ·			
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing					4,	
- Cleaning	\$12	\$12	\$102	\$192	\$102	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						i
- Pump out Cost	\$4.20	\$0.21	\$0.10	\$0.17	\$0.15	NA
- Pump out minutes	0.00	0.36	0.16	0.29	0.25	NA
- Connect/Disc. minutes	7.0	0.0	0.0	0.0	0.0	NA
- Waste Disposal	<u>\$0.57</u>	<u>\$0.47</u>	<u>\$0.21</u>	\$0.38	<u>\$0.33</u>	. <u>NA</u>
Subtotal- End of Day/Trip Srvc	\$16.77	\$12.68	\$102.31	\$192.56	\$102.47	NA
Train Delay:						
- Pump out volume req'd	27	Q	0	0	. 0	NA
- # of stops req'd	1	0	0	0	0 -	. NA
- Pump out minutes	0.5	0.0	0.0	0.0	0.0	NA
- Connect/Disc. minutes	<u>7.0</u>	<u>0.0</u>	0.0	0.0	0.0	- <u>NA</u>
- Total Time Delay(mins/car)	7	0	0	0	0	NA
Average Cost Per Delay	\$4	\$0	\$0	\$0	\$0	NA
Subtotal- Oprtng Trip Related	\$21	\$13	\$102	\$193	\$102	NA
		-				
Total # Cars in fleet	119	25	82	16	2	NA
Total Annual Car-days	43,435	9,125	29,930	5,840	730	NA
Adjusted Tatal Condess	04.740	7 000	00.044	4.070	504	NIA
Adjusted Total Car-days	34,748	7,300	23,944	4,672	584	NA .
Days per Trip (min. of 1)	2	2	2	2	2	2
Annual Oprtng Trip Related per Car	\$3,100	\$1,852	\$14,937	\$28,113	\$14,961	NA
Annual Non-Trip Related per Car	\$2,629	\$2,629	\$22,347	\$42,064	\$22,347	NA NA
· · · · · · · · · · · · · · · · · · ·	42,020	72,525	<b>V==,</b> 0 ::	<b>4 7 2</b> ,00 <b>7</b>	<b>V</b> ==,0 ···	
Annual Oprtng Trip Related per Car Type	\$368,942	\$46,293	\$1,224,815	\$449.814	\$29,922	NA
Annual Non-Trip Related per Car Type	\$312,85 <u>1</u>	\$65,725	\$1,832,413	\$673,024	\$44,693	<u>NA</u>
•		·			<del></del> ,	
Total OPRTNG COST per Car	\$5,729	\$4,481	\$37,283	\$70,177	\$37,308	NA
Total CAPITAL COST per Car	\$7,076	\$7,076	\$60,146	\$113,216	\$60,146	NA
Total OPRTNG COST for all cars	\$681,793	\$112,018	\$3,057,228	\$1,122,838	\$74,615	NA NA
Total CAPITAL COST for all cars	\$842,044	\$176,900		\$1,811,456	\$120,292	NA
Service Control of the Control of	production of the second		, , , , , , , , , , , , , , , , , , ,	• • • • • • • • • • • • • • • • • • • •	Service Transfer	productions and the Color of the Section 1997

Route Number: #87-88 Amtrak Route: Silver Meteor Origin/Destination: New York-Tampa Length in Miles: 1,270 Length in Hours: 23.28 Expected Trips per Day: Manufacturer: Microphor Equipment: Gravity Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 25000 28000 2400(30) 2080 2300 Amcoach II Slumbercoach 24- Viewliner-Sleeper Sleeper 10-6 NΑ Amlounge II Quantity of cars 7 2 1 NA 22 17 NA 40 Capacity (# people) - seated 59 49 34 Toilets per car 2 2 32 17 NA NA Average persons/toilet on train 29.5 24.5 1.3 1.3 2.0 Car Waste Data (per car) Black Water: Human Waste/day (gals) 26.49 22.00 9.88 17.96 15.27 NA # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.172 0.172 0.172 0.172 0.172 0.172 Flush Fluids/day (gals) 101.5 84.3 37.8 68.8 58.5 NA Capacity Req'd/day (gals) 124.1 103.1 46.3 84.2 71.5 NA 89.4 Adj. Capacity Req'd w/ Buffer 155.2 128.9 57.9 105.2 NA Tank Capacity per Car (gals) 300 300 300 300 300 300 Continuous Service Hours Supported 56 78% NA NA 46 124 68 81 112% 64% 173% 95% As a percentage of 72 hours Probable Service Hours per Day 23.28 23.28 23.28 23.28 23.28 23.28 Service Days Supported 2.0 2.4 5.3 29 35 NΑ As a percentage of 3 days 66.44% 80.00% 178.18% 98.00% 115.29% NA Consecutive Trips before pumpout 1.0 2.0 5.0 2.0 3.0 NA CAPITAL COSTS Collection System per Car \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 Toilet Cost per Car \$10,000 \$10,000 \$85,000 \$160,000 \$85,000 <u>NA</u> - Total Equip Cost \$20,000 \$20,000 \$95,000 \$170,000 \$95,000 NA Equipment Installation Collection System per Car \$576 \$576 \$576 \$576 \$576 \$576 Toilet Cost per Car \$576 \$576 \$9,216 **\$4.896** \$4,896 NA - Total Installation Cost

\$1,152

\$21,152

\$5,472

\$100,472

\$9,792

\$179,792

\$5,472

\$100,472

NA

NA

**Total Capital Cost** 

\$1,152

\$21,152

Amtrak Route:	Silver Meteor		Route Number:	#87-88		
Origin/Destination:	New York-Tampa					
Length in Miles:	1,270					
Length in Hours:	23.28			•		
Expected Trips per Day:	1					
Manufacturer: Equipment:	Microphor Gravity					
Scenario:	Unfavorable					
* All data on per car basis (unless noted of						
Viii data on por sar basis (amoss notes e	25000	28000	2400(30)	2080	2300	N/
	Amcoach II	Amlounge II	Sleeper 10-6		Viewliner-Sleeper	N/A
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	N/A
Frequency per Year	<u>4</u>	<u>4</u>	<u>4</u>	4	· <u>4</u>	<u>4</u>
Servicing Cost/Year	\$57 <b>6</b>	\$576	\$4,896	\$9,216	\$4,896	N/
Annual spare parts cost per yr	\$1,000	\$1,000	<u>\$4,750</u>	\$8,500	<u>\$4,750</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,576	\$1,576	\$9,646	\$17,716	\$9,646	NA.
	-	-				· · · · · · · · · · · · · · · · · · ·
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$1.24	\$1.03	\$0.46	\$0.84	\$0.72	. NA
- Pump out minutes	2.07	1.72	0.77	1.40	1.19	NA NA
<ul> <li>Connect/Disc. minutes</li> </ul>	0.0	0.0	0.0	0.0	0.0	NA NA
- Waste Disposal	<u>\$2.11</u>	<u>\$1.75</u>	\$0.79	<u>\$1.43</u>	<u>\$1.22</u>	<u>N</u> A
Subtotal- End of Day/Trip Srvc	\$15.35	\$14.78	\$103.25	\$194.27	\$103.93	NA NA
Train Delay:						
- Pump out volume req'd	0	0	0	0	0	NA.
- # of stops req'd	0	. 0	0	0	0	NA NA
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	NA NA
- Connect/Disc. minutes	<u>0.0</u>	0.0	<u>0.0</u>	<u>0,0</u>	<u>0.0</u>	<u>NA</u>
- Total Time Delay(mins/car)	. 0	0	0	0	0	NA NA
Average Cost Per Delay	\$0	\$0	\$0	\$0	\$0	N/A
Subtotal- Oprtng Trip Related	\$15	\$15	\$103	\$194	\$104	NA NA
Total # Cars in fleet	119	25	82	16	2	NA
Total Annual Car-days	43,435	9,125	29,930	5,840	730	NA.
Adjusted Total Car-days	34,748	7,300	23,944	4,672	584	NA NA
Days per Trip (min. of 1)	2	2	20,544	4,072 <u>2</u>	2	2
	•					
Annual Opring Trip Related per Car	\$2,241	\$2,158	\$15,074	\$28,364	\$15,174	NA NA
Annual Non-Trip Related per Car	\$1,576	\$1,576	\$9,646	\$17,716	\$9,646	NA
Annual Opring Trip Related per Car Type	\$266,718	\$53,960	\$1,236,106	\$453,820	\$30,348	NA
Annual Non-Trip Related per Car Type	<u>\$187,544</u>	\$39,400	<u>\$790,972</u>	<u>\$283,456</u>	<u>\$19.292</u>	<u>NA</u>
Total OPRTNG COST per Car	\$3,817	\$3,734	\$24,720	\$46,080	\$24,820	NA
Total CAPITAL COST per Car	\$21,152	\$21,152	\$100,472	\$179,792	\$100,472	NA NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$454,262 \$2,517,088	\$21,152 \$93,360 \$528,800	\$2,027,078	\$737,276 \$2,876,672	\$100,472 \$49,640 \$200,944	1 1

Amtrak Route: Silver Meteor Origin/Destination: New York-Tampa Length in Miles:

1,270

23.28

Route Number:

#87-88

Length in Hours: Expected Trips per Day: Manufacturer:

Evac .

Equipment: Scenario:

Ultimate Unfavorable

* All data on per car basis (unless noted	otherwise)					•
	25000 Amcoach II	28000 Amlounge II	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA <u>NA</u>
Quantity of cars	7	1	2	1	17	NA
Capacity (# people) - seated Toilets per car	59 2	49 2	22 17	40 32	34 17	NA NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)						,
Black Water:						
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	· 8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	27.7	23.0	10.3	18.8	16.0	NA
Capacity Req'd/day (gals)	52.6	43.7	19.6	35.7	30.3	NA
Adj. Capacity Req'd w/ Buffer	65.7	54.6	24.5	44.6	37.9	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	73 101%	88 122%	196 272%	108 150%	127 176%	NA NA
Probable Service Hours per Day	23.28	23.28	23.28	23.28	23.28	23.28
Service Days Supported	3.1	3.8	8.4	4.6	5.4	NA
As a percentage of 3 days	104.54%	125.88%	280.36%	154.20%	181.41%	NA
Consecutive Trips before pumpout	3.0	3.0	8.0	4.0	5.0	NA
CAPITAL COSTS	•					
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$49,300</u>	<u>\$92,800</u>	<u>\$49,300</u>	<u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$61,300	\$104,800	\$61,300	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9,216</u>	<u>\$4,896</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$6,336	\$10,656	\$6,336	· NA
Total Capital Cost	\$19,816	\$19,816	\$67,636	\$115,456	\$67,636	NA NA

## **Arthur D Little**

Amtrak Route:	Silver Meteor		Route Number:	#87-88		
Origin/Destination:	New York-Tampa					
Length in Miles:	1,270					
Length in Hours:	23.28					
Expected Trips per Day:	1					
Manufacturer:	Evac					•
Equipment:	Ultimate					
Scenario:	Unfavorable					
* All data on per car basis (unless noted ot						
, iii daila en per da dasse (emese neted et	25000 Amcoach II	28000 Amlounge II	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 Viewliner-Sleeper	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:	<del></del> .	<u> </u>			<del>-</del> -	
Labor cost/major servicing	\$144	\$144	\$1,224	\$2,304	\$1,224	NA
Frequency per Year	<u>4</u>	4	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$576	\$576	\$4,896	\$9,216	\$4,896	NA
Annual spare parts cost per yr	<u>\$890</u>	\$890	\$3,06 <u>5</u>	\$5,240	\$3,06 <u>5</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,466	\$1,466	\$7,961	\$14,456	\$7,961	NA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$102	\$192	\$102	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal	*-	**	•••	<b>,</b>	•	•
- Pump out Cost	\$0.53	\$0.44	\$0.20	\$0.36	\$0.30	NA
- Pump out minutes	0.88	0.73	0.33	0.59	0.51	NA NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	0.0	NA NA
- Waste Disposal	\$0.89	\$0.74	\$0.33	\$0.61	\$0.52	NA NA
Subtotal- End of Day/Trip Srvc	\$13.42	\$13.18	\$102.53	\$192.96	\$102.82	NA NA
Train Delay:	\$10.42	φ13.10	\$102.33	ψ192.90	\$102.02	INA
- Pump out volume reg'd	· 0	0	0	0	0	NA
- # of stops req'd	0	0	0	0	0	NA NA
- Pump out minutes	0.0	0.0	0.0	0.0	0.0	NA NA
- Connect/Disc. minutes						
	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u> 0	<u>0.0</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	=	0	NA
Average Cost Per Delay	\$0 245	\$0	\$0	\$0	\$0	NA
Subtotal- Opring Trip Related	\$13	\$13	\$103	\$193	\$103	NA -
Total # Cars in fleet	119	25	82	16	2	NA
Total Annual Car-days	43,435	9,125	29,930	5,840	730	NA
Adjusted Total Car-days	34,748	7,300	23,944	4,672	584	NA
Days per Trip (min. of 1)	2	2	2	2	2	2
Annual Opring Trip Related per Car	\$1,959	\$1,924	\$14,969	\$28,173	\$15,011	NA
Annual Non-Trip Related per Car	\$1,466	\$1,466	\$7,961	\$14,456	\$7,961	NA
Annual Opring Trip Related per Car Type	\$233,160	\$48,105	\$1,227,483	\$450,761	\$30,023	NA
Annual Non-Trip Related per Car Type	<u>\$174,454</u>	<u>\$36,650</u>	\$652,802	\$231,296	\$15.922	. NA
Total OPRTNG COST per Car	\$3,425	\$3,390	\$22,930	\$42,629	\$22,972	NA
Total CAPITAL COST per Car	\$19,816	\$19,816	\$67,636	\$115,456	\$67,636	NA
Total OPRTNG COST for all cars	\$407,614	\$84,755	\$1,880,285	\$682,057	\$45,945	NA

Amtrak Route: Origin/Destination: Silver Meteor

New York-Tampa

Length in Miles: Length in Hours:

1,270 23.28

Expected Trips per Day:

Manufacturer:

Railtech

Equipment:

WTS 8300

Scenario:

Unfavorable

* All data on per car basis (unless noted	otherwise)					
	25000 Amcoach II	28000 <u>Amlounge II</u>	2400(30) Sleeper 10-6	2080 Slumbercoach 24-	2300 <u>Viewliner-Sleeper</u>	NA <u>NA</u>
Quantity of cars	7	1	2	1	1	NA
Capacity (# people) - seated Toilets per car	59 2	49 2	22 17	40 32	34 17	NA , NA
Average persons/toilet on train	29.5	24.5	1.3	1.3	2.0	NA
Car Waste Data (per car)						
Black Water:	•					
Human Waste/day (gals)	26.49	22.00	9.88	17.96	15.27	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	155.3	128.9	57.9	105.3	89.5	NA
Capacity Req'd/day (gals)	176.3	146.4	65.7	119.5	101.6	NA
Adj. Capacity Req'd w/ Buffer	220.4	183.0	82.2	149.4	127.0	NA
Tank Capacity per Car (gals)	100	100	450	800	450	∙NA
Continuous Service Hours Supported As a percentage of 72 hours	11 15%	13 18%	131 183%	129 178%	85 118%	NA NA
Probable Service Hours per Day	23.28	23.28	23,28	23.28	23.28	23.28
Service Days Supported	0.5	0.6	5.6	5.5	3.7	NA
As a percentage of 3 days	15.59%	18.78%	188.18%	184.00%	121.77%	NA
Consecutive Trips before pumpout	0.0	0.0	5.0	5.0	3.0	NA
CAPITAL COSTS					-	
Collection System per Car	\$8,000	\$8,000	\$36,000	\$64,000	\$36,000	NA
Toilet Cost per Car	\$6,000	<u>\$6,000</u>	\$51,000	<u>\$96,000</u>	<u>\$51,000</u>	<u>NA</u>
- Total Equip Cost	\$14,000	\$14,000	\$87,000	\$160,000	\$87,000	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$2,592	\$4,608	\$2,592	NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$4,896</u>	<u>\$9,216</u>	<u>\$4,896</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$7,488	\$13,824	\$7,488	. NA
Total Capital Cost	\$15,152	\$15,152	\$94,488	\$173,824	\$94,488	NA

Route Number:

