

System Requirements and Performance (Dollars are in millions except as noted.)

Chicago-Detroit	90	110	125F	125E	150F	150E	New HSR	Maglev
<i>Physical, production, and traffic factors (traffic data is for the year 2020)</i>								
Route-miles	296	296	296	296	296	296	285	285
Trip-time, hours, Chicago-Detroit	4.3	3.8	3.6	3.6	3.5	3.5	2.4	1.5
Average train speed (mph)	69	79	81	83	85	85	117	190
Average fare per passenger-mile (dollars)	0.134	0.156	0.170	0.170	0.182	0.182	0.240	0.329
Trains per day in each direction	15	17	17	17	17	17	22	44
Passengers, Millions of Trips (2020)	2.3	2.6	2.6	2.6	2.5	2.6	3.5	3.7
Passenger-Miles, Millions (2020)	431	501	494	507	495	498	669	726
Average trip length (miles)	188	192	193	194	194	194	191	194
Average trip length as % of route length	63%	65%	65%	65%	66%	66%	67%	68%
HSGT traffic density per route-mile (millions of passenger-miles per route-mile)	1.5	1.7	1.7	1.7	1.7	1.7	2.3	2.5
Percent of air traffic diverted	12.5%	16.8%	16.9%	17.6%	17.4%	17.6%	33.4%	41.3%
Percent of intercity auto traffic diverted	2.7%	3.0%	2.9%	3.0%	2.8%	2.8%	3.2%	2.7%
Percent of HSGT traffic by source:								
Diverted from air	27%	31%	32%	32%	33%	33%	47%	56%
Diverted from auto	42%	40%	39%	39%	38%	38%	30%	24%
Diverted from conventional rail	23%	20%	20%	20%	20%	20%	15%	14%
Diverted from bus	1%	1%	1%	1%	1%	1%	0%	0%
Induced	8%	8%	8%	8%	8%	8%	7%	7%
<i>Operating efficiency factors, 2020</i>								
Train-miles, millions	3.2	3.7	3.7	3.7	3.7	3.7	4.6	9.2
Passenger-miles per train mile	133	136	134	138	135	135	146	79
Seat-miles, millions	857	971	971	971	971	971	1,303	1,376
Load factor	50%	52%	51%	52%	51%	51%	51%	53%
Gross ton-miles, millions	1,175	1,272	1,199	1,162	1,162	1,125	1,798	826
Passenger-miles per gross ton-mile	0.37	0.39	0.41	0.44	0.43	0.44	0.37	0.88
Train-hours, millions	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.05
Passenger-miles per train hour	9,164	10,698	10,933	11,388	11,406	11,496	17,032	15,005
Operating ratio	94%	77%	68%	80%	69%	77%	57%	38%
<i>Operating results for 2020</i>								
Revenues:								
Passenger transportation revenue	\$58	\$78	\$84	\$86	\$90	\$90	\$160	\$239
Income from ancillary activities	\$3	\$4	\$4	\$4	\$4	\$4	\$5	\$6
System revenues	\$61	\$82	\$88	\$90	\$94	\$94	\$166	\$244
<i>Percent of system revenues from ancillary activities</i>	5%	5%	5%	4%	4%	4%	3%	2%
Operating and maintenance expenses:								
Maintenance of way	\$7	\$7	\$5	\$15	\$10	\$16	\$19	\$14
Maintenance of equipment	\$7	\$8	\$8	\$7	\$8	\$7	\$11	\$7
Transportation	\$11	\$13	\$13	\$14	\$12	\$14	\$17	\$24
Passenger traffic and services	\$14	\$16	\$16	\$16	\$16	\$16	\$21	\$25
General and administrative	\$15	\$17	\$16	\$17	\$17	\$17	\$23	\$21
Total O&M expense	\$54	\$60	\$57	\$69	\$62	\$70	\$91	\$91
<i>Per passenger-mile (dollars):</i>								
Maintenance of way	\$0.015	\$0.014	\$0.009	\$0.029	\$0.020	\$0.032	\$0.029	\$0.019
Maintenance of equipment	\$0.016	\$0.015	\$0.015	\$0.013	\$0.016	\$0.014	\$0.017	\$0.009
Transportation	\$0.026	\$0.026	\$0.026	\$0.028	\$0.025	\$0.028	\$0.025	\$0.034
Passenger traffic and services	\$0.033	\$0.032	\$0.032	\$0.032	\$0.032	\$0.032	\$0.032	\$0.034
General and administrative	\$0.035	\$0.033	\$0.032	\$0.034	\$0.034	\$0.034	\$0.034	\$0.029
Total O&M expense	\$0.125	\$0.120	\$0.115	\$0.135	\$0.126	\$0.140	\$0.136	\$0.125
Operating surplus	\$7	\$22	\$31	\$21	\$31	\$25	\$74	\$154
<i>Operating surplus per passenger-mile (dollars)</i>	\$0.016	\$0.044	\$0.063	\$0.042	\$0.064	\$0.050	\$0.111	\$0.212
Year showing first operating surplus	Year 2002	Year 2000	Year 2000	Year 2000	Year 2000	Year 2000	Year 2000	Year 2000

