

Memorandum

DATE: December 10, 2018

TO: (b) (5), BWRR

FROM: (b) (5), Louis Berger

SUBJECT: **SCMAGLEV Ridership Supplement**

This memorandum presents the ridership information requested for 2027 (first year of service) and 2045. The 2027 and 2045 ridership estimates were created based on the forecast for the two future model years, 2025 and 2050, assuming a constant growth rate every year.

In the Baltimore-Washington SCMAGLEV Final Ridership Report (Louis Berger 2018), the first year of service was assumed to be part of a 2-year ramp up period where actual ridership is 40 and 80 percent respectively, of steady state growth levels predicted by the travel demand model. For the purpose of this document, the ridership presented for 2027 is as predicted by the travel demand model without any reductions for a ramp-up period.

1. Vehicle miles traveled (VMT) avoided, bus passenger miles traveled (BMT) avoided and commuter rail passenger miles traveled (PMT) avoided for 2027 and 2045

Table 1 - Annual VMT avoided (in 000s)

	Annual VMT No Build (in 000s)	Annual VMT Build (in 000s)	Annual VMT Avoided (in 000s)
2027	3,182,781	2,894,314	288,467
2045	3,800,297	3,401,572	398,725

Table 2 - Annual Bus PMT avoided (in 000s)

	Annual Bus PMT No Build (in 000s)	Annual Bus PMT Build (in 000s)	Annual Bus PMT Avoided (in 000s)
2027	17,575	8,700	8,875

2045	21,004	9,535	11,469
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Table 3 - Annual Rail PMT avoided (in 000s)

	Annual Rail PMT No Build (in 000s)	Annual Rail PMT Build (in 000s)	Annual Rail PMT Avoided (in 000s)
2027	136,067	69,569	66,497
2045	166,422	79,182	87,240

The VMT was calculated based on the number of daily MAGLEV trips diverted from auto and from taxi and based on the distance traveled. The number of person trips was first converted into vehicle trips based on average party size by trip purpose. The daily VMT was converted into annual VMT based on an annualization factor for each trip purpose. Similarly, rail and bus PMT was calculated based on the number of MAGLEV trips diverted from rail and bus, respectively, multiplied by the distance traveled, and converted to an annual number. Distance, party size and annualization factors by trip purpose are presented in Table 4.

Table 4 - Distance, Party size, Annualization Factors

	Distance
Baltimore-Washington	44
Baltimore-BWI	11
Washington-BWI	33
	Party Size

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	Annualization Factor
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2. Diversions to SCMAGLEV by mode (including auto, bus, Amtrak and MARC)

The ridership forecasting methodology is described in the Baltimore-Washington Ridership Report.

Diversions are provided in Tables 4 and 5 for 2027 and 2045, respectively.

Table 5 –Annual Diversions to Maglev by Mode (2027)

	Auto	Rail	Bus	Taxi	Total Diversion
(b) (4)					
Total	10,794,286	2,001,583	238,555	556,975	13,591,399

Table 6 – Annual Diversions to Maglev by Mode (2045)

	Auto	Rail	Bus	Taxi	Total Diversion
(b) (4)					
Total	14,932,670	2,647,084	314,357	840,736	18,734,847

3. Annual travel time savings

Travel time savings presented in Table 7 are user benefits that are expressed in units of time. The travel time savings is the difference between the user benefits from the build alternative and the user benefits from the no build alternative. The user benefits of an alternative are based on cost and travel time of modes available under that alternative. Daily user benefits were converted to annual user benefits using the annualization factors by trip purpose presented in Table 4.

Table 7 –Annual Travel Time Savings (in 000s, in minutes)

	2027	2045
(b) (4)		
Total	1,442,611	2,035,340

4. Ridership including diversions to SCMaglev by mode

The ridership forecasting methodology is described in the Baltimore-Washington Ridership Report.

Ridership for 2027 and 2045 is provided in Tables 8 and 9.

Table 8 –Annual Maglev Ridership (2027)

	Auto	Rail	Bus	Taxi	Total Diversion	Induced Maglev	Total Maglev
(b) (4)							
Total	10,794,286	2,001,583	238,555	556,975	13,591,399	2,582,380	16,173,780

Table 9 – Annual Maglev Ridership (2045)

	Auto	Rail	Bus	Taxi	Total Diversion	Induced Maglev	Total Maglev
(b) (4)							
Total	14,932,670	2,647,084	314,357	840,736	18,734,847	3,677,746	22,412,594

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