#87-88

Length In Milles: 1,270 Length In Hours: 23,28 Expected Trips per Day: Manufacturner: WTS 8300 Amountacturn: VTS 8300 Amountacturner: VTS 83000 Amountacturner: VTS 83000 Amountacturner: VTS 8300 A	Amtrak Route:	Silver Meteor		Route Number:	#87-88		
Length Neures	Origin/Destination:	New York-Tampa					
Expected Trips per Day:	Length in Miles:	1,270		•			
Manufacturier   Faille-Chepthomic   WTS 8100   Scanario:   Unifavorable   Validation oper car basis (unioses noted wherevise)   28000   2400(30)   2000   2300   Namicoach   Viceriliner-Shappar   Namicoach   Namicoach   Viceriliner-Shappar   Namicoach   Namicoach   Viceriliner-Shappar   Namicoach   Namic	Length in Hours:	23.28					
Equipment:   WTS 8000   Social aria   Control of the relation   Cont	Expected Trips per Day:	1					
Scenario:   Uniscentible   Validation per car basis (unises noted otherwise)   28000   2400(30)   2000   2300   2300   2000	Manufacturer:	Railtech					
All date on per car basis (unless noted otherwise)   2000	Equipment:	WTS 8300					
	Scenario:	Unfavorable					
Amcoach   Amcoach   Amcounce   Sesper 10-8   Slumbercosch 24: Viewliner-Siesper   Non-Trip Related Costs:	* All data on per car basis (unless noted of	therwise)					
OPERATING COSTS   Non-Trip Related Costs:   Labor cost/major servicing   \$144   \$144   \$1,224   \$2,304   \$1,224   \$1,000   \$1,0	·	25000		2400(30)			NA
Non-Trip Related Costs:   Labor cost/Pingar servicing   \$144		Amcoach II	<u>Amlounge II</u>	Sleeper 10-6	Siumbercoach 24-	Viewliner-Sleeper	<u>NA</u>
Labor cost/major servicing Frequency per Year 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4							
Frequency per Year Servicing Cost/Year \$576 \$576 \$48,06 \$2,16 \$48,06 \$N Annual spare partis cost per yr \$700 \$1,276 \$1,276 \$1,276 \$2,246 \$17,216 \$2,246 \$17,216 \$2,246 \$17,216 \$2,246 \$17,216 \$2,246 \$17,216 \$2,246 \$17,216 \$2,246 \$1,276 \$2,246 \$1,276 \$2,246 \$1,276 \$2,246 \$1,276 \$2,246 \$1,276 \$2,246 \$1,276 \$2,246 \$1,276 \$2,246 \$1,277 \$2,246 \$1,277 \$2,246 \$1,277 \$2,246 \$1,277 \$2,246 \$1,277 \$2,246 \$1,277 \$2,246 \$2,247	· · · · · · · · · · · · · · · · · · ·	\$144	\$144	\$1,224	\$2,304	\$1,224	NA
Servicing Cost/Year   \$5.76   \$5.76   \$4.896   \$4.896   \$4.350			· ·				4
Annual spare parts cost per yr Total- Opting Non-Trip Related \$1,276 \$1,277 \$1,277 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$1,10 \$	• • •					_	NA
Trian Copring Non-Trip Related \$1.276 \$1.276 \$9.246 \$1.7216 \$9.246 No. 1772 Pelated Costs:    Trip Related Costs:	_		•			•	NA NA
Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing Cleaning S12 S12 S102 S102 N Pump out and Disposal Pump out cost Pump out minutes S1.27 Pump out Disposal S1.28 S1.29 S1.20 S1.20 N N S1.20 S1.20 N N S1.20 S1.20 S1.20 N N S1.20 S1.20 S1.20 S1.20 N N S1.20 S1.						· · · · · · · · · · · · · · · · · · ·	NA NA
Total maintenance enroute   End of Day/Trip Servicing   \$12   \$12   \$102   \$192   \$102   \$1	Total- Opting Non-Trip Helated	\$1,270	Ψ1,270	ψ5,240	\$17,210	Ψ3,240	
End of Day/Trip Servicing - Cleaning - S12 - S12 - S102 - S102 - Light Repair - S0	Trip Related Costs:						
- Cleaning \$12 \$12 \$102 \$192 \$102 N - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Toilet maintenance enroute		•				
- Light Repair \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0		<b>#</b> 40	610	ė100	¢100	\$100	NA
Pump out and Disposal - Pump out Cost - Pump out minutes - 1.27 - O.77 - O.0.0 - O.0.0 - O.0.0 - O.0.0 - V. O.0.0 - Connect/Disc. minutes - O.70 - V.0.0 - Connect/Disc. minutes - O.70 - V.0.0 - O.0.0 - V.0.0 - V.0.	<del>-</del>			* : :	· · · · · · · · · · · · · · · · · · ·	•	
- Pump out Cost \$4.96 \$4.66 \$0.66 \$1.20 \$1.02 N - Pump out minutes 1.27 0.77 1.10 1.99 1.69 N - Connect/Disc. minutes 7.0 7.0 0.0 0.0 0.0 0.0 N - Waste Disposal \$3.00 \$2.49 \$1.12 \$2.03 \$1.73 N Subtotal- End of Day/Trip Srvc \$19.96 \$19.15 \$103.77 \$195.23 \$104.74 N Train Delay: - Pump out volume req'd 100 100 0 0 0 0 0 N - # of stops req'd 1 1 1 0 0 0 0 0 N - Pump out minutes 1.7 1.7 0.0 0.0 0.0 0.0 N - Pump out minutes 1.7 1.7 0.0 0.0 0.0 N - Connect/Disc. minutes 7.0 7.0 0.0 0.0 0.0 N - Connect/Disc. minutes 5.5 \$5 \$0 \$0 \$0 \$0 N N - Connect/Disc. minutes 7.0 7.0 0.0 0.0 0.0 N - Total Time Delay(mins/car) 9 9 9 0 0 0 0 0 N - Total Time Delay(mins/car) 9 9 9 0 0 0 0 N - Total Time Delay \$5 \$5 \$0 \$0 \$0 \$0 N - Total Arcars in fleet 119 25 82 16 2 N - Total Arnual Car-days 43.435 9,125 29,930 5,840 730 N - Adjusted Total Car-days 34.748 7,300 23,944 4,672 584 N - Days per Trip (min. of 1) 2 2 2 2 2 2 2 2 - Annual Oprtng Trip Related per Car \$3.673 \$3.556 \$15,151 \$28,503 \$15,292 N - Annual Oprtng Trip Related per Car \$1.276 \$1.276 \$9.246 \$17,216 \$9.246 N - Annual Oprtng Trip Related per Car \$4.949 \$4.832 \$24,397 \$45,719 \$24,538 N - Total OPRTNG COST per Car \$4.949 \$4.832 \$24,397 \$45,719 \$24,538 N - Total OPRTNG COST per Car \$4.949 \$4.832 \$24,397 \$45,719 \$24,538 N - Total OPRTNG COST per Car \$4.949 \$4.832 \$24,397 \$45,719 \$24,538 N - Total OPRTNG COST per Car \$4.949 \$4.832 \$24,397 \$45,719 \$24,538 N - Total OPRTNG COST per Car \$4.949 \$4.832 \$24,397 \$45,719 \$24,538 N - Total OPRTNG COST per Car \$4.949 \$4.832 \$24,397 \$45,719 \$24,538 N - Total OPRTNG COST per Car \$4.949 \$4.832 \$24,397 \$45,719 \$24,538 N - Total OPRTNG COST for all cars \$588,976 \$12,0790 \$2,000,566 \$731,507 \$49,077 N	• •	*0	20	20	20	<b>⊅</b> 0	20
- Pump out minutes	•						
- Connect/Disc. minutes 7.0 7.0 0.0 0.0 0.0 0.0 No. Waste Disposal \$3.00 \$2.49 \$1.12 \$2.03 \$1.73 No. Subtotal- End of Day/Trip Srvc \$19.96 \$19.15 \$103.77 \$195.23 \$104.74 No. Train Delay:  - Pump out volume req'd 100 100 0 0 0 0 0 0 No. Pump out minutes 1.7 1.7 0.0 0.0 0.0 No. Pump out minutes 1.7 1.7 0.0 0.0 0.0 No. Pump out minutes 1.7 1.7 0.0 0.0 0.0 No. Pump out minutes 1.7 1.7 0.0 0.0 0.0 No. Pump out minutes 1.7 1.7 1.7 0.0 0.0 0.0 No. No. Pump out minutes 1.7 1.7 1.7 0.0 0.0 0.0 No. No. Pump out minutes 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7	•	*	•	• • • •	-	<u>-</u>	NA
-Waste Disposal \$3.00 \$2.49 \$1.12 \$2.03 \$1.73 No. Subtotal- End of Day/Trip Srvc \$19.96 \$19.15 \$103.77 \$195.23 \$104.74 No. Train Delay:  - Pump out volume req'd 100 100 0 0 0 0 0 No. Pump out volume req'd 1 1 1 0 0 0 0 0 No. Pump out minutes 1.7 1.7 0.0 0.0 0.0 No. Pump out minutes 1.7 1.7 0.0 0.0 0.0 No. No. Pump out minutes 1.7 1.7 1.7 0.0 0.0 0.0 0.0 No. Pump out minutes 1.7 1.7 1.7 0.0 0.0 0.0 0.0 No. Pump out minutes 1.7 1.7 1.7 0.0 0.0 0.0 0.0 No. No. Pump out minutes 1.7 1.7 1.7 0.0 0.0 0.0 0.0 No. No. Pump out minutes 1.7 1.7 1.7 0.0 0.0 0.0 0.0 No. Pump out minutes 1.7 1.7 1.7 0.0 0.0 0.0 0.0 No. Pump out minutes 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7							NA
Subtotal- End of Day/Trip Srvc \$19.96 \$19.15 \$103.77 \$195.23 \$104.74 No. Train Delay:  - Pump out volume req'd 100 100 0 0 0 0 0 No. 1 0 No. 1 0 0 0 0 0 No. 1 0 No. 1 0 0 No. 1 0 No. 1 0 0 No. 1 0 N	- Connect/Disc. minutes	7.0	7.0	0.0	0.0	0.0	NA
Train Delay: - Pump out volume req'd 100 100 0 0 0 0 0 0 N -# of stops req'd 1 1 1 0 0 0 0 0 N - Pump out minutes 1.7 1.7 0.0 0.0 0.0 N - Connect/Disc. minutes 7.0 7.0 0.0 0.0 0.0 N - Connect/Disc. minutes 7.0 7.0 0.0 0.0 0.0 N - Connect/Disc. minutes 7.0 0.0 0.0 0.0 N - Connect/Disc. minutes 7.0 0.0 0.0 0.0 N - Total Time Delay(mins/car) 9 9 0 0 0 0 0 N - Total Time Delay(mins/car) 9 9 0 0 0 0 N - Total Time Delay(mins/car) 9 9 0 0 0 0 N - Subtotal- Opring Trip Related \$25 \$24 \$104 \$195 \$105 N  Total # Cars in fleet 119 25 82 16 2 N - Total Annual Car-days 43,435 9,125 29,930 5,840 730 N - Adjusted Total Car-days 34,748 7,300 23,944 4,672 584 N - Days per Trip (min. of 1) 2 2 2 2 2 2 2 2 2 2 - Annual Opring Trip Related per Car \$3,673 \$3,576 \$15,151 \$28,503 \$15,292 N - Annual Opring Trip Related per Car \$1,276 \$1,276 \$9,246 \$17,216 \$9,246 N - Annual Opring Trip Related per Car Type \$437,132 \$88,890 \$1,242,394 \$456,051 \$30,585 N - Annual Opring Trip Related per Car Type \$151,844 \$31,900 \$758,172 \$275,456 \$18,492 N - Total OPRTNG COST per Car \$4,949 \$4,832 \$24,397 \$45,719 \$24,538 N - Total OPRTNG COST for all cars \$588,976 \$120,790 \$2,000,566 \$731,507 \$49,077 N - Total OPRTNG COST for all cars \$588,976 \$120,790 \$2,000,566 \$731,507 \$49,077 N	- Waste Disposal	<u>\$3.00</u>	<u>\$2.49</u>	<u>\$1,12</u>	<u>\$2.03</u>	<u>\$1.73</u>	<u>NA</u>
- Pump out volume req'd 100 100 0 0 0 0 0 0 0   -# of stops req'd 1 1 1 0 0 0 0 0 0   - Pump out minutes 1.7 1.7 0.0 0.0 0.0 0.0 N.   - Pump out minutes 7.0 7.0 7.0 0.0 0.0 0.0 N.   - Connect/Disc. minutes 7.0 7.0 0.0 0.0 0.0 N.   - Connect/Disc. minutes 7.0 7.0 0.0 0.0 0.0 N.   - Total Time Delay(mins/car) 9 9 9 0 0 0 0 0 N.   - Average Cost Per Delay \$5 \$5 \$5 \$0 \$0 \$0 \$0 N.   - Subtotal- Opring Trip Related \$25 \$24 \$104 \$195 \$105 N.   - Total # Cars in fleet 119 25 82 16 2 N.   - Total Annual Car-days 43,435 9,125 29,930 5,840 730 N.   - Adjusted Total Car-days 34,748 7,300 23,944 4,672 584 N.   - Days per Trip (min. of 1) 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		\$19.96	\$19.15	\$103.77	\$195.23	\$104.74	NA
- # of stops req'd 1 1 1 0 0 0 0 0 N Purpout minutes 1.7 1.7 1.7 0.0 0.0 0.0 0.0 N Purpout minutes 1.7 1.7 1.7 0.0 0.0 0.0 0.0 N Purpout minutes 7.0 7.0 0.0 0.0 0.0 N Purpout minutes 7.0 7.0 0.0 0.0 0.0 N Purpout minutes 7.0 7.0 0.0 0.0 0.0 N Purpout minutes 7.0 0.0 0.0 N Purpout Minutes 7.0 0.0 0.0 N Purpout Minutes 7.0 0.0 0 0 N Purpout Minutes 7.0 0.0 N Purpout Minutes 7.0 0.0 N Purpout Minutes 7.0 N Purpout Min	Train Delay:						
- Pump out minutes 1.7 1.7 0.0 0.0 0.0 0.0 No connect/Oisc, minutes 7.0 7.0 0.0 0.0 0.0 No connect/Oisc, minutes 7.0 7.0 0.0 0.0 0.0 No		100	100	0	0	0	NA
- Connect/Disc. minutes 7.0 7.0 0.0 0.0 0.0 0.0 No. 1	- # of stops req'd	1	1	0	0	0	NA
- Total Time Delay(mins/car) 9 9 9 0 0 0 0 0 N Average Cost Per Delay \$5 \$5 \$5 \$0 \$0 \$0 \$0 N S	- Pump out minutes	1.7	1.7	0.0	0.0	. 0.0	NA
- Total Time Delay(mins/car) 9 9 9 0 0 0 0 0 N Average Cost Per Delay \$5 \$5 \$5 \$0 \$0 \$0 \$0 N S	- Connect/Disc. minutes	<u>7.0</u>	<u>7.0</u>	0.0	0.0	0.0	<u>NA</u>
Subtotal-Opring Trip Related         \$25         \$24         \$104         \$195         \$105         N           Total # Cars in fleet         119         25         82         16         2         N           Total Annual Car-days         43,435         9,125         29,930         5,840         730         N           Adjusted Total Car-days         34,748         7,300         23,944         4,672         584         N           Days per Trip (min. of 1)         2	- Total Time Delay(mins/car)					0	NA
Subtotal-Opring Trip Related         \$25         \$24         \$104         \$195         \$105         N           Total # Cars in fleet         119         25         82         16         2         N           Total Annual Car-days         43,435         9,125         29,930         5,840         730         N           Adjusted Total Car-days         34,748         7,300         23,944         4,672         584         N           Days per Trip (min. of 1)         2	Average Cost Per Delay	\$5	\$5	\$0	\$0	\$0	NA
Total Annual Car-days 43,435 9,125 29,930 5,840 730 N Adjusted Total Car-days 34,748 7,300 23,944 4,672 584 N Days per Trip (min. of 1) 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	•			•			NA
Total Annual Car-days 43,435 9,125 29,930 5,840 730 N Adjusted Total Car-days 34,748 7,300 23,944 4,672 584 N Days per Trip (min. of 1) 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2						<del></del>	
Adjusted Total Car-days 34,748 7,300 23,944 4,672 584 N Days per Trip (min. of 1) 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Total # Cars in fleet	119	25	<b>82</b>	16	2	NA
Days per Trip (min. of 1)         2 <td>Total Annual Car-days</td> <td>43,435</td> <td>9,125</td> <td>29,930</td> <td>5,840</td> <td>730</td> <td>NA</td>	Total Annual Car-days	43,435	9,125	29,930	5,840	730	NA
Days per Trip (min. of 1)         2 <td>Adjusted Total Car days</td> <td>24.740</td> <td>7,000</td> <td>22.044</td> <td>4 670</td> <td>E0.4</td> <td>NA</td>	Adjusted Total Car days	24.740	7,000	22.044	4 670	E0.4	NA
Annual Oprtng Trip Related per Car \$3,673 \$3,556 \$15,151 \$28,503 \$15,292 N Annual Non-Trip Related per Car \$1,276 \$1,276 \$9,246 \$17,216 \$9,246 N Annual Oprtng Trip Related per Car Type \$437,132 \$88,890 \$1,242,394 \$456,051 \$30,585 N Annual Non-Trip Related per Car Type \$151,844 \$31,900 \$758,172 \$275,456 \$18,492 N Total OPRTNG COST per Car \$4,949 \$4,832 \$24,397 \$45,719 \$24,538 N Total CAPITAL COST per Car \$15,152 \$15,152 \$94,488 \$173,824 \$94,488 N	•						NA 2
Annual Non-Trip Related per Car \$1,276 \$1,276 \$9,246 \$17,216 \$9,246 N  Annual Opring Trip Related per Car Type \$437,132 \$88,890 \$1,242,394 \$456,051 \$30,585 N  Annual Non-Trip Related per Car Type \$151,844 \$31,900 \$758,172 \$275,456 \$18,492 N  Total OPRTNG COST per Car \$4,949 \$4,832 \$24,397 \$45,719 \$24,538 N  Total CAPITAL COST per Car \$15,152 \$15,152 \$94,488 \$173,824 \$94,488 N  Total OPRTNG COST for all cars \$588,976 \$120,790 \$2,000,566 \$731,507 \$49,077 N	Days per Imp (min. of 1)	2	2	2	<u>2</u>	2	<u>2</u>
Annual Non-Trip Related per Car \$1,276 \$1,276 \$9,246 \$17,216 \$9,246 N  Annual Opring Trip Related per Car Type \$437,132 \$88,890 \$1,242,394 \$456,051 \$30,585 N  Annual Non-Trip Related per Car Type \$151,844 \$31,900 \$758,172 \$275,456 \$18,492 N  Total OPRTNG COST per Car \$4,949 \$4,832 \$24,397 \$45,719 \$24,538 N  Total CAPITAL COST per Car \$15,152 \$15,152 \$94,488 \$173,824 \$94,488 N  Total OPRTNG COST for all cars \$588,976 \$120,790 \$2,000,566 \$731,507 \$49,077 N	Annual Opring Trip Related per Car	\$3,673	\$3,556	\$15,151	\$28,503	\$15,292	NA
Annual Non-Trip Related per Car Type \$151,844 \$31,900 \$758,172 \$275,456 \$18,492 N  Total OPRTNG COST per Car \$4,949 \$4,832 \$24,397 \$45,719 \$24,538 N  Total CAPITAL COST per Car \$15,152 \$15,152 \$94,488 \$173,824 \$94,488 N  Total OPRTNG COST for all cars \$588,976 \$120,790 \$2,000,566 \$731,507 \$49,077 N	, - ,				•		NA
Annual Non-Trip Related per Car Type \$151,844 \$31,900 \$758,172 \$275,456 \$18,492 N  Total OPRTNG COST per Car \$4,949 \$4,832 \$24,397 \$45,719 \$24,538 N  Total CAPITAL COST per Car \$15,152 \$15,152 \$94,488 \$173,824 \$94,488 N  Total OPRTNG COST for all cars \$588,976 \$120,790 \$2,000,566 \$731,507 \$49,077 N	Annual Ondra Trin Polated per Cor Time	\$407.400	<b>\$00.00</b>	¢1 040 004	\$4EC 0E4	¢an Ege	B1A
Total OPRTNG COST per Car         \$4,949         \$4,832         \$24,397         \$45,719         \$24,538         N           Total CAPITAL COST per Car         \$15,152         \$15,152         \$94,488         \$173,824         \$94,488         N           Total OPRTNG COST for all cars         \$588,976         \$120,790         \$2,000,566         \$731,507         \$49,077         N							NA NA
Total CAPITAL COST per Car \$15,152 \$15,152 \$94,488 \$173,824 \$94,488 N  Total OPRTNG COST for all cars \$588,976 \$120,790 \$2,000,566 \$731,507 \$49,077 N	Annual Noti-Trip helated per Car Type	<u>\$151,844</u>	<u>\$31,900</u>	<u>\$/58,1/2</u>	<u>\$275,456</u>	<u>\$18.492</u>	NA
Total OPRTNG COST for all cars \$588,976 \$120,790 \$2,000,566 \$731,507 \$49,077 N	Total OPRTNG COST per Car	\$4,949	\$4,832	\$24,397	\$45,719	\$24,538	NA
	Total CAPITAL COST per Car	\$15,152	\$15,152	\$94,488	\$173,824	\$94,488	NA
	Total OPPTNG COST for all core		\$100 700	\$0,000 ECC	¢701 E07°	・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・	NIA-
ू। otal CAPITAL COST for all cars \$1,803,088 \$378,800 \$7,748,016 \$2,781,184 \$188,976	Biffer facility of the first of the control of the					<ul> <li>4 (4) (4) (1) (1) (1) (1)</li> </ul>	
twenty and the control of the contro	I DIAI CAPITAL COST for all cars	\$1,803,088	\$378,800	\$7,748,016	\$2,781,184	\$188,976	NA

Amtrak Route: Origin/Destination: Length in Miles: Length in Hours: Expected Trips per Day: Manufacturer: Equipment:	Benjamin Franklin Boston-Philadelphia 322 6.55 2 Monogram Modified Vacuum		Route Number: #1	193		
Scenario:	Unfavorable					
* All data on per car basis (unless noted	20000 Amcafe	21000 <u>Am∞ach</u>	20100 Amclub	NA NA	NA NA	NA <u>NA</u>
Quantity of cars	1	1	3	NA	NA	NA.
Capacity (# people) - seated Toilets per car	53 2	84 2	41 2	NA NA	NA NA	. NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:				•		
Human Waste/day (gals)	23.80	37.72	18.41	NA	NA	NA ∞
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	33.4	52.9	25.8	NA	NA	NA
Capacity Req'd/day (gals)	31.2	49.5	24.1	NA NA	NA	NA
Adj. Capacity Req'd w/ Buffer	39.0	61.8	30.2	. NA	NA 285	NA 225
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	145 201%	91 127%	187 260%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	11.0	7.0	14.3	NA	NA	NA
As a percentage of 3 days	367.81%	232.07%	475.46%	NA.	NA	NA
Consecutive Trips before pumpout	22.0	13.0	28.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	<u>\$5,000</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$26,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
Total Capital Cost	\$28,016	\$28,016	\$28,016	. NA	NA NA	NA NA

Amtrak Route:	Benjamin Franklin	ŗ	Route Number: #	193		
Origin/Destination:	Boston-Philadelphia					
Length in Miles:	322					
Length in Hours:	6.55					
Expected Trips per Day:	2					
Manufacturer:	Monogram					
Equipment:	Modified Vacuum					
• •						
Scenario:	Unfavorable					
* All data on per car basis (unless noted o	•	04000	00400	A)A	NIA	N
	20000 Amcafe	21000 Amcoach	20100 <u>Amclub</u>	NA NA	NA NA	N/ N/
OPERATING COSTS	MINOLIG	Mincoacij	<u> Milloldia</u>	130	1363	174
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	N/
Frequency per Year	4	4	<u>4</u>	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$57 <del>6</del>	\$57 <b>6</b>	\$57 <del>6</del>	NA	NA NA	N/
Annual spare parts cost per yr	\$1,300	\$1,300	\$1,300	NA NA	NA	N/
Total- Opring Non-Trip Related	\$1,876	\$1,876	\$1,876	NA NA	NA NA	N/
Total- Opining Hon-Trip Herated	Ψ1,070	Ψ1,010	Ψ1,010	110	1315	147
Trin Balatad Caster						
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing					æ	
- Cleaning	\$12	\$12	\$12	NA	NA	N/
	•	=				
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0
Pump out and Disposal	** **					
- Pump out Cost	\$0.31	\$0.49	\$0.24	NA	NA	N/
- Pump out minutes	0.52	0.82	0.40	NA	NA	N/
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	N/
- Waste Disposal	<u>\$1.06</u>	<u>\$1.68</u>	<u>\$0.82</u>	<u>NA</u>	<u>NA</u>	<u>N/</u>
Subtotal- End of Day/Trip Srvc	\$13.37	\$14.18	\$13.06	NA	ŇA	N/
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	Ň/
- # of stops req'd	0	0	0	NA	NA	N/
- Pump out minutes	0.0	0.0	0.0	NA	NA	N/
- Connect/Disc. minutes	0.0	0.0	0.0	<u>NA</u>	<u>NA</u>	N/
- Total Time Delay(mins/car)	0			NA	NA	N/
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	N/
Subtotal- Oprtng Trip Related	\$13	\$14	\$13	NA	NA	N/
		<del></del>	=			
Total # Cars in fleet	45	266	24	NA	NA	N/
		444			,	•••
Total Annual Car-days	16,425	97,090	8,760	NA -	. NA	N/
	,	31,000	-,	,		
Adjusted Total Car-days	13,140	77,672	7,008	NA	NA	N/
Days per Trip (min. of 1)	1	1	1	1	1	1
says por trip (time or ty	•	7	_	7	7	-
Annual Opring Trip Related per Car	\$3,905	\$4,140	\$3,814	NA	NA	N/
Annual Non-Trip Related per Car	\$1,876			NA NA	NA NA	
Allinda Non-Trip Aelated per Cal	, \$1,070	\$1,876	\$1,876	INA	IVA	N/
Annual Opring Trip Related per Car Type	¢175 707	\$4 404 400	\$04 E40	NA	NA	N/
	\$175,727	\$1,101,138	\$91,542	NA	NA NA	N/
Annual Non-Trip Related per Car Type	<u>\$84,420</u>	<u>\$499,016</u>	<u>\$45,024</u>	<u>NA</u>	<u>NA</u>	<u>N</u> A
Total ODDING COST C	Ac 304	***	A			
Total OPRING COST per Car	\$5,781	\$6,016	\$5,690	NA	NA	N/
Total CAPITAL COST per Car	\$28,016	\$28,016	\$28,016	NA	NA	N/
	n sa kanggaran nasa ka	<b>A</b> 0000 <b>A</b> 000 <b></b>	e Mark Libraria secon	. Kanabera	"n water (favore general policy and not have	supportations
Total OPRTNG COST for all cars	\$260,147	\$1,600,154	\$136,566	NA ·	NA	NA.
Total CAPITAL COST for all cars	\$1,260,720	\$7,452,256	\$672,384	NA	NA	N/

