

Discussion Draft

Weight Requirements for Transit Buses in California

California Law (enacted in 1975) prohibits transit operators from procuring buses over the gross axle weight limit of 20,500 lbs. on any axle. The gross axle weight is the weight when the bus is fully loaded including passengers. Many transit buses could not meet the weight limit but they continued to be purchased and operated in the State and went largely unnoticed. However, some local law enforcement agencies began to issue citations to non-compliant transit buses and the issue came to the forefront. The California Transit Association researched the issue and publish a report in 2012 that concluded that “...at least as many as half of the transit buses in California operating at peak commute times may exceed the state weight limit of 20,500 lbs. per axle.” A number of bills temporarily extended bus procurements provisions until a solution could be found. AB 1706 also mandated new regulations to consider vehicle weight impacts and the ability of vehicle manufacturers or vehicle operators to comply with laws that limit the weight of vehicles. This paper addresses questions about zero emission buses and whether amendments to the Advanced Clean Transit regulation affects whether manufacturers can meet California weight limits.

On October 4, 2015, AB 1250 was signed into law and changed the axle weight requirement in California. The bill amended Section 35554 of the vehicle code, and changed the definition of the weight limit on any one axle from the gross weight to curb weight. The curb weight is bus weight including maximum fuel, oil, and coolant, but does not include weight of passengers or the driver. The bill also modifies allowable weights as follows:

The curb weight of any axle of a transit bus (except articulated and zero emission buses) procured:

- January 1, 2016 through December 31, 2018 shall not exceed 23,000 lbs.
- On or after January 1, 2019 shall not exceed 22,000 lbs.

The curb weight of any axle for an articulated or zero emission transit bus procured:

- On Jan. 1, 2016 through December 31, 2017 shall not exceed 25,000 lbs.
- On Jan. 1, 2018 through December 31, 2019 shall not exceed 24,000 lbs.
- On Jan. 1, 2020 through December 31, 2021 shall not exceed 23,000 lbs.
- On or after Jan. 1, 2022 shall not exceed 22,000 lbs.

Staff reviewed all twenty-one bus models with Altoona tests performed in the past five years. The buses include three battery electric buses, seven compressed natural buses, and eleven diesel buses. The results are show in Table 1 below where the zero emission buses are shaded in gray. Both vehicle curb weight and highest gross axle weight are shown in the middle columns and whether the bus meets the former 20,500 lb gross axle weight limit or the new curb weight limit reflecting changes made with AB 1250. The results show that only one bus met the former 20,500 lbs. gross axle weight requirement (Number 14 - Blue Bird Body Company), but all buses meet the new 22,000 lbs curb weight requirement including the three zero emission buses. The New Flyer XE40 (Bus number 3) is currently 220 lbs over the 22,000 lbs limit that takes effect starting in 2019. Note that the Proterra battery electric bus (Number 2) has the lowest curb weight rating of all buses.

Table 1 - Altoona Test Results for Transit Buses Evaluated from 2011 to 2015

Bus No.	Manufacturer	Model	Testing Start	Fuel Type	Highest Gross Axle Weight Rating (lbs)	Meets Former Gross Axle Weight Limit	Highest Axle Curb Weight (lbs)	Meets New Curb Weight Limit
1	BYD Motors, Inc.	ebus	4/25/2013	Battery Electric	25353	No	20890	Yes
2	PROTERRA, INC.	BE40	6/11/2014	Battery Electric	23840	No	15280	Yes
3	New Flyer	XE40	6/24/2014	Battery Electric	28660	No	22220	Until 1/2019
4	New Flyer	XN60	12/19/2011	CNG	27760	No	20500	Yes
5	New Flyer	C40LF	2/20/2012	CNG	27760	No	21010	Yes
6	Gillig, LLC	LOW FLOOR	3/19/2013	CNG	27000	No	19590	Yes
7	Nova Bus	CNG LFS 40	7/10/2013	CNG	27778	No	20910	Yes
8	New Flyer	XN40	5/5/2014	CNG	27760	No	21500	Yes
9	Motor Coach Industries	D4500	6/1/2015	CNG	22500 ¹	No	17220 ¹	Yes
10	Designline USA, LLC	CNG 45' Coach	11/9/2012	CNG	22400 ¹	No	17580 ¹	Yes
11	Designline USA, LLC	Enhanced Electric	5/13/2011	Diesel	27760	No	21730	Yes
12	Prevost	X3-45 Commuter	5/24/2012	Diesel	25500 ¹	No	17230 ¹	Yes
13	New Flyer	XD40	9/6/2012	Diesel	27760	No	18980	Yes
14	Blue Bird Body Company	All America FE	12/5/2012	Diesel	19000	Yes	19220	Yes
15	North American Bus Industries	40-LFW	7/31/2013	Diesel	27760	No	21930	Yes
16	Eldorado National	AXESS	10/8/2013	Diesel	27760	No	20190	Yes
17	Thomas Built	SAF-T-LINER C2	12/4/2013	Diesel	21000	No	12280	Yes
18	EPV Corporation	Eco Coach	7/15/2014	Diesel	22400 ¹	No	17370 ¹	Yes
19	New Flyer	XDE60	9/11/2014	Diesel	27760	No	20750	Yes
20	Alexander Dennis, INC.	E500	1/21/2015	Diesel	25353	No	16010	Yes
21	Eldorado National	ARRIVO	4/29/2015	Diesel	23000	No	15980	Yes

¹ Middle axle has highest GAWR and curb weight of these transit buses.