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<i>Life-Cycle Measures</i> (All amounts are present values, as of the year 2000, of cash inflows/outflows between 2000 and 2040.)								
Revenues:								
Passenger Transportation Revenues	\$453	\$620	\$664	\$684	\$713	\$718	\$1,286	\$1,951
Income from Ancillary Activities	\$26	\$31	\$31	\$32	\$31	\$31	\$41	\$45
System Revenues	\$479	\$652	\$696	\$715	\$745	\$749	\$1,327	\$1,996
Less: Total O&M expenses	\$449	\$503	\$472	\$598	\$531	\$604	\$798	\$801
Operating surplus	\$30	\$148	\$223	\$117	\$214	\$145	\$529	\$1,195
Less: Continuing investments	\$45	\$34	\$34	\$35	\$30	\$30	\$72	\$35
Surplus after continuing investments	(\$16)	\$114	\$189	\$82	\$184	\$115	\$457	\$1,160
Initial investment:								
Initial vehicle investment	\$141	\$184	\$184	\$184	\$155	\$155	\$287	\$241
Initial infrastructure investment	\$338	\$498	\$961	\$1,558	\$1,168	\$1,784	\$4,989	\$6,796
Initial investment for ancillary activities	\$5	\$6	\$6	\$6	\$6	\$6	\$8	\$8
Initial investment, Total	\$484	\$688	\$1,151	\$1,748	\$1,329	\$1,945	\$5,284	\$7,044
<i>Percent of total initial investment pertaining to--</i>								
Vehicles	29%	27%	16%	11%	12%	8%	5%	3%
Infrastructure	70%	72%	84%	89%	88%	92%	94%	96%
Ancillary activities	1%	1%	1%	0%	0%	0%	0%	0%
<i>Total initial investment per route-mile</i>	\$1.6	\$2.3	\$3.9	\$5.9	\$4.5	\$6.6	\$18.5	\$24.7
Portion of initial investment that is <u>not</u> covered by surplus after continuing investments	\$500	\$573	\$961	\$1,666	\$1,146	\$1,831	\$4,826	\$5,885
Percentage of initial investment covered by surplus after continuing investments	(3%)	17%	16%	5%	14%	6%	9%	16%
Comparison of Benefits and Costs; Assessment of Partnership Potential								
Surplus after continuing investments	(\$16)	\$114	\$189	\$82	\$184	\$115	\$457	\$1,160
Total benefits:								
Benefits to HSGT users:								
System revenues	\$479	\$652	\$696	\$715	\$745	\$749	\$1,327	\$1,996
Users' consumer surplus	\$635	\$811	\$804	\$837	\$813	\$820	\$1,380	\$1,721
Total benefits to HSGT users	\$1,113	\$1,463	\$1,500	\$1,552	\$1,558	\$1,570	\$2,707	\$3,717
Benefits to the public at large:								
Airport congestion delay savings								
Operation delays	\$204	\$260	\$264	\$273	\$273	\$275	\$449	\$615
Passenger delays	\$385	\$490	\$498	\$514	\$515	\$519	\$829	\$1,141
Total airport congestion delay savings	\$589	\$750	\$762	\$787	\$788	\$794	\$1,278	\$1,756
Highway delay savings	\$250	\$279	\$267	\$275	\$260	\$262	\$296	\$251
Emission savings	\$5	\$32	\$31	\$44	\$19	\$46	\$68	\$58
Total benefits to the public at large	\$844	\$1,061	\$1,060	\$1,106	\$1,067	\$1,102	\$1,642	\$2,066
Total benefits	\$1,958	\$2,524	\$2,559	\$2,658	\$2,625	\$2,672	\$4,349	\$5,783
Total costs:								
Initial investment	\$484	\$688	\$1,151	\$1,748	\$1,329	\$1,945	\$5,284	\$7,044
O&M expense	\$449	\$503	\$472	\$598	\$531	\$604	\$798	\$801
Continuing investments	\$45	\$34	\$34	\$35	\$30	\$30	\$72	\$35
Total costs	\$979	\$1,225	\$1,657	\$2,381	\$1,890	\$2,580	\$6,154	\$7,881
Incidence of total costs:								
Costs borne by users	\$479	\$652	\$696	\$715	\$745	\$749	\$1,327	\$1,996
Publicly-borne costs	\$500	\$573	\$961	\$1,666	\$1,146	\$1,831	\$4,826	\$5,885

Chicago-Detroit	90	110	125F	125E	150F	150E	New HSR	Maglev
Total benefits less total costs	\$979	\$1,300	\$902	\$277	\$735	\$92	(\$1,805)	(\$2,098)
Benefits to HSGT users less costs borne by users	\$635	\$811	\$804	\$837	\$813	\$820	\$1,380	\$1,721
Benefits to the public at large less publicly-borne costs	\$344	\$488	\$98	(\$560)	(\$79)	(\$729)	(\$3,184)	(\$3,819)
Ratio of total benefits to total costs	2.00	2.06	1.54	1.12	1.39	1.04	0.71	0.73
Ratio of benefits to HSGT users, to costs borne by users	2.33	2.25	2.16	2.17	2.09	2.09	2.04	1.86
Ratio of benefits to the public at large, to publicly-borne costs	1.69	1.85	1.10	0.66	0.93	0.60	0.34	0.35
Does this case meet the threshold tests for "partnership potential"?	NO	YES	YES	YES	YES	YES	NO	NO