Amtrak Route: Route Number: #193 Benjamin Franklin Origin/Destination: Boston-Philadelphia Length in Miles: 322 Length in Hours: 6.55 Expected Trips per Day: 2 Manufacturer: Monogram Self-Cont'd Recirc Equipment: Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 20000 21000 20100 NA NΑ NA NA **Amcafe** Amcoach-Amclub Quantity of cars 3 NA NA NA NA Capacity (# people) - seated 53 41 NA NA Toilets per car 2 NA NA NA NA NA Average persons/toilet on train 26.5 42.0 20.5 NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 23.80 37.72 18.41 NA NA NA # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 Adi. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.000 0.000 0.000 0.000 0.000 0.000 Flush Fluids/day (gals) 0.0 0.0 0.0 NA NA NA Capacity Req'd/day (gals) 13.0 20.6 10.0 NA NΆ NA Adj. Capacity Req'd w/ Buffer 16.2 25.7 NA 12.6 NA NA Tank Capacity per Car (gals) 27 NΑ NA 27 27 NA Continuous Service Hours Supported 25 35% NA 40 52 NΑ NA 55% 72% NA NA As a percentage of 72 hours NA Probable Service Hours per Day 13.1 13.1 13.1 13.1 13.1 13.1 Service Days Supported 3.0 NA NA NA 1.9 3.9 101.55% 64.07% As a percentage of 3 days 131.28% NA ŇΑ NA Consecutive Trips before pumpout 6.0 3.0 7.0 NA NA **CAPITAL COSTS** \$0 \$0 Collection System per Car \$0 \$0 \$0 \$0 Toilet Cost per Car \$6,500 \$6,500 \$6,500 NA <u>NA</u> NA \$6,500 \$6,500 - Total Equip Cost \$6,500 NA NA NA Equipment Installation \$0 \$0 Collection System per Car \$0 \$0 \$0 \$0 Toilet Cost per Car \$576 <u>\$576</u> <u>\$576</u> <u>NA</u> <u>NA</u> NA - Total Installation Cost \$576 \$576 \$576 NA NA NA

\$7,076

\$7,076

NA

NA

NA

\$7,076

**Total Capital Cost** 

Degination   Deg	Amtrak Route:	Benjamin Franklin	8	Route Number:	#193		
Length I Hours:   6.55   Expected Trips per Pary:   2   2   2   2   3   3   3   3   3   3	Origin/Destination:	Boston-Philadelphia		*			
Expected Trips per Day:   2	Length in Miles:	322					
Manufacturer: Self-Cont'd Recirc   Self-Cont'd Re	Length in Hours:	6.55		•			
Seal-Control Recirc   Scenario: Unitarvariable   Scenario: Unitarvariable   Scenario: Unitarvariable   Scenario: Scenario:   Scenario:	Expected Trips per Day:	2					
**All data on per car basis (unless noted otherwise)  **All data on per car basis (unless noted otherwise)  **All data on per car basis (unless noted otherwise)  **All data on per car basis (unless noted otherwise)  **Amcade**  **Decomparison of the per car basis (unless noted otherwise)  **Amcade**  **Non-Trip Related Costs:  **Labor costMargior servicing  **S76**  **S776**  **S776**  **S876**  **S776**  **NA**  **NA**  **NA**  **NA**  **NA**  **Prequency per Year**  **\$4.	Manufacturer:	Monogram					
Automate	Equipment:	Self-Cont'd Recirc					
	Scenario:	Unfavorable	•				
Name	* All data on per car basis (unless noted ot	•					
Common							
Non-Trip Related Costs:   Labor cost/major servicing   \$576   \$576   \$576   \$576   NA   NA   NA   NA   Frequency per Year   4	ODEDATING COSTS	Amcaie	Amcoach	Amciub	NA "	<u>NA</u>	<u>NA</u>
S576							
Frequency per Year		\$576	\$576	\$576	NA	NA	. NA
Servicing Cost/Year   \$2,304	•	·	· ·				
Annual spare parts cost per yr Total- Opring Non-Trip Related \$2,629 \$2,629 \$2,629 \$0.00 NA		_		_	_		
Trip Related Costs:   Toilet maintenance enroute End of Day/Trip Servicing   \$12	_		· ·				
Trip Related Costs: Tollet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$12 NA NA NA NA - Light Repair \$0 \$0 \$0 \$0 \$0  Pump out and Disposal - Pump out Cost \$0.13 \$0.21 \$0.10 NA NA NA NA - Pump out minutes 0.22 0.34 0.17 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA NA - Waste Disposal \$0.57 \$0.91 \$0.44 NA NA NA NA - Waste Disposal \$0.57 \$0.91 \$0.44 NA NA NA NA - Waste Disposal \$0.57 \$0.91 \$0.44 NA NA NA NA - Waste Disposal \$0.57 \$0.91 \$0.44 NA NA NA NA - Waste Disposal \$0.57 \$0.91 \$0.44 NA NA NA NA - Waste Disposal \$0.57 \$0.91 \$0.44 NA NA NA NA - Waste Disposal \$0.57 \$0.91 \$0.44 NA NA NA NA - Waste Disposal \$0.57 \$0.91 \$0.44 NA NA NA NA - Waste Disposal \$0.57 \$0.91 \$0.44 NA NA NA NA - Waste Disposal \$0.07 \$0.00 NA NA NA NA NA - Waste Disposal \$0.00 \$0.00 NA NA NA NA - Waste Disposal \$0.00 \$0.00 NA NA NA NA - Waste Disposal \$0.00 \$0.00 NA NA NA NA - Waste Disposal \$0.00 \$0.00 NA NA NA NA - Waste Disposal \$0.00 \$0.00 NA NA NA NA - Waste Disposal \$0.00 \$0.00 NA NA NA NA - Waste Disposal \$0.00 \$0.00 NA NA NA NA - Waste Disposal \$0.00 \$0.00 NA NA NA NA - Waste Disposal \$0.00 \$0.00 NA NA NA NA - Waste Disposal \$0.00 \$0.00 NA NA NA NA - Waste Disposal \$0.00 \$0.00 NA NA NA NA - Waste Disposal \$0.00 \$0.00 NA NA NA NA - Waste Disposal \$0.00 \$0.00 NA NA NA NA - Total Time Delay(mins/car) \$0.00 \$0.00 NA NA NA NA - Total Time Delay(mins/car) \$0.00 \$0.00 NA NA NA NA - Total Time Delay(mins/car) \$0.00 \$0.00 NA NA NA NA - Total Time Delay(mins/car) \$0.00 \$0.00 NA NA NA NA - Total Time Delay(mins/car) \$0.00 \$0.00 NA NA NA NA - Total Time Delay(mins/car) \$0.00 \$0.00 NA NA NA NA - Total Time Delay(mins/car) \$0.00 \$0.00 NA NA NA NA - Total Time Delay(mins/car) \$0.00 NA NA NA NA NA - Total Time Delay(mins/car) \$0.00 NA NA NA NA NA - Total Time Delay(mins/car) \$0.00 NA NA NA NA NA - Total Time Delay(mins/car) \$0.00 NA							
Toilet maintenance enroute End of Day/Trip Servicing  - Cleaning  \$12 \$12 \$12 \$12 NA NA NA NA NA - Light Repair  \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Total opining man imprincially	42,020	42,020	<b>V</b> 2,020			
Toilet maintenance enroute End of Day/Trip Servicing  - Cleaning  \$12 \$12 \$12 \$12 NA NA NA NA NA - Light Repair  \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Trin Related Costs:				•		
Cleaning	•						
- Cleaning \$12 \$12 \$12 NA NA NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0							
- Light Repair \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	- • -	\$12	\$12	\$12	NA	NA	NA
Pump out and Disposal - Pump out Cost \$0.13 \$0.21 \$0.10 NA NA NA - Pump out minutes 0.22 0.34 0.17 NA NA NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA - Waste Disposal \$0.57 \$0.91 \$0.44 NA NA NA - Waste Disposal \$0.57 \$0.91 \$13.11 \$12.54 NA NA NA - Waste Disposal \$0.57 \$0.91 \$13.11 \$12.54 NA NA NA - Waste Disposal \$0.57 \$0.91 \$13.11 \$12.54 NA NA NA - Waste Disposal \$0.57 \$0.91 \$13.11 \$12.54 NA NA NA NA - Waste Disposal \$0.57 \$0.91 \$13.11 \$12.54 NA NA NA NA - Pump out volume req'd 0 0 0 0 NA NA NA NA NA - # of stops req'd 0 0 0 NA NA NA NA NA - # of stops req'd 0 0 0 NA NA NA NA - Pump out minutes 0.0 0.0 NA NA NA NA - Pump out minutes 0.0 0.0 NA NA NA NA - Connect/Disc. minutes 0.0 0.0 NA NA NA NA - Total Time Delay(mins/car) 0 0 0 NA NA NA NA - Total Time Delay(mins/car) 0 0 0 NA NA NA NA - Total Time Delay \$0 \$0 \$0 NA NA NA NA - Total Time Delay \$13 \$13 \$13 NA NA NA - NA - Total # Cars in fleet 45 266 24 NA NA NA NA - NA - Total Annual Car-days 16,425 97,090 8,760 NA NA NA NA - NA - Adjusted Total Car-days 13,140 77,672 7,008 NA NA NA - NA - Adjusted Total Car-days 13,140 77,672 7,008 NA NA NA - NA - Annual Opring Trip Related per Car \$3,709 \$3,829 \$3,662 NA NA NA NA							
- Pump out Cost \$0.13 \$0.21 \$0.10 NA NA NA NA - Pump out minutes 0.22 0.34 0.17 NA NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NA	- •	•-	,	•-	•-		*-
- Pump out minutes 0.22 0.34 0.17 NA NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 0.0 NA NA NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA	,	\$0.13	\$0.21	\$0.10	NA	NA	NA
- Connect/Disc. minutes	•	0.22		0.17	NA		
- Waste Disposal \$0.57 \$0.91 \$0.44 NA NA NA NA Subtotal- End of Day/Trip Srvc \$12.70 \$13.11 \$12.54 NA NA NA NA NA NA Train Delay:  - Pump out volume req'd 0 0 0 0 NA NA NA NA NA NA - # of stops req'd 0 0 0 0 NA NA NA NA NA - Pump out minutes 0.0 0.0 NA NA NA NA NA - Pump out minutes 0.0 0.0 NA NA NA NA NA NA - Total Time Delay(mins/car) 0 0 0 NA NA NA NA NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA NA NA NA Subtotal- Opring Trip Related \$13 \$13 \$13 NA	•						
Subtotal- End of Day/Trip Srvc         \$12.70         \$13.11         \$12.54         NA         NA         NA           Train Delay:         - Pump out volume req'd         0         0         0         NA         NA         NA           - # of stops req'd         0         0         0         NA         NA         NA           - Pump out minutes         0.0         0         0         NA         NA         NA           - # of stops req'd         0         0         0         NA         NA         NA           - Pump out minutes         0.0         0         0         NA         NA         NA           - Connect/Disc. minutes         0.0         0.0         0.0         NA         NA         NA           - Total Time Delay(mins/car)         0         0         0         NA         NA         NA           Average Cost Per Delay         \$0         \$0         \$0         NA         NA         NA           Subtotal- Oprting Trip Related         \$13         \$13         \$13         NA         NA         NA           Total # Cars in fleet         45         266         24         NA         NA         NA	•						
Train Delay:         - Pump out volume req'd         0         0         0         NA         NA         NA           - # of stops req'd         0         0         0         0         NA         NA         NA           - Pump out minutes         0.0         0.0         0.0         NA         NA         NA           - Connect/Disc. minutes         0.0         0.0         0.0         NA         NA         NA           - Total Time Delay(mins/car)         0         0         0         NA         NA         NA           - Total Time Delay(mins/car)         0         0         0         NA         NA         NA           - Average Cost Per Delay         \$0         \$0         \$0         NA         NA         NA           Subtotal- Oprtng Trip Related         \$13         \$13         \$13         NA         NA         NA           Total # Cars in fleet         45         266         24         NA         NA         NA           Adjusted Total Car-days         16,425         97,090         8,760         NA         NA         NA           Days per Trip (min. of 1)         1         1         1         1         1         1         1 </td <td>•</td> <td></td> <td></td> <td></td> <td>_</td> <td><del></del></td> <td></td>	•				_	<del></del>	
- Pump out volume req'd 0 0 0 0 NA NA NA NA NA -# of stops req'd 0 0 0 0 NA NA NA NA NA NA -# of stops req'd 0 0 0 0 NA NA NA NA NA -Pump out minutes 0.0 0.0 0.0 NA NA NA NA NA -Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA NA NA -Total Time Delay(mins/car) 0 0 0 NA NA NA NA NA NA NA Subtotal- Opring Trip Related \$13 \$13 \$13 \$13 NA	· ·			·			
-# of stops req'd         0         0         0         NA	•	0	0	0	NA	NA	NA
- Pump out minutes         0.0         0.0         0.0         NA         NA         NA           - Connect/Disc. minutes         0.0         0.0         0.0         NA         NA         NA           - Total Time Delay(mins/car)         0         0         0         NA         NA         NA           Average Cost Per Delay         \$0         \$0         \$0         NA         NA         NA           Subtotal- Oprtng Trip Related         \$13         \$13         \$13         NA         NA         NA           Total # Cars in fleet         45         266         24         NA         NA         NA           Total Annual Car-days         16,425         97,090         8,760         NA         NA         NA           Adjusted Total Car-days         13,140         77,672         7,008         NA         NA         NA           Days per Trip (min. of 1)         1         1         1         1         1         1         1         1           Annual Oprtng Trip Related per Car         \$3,709         \$3,829         \$3,662         NA         NA         NA							
- Connect/Disc, minutes         0.0         0.0         0.0         NA         NA         NA         NA           - Total Time Delay(mins/car)         0         0         0         NA         NA         NA         NA           Average Cost Per Delay         \$0         \$0         \$0         NA         NA         NA         NA           Subtotal- Opring Trip Related         \$13         \$13         \$13         NA         NA         NA         NA           Total # Cars in fleet         45         266         24         NA         NA         NA           Total Annual Car-days         16,425         97,090         8,760         NA         NA         NA           Adjusted Total Car-days         13,140         77,672         7,008         NA         NA         NA           Days per Trip (min. of 1)         1	• •	0.0		0.0			
- Total Time Delay(mins/car) 0 0 0 NA NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA NA NA Subtotal- Oprtng Trip Related \$13 \$13 \$13 NA	•	0.0					
Subtotal- Oprtng Trip Related         \$13         \$13         \$13         NA         NA         NA         NA           Total # Cars in fleet         45         266         24         NA         NA         NA           Total Annual Car-days         16,425         97,090         8,760         NA         NA         NA           Adjusted Total Car-days         13,140         77,672         7,008         NA         NA         NA           Days per Trip (min. of 1)         1         1         1         1         1         1         1           Annual Oprtng Trip Related per Car         \$3,709         \$3,829         \$3,662         NA         NA         NA	- Total Time Delay(mins/car)		<del></del>	<del></del>			_
Total # Cars in fleet         45         266         24         NA         NA         NA           Total Annual Car-days         16,425         97,090         8,760         NA         NA         NA           Adjusted Total Car-days         13,140         77,672         7,008         NA         NA         NA           Days per Trip (min. of 1)         1         1         1         1         1         1         1           Annual Oprtng Trip Related per Car         \$3,709         \$3,829         \$3,662         NA         NA         NA	Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA NA
Total Annual Car-days         16,425         97,090         8,760         NA         NA         NA           Adjusted Total Car-days         13,140         77,672         7,008         NA         NA         NA           Days per Trip (min. of 1)         1         1         1         1         1         1         1         1         1         1         1         NA		\$13	\$13		NA.	NA	NA
Total Annual Car-days         16,425         97,090         8,760         NA         NA         NA           Adjusted Total Car-days         13,140         77,672         7,008         NA         NA         NA           Days per Trip (min. of 1)         1         1         1         1         1         1         1         1         1         1         1         NA	· - ·						
Adjusted Total Car-days 13,140 77,672 7,008 NA NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Total # Cars in fleet	45	266	24	NA	NA	NA
Adjusted Total Car-days 13,140 77,672 7,008 NA NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							
Days per Trip (min. of 1)         1         1         1         1         1         1         1         1         1           Annual Oprtng Trip Related per Car         \$3,709         \$3,829         \$3,662         NA         NA         NA	Total Annual Car-days	16,425	97,090	8,760	NA	NA	· NA
Days per Trip (min. of 1)         1         1         1         1         1         1         1         1         1           Annual Oprtng Trip Related per Car         \$3,709         \$3,829         \$3,662         NA         NA         NA		,					
Days per Trip (min. of 1)         1 <td>Adjusted Total Car-days</td> <td>13,140</td> <td>77,672</td> <td>7,008</td> <td>NA</td> <td>NA ·</td> <td>NA</td>	Adjusted Total Car-days	13,140	77,672	7,008	NA	NA ·	NA
Annual Oprtng Trip Related per Car \$3,709 \$3,829 \$3,662 NA NA NA	Days per Trip (min. of 1)						
						_	_
	Annual Oprtng Trip Related per Car	\$3,709	\$3,829	\$3,662	NA	NA	NA
			\$2,629	\$2,629	NA	NA	NA
	·						
Annual Opring Trip Related per Car Type \$166,897 \$1,018,410 \$87,899 NA NA NA	Annual Opring Trip Related per Car Type	\$166,897	\$1,018,410	\$87,899	NA	NA	NA
Annual Non-Trip Related per Car Type \$118,305 \$699,314 \$63,096 NA NA NA		\$118,305					
	• • • •		<del>,</del>	<del></del>	_		<del></del>
Total OPRTNG COST per Car \$6,338 \$6,458 \$6,291 NA NA NA	Total OPRTNG COST per Car	\$6,338	\$6,458	\$6,291	· NA	NA	NA
Total CAPITAL COST per Car \$7,076 \$7,076 NA NA NA	•						
	•						
Total OPRTNG COST for all cars \$285,202 \$1,717,724 \$150,995 NA NA NA	Total OPRTNG COST for all cars	\$285,202	\$1,717,724	\$150,995	NA	NA	NA
Total CAPITAL COST for all cars \$318,420 \$1,882,216 \$169,824 NA NA NA	Total CAPITAL COST for all cars				1 4 5000 CO	11989a)   1111 11 36 January   January 1980 1980 198	9994 - 34 24 24 24 24 24 24 24 24 24 24 24 24 24
And the second and th		<del></del>	Ţ.,ŢŢ <b>Ţ</b>	Ţ.,30,02 Ŧ,	A CALL MAN WAR WAS IN THE		

* All data on per car basis (unless noted otherwise)  * All data on per car basis (unless noted otherwise)  * Amcafe    20000	
Quantity of cars         1         1         3         NA         NA           Cuantity of cars         1         1         3         NA         NA           Capacity (# people) - seated         53         84         41         NA         NA           Toilets per car         2         2         2         NA         NA           Average persons/toilet on train         26.5         42.0         20.5         NA         NA           Car Waste Data (per car)           Black Water:           Human Waste/day (gals)         23.80         37.72         18.41         NA         NA           # Flushes/Person-day         8.00         8.00         8.00         8.00         8.00           Flush efficiency adjustment         1.25         1.25         1.25         1.25         1.25           Adj. # Flushes/Person-day         10         10         10         10         10         10           Flush Fluids/flush (gals)         0.172         0.172         0.172         0.172         0.172         0.172         0.172         0.172         0.172         0.172         0.172         0.172         0.172         0.172         0.172         0.172 <td< th=""><th></th></td<>	
Capacity (# people) - seated         53         84         41         NA         NA           Toilets per car         2         2         2         NA         NA           Average persons/toilet on train         26.5         42.0         20.5         NA         NA           Car Waste Data (per car)           Black Water:           Human Waste/day (gals)         23.80         37.72         18.41         NA         NA           # Flushes/Person-day         8.00         8.00         8.00         8.00         8.00           Flush efficiency adjustment         1.25         1.25         1.25         1.25         1.25           Adj. # Flushes/Person-day         10         10         10         10         10           Flush Fluids/flush (gals)         0.172         <	NA NA
Toilets per car 2 2 2 2 NA NA NA Average persons/toilet on train 26.5 42.0 20.5 NA NA NA NA NA Average persons/toilet on train 26.5 42.0 20.5 NA	NA
Average persons/toilet on train 26.5 42.0 20.5 NA NA  Car Waste Data (per car)  Black Water: Human Waste/day (gals) 23.80 37.72 18.41 NA NA  # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25  Adj. # Flushes/Person-day 10 10 10 10 10 Flush Fluids/flush (gals) 0.172 0.172 0.172 0.172  Flush Fluids/day (gals) 91.2 144.5 70.5 NA NA  Capacity Req'd/day (gals) 62.7 99.4 48.5 NA NA	NA NA
Black Water: Human Waste/day (gals)  # Flushes/Person-day  # Flush	NA
Human Waste/day (gals)       23.80       37.72       18.41       NA       NA         # Flushes/Person-day       8.00       8.00       8.00       8.00       8.00       8.00         Flush efficiency adjustment       1.25       1.25       1.25       1.25       1.25       1.25         Adj. # Flushes/Person-day       10<	
Human Waste/day (gals)       23.80       37.72       18.41       NA       NA         # Flushes/Person-day       8.00       8.00       8.00       8.00       8.00       8.00         Flush efficiency adjustment       1.25       1.25       1.25       1.25       1.25       1.25         Adj. # Flushes/Person-day       10<	
# Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.172 0.172 0.172 0.172 Flush Fluids/day (gals) 91.2 144.5 70.5 NA NA  Capacity Req'd/day (gals) 62.7 99.4 48.5 NA NA	NA
Flush efficiency adjustment       1.25       1.25       1.25       1.25         Adj. # Flushes/Person-day       10       10       10       10       10         Flush Fluids/flush (gals)       0.172       0.172       0.172       0.172       0.172         Flush Fluids/day (gals)       91.2       144.5       70.5       NA       NA         Capacity Req'd/day (gals)       62.7       99.4       48.5       NA       NA	8.00
Adj. # Flushes/Person-day       10       10       10       10       10         Flush Fluids/flush (gals)       0.172       0.172       0.172       0.172       0.172         Flush Fluids/day (gals)       91.2       144.5       70.5       NA       NA         Capacity Req'd/day (gals)       62.7       99.4       48.5       NA       NA	1.25
Flush Fluids/day (gals) 91.2 144.5 70.5 NA NA  Capacity Req'd/day (gals) 62.7 99.4 48.5 NA NA	10
Flush Fluids/day (gals) 91.2 144.5 70.5 NA NA  Capacity Req'd/day (gals) 62.7 99.4 48.5 NA NA	0.172
	NA
Adi Canacity Reg'd w/ Ruffer 78.4 124.3 60.7 NA NA	NA
70.4 124.0 00.7 14A 14A	NA
Tank Capacity per Car (gals) 300 300 300 300 300	300
Continuous Service Hours Supported 92 58 119 NA NA As a percentage of 72 hours 127% 80% 165% NA NA	NA NA
Probable Service Hours per Day         13.1	13.1
Service Days Supported 7.0 4.4 9.1 NA NA	NA '
As a percentage of 3 days 233.58% 147.38% 301.94% NA NA	NA
Consecutive Trips before pumpout 14.0 8.0 18.0 NA NA	NA
CAPITAL COSTS	
Collection System per Car \$10,000 \$10,000 \$10,000 \$10,000	\$10,000
Toilet Cost per Car \$10,000 \$10,000 NA NA	<u>NA</u>
- Total Equip Cost \$20,000 \$20,000 NA NA	NA
Equipment Installation	
Collection System per Car \$576 \$576 \$576 \$576 \$576	\$576
Toilet Cost per Car <u>\$576</u> <u>\$576</u> <u>NA</u> <u>NA</u>	<u>NA</u>
- Total Installation Cost \$1,152 \$1,152 NA NA	· NA
Total Capital Cost \$21,152 \$21,152 \$21,152 NA NA	NA

Amtrak Route:	Benjamin Franklin		Route Number: #19	3		
Origin/Destination:	Boston-Philadelphia	 ·				
Length in Miles:	322					
Length in Hours:	6.55	•		•		
Expected Trips per Day:	2	•				
Manufacturer:	Microphor					
Equipment:	Gravity					
Scenario:	Unfavorable					
* All data on per car basis (unless noted		•			•	
	20000	21000	20100	NA NA	NA NA	
OPERATING COSTS	<u>Amcafe</u>	<u>Amcoach</u>	<u>Amclub</u>	<u>NA</u>	<u>NA</u>	
Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	
Frequency per Year	4	4	4	<u>4</u>	<u>4</u>	
Servicing Cost/Year	\$57 <b>6</b>	\$57 <b>6</b>	\$57 <b>6</b>	NA	NA	
Annual spare parts cost per yr	\$1,000	\$1,000	\$1,000	NA	<u>NA</u>	
Total- Opring Non-Trip Related	\$1,576	\$1,576	\$1,576	NA	NA.	
• •					<del></del>	
Trip Related Costs:		=4				
Toilet maintenance enroute			*			
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	
- Light Repair	\$0	\$0	\$0	<b>\$</b> 0	\$0	
Pump out and Disposal						
- Pump out Cost	\$0.63	\$0.99	\$0.49	NA	NA	
- Pump out minutes	1.05	1.66	0.81	NA	NA	
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	
- Waste Disposal	<u>\$2.13</u>	\$3.38	<u>\$1.65</u>	<u>NA</u>	<u>NA</u>	
Subtotal- End of Day/Trip Srvc	\$14.76	\$16.38	\$14.14	NA	NA	
Train Delay:	_	_	_	,		
- Pump out volume req'd	0	0	0	, NA	NA	
- # of stops req'd	0	0	0	NA	NA NA	
- Pump out minutes	0.0	0.0	0.0	NA NA	NA NA	
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	
- Total Time Delay(mins/car) Average Cost Per Delay	0 \$0	0 \$0	0 * \$0	NA NA	NA NA	
Subtotal- Opring Trip Related	\$0 \$15	\$0 \$16	\$14	NA NA	NA NA	
Sublotal-Opting Trip Related	913	\$10	Ψ14	NA.		
Total # Cars in fleet	45	266	24	NA	NA	
TOTAL # OBIS AT HEEL	45	200	44	IVA	INA	
Total Annual Car-days	16,425	97,090	8,760	NA	NA	
	, , , , , , ,	2.,000	5,7.55			
Adjusted Total Car-days	13,140	77,672	7,008	NA	NA	
Days per Trip (min. of 1)	1	1	1	1	1	
,		-	_	-	<del>-</del>	
Annual Opring Trip Related per Car	\$4,310	\$4,782	\$4,128	NA NA	NA	
Annual Non-Trip Related per Car	\$1,576	\$1,576	\$1,576	NA	NA	
· •						
Annual Opring Trip Related per Car Type	\$193,958	\$1,271,937	\$99,064	NA	NA	•
Annual Non-Trip Related per Car Type	\$70,920	<u>\$419,216</u>	\$37,824	<u>NA</u>	<u>NA</u>	
Total OPRTNG COST per Car	\$5,886	\$6,358	\$5,704	NA	NA	
Total CAPITAL COST per Car	\$21,152	\$21,152	\$21,152	NA	NA	
•					•	

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Amtrak Route:	Benjamin Franklin		Route Number:	#193		
Origin/Destination:	Boston-Philadelphia					
Length in Miles:	322					
Length in Hours:	6.55		,			
Expected Trips per Day:	2					
Manufacturer:	Evac					
Equipment:	Ultimate					
Scenario:	Unfavorable					
* All data on per car basis (unless noted						
· · · · · · · · · · · · · · · · · · ·	20000	21000	20100	NA	NA	NA
	Amcafe	Amcoach	Amclub	NA NA	NA NA	NA NA
Quantity of cars	1	1	3	NA	NA	NA.
Capacity (# people) - seated	53	84	41	. NA	NA NA	NA NA
Toilets per car	2	2	. 2	NA	NA NA	NA NA
Average persons/toilet on train	26.5	42.0	20.5	NA	NA	NA
Car Waste Data (per car)						
Black Water:	ž					
Human Waste/day (gals)	23.80	37.72	® 18.41	NA	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	24.9	39.5	19.3	NA	NA	NA
Capacity Req'd/day (gals)	26.6	42.1	20.6	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	33.2	52.7	25.7	NA	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	144 201%	91 127%	187 259%	NA NA	NA NA	NA NA
Probable Service Hours per Day	13.1	13.1	13.1	13.1	13.1	13.1
Service Days Supported	11.0	7.0	14.3	NA	NA	NA
As a percentage of 3 days	367.53%	231.89%	475.09%		NA	NA
Consecutive Trips before pumpout	22.0	13.0	28.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	<u>\$5,800</u>	<u>\$5,800</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$17,800	NA	NA	NA
Equipment Installation				,		-
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	· NA
Total Capital Cost	\$19,816	\$19,816	\$19,816	NA	NA NA	NA

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• *						4
-Amtrak Route:	-Benjamin Franklin		Route Number:	#193		
Origin/Destination:	Boston-Philadelphia					
Length in Miles:	322					
Length in Hours:	6.55					*
Expected Trips per Day:	2				•	
Manufacturer:	Evac					
Equipment:	Ultimate	•				
Scenario:	Unfavorable					
* All data on per car basis (unless noted o	therwise)		<b>c</b> .			
	20000 <u>Amcafe</u>	21000 Amcoach	20100 Amclub	NA NA	NA NA	NA NA
OPERATING COSTS	<del></del>			_		
Non-Trip Related Costs:				•		
Labor cost/major servicing	\$144	\$144	<b>\$144</b>	NA	NA	NA
Frequency per Year	4	<u>4</u>	<u>4</u>	<u>4</u>	4	4
Servicing Cost/Year	\$576	\$576	\$576	NA	NA	NA
Annual spare parts cost per yr	<u>\$890</u>	<u>\$890</u>	<u>\$890</u>	<u>NA</u>	<u> NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,466	\$1,466	\$1,466	NA NA	- NA	NA NA
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	AN
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.27	\$0.42	\$0.21	NA	NA	NA
- Pump out minutes	0.44	0.70	0.34	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$0.90</u>	<u>\$1.43</u>	<u>\$0.70</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$13.17	\$13.85	\$12.90	NA	NA	NA
Train Delay:						
<ul> <li>Pump out volume req'd</li> </ul>	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	· NA
<ul> <li>Connect/Disc. minutes</li> </ul>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Opring Trip Related	\$13	\$14	\$13	NANA	NA	NA NA
Total # Cars in fleet	45	266	24	NA	NA	NA
Total Annual Car-days	16,425	97,090	8,760	NA	NA	NA
•		•		٠		
Adjusted Total Car-days	13,140	77,672	7,008	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	<u>1</u>	· 1	1
Annual Opring Trip Related per Car	\$3,846	\$4,045	\$3,768	NA	NA	NA
Annual Non-Trip Related per Car	\$1,466	\$1,466	\$1,466	NA NA	· NA	NA NA
The Holade per Car	¥1, <del>700</del>	Ψ1, <del>100</del>	Ψ1,700	IVA	1473	1973
Annual Opring Trip Related per Car Type	\$173,051	\$1,076,067	\$90,438	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$65,970</u>	<u>\$389,956</u>	<u>\$35,184</u>	<u>NA</u>	NA	<u>NA</u>
Total OPRTNG COST per Car	\$5,312	\$5,511	\$5,234	NA	NA	NA
Total CAPITAL COST per Car	\$19,816	\$19,816	\$19,816	NA NA	NA NA	NA NA
		, ,				
Total OPRTNG COST for all cars	\$239,021	\$1,466,023	\$125,622	NA NA	NA NA	NA
Total CAPITAL COST for all cars	\$891,720	\$5,271,056	\$475,584	NA	NA	NA

Amtrak Route: Route Number: #193 Benjamin Franklin Origin/Destination: Boston-Philadelphia Length in Miles: 322 Length in Hours: 6.55 Expected Trips per Day: Manufacturer: Railtech WTS 8300 Equipment: Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 20000 21000 20100 NA NA <u>Amclub</u> <u>NA</u> Amcafe **Amcoach** Quantity of cars 3 NA NA NA NA NA Capacity (# people) - seated 53 84 41 NA Toilets per car 2 NA NA NA NA Average persons/toilet on train 26.5 42.0 20.5 NΑ NA Car Waste Data (per car) Black Water: Human Waste/day (gals) NA NA 23.80 37 72 18.41 NA 8.00 # Flushes/Person-day 8.00 8.00 8.00 8.00 00.8 1.25 1.25 1.25 Flush efficiency adjustment 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.263 0.263 0.263 0.263 0.263 0.263 Flush Fluids/day (gals) 139.5 221.1 107.9 NA NA NA NA Capacity Reg'd/day (gals) 89.1 141.2 68.9 NA NA NA NA Adj. Capacity Reg'd w/ Buffer 111.4 176.6 86.2 NA NA NA Tank Capacity per Car (gals) 100 100 100 NΑ NA NA Continuous Service Hours Supported 28 NA NA 30% As a percentage of 72 hours 19% 39% NA NA 13.1 13.1 13.1 Probable Service Hours per Day 13.1 13.1 13.1 1.0 NA NA Service Days Supported 16 21 NA NA As a percentage of 3 days 54.82% 34.59% 70.87% NA NA NA NA NA Consecutive Trips before pumpout 3.0 2.0 4.0 CAPITAL COSTS Collection System per Car \$8,000 \$8,000 \$8,000 NA NA NA Toilet Cost per Car \$6,000 \$6,000 \$6,000 <u>NA</u> NA <u>NA</u> - Total Equip Cost \$14,000 \$14,000 \$14,000 NA NA NA Equipment Installation Collection System per Car \$576 \$576 \$576 NA NA NA Toilet Cost per Car \$576 <u>\$576</u> \$576 <u>NA</u> <u>NA</u> <u>NA</u> NA NA NA - Total Installation Cost \$1,152 \$1,152 \$1,152 NA NA NA \$15,152 \$15,152 \$15,152 **Total Capital Cost** 

Origin/Destination:	Boston-Philadelphia	l .				
ength in Miles:	322					
ength in Hours:	6.55					
Expected Trips per Day:	2				-	
Manufacturer:	Railtech					
Equipment: :	WTS 8300					
Scenario:	Unfavorable					
* All data on per car basis (unless noted o	therwise)					
•	20000	21000	20100	NA	NA	N/
	<u>Amcafe</u>	<u>Amcoach</u>	<u>Amclub</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
DPERATING COSTS Non-Trip Related Costs:						•••
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	4	4	4	<u>4</u>	<u>4</u>	4
Servicing Cost/Year	\$576	\$576	\$576	NA	NA	NA 
Annual spare parts cost per yr	<u>\$700</u>	<u>\$700</u>	<u>\$700</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,276	\$1,276	\$1,276	NA	NA NA	NA
Trip Related Costs:						
Toilet maintenance enroute			•-			
End of Day/Trip Servicing	•					
- Cleaning	\$12	\$12	\$12	NA	NA	N/
- Light Repair	\$0	\$0	\$0	\$0	<b>\$</b> 0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.89	\$1.41	\$0.69	NA	NA	N/
- Pump out minutes	1.49	2.35	1.15	NA	NA	N/
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	· N/
- Waste Disposal	<u>\$3.03</u>	<u>\$4.80</u>	<u>\$2.34</u>	<u>NA</u>	<u>NA</u>	<u>N</u>
Subtotal- End of Day/Trip Srvc	\$15.92	\$18.21	\$15.03	NA	NA	N/
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	N/
- # of stops req'd	0	0	0	NA	NA	N/
- Pump out minutes	0.0	0.0	0.0	NA	NA	N/
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>N/</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	N/
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	N/
Subtotal- Oprtng Trip Related	\$16	\$18	\$15	NA NA	NA	N/
otal # Cars in fleet	45	266	24	NA	NA	N/
Total Annual Car-days	16,425	97,090	8,760	NA	NA	NA
djusted Total Car-days	13,140	77,672	7,008	NA	NA	. N
Days per Trip (min. of 1)	1	1	1	1	1	1
		•				
Annual Opring Trip Related per Car	\$4,649	\$5,319	\$4,390	NA	NA	N/
nnual Non-Trip Related per Car	\$1,276	\$1,276	\$1,276	NA	NA	N/
unnual Oprtng-Trip Related per Car Type	\$209,205	\$1,414,777	\$105,354	NA	NA	N/
Innual Non-Trip Related per Car Type	\$57,420	<u>\$339,416</u>	\$30,624	<u>NA</u>	<u>NA</u>	<u>N</u> A
otal OPRTNG COST per Car	\$5,925	\$6,595	\$5,666	NA	NA	N/
otal CAPITAL COST per Car	\$15,152	\$15,152	\$15,152	NA	NA	N/
otal OPRTNG COST for all cars	ence con	¢4 754 400	Ø405 070	ALÁ.	. JOSEPH 2.	N/A
ola offing cost for all cars	\$266,625	\$1,754,193	\$135,978	NA	NA	IN P

Amtrak Route: Route Number: #200 Metroliner Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 20900 21900 20970 NA Met-Srvc Dinette Met-Srvc Coach Met-Srvc Club NA NA NA Quantity of cars 4 NA NA NA 1 NA NA NA Capacity (# people) - seated 23 60 33 Toilets per car 2 2 2 NA NA NA NA 16.5 NA NA Average persons/toilet on train 11.5 30.0 Car Waste Data (per car) Black Water: Human Waste/day (gals) 10.33 26.94 14.82 NA NA NA 8.00 8.00 # Flushes/Person-day 8.00 8.00 8.00 8.00 1.25 1.25 1.25 1.25 Flush efficiency adjustment 1.25 1.25 10 10 Adj. # Flushes/Person-day 10 10 10 10 Flush Fluids/flush (gals) 0.063 0.063 0.063 0.063 0.063 0.063 Flush Fluids/day (gals) 14.5 37.8 20.8 NA NA NA 17.2 24.7 NA NA Capacity Req'd/day (gals) 45.0 NA Adj. Capacity Req'd w/ Buffer 21.6 56.2 30.9 NA NA NA 235 235 235 235 235 235 Tank Capacity per Car (gals) 100 182 NA Continuous Service Hours Supported 262 NA NA 363% NA NA 253% NA As a percentage of 72 hours 139% 16.68 16.68 16.68 16.68 16.68 16.68 Probable Service Hours per Day Service Days Supported 15.7 6.0 10.9 NA · NA NA As a percentage of 3 days 522.78% 200.40% 364.36% NA NA NA Consecutive Trips before pumpout 94.0 36.0 65.0 NΑ NΑ NA **CAPITAL COSTS** \$21,000 Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 Toilet Cost per Car \$5,000 \$5,000 \$5,000 <u>NA</u> <u>NA</u> <u>NA</u> - Total Equip Cost \$26,000 \$26,000 \$26,000 NA NA NA Equipment Installation Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 Toilet Cost per Car \$576 <u>\$576</u> <u>\$576</u> <u>NA</u> NΑ <u>NA</u> \$2,016 - Total Installation Cost \$2,016 \$2,016 NA NA NA **Total Capital Cost** \$28,016 \$28,016 \$28,016 NA NA NA

## **Arthur D Little**

Amtrak Route: Metroliner Route Number: #200 Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 20970 21900 NA Met-Srvc Coach Met-Srvc Club Met-Srvc Dinette NA NA NA **OPERATING COSTS** Non-Trip Related Costs: Labor cost/major servicing \$144 \$144 \$144 NA NA NA Frequency per Year 4 4 4 Servicing Cost/Year \$576 \$576 \$576 NA NA NA \$1,300 \$1,300 Annual spare parts cost per yr \$1,300 <u>NA</u> <u>NA</u> NA. Total-Oprtng Non-Trip Related \$1,876 \$1,876 \$1,876 NA NA NΑ Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$12 \$12 \$12 NA NA - Cleaning. NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$0.17 \$0.45 \$0.25 NA NA NA - Pump out minutes NA 0.29 0.75 0.41 NA NΑ - Connect/Disc. minutes 0.0 NA NA NΑ 0.0 0.0 - Waste Disposal \$1.76 \$4.59 \$2.52 <u>NA</u> <u>NA</u> NA Subtotal- End of Day/Trip Srvc \$13.93 \$17.04 \$14.77 NA NA NA Train Delay: - Pump out volume reg'd 0 0 0 NA NA NA -# of stops reg'd 0 0 0 NA NA NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 <u>NA</u> <u>NA</u> <u>NA</u> - Total Time Delay(mins/car) 0 Ó 0 NA NΑ NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA Subtotal-Oprtng Trip Related \$14 \$17 \$15 NA NA NA Total # Cars in fleet 13 50 13 NA NA NA Total Annual Car-days 4,745 18,250 4,745 NA NA NA Adjusted Total Car-days 3,796 14,600 3,796 NA NA NA Days per Trip (min. of 1) 1 1 1 1 1 Annual Opring Trip Related per Car \$4,068 \$4,975 \$4,313 NA NA NA Annual Non-Trip Related per Car \$1,876 \$1,876 \$1,876 NA NA NA Annual Opring Trip Related per Car Type \$52.885 \$248,775 \$56,073 NA NA NA Annual Non-Trip Related per Car Type \$24,388 \$93,800 \$24,388 <u>NA</u> <u>NA</u> NA Total OPRTNG COST per Car \$5,944 \$6,851 \$6,189 NA NA NA Total CAPITAL COST per Car \$28,016 \$28,016 \$28,016 NA NA NA

NA

NA

NA

NA

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

\$77,273

\$364,208

\$342,575

\$1,400,800

\$80,461

\$364,208

Amtrak Route: Metroliner Route Number: #200 Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Monogram Equipment: Self-Cont'd Recirc Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 21900 20970 Met-Srvc Club NA Met-Srvc Dinette Met-Srvc Coach NA NA NA Quantity of cars 4 NA NA Capacity (# people) - seated 23 60 33 NA NA NΑ Toilets per car 2 2 2 NA NA NA ŇΑ NA Average persons/toilet on train 11.5 30.0 16.5 NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 10.33 26.94 14.82 NA NA NA # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.000 0.000 0.000 0.000 0.000 0.000 Flush Fluids/day (gals) 0.0 0.0 0.0 NA NA NA Capacity Req'd/day (gals) 7.2 18.7 10.3 NA NA NA Adj. Capacity Req'd w/ Buffer 9.0 23.4 12.9 NA NA NA Tank Capacity per Car (gals) . 27 27 27 NA NA NA Continuous Service Hours Supported As a percentage of 72 hours 50 NA NA 28 NA NA 38% 70% NA NA 100% Probable Service Hours per Day 16.68 16.68 16.68 16.68 16.68 16.68 4.3 3.0 Service Days Supported 1.7 NA NA NA As a percentage of 3 days 144.34% 55.33% 100.60% NA NA NA Consecutive Trips before pumpout 25.0 9.0 18.0 NA NA NA CAPITAL COSTS \$0 Collection System per Car \$0 \$0 \$0 \$0 \$0 Toilet Cost per Car \$6,500 \$6,500 \$6,500 <u>NA</u> <u>NA</u> NA - Total Equip Cost \$6,500 \$6,500 \$6,500 NA NΑ NA Equipment Installation Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 Toilet Cost per Car \$576 <u>\$576</u> <u>\$576</u> <u>NA</u> <u>NA</u> <u>NA</u> - Total Installation Cost \$576 \$576 \$576 NA NA NA

\$7,076

\$7,076

NA

NA

NA

\$7,076

**Total Capital Cost** 

Amtrak Route:	Metroliner		Route Number: #20	0		
Origin/Destination:	Washington DC-Ne	ew York			• *	
Length in Miles:	225					
Length in Hours:	2.78					
Expected Trips per Day:	6				•	
Manufacturer:	Monogram			~		
Equipment:	Self-Cont'd Recirc					
Scenario:	Unfavorable					
* All data on per car basis (unless noted o						
, call co. por call 2000 (200000 110000 1	20900	21900	20970	NA	NA	NA
P	Met-Srvc Dinette	Met-Srvc Coach	Met-Sryc Club	<u>NA</u>	NA	NA
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$576	NA	NA	NA
Frequency per Year	4	. <u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$2,304	\$2,304	\$2,304	NA	NA NA	NA
Annual spare parts cost per yr	\$32 <u>5</u>	\$325	\$32 <u>5</u>	NA	NA ·	NA
Total- Opring Non-Trip Related	\$2,629	\$2,629	\$2,629	NA	NA NA	NA
year opening the terminal		,_,	, , , , , , , , , , , , , , , , , , ,			
Trip Related Costs: Toilet maintenance enroute						
End of Day/Trip Servicing	<b></b>		,			
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	<b>\$0</b>	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.07	\$0.19	\$0.10	NA	NA	NA
- Pump out minutes	0.12	0.31	0.17	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$0.95</u>	<u>\$2,47</u>	<u>\$1.36</u>	<u>NA</u>	NA	ŅA
Subtotal- End of Day/Trip Srvc	\$13.02	\$14.66	\$13.46	NA	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	ŅA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Total Time Delay(mins/car)		. 0		NA NA	NA NA	NA NA
Average Cost Per Delay	\$0	\$0	· \$0	NA	NA	NA
Subtotal- Opring Trip Related	\$13	\$15	\$13	NA	NA	NA
	<del></del>		· · ·			
Total # Cars in fleet	13	50	13	· NA	NA	NA
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
Adjusted Total Car-days	3,796	14,600	3,796	NA	NA .	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
, , , ,		_		_	-	_
Annual Opring Trip Related per Car	\$3,802	\$4,280	\$3,931	NA	NA	NA
Annual Non-Trip Related per Car	\$2,629	\$2,629	\$2,629	NA	NA	NA
•			•			
Annual Oprtng Trip Related per Car Type	\$49,421	\$214,017	\$51,103	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$34,177</u>	<u>\$131,450</u>	<u>\$34.177</u>	<u>NA</u>	<u>NA</u>	NA
Telel ODDTNO COST C	00.454	40.000	A0 500		,	***
Total OPRING COST per Car	\$6,431	\$6,909	\$6,560	NA	NA	NA
Total CAPITAL COST per Car	<b>\$7</b> ,076	\$7,076	\$7,076	NA	NA	NA
Total OPRTNG COST for all cars		<b>¢</b> 0.4€ 407	¢or ooo	. NIA	and the second s	i Seculo Carrie
- PERSON TO A CONTRACTOR OF THE PERSON OF THE STREET OF TH	\$83,598	\$345,467	\$85,280	NA	NA NA	NA
Total CAPITAL COST for all cars	\$91,988	\$353,800	. \$91,988	NA	NA	NA

Amtrak Route: Metroliner Route Number: #200 Origin/Destination: Washington DC-New York Length in Miles: 225 2.78 Length in Hours: Expected Trips per Day: 6 Manufacturer: Microphor Equipment: Gravity Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 20900 21900 20970 NA NA NA Met-Srvc Dinette Met-Srvc Club NA NA NA Met-Srvc Coach NA Quantity of cars NA NA 1 4 Capacity (# people) - seated 33 NA NA NA 23 60 Toilets per car 2 2 2 NA NA NA 11.5 16.5 NA NA NA Average persons/toilet on train 30.0 Car Waste Data (per car) Black Water: Human Waste/day (gals) 10.33 26.94 14.82 NA NA NA # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.172 0.172 0.172 0.172 0.172 0.172 Flush Fluids/day (gals) 39.6 103.2 56.8 NA NA NA Capacity Req'd/day (gals) 34.7 90.4 49.7 NA NA NA Adj. Capacity Req'd w/ Buffer 43.3 113.1 62.2 NA NA NA Tank Capacity per Car (gals) 300 300 300 300 300 300 Continuous Service Hours Supported As a percentage of 72 hours 166 116 NA NA NA 64 NA 88% 161% NA 231% NA Probable Service Hours per Day 16.68 16.68 16.68 16.68 16.68 16.68 Service Days Supported 10.0 3.8 6.9 NA NA NA 332.00% 127.27% As a percentage of 3 days 231.39% NA NA NA Consecutive Trips before pumpout 59.0 22.0 41.0 NA NA NΑ **CAPITAL COSTS** Collection System per Car \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 Toilet Cost per Car \$10,000 \$10,000 \$10,000 <u>NA</u> <u>NA</u> <u>NA</u> - Total Equip Cost \$20,000 \$20,000 \$20,000 NA NA NA **Equipment Installation** \$576 \$576 Collection System per Car \$576 \$576 \$576 \$576 Toilet Cost per Car <u>\$576</u> \$576 \$576 <u>NA</u> <u>NA</u> <u>NA</u> - Total Installation Cost \$1,152 \$1,152 \$1,152 NΑ NA NA

\$21,152

\$21,152

\$21,152

NA

NA

NA

**Total Capital Cost** 

-Amtrak Route:	Metroliner		Route Number: #	200		
Origin/Destination:	Washington DC-Ne	w York	110010 110010			
Length in Miles:	225					
Length in Hours:	2.78					
Expected Trips per Day:	6				•	
Manufacturer:	Microphor					
Equipment:	Gravity					
Scenario:	Unfavorable					
* All data on per car basis (unless noted of	•					
	20900 Met-Srvc Dinette	21900 <u>Met-Srvc Coach</u>	20970 Met-Srvc Club	NA <u>NA</u>	NA <u>NA</u>	NA <u>NA</u>
OPERATING COSTS			*			
Non-Trip Related Costs:		0444	64.44	NIA	NA	NA
Labor cost/major servicing	\$144	\$144	\$144	NA 4		
Frequency per Year	4	4	<u>4</u>	<u>4</u> NA	<u>4</u> NA	<u>4</u> NA
Servicing Cost/Year	\$576	\$576	\$576 \$1,000			
Annual spare parts cost per yr	\$1,000 \$4,570	\$1,000 \$1,576	<u>\$1,000</u> \$1,576	<u>NA</u> NA	<u>NA</u> NA	<u>NA</u> NA
Total- Opring Non-Trip Related	\$1,576	\$1,576	\$1,576	INA	INA	INA
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	<b>\$0</b>
Pump out and Disposal						
- Pump out Cost	\$0.35	\$0.90	\$0.50	NA	NA	NA
- Pump out minutes	0.58	1.51	0.83	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$3.54</u>	<u>\$9.23</u>	<u>\$5.07</u>	<u>NA</u>	NA	NA
Subtotal- End of Day/Trip Srvc	\$15.88	\$22.13	\$17.57	NA	NA '	NÁ
Train Delay:	1 - F					
- Pump out volume req'd	0	0	0	NA	NA	NA
-# of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	, <b>NA</b>	NA	NA
- Connect/Disc. minutes	<u>0.0</u>	<u>0.0</u>	. <u>0.0</u> °	<u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related	\$16	\$22	\$18	NA NA	NA	NA
Total # Cars in fleet	13	50	13	NA	NA	ŅA
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
Adjusted Total Car-days	3,796	14,600	3,796	NA	· NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
·	·	-	-		- <del></del>	_
Annual Opring Trip Related per Car	\$4,638	\$6,462	\$5,131	NA	NA	NA
Annual Non-Trip Related per Car	\$1,576	\$1,576	\$1,576	NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$60,293	\$323,099	\$66,702	NA	NA	NA
Annual Non-Trip Related per Car Type	\$20,488	\$78.800	\$20,488	NA NA	<u>NÁ</u>	NA NA
Annual Non-Trip Helated per Oal Type	<u>\$20,400</u>	<u>\$75,500</u>	<u>Ψ20,400</u>	110	<u>IVA</u>	<u>INA</u>
Total OPRTNG COST per Car	\$6,214	\$8,038	\$6,707	NA	NA	NA
Total CAPITAL COST per Car	\$21,152	\$21,152	\$21,152	NA	NA	NA
Total OPRTNG COST for all cars	\$80,781	\$401,899	\$87,190	NA	NA NA	NA
Total CAPITAL COST for all cars	\$274,976		\$274,976	NA	NA	NA
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#200 Route Number: Amtrak Route: Metroliner Washington DC-New York Origin/Destination: Length in Miles: 225 2.78 Length in Hours: Expected Trips per Day: 6 Manufacturer: Evac Equipment: Ultimate Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 20900 21900 20970 NA NA Met-Srvc Club NA NA NA Met-Srvc Dinette Met-Srvc Coach NA NA NA Quantity of cars Capacity (# people) - seated 23 60 33 NA NA NA Toilets per car 2 2 NA NA NA Average persons/toilet on train 11.5 30.0 16.5 NA NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 26.94 14.82 NA NA NA 10.33 8.00 8.00 8.00 8.00 8.00 8.00 # Flushes/Person-day 1,25 1.25 1.25 1.25 1.25 1.25 Flush efficiency adjustment Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.047 0.047 0.047 0.047 0.047 0.047 Flush Fluids/day (gals) 10.8 28.2 15.5 NA NA NA Capacity Req'd/day (gals) 14.7 38.3 21.1 NA NA NA Adj. Capacity Reg'd w/ Buffer 18.4 47.9 26.3 NA NA NA Tank Capacity per Car (gals) 200 200 200 200 200 200 Continuous Service Hours Supported 261 100 182 NA NA NA 253% As a percentage of 72 hours 363% 139% NA NA NA Probable Service Hours per Day 16.68 16.68 16.68 16.68 16.68 16.68 Service Days Supported 15.7 10.9 NA NA NA 6.0 522.38% 200.25% 364.08% NA NA NA As a percentage of 3 days Consecutive Trips before pumpout 94.0 36.0 65.0 NA NA NA **CAPITAL COSTS** Collection System per Car \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 \$12,000 Toilet Cost per Car \$5,800 \$5,800 \$5,800 <u>NA</u> <u>NA</u> <u>NA</u> - Total Equip Cost \$17,800 \$17,800 \$17,800 NA NA NA Equipment Installation Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 Toilet Cost per Car \$576 \$576 \$576 <u>NA</u> NΑ NA. - Total Installation Cost \$2,016 \$2,016 \$2,016 NA NA NA **Total Capital Cost** \$19,816 \$19,816 \$19,816 NA NA NA

Amtrak Route:	Metroliner		Route Number:	#200		
Origin/Destination:	- Washington DC-Ne	ew York				
ength in Miles:	225					
ength in Hours:	2.78					
Expected Trips per Day:	. 6					
Vanufacturer:	Evac					
Equipment:	Ultimate			9	•	
• •						
Scenario:	Unfavorable					
<ul> <li>All data on per car basis (unless noted of</li> </ul>		c				
	20900	21900	20970	NA	NA	N
	Met-Srvc Dinette	Met-Srvc Coach	Met-Srvc Club	<u>NA</u>	<u>NA</u>	Ŋ
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	, N
Frequency per Year	<u>4</u>	<u>4</u>	4	<u>4</u>	<u>4</u>	
Servicing Cost/Year	\$576	\$576	\$576	NA	NA	N
Annual spare parts cost per yr	\$890	\$890	\$890	<u>NA</u>	NA	<u> </u>
Total- Opring Non-Trip Related	\$1,466	\$1,466	\$1,466	NA NA	NA NA	<u> </u>
			V 11			
Trin Belated Center						
Trip Related Costs:  Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	N
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$1
Pump out and Disposal						
- Pump out Cost	\$0.15	\$0.38	\$0.21	NA	. NA	1
- Pump out minutes	0.24	0.64	0.35	NA	NA	1
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA.	
- Waste Disposal	\$1.50	\$3.9 <u>1</u>	\$2,15	NA NA	NA NA	
•	\$13.65			NA NA	NA NA	1
Subtotal- End of Day/Trip Srvc	\$13.00	\$16.29	\$14.36	NA	INA .	ľ
Train Delay:	_		_			
- Pump out volume req'd	0	0	0	NA	NA	1
- # of stops req'd	0	0	0	NA	NA	1
- Pump out minutes	0.0	0.0	0.0	NA	NA	1
- Connect/Disc. minutes	<u>0.0</u>	0.0	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>1</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	N
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	N
Subtotal- Opring Trip Related	\$14	\$16	\$14	NA	NA	٨
					<del></del>	
Total # Cars in fleet	13	50	13	NA	NA	N
Total Annual Car-days	4,745	18,250	4,745	NA	· NA	N
	•		-			
Adjusted Total Car-days	3,796	14,600	3,796	NA	NA	1
Days per Trip (min. of 1)	1	1	. 1	1	.1	-
Annual Oprtng Trip Related per Car	\$3,984	\$4,757	\$4,193	NA	. NA	
Annual Non-Trip Related per Car	\$1,466	\$1,466	\$1 <u>,</u> 466	NA	NA	N
Annual Opring Trip Related per Car Type	\$51,798	\$237,865	\$54,513	NA	NA	N
Annual Non-Trip Related per Car Type	\$19,058	\$73,300	<u>\$19,058</u>	<u>NA</u>	NA	<u>1</u>
	<u>\$.10,000</u>	<u> </u>	<u>* 12/200</u>	14/4	13/3	<u>.</u>
Total OPRTNG COST per Car	\$5,450	\$6,223	\$5,659	NA	NA	
Total CAPITAL COST per Car	\$19,816	\$19,816	\$19,816	NA NA	NA	١
Total OPRTNG COST for all cars	\$70,856	\$311,165	\$73,571	NA .	NA NA	N
SCHOOLS AND A CONTRACT OF THE	3-		5, 57	NA NA	NA NA	politica de la composição
Total CAPITAL COST for all cars	\$257,608	\$990,800	- a∠5/.6U8	NA :	NA:	N

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Amtrak Route: Metroliner Route Number: #200 Origin/Destination: Washington DC-New York Length in Miles: 225 Length in Hours: 2.78 Expected Trips per Day: 6 Manufacturer: Railtech Equipment: WTS 8300 Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 21900 20970 NA Met-Srvc Coach NA Met-Srvc Dinette Met-Srvc\_Club NA NΑ Quantity of cars 4 1 NΑ NA NA ŇΑ NA Capacity (# people) - seated 23 60 33 NA Toilets per car 2 NA NA NA NA Average persons/toilet on train 11.5 30.0 16.5 NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 10.33 26.94 14.82 NA NA NA # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.263 0.263 0.263 0.263 0.263 0.263 Flush Fluids/day (gals) 60.5 157.9 86.8 NA .NA NA Capacity Req'd/day (gals) 49.2 128.5 70.7 NA NA NA Adj. Capacity Req'd w/ Buffer 61.6 160.6 88.3 NA NA NA Tank Capacity per Car (gals) 100 100 100 NA NA NA 27 38% NA NA Continuous Service Hours Supported 39 15 NA NA 54% As a percentage of 72 hours 21% NA NA 16.68 16.68 16.68 16.68 16.68 16.68 Probable Service Hours per Day Service Days Supported 2.3 0.9 NA NA NA 16 As a percentage of 3 days 77.92% 29.87% 54.31% NA NA NA Consecutive Trips before pumpout 14.0 5.0 9.0 NA NΑ NΑ CAPITAL COSTS Collection System per Car \$8,000 \$8,000 \$8,000 NA NA NA Toilet Cost per Car \$6,000 \$6,000 \$6,000 <u>NA</u> NA NA - Total Equip Cost \$14,000 \$14,000 \$14,000 NA NA NA Equipment Installation Collection System per Car \$576 \$576 \$576 NA NA NA Toilet Cost per Car <u>\$576</u> \$576 <u>\$576</u> <u>NA</u> <u>NA</u> <u>NA</u>

\$1,152

\$15,152

\$1,152

\$15,152

NA

NA

NA

NA

NA

NA

\$1,152

\$15,152

- Total Installation Cost

**Total Capital Cost** 

Amtrak Route:	Metroliner		Route Number:	#200		
Origin/Destination:	Washington DC-Ne	w York				
Length in Miles:	225					
Length in Hours:	2.78					
Expected Trips per Day:	6					•
Manufacturer:	Railtech					
Equipment:	WTS 8300					
Scenario:	Unfavorable					•
* All data on per car basis (unless noted ot	nerwise)					
	20900	21900	20970	NA	NA	NA
•	Met-Srvc Dinette	Met-Srvc Coach	Met-Srvc Club	<u>NA</u>	<u>NA</u>	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	4	4	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u> .
Servicing Cost/Year	\$576	± \$576	\$57 <b>6</b>	NA	 NA	ŅA
Annual spare parts cost per yr	\$700	\$700	\$700	NA NA	NA	NA
Total- Opring Non-Trip Related	\$1,276	\$1,276	\$1,276	NA	NA NA	NA
=		7.,2.	<del>*************************************</del>			<del></del>
Trip Related Costs:		•				
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.49	\$1.28	\$0.71	NA	NA	NA
- Pump out minutes	0.82	2.14	1.18	· NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	· NA	NA
- Waste Disposal	<u>\$5.02</u>	<u>\$13.10</u>	<u>\$7.21</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$17.52	\$26.39	\$19.91	NA	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	· NA
Subtotal- Opring Trip Related	\$18	\$26	\$20	NA NA	NA	NA NA
			· · · · · · ·	<u> </u>		
Total # Cars in fleet	13	50	13	NA	NA	NA.
Total Annual Car-days	4,745	18,250	4,745	NA	NA	NA
	.,, .5	. 5,255	.,			
Adjusted Total Car-days	3,796	14,600	3,796	NA	NA	NA
Days per Trip (min. of 1)	1	. 1	1	1	1	1
Annual Oprtng Trip Related per Car	\$5,114	\$7,705	<b>¢</b> ∈ 0.4 ∈	. <b>NA</b>	NA	A1 A
Annual Non-Trip Related per Car	\$1,276	\$1,276	\$5,815 \$1,276	. NA	NA NA	NA NA
Attitua Non-Tip helated per Car	\$1,276	\$1,276	\$1,276	INA	IVA	NA.
Annual Opring Trip Related per Car Type	\$66,488	\$385,258	\$75,590	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$16,588</u>	\$63,800	\$16,588	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$6,390	\$8,981	\$7,091	NA	NA	NA
Total CAPITAL COST per Car	\$15,152	\$15,152	\$15,152	NA NA	NA NA	NA NA
•	. , –	. , .–	,			
Total OPRTNG COST for all cars	\$83,076	\$449,058	\$92,178	NA	NA	NA
Total CAPITAL COST for all cars	\$196,976	\$757,600	\$196,976	·NA	NA	NA
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Amtrak Route:	Hudson Highlander		Route Number:	¥2 <b>4</b> 2	•	
Origin/Destination:	Albany-New York C					•
Length in Miles:	142					
Length in Hours:	2.62					
Expected Trips per Day:	6					•
Manufacturer:	Monogram					
Equipment:	Modified Vacuum					
Scenario:	Unfavorable					
* All data on per car basis (unless noted						
· , , , , , ,	21000	20200	21800	NA	NA.	NA
	Amcoach	Amdinette	Amcoach	NA	NA	NA
Quantity of cars	3	1	1	NA	NA	NA
Capacity (# people) - seated	84	23	60	NA	NA	NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA
Car Waste Data (per car)						
Black Water:	÷					
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.063	0.063	0.063	0.063	0.063	0.063
Flush Fluids/day (gals)	52.9	14.5	37.8	NA	NA	NA
Capacity Req'd/day (gals)	59.4	16.3	42.4	NA	NA	NA
Adj. Capacity Req'd w/ Butter	74.2	20.3	53.0	NA	NA	NA
Tank Capacity per Car (gals)	235	235	235	235	235	235
Continuous Service Hours Supported As a percentage of 72 hours	76 106%	278 386%	106 148%	NA NA	NA NA	NA NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Service Days Supported	4.8	17.7	6.8	· NA	NA	NA
As a percentage of 3 days	161.16%	588.58%	225.62%	NA	NA	NA
Consecutive Trips before pumpout	29.0	105.0	40.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$21,000
Toilet Cost per Car	<u>\$5,000</u>	<u>\$5,000</u>	\$5,000	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$26,000	\$26,000	\$26,000	NA	NA	NA
Equipment Installation		•	•			
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	\$576	\$576	\$576	NA	NA	NA
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA
Total Capital Cost	\$20.01C	\$20,016	\$20,016	NIA	NA	NIA

\$28,016

\$28,016

NA

NA

NA

\$28,016

**Total Capital Cost** 

Amtrak Route:	Hudson Highlander		Route Number: #	242		
Origin/Destination:	Albany-New-York C	ity				
Length in Miles:	142					
Length in Hours:	2.62					
Expected Trips per Day:	6					
Manufacturer:	Monogram					
Equipment:	Modified Vacuum					
Scenario:	Unfavorable					
* All data on per car basis (unless noted o				•••		
	21000 <u>Amcoach</u>	20200 <u>Amdinette</u>	21800 <u>Arncoach</u>	NA NA	NA <u>NA</u>	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	<u>4</u>	<u>4</u>	4	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$576	\$576	\$576	NA	NA	NA
Annual spare parts cost per yr	<u>\$1,300</u>	<u>\$1,300</u>	<u>\$1,300</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related	\$1,876	\$1,876	\$1,876	NA NA	NA NA	NA_
Trip Related Costs:						
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.59	\$0.16	\$0.42	NA	NA	NA
- Pump out minutes	0.99	0.27	0.71	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA	NA
- Waste Disposal	<u>\$6.06</u>	<u>\$1.66</u>	<u>\$4.33</u>	<u>NA</u>	<u>NA</u>	<u>ŅA</u>
Subtotal- End of Day/Trip Srvc	\$18.65	\$13.82	\$16.75	NA	NA	NA
Train Delay:			_			
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA .
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	0.0	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	· <u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	· NA	NA
Subtotal- Opring Trip Related	\$19	\$14	\$17	NA NA	. NA	NA NA
Total # Cars in fleet	266	25	31	NA	· NA	NA
Total Annual Car-days	97,090	9,125	11,315	ŃΑ	NA	NA
Adjusted Total Car-days	77,672	7,300	9,052	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
Annual Opring Trip Related per Car	\$5,446	\$4,036	\$4,891	NA	NA	NA
Annual Non-Trip Related per Car	\$1,876	\$1,876	\$1,876	NA	NA	NA
Annual Oprtng Trip Related per Car Type	\$1,448,510	\$100,890	\$151,615	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$499,016</u>	\$46,900	<u>\$58,156</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$7,322	\$5,912	\$6,767	NA	NA	NA
Total CAPITAL COST per Car	\$28,016	\$28,016	\$28,016	NA	NA	NA
Total OPRTNG COST for all cars Total CAPITAL COST for all cars	\$1,947,526 \$7,452,256	\$147,790 \$700,400	\$209,771 \$868,496	NA NA	NA NA	NA NA

Route Number: #242 Amtrak Route: Hudson Highlander Origin/Destination: Albany-New York City Length in Miles: 142 Length in Hours: 2.62 Expected Trips per Day: 6 Manufacturer: Monogram Equipment: Self-Cont'd Recirc Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 21800 NA NA NA 21000 20200 <u>Amcoach</u> NA NA NA **Amcoach Amdinette** 3 NA NA NA Quantity of cars 1 1 Capacity (# people) - seated 84 23 60 NA NA NA 2 2 NA NA NA Toilets per car 2 Average persons/toilet on train 42.0 11.5 30.0 NA NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 37 72 10.33 26.94 NA NA NA 8.00 # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 1.25 1.25 1.25 1.25 1.25 Flush efficiency adjustment 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.000 0.000 0.000 0.000 0.000 0.000 Flush Fluids/day (gals) 0.0 0.0 0.0 NA NA NA Capacity Reg'd/day (gals) 24.7 6.8 17.6 NA NA NA Adj. Capacity Reg'd w/ Buffer 30.9 8.5 22.1 NA NA NA Tank Capacity per Car (gals) 27 27 27 NA NA NA Continuous Service Hours Supported 21 29% 29 41% NA NA As a percentage of 72 hours 106% NA NA NA 15.72 15.72 15.72 15.72 15.72 15.72 Probable Service Hours per Day 1.3 4.9 NA NA NA Service Days Supported 1.9 44.50% 162.51% 62.29% NA NA NA As a percentage of 3 days Consecutive Trips before pumpout 8.0 29.0 11.0 NA NA NA CAPITAL COSTS Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 Toilet Cost per Car \$6,500 \$6,500 \$6,500 NA NA <u>NA</u> - Total Equip Cost \$6,500 \$6,500 \$6,500 NA NA NA Equipment Installation Collection System per Car \$0 \$0 \$0 \$0 \$0 \$0 Toilet Cost per Car \$576 \$576 \$576 <u>NA</u> <u>NA</u> <u>NA</u> NA - Total Installation Cost \$576 \$576 \$576 NA NA **Total Capital Cost** \$7,076 \$7,076 \$7,076 NA NA NA

Amtrak Route:	Hudson Highlander		Route Number:	#242		
Origin/Destination:	Albany-New York C		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Length in Miles:	142	, u. y				
Length in Hours:	2.62					
Expected Trips per Day:	2.02 6					
Manufacturer:	Monogram					
Equipment:	Self-Cont'd Recirc					
Scenario:	Unfavorable					
* All data on per car basis (unless noted of	therwise)		•			
	21000 <u>Am∞ach</u>	20200 Amdinette	21800 Amcoach	NA NA	NA <u>NA</u>	NA NA
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$576	\$576	\$576	NA	NA	NA
Frequency per Year	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$2,304	\$2,304	\$2,304	NA	NA	NA
Annual spare parts cost per yr	<u>\$325</u>	<u>\$325</u>	<u>\$325</u>	<u>NA</u>	<u>NA</u>	NA
Total- Opring Non-Trip Related	\$2,629	\$2,629	\$2,629	NA NA	NA NA	NA NA
, , , , , , , , , , , , , , , , , , ,	=			-		<del></del>
Trip Related Costs:	e.					
Toilet maintenance enroute End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal		•				
- Pump out Cost	\$0.25	\$0.07	\$0.18	NA	NA	NA
- Pump out minutes	0.41	0.11	0.29	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA.	NA	NA
- Waste Disposal	\$3.26	\$0.89	\$2.3 <u>3</u>	NA	NA NA	NA NA
Subtotal- End of Day/Trip Srvc	\$15.5 <b>1</b>	\$12.96	\$14.51	NA	NA	NA
Train Delay:	Ψ13.51	Ψ12.30	Ψ14.51	147	100	
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0.	NA NA	NA NA	NA NA
- Pump out minutes	0.0	0.0	0.0	NA NA	NA NA	NA NA
- Connect/Disc. minutes	0.0	0.0 0.0	0.0 0.0	NA NA	NA NA	NA NA
	· 0.0	. <u>0.0</u>	<u>0.0</u> 0	NA NA	NA NA	NA NA
- Total Time Delay(mins/car)	\$0					NA NA
Average Cost Per Delay Subtotal- Opring Trip Related	•	\$0	\$0	NA NA	NA NA	
Subtotal-Opting Trip Related	\$16	\$13	\$15	NA NA	NA	NA NA
Total # Cars in fleet	266	25	31	NA NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA	NA
Adjusted Total Car-days	77,672	7,300	9,052	NA	NA	NA
Days per Trip (min. of 1)	1	1	1	1	1	1
7.1-2. 1.1		-	-	<b>-</b>	<b>-</b>	_
Annual Oprtng Trip Related per Car	\$4,528	\$3,784	\$4,236	NA	NA	NA
Annual Non-Trip Related per Car	\$2,629	\$2,629	\$2,629	NA	NA	NA
		•				
Annual Opring Trip Related per Car Type	\$1,204,535	\$94,612	\$131,306	NA	NA	NA
Annual Non-Trip Related per Car Type	\$699,314	<u>\$65,725</u>	<u>\$81,499</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$7,157	\$6,413	\$6,865	NA	NA	NA
Total CAPITAL COST per Car	\$7,076	\$7,076	\$7,076	NA	NA	NA
	ov 1 <b>44</b>	<b>*</b> ******	المعاددة المائدة المائ		u antitur i sinat, parandi situ ilin di r	. 5 oc. 10. 1 NOTE 02.472 1
Total OPRTNG COST for all cars	\$1,903,849	\$160,337	\$212,805	NA	NA	NA
Total CAPITAL COST for all cars	\$1,882,216	\$176,900	\$219,356	NA	NA	NA

Amtrak Route:

Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles:

160

Length in Hours: Expected Trips per Day: 3.03 4

Manufacturer:

Monogram

Equipment:

Self-Cont'd Recirc

Scenario:

Unfavorable

* All data on per car basis (unless noted	d otherwise)					
	151-Odd <u>Turbo Power Club</u>	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	NA <u>NA</u>	NA <u>NA</u>
Quantity of cars	1	3	1	1	NA	NA
Capacity (# people) - seated Toilets per car	27 1	72 2	52 1	40 1	ŃA NA	NA NA
Average persons/toilet on train	27.0	36.0	52.0	40.0	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	12.12	32.33	23.35	17.96	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	. 10
Flush Fluids/flush (gals)	0.000	0.000	0.000	0.000	0.000	0.000
Flush Fluids/day (gals)	0.0	0.0	0.0	0.0	NA	NA
Capacity Req'd/day (gals)	6.1	16.3	11.8	9.1	NA	NA
Adj. Capacity Req'd w/ Buffer	7.7	20.4	14.7	11.3	NA	NA
Tank Capacity per Car (gals)	13.5	27	13.5	13.5	NA	NA
Continuous Service Hours Supported As a percentage of 72 hours	42 59%	32 44%	22 31%	29 40%	NA NA	NA NA
Probable Service Hours per Day	12.12	12.12	12.12	12.12	12.12	12.12
Service Days Supported	3.5	2.6	1.8	2.4	NA	NA
As a percentage of 3 days	116.44%	87.33%	60.46%	78.60%	NA	NA
Consecutive Trips before pumpout	13.0	10.0	7.0	9.0	NA	NA
CAPITAL COSTS			·			
Collection System per Car	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
Toilet Cost per Car	<u>\$3,250</u>	<u>\$6,500</u>	<u>\$3,250</u>	\$3,250 ·	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$3,250	\$6,500	\$3,250	\$3,250	NA	NA
Equipment Installation						
Collection System per Car	\$0	\$0	\$0	\$0	\$0	\$0
Toilet Cost per Car	<u>\$288</u>	<u>\$576</u>	<u>\$288</u>	<u>\$288</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$288	\$576	\$288	\$288	NA	NA
Total Capital Cost	\$3,538	\$7,076	\$3,538	\$3,538	NA NA	NA

Amtrak Route:	_Hudson Highlander		Route Number: #24	<b>1</b> 2		
Origin/Destination:	Albany-New York C			.2		
Length in Miles:	142	•				
Length in Hours:	2.62					
Expected Trips per Day:	6					
Manufacturer:	Microphor					
Equipment:	Gravity					
Scenario:	Unfavorable					
* All data on per car basis (unless noted						
, in data on por our danie (different field	21000	20200	21800	NA	NA	NA
	Amcoach	<u>Amdinette</u>	Amcoach	<u>NA</u>	<u>NA</u>	NA
Quantity of cars	3	1	1	NA	NA	NA
Capacity (# people) - seated	84	23	60	NA	NA	NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA
Car Waste Data (per car)				d.		*
Car Wasie Daia (per car)						
Black Water:						
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.172	0.172	0.172	0.172	0.172	0.172
Flush Fluids/day (gals)	144.5	39.6	103.2	NA	NA	NA
Capacity Req'd/day (gals)	119.3	32.7	85.2	NA	NA	NA
Adj. Capacity Req'd w/ Buffer	149.2	40.8	106.6	NA	NA	· NA
Tank Capacity per Car (gals)	300	300	300	300	300	300
Continuous Service Hours Supported	48	176	68	NA	NA	NA
As a percentage of 72 hours	67%	245%	94%	NA	NA	· NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
r robable dervice r rours per day	15.72	15.72	13.72	13.72	13.72	. 19.72
Service Days Supported	3.1	11.2	4.3	NA	NA	NA
As a percentage of 3 days	102.35%	373.78%	143.28%	NA	NA	NA
Consorting Triangle before more			05.0	N/4	***	,
Consecutive Trips before pumpout	18.0	67.0	25.0	NA	NA	NA
CAPITAL COSTS						
Collection System per Car	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Toilet Cost per Car	\$10,000	\$10,000	\$10,000	<u>NA</u>	<u>NA</u>	ŅΑ
- Total Equip Cost	\$20,000	\$20,000	\$20,000	NA	NA	NA
Equipment Installation						
Collection System per Car	\$576	\$576	\$576	\$576	\$576	\$576
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	· NA	NA	NA
Total Capital Cost	\$21,152	\$21,152	\$21,152	NA	NA	NA

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3

Amtrak Route: Hudson Highlander Route Number: #242 Origin/Destination: Albany-New York City Length in Miles: 142 Length in Hours: 2.62 Expected Trips per Day: 6 Manufacturer: Microphor Equipment: Gravity Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 21000 20200 21800 NA NA **Amdinette** NΑ NA NA **Amcoach** Amcoach **OPERATING COSTS** Non-Trip Related Costs: NA \$144 Labor cost/major servicing \$144 \$144 NA NA Frequency per Year \$576 \$576 NA Servicing Cost/Year \$576 NA NA \$1,000 Annual spare parts cost per yr \$1,000 \$1,000 ŇΑ <u>NA</u> NA Total-Opring Non-Trip Related \$1,576 ŇΑ \$1,576 \$1,576 NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing - Cleaning \$12 \$12 \$12 NA NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal - Pump out Cost \$1.19 \$0.33 \$0.85 NA NA NA - Pump out minutes 0.54 1 99 1 42 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA NA - Waste Disposal \$12.17 \$3.33 \$8.69 <u>NA</u> NA <u>NA</u> Subtotal- End of Day/Trip Srvc \$25.37 \$15.66 \$21.55 NA NA NA Train Delay: - Pump out volume reg'd 0 0 0 NA NA NA - # of stops reg'd 0 0 0 NA NA NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 <u>NA</u> <u>NA</u> NA - Total Time Delay(mins/car) 0 0 0 NA NA NA Average Cost Per Delay \$0 \$0 \$0 NA NA NA \$25 Subtotal-Oprtng Trip Related \$16 \$22 NA NA NA Total # Cars in fleet 266 25 31 NA NA NA Total Annual Car-days 97,090 9,125 11,315 NA NA NA 9,052 Adjusted Total Car-days 77 672 7,300 NA NA NA Days per Trip (min. of 1) 1 1 1 Annual Opring Trip Related per Car \$7,407 \$4,573 \$6,292 NA NA NA Annual Non-Trip Related per Car \$1,576 \$1,576 \$1,576 NA NA. NA \$114,316 Annual Oprtng Trip Related per Car Type \$1,970,220 \$195,044 NA NA NA Annual Non-Trip Related per Car Type \$48,856 \$419,216 \$39,400 <u>NA</u> <u>NA</u> NA Total OPRTNG COST per Car \$8,983 \$6,149 \$7,868 NA NA NA Total CAPITAL COST per Car \$21,152 \$21,152 \$21,152 NA NA NA Total OPRTNG COST for all cars \$2,389,436 \$153,716 \$243,900 NA NΑ NA Total CAPITAL COST for all cars \$5,626,432 \$528,800 \$655,712

## **Arthur D Little**

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Amtrak Route:	Hudson Highlander		Route Number:#24	2		
Origin/Destination:	Albany-New York C	City				
Length in Miles:	142	•				
Length in Hours:	2.62					
Expected Trips per Day:	6				•	
Manufacturer:	Evac					
Equipment:	Ultimate					
Scenario:	Unfavorable					
* All data on per car basis (unless noted	athomica)					
7 iii dala on por dar basis (umess noteu	21000	20200	21800	NA	NA	NA
•	Amcoach	Amdinette	Amcoach	NA NA	NA NA	NA NA
Quantity of cars	3	1	1	NA	· NA	NA .
Capacity (# people) - seated	84	23	60	NA NA	NA NA	
Toilets per car	2	. 2	2	NA NA	NA NA	NA NA
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA NA
			33.3			147
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1.25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.047	0.047	0.047	0.047	0.047	0.047
Flush Fluids/day (gals)	39.5	10.8	28.2	NA	NA	NA
Capacity Req'd/day (gals)	50.6	13.8	36.1	NA	. NA	NA
Adj. Capacity Req'd w/ Buffer	63.2	17.3	45.1	NA	NA	NA
Tank Capacity per Car (gals)	200	200	200	200	200	200
Continuous Service Hours Supported As a percentage of 72 hours	76 105%	277 385%	106 148%	NA NA	NA NA	NA NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Service Days Supported	4.8	17.6	6.8	NA	NA	NA
As a percentage of 3 days	161.04%	588.13%	225.45%	NÁ	NA	NA
Consecutive Trips before pumpout	28.0	105.0	40.0	NA	NA	NA
CAPITAL COSTS		•				
Collection System per Car	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000	\$12,000
Toilet Cost per Car	<u>\$5,800</u>	\$5,800	<u>\$5,800</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$17,800	\$17,800	\$17,800	NA	NA NA	NA
Equipment Installation						
Collection System per Car	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440	\$1,440
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	<u>NA</u>	NA	NA.
- Total Installation Cost	\$2,016	\$2,016	\$2,016	NA	NA	NA.
Total Capital Cost	\$19,816	\$19,816	\$19,816	NA	NA	NA

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Amtrak Route: Origin/Destination: Length in Miles: Length in Hours:

Hudson Highlander

Albany-New York City 142

2.62 6

Expected Trips per Day:

Manufacturer: Equipment:

Evac Ultimate

Scenario:

Unfavorable

* All data on per car basis (unless noted other	erwise)					
	21000 Amcoach	20200 Amdinette	21800 Amcoach	NA <u>NA</u>	NA <u>NA</u>	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$144	\$144	\$144	NA	NA	NA
Frequency per Year	4	4	4	<u>4</u>	4	4
Servicing Cost/Year	\$576	\$576	\$57 <b>6</b>	NA NA	NA	NA NA
Annual spare parts cost per yr	\$890	\$890	\$890	NA	<u>NA</u>	NA
Total- Opring Non-Trip Related	\$1,466	\$1,466	\$1,466	NA NA	NA NA	NA
Trip Related Costs:						
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$12	\$12	\$12	NA	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	<b>\$0</b>	\$0
Pump out and Disposal						
- Pump out Cost	\$0.51	\$0.14	\$0.36	NA	NA	· NA
- Pump out minutes	0.84	0.23	0.60	NA	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	NA	NA ´	NA
- Waste Disposal	<u>\$5.16</u>	<u>\$1,41</u>	<u>\$3.68</u>	<u>NA</u>	NA	<u>NA</u>
Subtotal- End of Day/Trip Srvc	\$17.66	\$13.55	\$16.05	NA	NA	NA
Train Delay:						
- Pump out volume req'd	0	0	0	NA	NA	NA
- # of stops req'd	0	0	0	NA	NA	NA
- Pump out minutes	0.0	0.0	0.0	NA	NA	NA
- Connect/Disc. minutes	0.0	<u>0.0</u>	<u>0.0</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Time Delay(mins/car)	0	0	0	NA	NA	NA
Average Cost Per Delay	\$0	\$0	\$0	NA	NA	NA
Subtotal- Oprtng Trip Related =	\$18	\$14	\$16	NA NA	NA	NA NA
Total # Cars in fleet	266	25	31	NA	NA	NA
Total Annual Car-days	97,090	9,125	11,315	NA	NA	NA
Adjusted Total Car-days	77,672	7,300	9,052	NA NA	NA	NA
Days per Trip (min. of 1)	1	1.	. 1	1 .	1	1
Annual Oprtng Trip Related per Car	\$5,158	\$3,957	\$4,685	NA NA	, NA	NA
Annual Non-Trip Related per Car	\$1,466	\$1,466	\$1,466	NA	NA	NA .
Annual Oprtng Trip Related per Car Type	\$1,371,928	\$98,919	\$145,240	NA	NA	NA
Annual Non-Trip Related per Car Type	<u>\$389,956</u>	<u>\$36,650</u>	<u>\$45,446</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
Total OPRTNG COST per Car	\$6,624	\$5,423	\$6,151	NA	NA	, NA
Total CAPITAL COST per Car	\$19,816	\$19,816	\$19,816	NA	NA	NA .
Total OPRTNG COST for all cars	\$1,761,884	\$135,569	\$190,686	NA	NA	NA
Total CAPITAL COST for all cars	\$5,271,056	\$495,400	\$614,296	NA	NA	NA NA

Route Number:

#242

Amtrak Route:	Hudson Highlander Ro		Route Number: #242			
Origin/Destination:	Albany-New York C	ity				
Length in Miles:	142	•				
Length in Hours:	2.62					
Expected Trips per Day:	6					•
Manufacturer:	Railtech					
Equipment:	WTS 8300					
Scenario:	Unfavorable					
* All data on per car basis (unless noted	otherwise)					
•	21000	20200	21800	NA	NA	NA
	<u>Amcoach</u>	<u>Amdinette</u>	Amcoach	<u>NA</u>	<u>NA</u>	<u>NA</u>
Quantity of cars	3	1	1	NA	NA	NA
Capacity (# people) - seated	84	23	60	NA	NA	NA
Toilets per car	2	2	2	NA	NA	NA
Average persons/toilet on train	42.0	11.5	30.0	NA	NA	NA
Car Waste Data (per car)						
Black Water:						
Human Waste/day (gals)	37.72	10.33	26.94	NA	NA	NA
# Flushes/Person-day	8.00	8.00	8.00	8.00	8.00	8.00
Flush efficiency adjustment	1:25	1.25	1.25	1.25	1.25	1.25
Adj. # Flushes/Person-day	10	10	10	10	10	10
Flush Fluids/flush (gals)	0.263	0.263	0.263	0.263	0.263	0.263
Flush Fluids/day (gals)	221.1	60.5	157.9	NA	NA	NA
	400.5			•••		
Capacity Req'd/day (gals)	169.5	46.4	121.1	NA	NA NA	NA
Adj. Capacity Req'd w/ Buffer	211.9	58.0	151.3	NA	NA	NA
Tank Capacity per Car (gals)	100	100	100	NA	NA	NA
Continuous Service Hours Supported	11	41	16	NA	NA	NA
As a percentage of 72 hours	16%	57%			NA	NA
Probable Service Hours per Day	15.72	15.72	15.72	15.72	15.72	15.72
Saniaa Dava Suppedad	0.7	2.6	4.0	AIA	NA	NA
Service Days Supported As a percentage of 3 days	24.02%	2.6 87.73%	1.0 . 33.63%	NA NA	NA NA	NA NA
As a percentage of 3 days	. 24.0276	57.7376	, 33.03%	; INA	INA	INA
Consecutive Trips before pumpout	4.0	15.0	´ 6.0	NA	NA	NA
				•		
CAPITAL COSTS	4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 -	1,4	4 6			
Collection System per Car	\$8,000	\$8,000	\$8,000	NA	NA	NA
Tollet Cost per Car	\$6,000	<u>\$6,000</u>	\$6,000	<u>NA</u>	<u>NA</u>	<u>NA</u>
- Total Equip Cost	\$1 <i>4</i> ,000	\$14,000	\$14,000	NA	NA	NA
Equipment Installation			•			
Collection System per Car	\$576	\$576	\$576	, NA	· NA	NA
Toilet Cost per Car	<u>\$576</u>	<u>\$576</u>	<u>\$576</u>	. <u>NA</u>	<u>NA</u>	<u>ŅA</u>
- Total Installation Cost	\$1,152	\$1,152	\$1,152	NA	NA	NA
Total Capital Cost	\$15,152	\$15,152	\$15,152	NA	NA NA	NA
5.4						

STATE BOTTLE TO THE STATE OF TH

Amtrak Route: Route Number: #242 Hudson Highlander Origin/Destination: Albany-New York City Length in Miles: 142 Length in Hours: 2.62 Expected Trips per Day: Railtech Manufacturer: Equipment: WTS 8300 Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 21000 20200 21800 NA NA NA NΑ Amcoach **Amdinette** Amcoach OPERATING COSTS Non-Trip Related Costs: \$144 NΑ NA NA Labor cost/major servicing \$144 \$144 Frequency per Year 4 4 4 4 4 \$576 NA NA NA Servicing Cost/Year \$576 \$576 \$700 <u>NA</u> Annual spare parts cost per yr \$700 \$700 <u>NA</u> <u>NA</u> Total- Opring Non-Trip Related \$1,276 \$1,276 \$1,276 NA NA NA Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing NA \$12 \$12 \$12 NA NA - Light Repair \$0 \$0 \$0 \$0 \$0 \$0 Pump out and Disposal NA NA \$0.46 \$1.21 NÁ - Pump out Cost \$1.69 - Pump out minutes 2.82 0.77 2.02 NA NA NA - Connect/Disc. minutes NA 0.0 0.0 0.0 NA NA - Waste Disposal \$17.29 \$12.35 <u>NA</u> <u>NA</u> <u>NA</u> \$4.73 Subtotal- End of Day/Trip Srvc \$30.98 \$17.20 \$25.56 NA NA NA Train Delay: 0 0 0 NA NA NA - Pump out volume reg'd - # of stops req'd 0 0 0 NA NA NA - Pump out minutes 0.0 0.0 0.0 NA NA NA - Connect/Disc. minutes 0.0 0.0 0.0 <u>NA</u> <u>NA</u> <u>NA</u> NA NA NA - Total Time Delay(mins/car) 0 0 0 NA NA Average Cost Per Delay \$0 \$0 \$0 NA Subtotal-Oprtng Trip Related \$31 \$17 \$26 NA NA NΑ Total # Cars in fleet 266 25 31 NA NA NA 97,090 11,315 Total Annual Car-days 9,125 NA NA NA er ins ETT QU Adjusted Total Car-days 77,672 7,300 9,052. NA NA NA Days per Trip (min. of 1) , , **1** ÷ 1.€ 1 1 1 1 \$9,047 \$5.022 Annual Opring Trip Related per Car \$7,463 NA NA NA Annual Non-Trip Related per Car \$1,276 \$1,276 \$1,276 NA NA NA \$2,406,532 Annual Opring Trip Related per Car Type \$125,544 \$231,364 NA NA NA Annual Non-Trip Related per Car Type ---\$339,416 \$31,900 \$39,556 <u>NA</u> <u>NA</u> <u>NA</u> Total OPRTNG COST per Car \$10,323 \$6,298 \$8,739 NA NA NA Total CAPITAL COST per Car \$15,152 \$15,152 \$15,152 NA NA NA Total OPRING COST for all cars NA NA \$2,745,948 \$157,444 \$270,920 NA

\$4,030,432

\$378,800

\$469,712

NA

Total CAPITAL COST for all cars

Amtrak Route: Electric City Express Route Number: #250 Origin/Destination: Schenectady-New York City Length in Miles: 160 Length in Hours: 3.03 Expected Trips per Day: 4 Manufacturer: Monogram Equipment: Modified Vacuum Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 151-Odd 170 150-Even NA NΑ 170 Turbo Power Coac NΑ NA Turbo Power Club Turbo Coach Turbo Cafe 3 NA NA Quantity of cars 1 1 1 52 40 NA NA Capacity (# people) - seated 27 72 2 1 1 NA NA Toilets per car 1 36.0 52.0 40.0 NA Average persons/toilet on train 27.0 NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 12.12 32.33 23.35 17.96 NA NA 8.00 8.00 8.00 # Flushes/Person-day 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 10 Adj. # Flushes/Person-day 10 10 10 10 10 0.063 0.063 0.063 0.063 0.063 Flush Fluids/flush (gals) 0.063 Flush Fluids/day (gals) 17.0 45.4 32.8 25.2 NA NA 39.2 28.3 Capacity Req'd/day (gals) 14.7 21.8 NA NA Adj. Capacity Req'd w/ Buffer 18.4 49.0 35.4 27.2 NA NA Tank Capacity per Car (gals) 235 235 235 235 235 235 Continuous Service Hours Supported 307 115 159 207 As a percentage of 72 hours 426% 160% 221% 288% NA NA Probable Service Hours per Day 12.12 12.12 12.12 12.12 12.12 12.12 Service Days Supported 25.3 9.5 13.1 17.1 NA NA As a percentage of 3 days 843:47% 316.30% 569.34% NA 437.95%\_\_\_ NA Consecutive Trips before pumpout 101.0 37.0 52.0 68.0 NA NA 7,565 C 3 390,1 CAPITAL COSTS \$21,000 Collection System per Car \$21,000 \$21,000 \$21,000 \$21,000 \$21,000 Toilet Cost per Car 330.4 \$2,500 \$2,500 \$5,000° \$2,500 <u>NA</u> <u>NA</u>

\$23,500

\$1,440

\$1,728

\$25,228

<u>\$288</u> ‡

\$23,500

\$1,440

\$288

\$25,228

\$1,728

NA

NA

NA

NA

\$1,440

NA

<u>NA</u>

NA

NA

\$1,440

\$26,000

\$1,440

\$2,016

\$28,016900

\$576 d

- Total Equip Cost

Equipment Installation

Toilet Cost per Car

Total Capital Cost

- Total Installation Cost

Collection System per Car

Ì.

\$2,246

\$1,463

831,178

\$23,500

\$1,440-3

\$1,728

\$25,228

\$288

Amtrak Route:

Electric City Express

Schenectady-New York City

160

Route Number: #250

Origin/Destination: Length in Miles:

Length in Hours: Expected Trips per Day: 3.03 4

Manufacturer:

Monogram

Equipment:

Modified Vacuum

Scenario:

Unfavorable

* All data on per car basis (unless i	noted otherwis	se)						,
		1-Odd Power Club	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	ì	NA NA	NA <u>NA</u>
OPERATING COSTS Non-Trip Related Costs:								
Labor cost/major servicing		\$72	\$144	\$72	\$72		NA	NA
Frequency per Year		<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>		<u>4</u>	<u>4</u>
Servicing Cost/Year		\$288	\$576	\$288	\$288		NA	NA
Annual spare parts cost per yr		<u>\$1,175</u>	<u>\$1,300</u>	<u>\$1,175</u>	<u>\$1,175</u>		<u>NA</u>	<u>NA</u>
Total- Opring Non-Trip Related		\$1,463	\$1,876	\$1,463	\$1,463		NA	NA NA
Trip Related Costs:			<b>₹</b> 2		,			
Toilet maintenance enroute End of Day/Trip Servicing								
- Cleaning		\$6	\$12	\$6	\$6		NA	NA
- Light Repair		\$0	\$0	\$0	\$0		\$0	\$0
Pump out and Disposal								
- Pump out Cost		\$0.15	\$0.39	\$0.28	\$0.22		NA	NA
- Pump out minutes		0.25	0.65	0.47	0.36		NA	NA
- Connect/Disc. minutes		0.0	0.0	0.0	0.0		NA	NA
- Waste Disposal		<u>\$1.00</u>	<u>\$2.67</u>	<u>\$1.93</u>	<u>\$1.48</u>		<u>NA</u>	<u>NA</u>
Subtotal- End of Day/Trip Srvc		\$7.15	\$15.06	\$8.21	\$7.70		NA	NA
Train Delay:								
<ul> <li>Pump out volume req'd</li> </ul>		0	0	0	0		NA	NA
- # of stops req'd		0	0	0	0		NA	NA
- Pump out minutes		0.0	0.0	0.0	0.0		NA	NA
<ul> <li>Connect/Disc. minutes</li> </ul>		<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	<u>0.0</u>	•	<u>NA</u>	<u>NA</u>
<ul> <li>Total Time Delay(mins/car)</li> </ul>		• 0	, 0	0	0		NA	NA
Average Cost Per Delay		\$0	\$0	\$0	\$0		NA	NA
Subtotal- Oprtng Trip Related	· All <del>ie</del>	_,,,,\$ <b>7</b> ,⊹	<u>\$15, r</u>	\$8,	<u>,</u>		NA	NA .
Total # Cars in fleet	. 88	. 02 <b>6</b>	0 21	(; <b>∤3</b> )	14	the profession	NA.	. <b>NA</b>
Total Annual Car-days		2,190	7,665	1,095	5,110		NA .	NA
	0 1 St	000.79		000, t		·i		
Adjusted Total Car-days	<u> </u>	1,752 <sub>S</sub>	6;132::3	876			NA	NA
Days per Trip (min. of 1)	\$ (1) \$27	13/500	.e (0 <b>.1</b> 56	% ~~ <b>1</b> :	1		. 1	1
Annual Oprtng Trip Related per Car	r missi	\$2;087	\$4,398, 8	\$2,397	ra \$2,248	າຣີ ເ	NA	NA
Annual Non-Trip Related per Car	<u>8354</u>	\$1,463	\$1,876	\$1,463	\$1,463		NA	NA NA
	327.73	11,723	-			<i>5</i> ,*		
Annual Oprtng Trip Related per Car		\$12,523					NA	NA
Annual Non-Trip Related per Car T		\$8.778	\$39,396	\$4,389		-	<u>NA</u>	NA
, , , , , , , , , , , , , , , , , , ,	,,,	*****	,	<u> </u>	<del>*************************************</del>			<del></del>
Total OPRTNG COST per Car		\$3,550	\$6,274	\$3,860	\$3,711		NA	NA
Total CAPITAL COST per Car		\$25,228	\$28,016	\$25,228	\$25,228	•	NA	NA
Total OPRTNG COST for all c	ars	\$21,301	\$131,745	\$11,581	\$51,960	na witani	NA	NA NA
Total CAPITAL COST for all c	ars	\$151,368	\$588,336	\$75,684	\$353,192		NA	NA
magnation of the experience of the contract of	um paterina in in in in		•	* *		n i kalin disabbean ya Ki	Michal Ru	presentant penteks

Amtrak Route: Route Number: #250 Electric City Express Origin/Destination: Schenectady-New York City Length in Miles: 160 Length in Hours: 3.03 Expected Trips per Day: Manufacturer: Monogram Equipment: Self-Cont'd Recirc Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) NA NA 170 150-Even 151-Odd 170 NA Turbo Power Club Turbo Coach Turbo Cafe Turbo Power Coac NΑ **OPERATING COSTS** Non-Trip Related Costs: \$288 \$576 \$288 \$288 NA NA Labor cost/major servicing 4 Frequency per Year 4 4 4 4 \$1,152 NA NA Servicing Cost/Year \$1,152 \$2,304 \$1,152 \$163 NA <u>NA</u> \$163 \$325 \$163 Annual spare parts cost per yr \$1,315 \$2,629 \$1.315 \$1,315 NA NA Total- Opring Non-Trip Related Trip Related Costs: Toilet maintenance enroute End of Day/Trip Servicing \$6 \$12 \$6 \$6 NA NA - Cleaning \$0 \$0 \$0 \$0 - Light Repair \$0 \$0 Pump out and Disposal \$0.09 NA NA \$0.06 \$0.16 \$0.12 - Pump out Cost - Pump out minutes 0.10 0.27 0.20 0.15 NA NA - Connect/Disc. minutes 0.0 0.0 0.0 NA NA 0.0 - Waste Disposal \$1.04 \$0.80 NΑ NA \$0.54 \$1.44 NA NA Subtotal- End of Day/Trip Srvc \$6.60 \$13.60 \$7.16 \$6.89 Train Delay: NA NA - Pump out volume req'd 0 0 0 O 0 0 NA NA 0 0 - # of stops req'd 0.0 NA NA 0.0 0.0 0.0 - Pump out minutes 0.0 0.0 0.0 NΑ <u>NA</u> - Connect/Disc. minutes 0.0 NA 0 0 0 0 NA - Total Time Delay(mins/car) NA NΑ Average Cost Per Delay \$0 \$0 \$0 \$0 JPC\$75 \S ₽\$**\$**14'≇ -*୧*ଌ**\$**7,68 \$7 NA NA Subtotal-Oprtng Trip Related aceqmu ି ଅଧି J. L.3 0,0, 0.86 14 NA NA Total # Cars in fleet 2,190 7.665 1.095 5,110 NA NA Total Annual Car-days \$10,000 \$10.000 \$10,000 \$10,000 <u> 45 (200</u> 6,13201 14752 876 4,088 NA Adjusted Total Car-days NA 615,000 0004318 scoloco 00(1: Days per Trip (min. of 1) 1 1 1 \$576 \$3.971 \$2,089 Annual Opring Trip Related per Car \$1,927 \$2,012 NA NA 3288 \$1,315 Annual Non-Trip Related per Car \$1315 \$2,629 \$1,315 NA NA \$1152 \$382 \$3.54 \$364 \$6,268 Annual Opring Trip Related per Car Type 212 \$11<mark>!563<sup>2 1.8</sup></mark> \$83 395 3 \$28,162 NA NΑ Annual Non-Trip Related per Car Type \$7,887 \$55,209 **\$3,944** \$18,403 NΑ <u>NA</u> NΑ Total OPRTNG COST per Car \$3,242 \$6,600 \$3,404 \$3,326 NA NA NA Total CAPITAL COST per Car \$3,538 \$7,076 \$3,538 \$3,538

ÑΑ

\$46,565

\$49.532

\$10,212

\$10,614

NA

NA

Total OPRTNG COST for all cars

Total CAPITAL COST for all cars

\$19,450

\$21,228

\$138,604

\$148,596

Origin/Destination: Schenectady-New York City Length in Miles: 160 Length in Hours: 3.03 Expected Trips per Day: Manufacturer: Microphor Equipment: Gravity Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) NA 150-Even NA 151-Odd 170 170 Turbo Power Club Turbo Coach Turbo Cafe Turbo Power Coac NΑ NA NA NA 1 Quantity of cars 1 3 1 40 NA NA Capacity (# people) - seated 27 72 52 NA NA Toilets per car 2 1 NA 52.0 40.0 NA 27.0 36.0 Average persons/toilet on train Car Waste Data (per car) Black Water: 32.33 23.35 17.96 NA NA Human Waste/day (gals) 12.12 8.00 8.00 8.00 8.00 8.00 8.00 # Flushes/Person-day Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 10 Adj. # Flushes/Person-day 10 10 10 10 10 0.172 0.172 0.172 0.172 0.172 Flush Fluids/flush (gals) 0.172 68.8 89.4 NA NA Flush Fluids/day (gals) 46.4 123.8 57.0 43.8 NA NA Capacity Req'd/day (gals) 296 78.9 98.6 54.8 NA NA Adj. Capacity Req'd w/ Buffer 37.0 71 2 300 300 300 300 300 300 Tank Capacity per Car (gals) 195 101 131 NA Continuous Service Hours Supported 73 101% 271% 140% 183% As a percentage of 72 hours Probable Service Hours per Day 12.12 12.12 12.12 12.12 12.12 12.12 8.3 10.8 NA NA Service Days Supported 16.1 6.0 535,65% 200.87% 278,13% 361.57% NA NA As a percentage of 3 days 63 Dalumi. NA NA Consecutive Trips before pumpout 64.0 24.0 33.0 43.0 CAPITAL COSTS ₹88.4 10 aph t \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 \$10,000 Collection System per Car \$5,000 \$5,000 Toilet Cost per Car \$5,000 \$10,000., <u>NA</u> <u>NA</u> 380 % \$15,000 \$15,000 NA \$15,000 \$20,000 NA - Total Equip Cost **Equipment Installation** Collection System per Car \$576 <sub>160 per \$576</sub> \$576 \$57682 \$57618 \$576<sub>30</sub> \$2.0.58 Toilet Cost per Car \$2881 2 \$576<sub>S</sub> \$288:2 \$288 <u>NA</u> <u>NA</u> ediger Car \$1,316 NA - Total Installation Cost \$864 \$1,152 \$864 \$864 NA lated per Car 7498,71\$ **Total Capital Cost** \$15,86408 \$21;152;53 \$15,8641 12 NA NA \$28,162 £18 403 \$7 94.1 908.Jd2 \$7:387 tad per Car Type \$5,542 . per Car 822.00 \$3,464 \$6,600 \$5,03 \$7,076 \$2,538 per Car \$3.5.33 ST for all cars \$46,565 \$12.212 108.8013 \$19,450 or all pars 1. 7 : 148 - 22 \$21,228

Route Number:

Electric City Express

#250

277 446

**Amtrak Route:** 

Amtrak Route:		ic City Express		Route Number:	#250			
Origin/Destination:	Schei	nectady-New Yo	ork City					
Length in Miles:		160						
Length in Hours: Expected Trips per Day:		3.03 4						
Expected Trips per Day. Manufacturer:	Micro	•						
Equipment:	Gravi	•						
Scenario:		rorable						
* All data on per car basis (unless								
All data on per car basis (unless	. 18	51-Odd	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac		NA NA	N/ N/
OPERATING COSTS	<u></u>	TOWER ORD	I UIDO COAÇII	Tuibo Oale	Tuibo I Owel Codo		ш	13/
Non-Trip Related Costs:								
Labor cost/major servicing		\$72	\$144	\$72	\$72		NA	N
Frequency per Year		<u>4</u>	<u>4</u>	4	<u>4</u>		<u>4</u>	4
Servicing Cost/Year		\$288	\$576	\$288	\$288		NA	N/
Annual spare parts cost per yr		<u>\$750</u>	<u>\$1,000</u>	<u>\$750</u>	<u>\$750</u>		<u>NA</u>	N/
Total- Oprtng Non-Trip Related	<del></del>	\$1,038	\$1,576	\$1,038	\$1,038		NA	N/
Trip Related Costs:								
Toilet maintenance enroute End of Day/Trip Servicing								
- Cleaning		\$6	\$12	\$6	\$6		NA	N/
- Light Repair		\$0	\$0	<b>\$0</b> -	\$0		\$0	. \$0
Pump out and Disposal								
- Pump out Cost		\$0.30	\$0.79	\$0.57	\$0.44		NA	· N
- Pump out minutes		0.49	1.31	0.95	0.73		NA	N
- Connect/Disc. minutes		0.0	0.0	0.0	0.0		NA	N
- Waste Disposal		<u>\$2.01</u>	<u>\$5.36</u>	<u>\$3.87</u>	<u>\$2.98</u>		<u>NA</u>	<u>N</u>
Subtotal- End of Day/Trip Srvc		\$8.31	\$18.15	\$10.44	\$9.42		NA	NA
Train Delay:								
- Pump out volume req'd		0	0	0	0		NA	N
- # of stops req'd		0	0	0	0		NA	N/
- Pump out minutes		0.0	0.0	0.0	0.0		NA	N/
- Connect/Disc. minutes		<u>0.0</u>	0.0	0.0	<u>0.0</u>		<u>NA</u>	<u>N/</u>
- Total Time Delay(mins/car)		0	0	0	0		NA	N/
Average Cost Per Delay Subtotal- Opring Trip Related	388.31%	43 <b>0</b> \$ <sub>22%</sub> <b>8</b> \$	≪∂\\$9; \$18	دِ92 <u>.\$0.</u> \$10	ଞ <b>\$0</b> \$9	\$40	NA NA	N/ N/
Takal # Class is fiscal	0.84	USS	0:10	0.10		การรับการ		
Fotal # Cars in fleet	•	6	21	3	14		NA	N/
Fotal Annual Car-days	\$12,000	2,190,13	7,665			1600	NA	N
Adjusted Total Car-days	<u>001 53</u>	<u>006.98</u> 1,7 <b>52</b> 16	<u>008.23</u> <b>6,1,82</b> .				NA	N
Days per Trip (min. of 1)	\$14,900	ರಣಪ್≕್ಮ 1	1	1091.7 1	1		1	1
	23.3.40	A+ 1 1/4					-	_
್ನಾ Annual Oprtng Trip Related per Ca	\$1,440	\$1.440 <b><u><b>9</b>\$</u>&amp;\$</b>	91,440 <b>0<u>9</u>8,72</b>	\$3,049	\$2,750°	2.5	NA	N
Annual Non-Trip Related per Car	\$2 <u>88</u> 10 \$1.720	\$1 <u>,038</u> 2	\$1,576 <sub>.3</sub>	************		<b>'</b> '*	NA	N/
, , , , , , , , , , , , , , , , , , ,	\$16 628	\$16,62 <b>8</b>	19.616		•	٠	•	,
Annual Oprtng Trip Related per Ca		\$14,554	\$111,305	\$9,148	\$38,499		NA	N/
Annual Non-Trip Related per Car T		\$6,228	\$33,096	<u>\$3.114</u>	<u>\$14.532</u>		<u>NA</u>	<u>N</u> A
Total OPRTNG COST per Car		\$3,464	\$6,876	\$4,087	\$3,788		NA	N/
Total CAPITAL COST per Car		\$15,864	\$21,152	\$15,864	\$15,864		NA	N/
Total OPRTNG COST for all o	Succession 100 1 Process	\$20,782	\$144,401	\$12,262	\$53,031		NA	NA
Total CAPITAL COST for all c	ars	\$95,184	\$444,192	\$47,592	\$222,096		NA	NA NA
					9-			

#250 Route Number: Amtrak Route: **Electric City Express** Origin/Destination: Schenectady-New York City Length in Miles: 160 Length in Hours: 3.03 Expected Trips per Day: Manufacturer: Evac Equipment: Ultimate Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 150-Even 151-Odd 170 170 NΔ MΔ **Turbo Power Club** Turbo Cafe Turbo Power Coac NA Turbo Coach NA Quantity of cars 3 NA NA 1 Capacity (# people) - seated 27 72 52 40 NA NA Toilets per car NA NA 2 52.0 40.0 NA Average persons/toilet on train 27.0 36.0 NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 23.35 17.96 NA NA 12.12 32.33 8.00 # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 1.25 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.047 0.047 0.047 0.047 0.047 0.047 Flush Fluids/day (gals) 127 33.8 24.4 18.8 NA NA Capacity Req'd/day (gals) 12.5 33.4 24.1 18.6 NA NA 30.2 Adj. Capacity Req'd w/.Buffer 15.7 41.8 23.2 NA NA Tank Capacity per Car (gals) 200 200 200 200 200 200 Continuous Service Hours Supported 306 115 159 207 NA ŃΑ As a percentage of 72 hours 426% 160% 221% 287% NA Probable Service Hours per Day 12,12 12.12 12.12 12.12 12.12 12.12 Service Days Supported 25.3 9.5 13.1 17.1 NA NA yous Už 316:06% 437.62% As a percentage of 3 days 842.82% 568.91% NA NA o Related 012 312 Consecutive Trips before pumpout 101.0 68.0 NA 37.0 52.0 NA 12 3 CAPITAL COSTS A16.6 \$12,000 \$12,000 \$12,000 \$12,000 Collection System per Car \$12,000 \$12,000 Toilet Cost per Car \$2,900 \$5,800 \$2,900 \$2,900 NA <u>NA</u> 100.A :75 \$14,900 \$17,800 - Total Equip Cost \$14,900 \$14,900 NA NA 11 % 1 Equipment Installation Collection System per Car \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 \$1,440 127,58 felated per Car <u>\$876</u>₽ \$288<sup>5</sup> \$288 Toilet Cost per Car \$<u>288</u>5 NA NA 81), 18 ated per Car \$1<del>9</del>28 4 \$ f.928 # \$2,016 8 - Total Installation Cost \$1,728 NA **Total Capital Cost** \$16,628 \$19,816 \$16,628 \$16,628 NA 538,499 \$22,026 Jared per Car Type \$14 532 \$3,114 \$6,223 88° 88 ° £-.087 \$6,876 \$3.464 ST per Car \$15,850 \$15,864 2 T.152 115,864 Ther Car \$53,021 \$12,262 \$144,401 \$20,782 :ST for all cars 9443 17 2 \$95,184 ST for all cars 322

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Amtrak Route:

. Electric City Express

Route Number:

#250

Origin/Destination:

Schenectady-New York City

Length in Miles: Length in Hours: 160

Expected Trips per Day:

3.03

Manufacturer:

Evac Ultimate

Equipment:

Scenario: \* All data on per car basis (unless noted otherwise)

Untavorable

CPERTING COSTS   Non-Trip Related Costs:   Labor cost/major senvicing   \$72	,	٠.	151-Odd Turbo Power Club	170 Turbo Coach	170 <u>Turbo Cafe</u>	150-Even Turbo Power Coac	1	NA NA	NA NA
Labor costmajor senvicing \$72 \$144 \$72 \$72 \$NA \$NA Frequency per Year 4 4 4 4 4 4 4 4 4 4 4 A Annual spare parts cost per yr \$745 \$288 \$576 \$288 \$289 \$NA \$NA \$NA Annual spare parts cost per yr \$745 \$3890 \$745 \$745 \$1033 \$NA	OPERATING COSTS	4	TUIDO T OWET CIUD	Turbo Ocaon	Taibo oaig	10,001 0101 0400		141	
Frequency per Year	Non-Trip Related Costs:								
Servising Cost/Year   \$288   \$576   \$288   \$288   \$NA	Labor cost/major servicing		· ·		-	·			NA
Annual spare parts cost per yr Total-Opting Non-Trip Related \$1,033 \$1,466 \$1,033 \$1,033 \$1,033 \$NA	Frequency per Year		_	_	_	_		_	
Trip Related Costs:    Trip Related Costs:	_		•			•			
Trip Related Costs:  Tollet maintenance enroute End of Day/Trip Servicing  - Cleaning  - S6 \$12 \$6 \$6 NA NA  - Cleaning  - Light Repair  - Pump out and Disposal  - Pump out minutes  - 0.21 0.56 0.40 0.31 NA NA  - Pump out minutes  - 0.21 0.56 0.40 0.31 NA NA  - Pump out minutes  - 0.00 0.0 0.0 0.0 0.0 NA  - Waste Disposal  - Waste Disposal  - Waste Disposal  - Waste Disposal  - Pump out volume red 0.0 0.0 0.0 0.0 NA  - Waste Disposal  - Pump out route of 0.0 0.0 0.0 NA  - Waste Disposal  - Pump out volume red 0.0 0.0 0.0 NA  - Waste Disposal  - Pump out volume red 0.0 0.0 0.0 NA  - Pump out volume red 0.0 0.0 0.0 NA  - Pump out volume red 0.0 0.0 0.0 NA  - Pump out volume red 0.0 0.0 0.0 NA  - Pump out volume red 0.0 0.0 0.0 NA  - Pump out volume red 0.0 0.0 0.0 NA  - Pump out volume red 0.0 0.0 0.0 NA  - Pump out volume red 0.0 0.0 0.0 NA  - Pump out volume red 0.0 0.0 0.0 NA  - Pump out volume red 0.0 0.0 0.0 NA  - Pump out volume red 0.0 0.0 NA  - Pump out volume red 0.0 NA  - P									
Total draintenance errorute End of Day/Trip Servicing - Clearing \$6 \$12 \$6 \$6 \$0 NA	Total- Opring Non-Trip Related	=	\$1,033	\$1,466	\$1,033	\$1,033		NA	NA
Total draintenance errorute End of Day/Trip Servicing - Clearing \$6 \$12 \$6 \$6 \$0 NA	Trip Related Costs:								
Cleaning									
Light Repair   \$0	· · · · · · · · · · · · · · · · · · ·		¢c.	610	¢c.	¢c.		NIA	NA
Pump out and Disposal - Pump out Cost - Pump out minutes - O.21 - O.56 - O.40 - O.31 - NA - Connect/Disc, minutes - O.0	<b>▼</b>		· · · · · · · · · · · · · · · · · · ·	•	•	•			
Pump out Cost	•		Φ0	Φ0	ΦU	φυ		<b>40</b>	40
- Pump out minutes	,		\$0.10	\$n 22	\$0.24	\$0.10		NΔ	NA
- Connect/Disc, minutes	•								
- Waste Disposal Subtotal- End of Day/Trip Srvc \$6.98 \$14.61 \$7.88 \$7.45 NA NA Train Delay:  - Pump out volume req'd 0 0 0 0 0 0 NA NA - # of stops req'd 0 0 0 0 0 0 0 NA NA - # of stops req'd 0 0 0 0 0 0 0 NA NA - Pump out minutes 0 0 0 0 0 0 0 NA NA - Pump out minutes 0 0 0 0 0 0 NA NA - Pump out minutes 0 0 0 0 0 0 NA NA - Pump out minutes 0 0 0 0 0 0 NA NA - Pump out minutes 0 0 0 0 0 NA NA - Pump out minutes 0 0 0 0 0 NA NA - Pump out minutes 0 0 0 0 0 NA NA - Pump out minutes 0 0 0 0 0 NA NA - Pump out minutes 0 0 0 0 0 NA NA - Pump out minutes 0 0 0 0 NA NA - Pump out minutes 0 0 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 NA NA - Pump out minutes 0 0 0 N	•								
Subtotal- End of Day/Trip Srvc  Train Delay:  - Pump out volume req'd  - Pump out volume req'd  - Pump out volume req'd  - O  - O  - O  - O  - O  - O  - O  -									
Train Delay: - Pump out volume req'd	•								
- Pump out volume req'd 0 0 0 0 0 0 NA NA NA NA Official part of stops req'd 0 0 0 0 0 0 NA			φυ.30	ψ14,01	Ψ7.00	Ψ7.40		1471	
-# of stops req'd 0 0 0 0 0 0 0 NA NA NA Pump out minutes 0.0 0.0 0.0 0.0 NA NA NA NA Pump out minutes 0.0 0.0 0.0 0.0 NA NA NA NA NA Pump of Connect/Disc, minutes 0.0 0 0 0 0 0 NA NA NA NA Pump of Cost Per Delay 0.0 0.5 0 50 NA NA NA NA Pump of Cost Per Delay 0.0 0.5 0 50 NA NA NA NA Pump of Cost Per Delay 0.0 0.5 0 50 NA NA NA Pump of Cost Per Delay 0.0 0.5 0 50 NA NA NA Pump of Cost Per Delay 0.0 0.5 0 50 NA NA NA Pump of Cost Per Delay 0.0 0.5 0 50 NA NA NA Pump of Cost Per Delay 0.0 0.5 0 50 NA NA NA Pump of Cost Per Delay 0.0 0.5 0 50 NA NA NA Pump of Cost Per Delay 0.0 0.5 0 0.5 0 50 NA NA NA Pump of Cost Per Delay 0.0 0.5 0 0.5 0 50 NA NA NA Pump of Cost Per Delay 0.0 0.5 0 0.5 0 50 NA NA NA Pump of Cost Per Delay 0.0 0.5 0 0.5 0 0.5 0 50 NA NA NA Pump of Cost Per Delay 0.0 0.5 0	•		0	0	0	0		NA	NA
Pump out minutes 0.0 0.0 0.0 0.0 0.0 NA NA NA CONNECTION ON OUT OF PRETABLED PET CAT Type 16.628 19.00 0.0 0.0 0.0 NA	•		<del>-</del>	<del>-</del>	_	_			NA
- Connect/Disc. minutes	Ţ Ţ		=	=		_			NA
- Total Time Delay(mins/car)	•					*			<u>NA</u>
Average Cost Per Delay Subtotal- Opring Trip Related  Co. So. So. So. So. NA. NA. NA. Subtotal- Opring Trip Related  Co. So. So. So. So. So. NA. NA. NA. Subtotal- Opring Trip Related  Co. So. So. So. So. So. So. So. So. So. S				_				_	NA
Subtotal-Opring Trip Related	- · · · · · · · · · · · · · · · · · · ·	W. 1	··· \$0	÷ .\$0	\$0	\$0		NA	NA
Total Annual Car-days  2,190 7,665 1,095 3,00 ½ 300 ½	· · · · · · · · · · · · · · · · · · ·			•		·	ers f	NA_	NA NA
Adjusted Total Car-days 905.84 97552 8766 4,088 NA NA Days per Trip (min. of 1) 000 73 000 70 000 70 000 70 1 1 1 1 1 1 1 1 1	Total # Cars in fleet	0,8	0.£ <b>6</b>	<sup>ი შ</sup> 21	. 07 3	14	it e "urcpeu	NA .	NA
Days per Trip (min. of 1) 000 73 000 77 000 77 000 77 10		000 ≤					ns <b>O</b> rac	NA	NA
Days per Trip (min. of 1) 000 73 000 77 000 77 000 77 10	Adjusted Total Car-days	63,000	902553	8000	20876	4.088		NA	NA
Annual Oprtng Trip Related per Car 8822 \$2,037 \$4,265 \$2,302 \$2,175  NA NA Annual Non-Trip Related per Car 8822 \$1,033 \$1,033 NA NA NA Annual Oprtng Trip Related per Car 1,000 \$	•	8T 000			s 500.70	1			
Annual Non-Trip Related per Car 8802 \$\$\\\ \frac{8802}{9737}\$ \$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	22,0 per (1.p (1 et 1.)		•	-	_	-	noi	-	_
Annual Non-Trip Related per Car \$\frac{880.2}{97.3}\$ \$\frac{\$\frac{1}{2}\cdot{0.003}}{97.3}\$ \$\frac{\$\frac{1}{2}\cdot{0.003}}{97.3}\$ \$\frac{\$\frac{1}{2}\cdot{0.003}}{97.3}\$ \$\frac{\$\frac{1}{2}\cdot{0.003}}{97.3}\$ \$\frac{\$\frac{1}{2}\cdot{0.003}}{97.3}\$ \$\frac{1}{2}\cdot{0.003}}\$ \$\frac{\$\frac{1}{2}\cdot{0.003}}{97.3}\$ \$\frac{1}{2}\cdot{0.003}}\$ \$\frac{1}{2}\cdot{0.003}}	Annual Oprtno Trip Related per Car	\$236	\$2.037	\$4.265	\$2302	\$2,175	) 1€ .	NA	NA
Annual Opring Trip Related per Car Type \$12 224 \$89 366 2 \$6 905 \$30,447 NA NA Annual Non-Trip Related per Car Type \$6,198 \$30,786 \$3,099 \$14,462 NA NA Total OPRING COST per Car \$3,070 \$5,731 \$3,335 \$3,208 NA NA Total CAPITAL COST per Car \$16,628 \$19,816 \$16,628 \$16,628 NA NA Total OPRING COST for all cars \$18,422 \$120,352 \$10,004 \$44,909 NA NA		<u>8288</u>	\$1.033	\$ <del>\</del> \$\\\\			•	NA	NA
Annual Non-Trip Related per Car Type \$6.198 \$30,786 \$3,099 \$14.462 NA NA  Total OPRTNG COST per Car \$3,070 \$5,731 \$3,335 \$3,208 NA NA  Total CAPITAL COST per Car \$16,628 \$19,816 \$16,628 \$16,628 NA NA  Total OPRTNG COST for all cars \$18,422 \$120,352 \$10,004 \$44,909 NA NA		8753		32:13			la.		
Total OPRTNG COST per Car         \$3,070         \$5,731         \$3,335         \$3,208         NA         NA           Total CAPITAL COST per Car         \$16,628         \$19,816         \$16,628         \$16,628         NA         NA           Total OPRTNG COST for all cars         \$18,422         \$120,352         \$10,004         \$44,909         NA         NA	Annual Opring Trip Related per Car	ŶŶġĕ <sup>®</sup>	\$12,224 <sup>3</sup>	\$89,566	<sup>2</sup> \$6,905	\$30,447	•	NA	NA
Total CAPITAL COST per Car         \$16,628         \$19,816         \$16,628         \$16,628         NA         NA           Total OPRTNG COST for all cars         \$18,422         \$120,352         \$10,004         \$44,909         NA         NA	Annual Non-Trip Related per Car Ty	be	<u>\$6,198</u>	\$30,786	\$3,099	<u>\$14.462</u>		<u>NA</u>	<u>NA</u>
Total OPRTNG COST for all cars \$18,422 \$120,352 \$10,004 \$44,909 NA NA	Total OPRTNG COST per Car		\$3,070	\$5,731	\$3,335	\$3,208		NA	NA
2000a - 2000a 5a - 2000a - 2000a - 2000a - 2000a 5a - 2000a	Total CAPITAL COST per Car		\$16,628	\$19,816	\$16,628	\$16,628		NA	NA
2000a - 2000a 5a - 2000a - 2000a - 2000a - 2000a 5a - 2000a	Total OPRING COST for all or	ars	\$18 422	\$120.352	-\$10:00 <b>4</b>	\$44.909		NA	NA.
	Total CAPITAL COST for all ca		\$99,768	\$416,136	\$49,884			NA	NA

Amtrak Route: **Electric City Express** Route Number: #250 Origin/Destination: Schenectady-New York City Length in Miles: 160 Length in Hours: 3.03 Expected Trips per Day: Manufacturer: Railtech Equipment: WTS 8300 Scenario: Unfavorable \* All data on per car basis (unless noted otherwise) 151-Odd 170 170 150-Even NA NA Turbo Power Club Turbo Coach Turbo Cafe Turbo Power Coac NΑ NA Quantity of cars NA NA 1 1 3 1 Capacity (# people) - seated 27 72 52 40 NA NA NA Toilets per car 1 2 1 1 NA 52.0 Average persons/toilet on train 27.0 36.0 40.0 NA NA Car Waste Data (per car) Black Water: Human Waste/day (gals) 12.12 32.33 23.35 17.96 NΑ NA # Flushes/Person-day 8.00 8.00 8.00 8.00 8.00 8.00 Flush efficiency adjustment 1.25 1.25 1.25 1.25 1.25 1.25 Adj. # Flushes/Person-day 10 10 10 10 10 10 Flush Fluids/flush (gals) 0.263 0.263 0.263 0.263 0.263 0.263 Flush Fluids/day (gals) 71.1 189.5 136.8 105.3 NA NA Capacity Req'd/day (gals) 420 112.0 80.9 62.2 NA NA Adj. Capacity Req'd w/ Buffer 52.5 140.0 101.1 77.8 NA NA Tank Capacity per Car (gals) 50 100 50 50 NA NA Continuous Service Hours Supported 23 32% 17 NA NA 12 15 NA 24% 16% 21% NA As a percentage of 72 hours Probable Service Hours per Day 12.12 12.12 12.12 12.12 12.12 12.12 Service Days Supported 1.9 ئەن 1.4 پن 1.0 ښ AN Delay 1.3 NA As a percentage of 3 days 62,86% 47.14% 32:64% 42.43% AN .; Related NA 7.0 <sub>₹2</sub>5.0 <sub>5</sub> 3.0 Consecutive Trips before pumpout 5.0 NΑ NA CAPITAL COSTS 077.6 1,095 no o Collection System per Car \$4,000 \$8,000 \$4,000 \$4,000 NA NA Toilet Cost per Car \$6,000 AN Jays \$3,000 \$3;000 \$3,000 <u>NA</u> 360.5 - Total Equip Cost \$7,000 \$14,000 \$7,000 \$7,000 (I'IE NA NA Equipment Installation Collection System per Car **\$288**2 \$5762 \$2883 AN Related por Car 882\$ NA 92,175 Toilet Cost per Car \$2882 \$5762 \$2882 <u>\$288</u> <u>NA</u> AN stated per Car. \$1 033 - Total Installation Cost \$576 \$576 \$1,152 \$576 NA NA **Total Capital Cost** \$15,1528 \$7,576 \$7,576 AN Related per Car 97527\$ NA 230,447 sated per Car Type \$30,786 56 198 214,462 \$3,002 970 68 \$5,208 30,036 \$5,731 0S7 per Car 910 628 \$16,629 \$19,816 325.ar2 ST per Car

\$120,352

\$416 136

\$10,004

\$49,884

\$18 422

\$09.758

OST for all cars

**JST** for all cars

\$44.909

\$222,792

Amtrak Route: Origin/Destination: Electric City Express

Schenectady-New York City

Length in Miles:

160

Length in Hours:

3.03

4

Expected Trips per Day: Manufacturer:

Equipment:

Railtech WTS 8300

Scenario:

Unfavorable

\* All data on per car basis (unless noted otherwise)

* All data on per car basis (unless noted oth	erwise)	\$				
	151-Odd	170	170	150-Even	NA	NA
-	Turbo Power Club <u>T</u>	urbo Coach	Turbo Cafe	Turbo Power Coac	<u>NA</u>	<u>NA</u>
OPERATING COSTS Non-Trip Related Costs:						
Labor cost/major servicing	\$72	\$144	\$72	\$72	NA	, NA
Frequency per Year	4	<u>4</u>	4	<u>4</u>	<u>4</u>	<u>4</u>
Servicing Cost/Year	\$288	\$576	\$288	\$288	NA	NA
Annual spare parts cost per yr	<u>\$350</u>	<u>\$700</u>	<u>\$350</u>	<u>\$350</u>	<u>NA</u>	, <u>NA</u>
Total- Opring Non-Trip Related	\$638	\$1,276	\$638	\$638	NA	NA NA
=	<del></del>					-
Trip Related Costs:	••					
Toilet maintenance enroute						
End of Day/Trip Servicing						
- Cleaning	\$6	\$12	\$6	\$6	NA	NA
- Light Repair	\$0	\$0	\$0	\$0	\$0	\$0
Pump out and Disposal						
- Pump out Cost	\$0.42	\$1.12	\$0.81	\$0.62	NA	NA
- Pump out minutes	0.70	1.87	1.35	1.04	NA	NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA	NA
- Waste Disposal	\$2.86	\$7.62	\$5.50	\$4.23	. NA	NA
Subtotal- End of Day/Trip Srvc	\$9.28	\$20.74	\$12.31	\$10.85	NA NA	NA
Train Delay:	Ψ0.25	<b>420.7</b> 4	<b>V.2.0</b> 1	<b>V.0.00</b>		
- Pump out volume reg'd	0	0	0	0	NA	NA
- # of stops req'd	0	Ö	0	0	NA.	NA NA
- Pump out minutes	0.0	0.0	0.0	0.0	NA NA	NA NA
- Connect/Disc. minutes	0.0	0.0	0.0	0.0	NA NA	NA NA
- Total Time Delay(mins/car)	<u>0.0</u> 0	<u>0.0</u> 0	<u>0,0</u> 0	<u>0.0</u> 0	NA	NA NA
	.\$0	\$ <sub>0</sub>	=	\$0	NA NA	NA NA
Average Cost Per Delay	*** \$9		\$0 \$18.	\$11	NA NA	NA NA
Subtotal- Oprtng Trip Related	PA	\$21 ~·	612 		K-11777	INA
3 Fillmand	· pilopinananananananananananan	arrindistantification and an arrival		an an ann an		
Total # Cars in fleet	, <b>6</b>	.21	. <b></b>	1.4 2 , 4:	·NA	NA
Total Annual Car-days	2,190	7,665	1,095	5,110	NA	NA
•	2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	7 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)			***	•••
Adjusted Total Car-days	1,752	6:132	876	4.088	^NA .	NA
Days per Trip (min. of 1)	9750 9750	ः स्टब्स्ट्राह्मः ्रीहर्षः		700	1	1
- ···	#F of the	.0*1	-	ان ب <del>ان</del> ور ان بان	7	_
Appual Ondra Tria Polated nos Cos	<b>20.700</b>	V		\$3,169	NA .	NA
Annual Opring Trip Related per Car.	\$2,709	\$6,055 \$1,276	\$3,594 \$638	93,103	NA .	NA NA
Annual Non-Trip Related per Car	<b>\$638</b> 0 99 \$0.38			3000	· IVĄ .	INA
A TE DISTRICT				THE RESIDENCE		A.I.A
Annual Opring Trip Related per Car Type	\$16,252	\$127,158	\$10,783	544,370	NA NA	NÁ
Annual Non-Trip Related per Car Type				\$8.932	<u>NA</u>	<u>NA</u>
- Veisa (ber Clas Type				, , , , , , , , , , , , , , , , , , , ,	Α	
Total OPRTNG COST per Car	\$3,347	\$7,331	\$4,232	\$3,807	, NA	NA
Total CAPITAL COST per Car	\$7,576			\$7,576	NA NA	NA
	1,4 to 1,5 to 1,				2 <b>6</b> 1, 02.10 %	
Total OPRTNG COST for all cars	\$20,080	\$153,954	\$12,697	\$53,302	NA	NA
Total CAPITAL COST for all cars	\$45,456	\$318,192	\$22,728	\$106,064	NA ·	NA
Tire el cer	the second	er i gjerne de	vete.	a chock.	a Demoi	

Route Number:

#250

## PROPERTY OF FRA RESEARCH & DEVELOPMENT LIBRARY

THE REAL PROPERTY.	toponiuA C	iji) iii.mumahumahumahiii.mi			F   C F   C	and the state of t
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THE REAL PROPERTY.	sinted per Car Jed per Car	90%,58 86.98	46.055 \$1.276	#68 58 #695	ent.el	
	Polisiand peer Coar Traps steed peer Coar Type	ssan :	681.7518 660.853	\$12.14 \$10.780	\$44,370 \$8,232	
	160 100 T	\$3.147 \$7.576	166 <b>T</b> \$ Set 818	325 PE	10a.63 818.18	
	ST for all coins	060,033	\$153,954	100 A 1 2.32	50C, 688	

## **Arthur D Little**

Amsterdam Brussels Cambridge Caracas Copenhagen Hong Kong Houston London Los Angeles Madrid Mexico City Milan Munich New York **Paris** Riyadh San Francisco! São Paulo Singapore Taipei Tokyo Toronto Washington Wiesbaden