



U.S. Department
of Transportation
**Federal Transit
Administration**

1200 New Jersey Avenue SE
Washington, D.C. 20590

December 3, 2008

Don Roberts
ARBOC Mobility, LLC
P.O. Box 61
423 N. Main St.
Middlebury, IN 46540

Dear Mr. Roberts:

This is in response to your e-mail dated August 11, 2008, in which you requested assistance from the Federal Transit Administration (FTA) concerning the applicability of the Bus Testing Regulation (49 CFR Part 665) to 26 and 28-foot versions of the "Spirit of Mobility" bus model manufactured by ARBOC Mobility. Your e-mail and attachments stated that:

- ARBOC Mobility (ARBOC) is currently in the process of testing [at the Altoona Bus Testing Center, or "Altoona"] its new cutaway bus on a GM 14,200-pound gross vehicle weight rating (GVWR) chassis.
- ARBOC is now interested in offering 26 and 28-foot versions of this bus model [to FTA grantees].
- ARBOC will not change the construction of the bus in any way.

You have asked FTA to determine what additional testing, if any, will be required as a result of the proposed increase in bus length.

FTA has reviewed your request and accompanying documentation and has determined that **no additional testing will be required for the 26 and 28-foot versions of the Spirit of Mobility bus model, provided that the 23-foot Spirit of Mobility bus completes full testing at Altoona and the resulting Bus Testing Report is made available to the public.** This determination is based on the following conclusions drawn from information submitted by ARBOC or contained in our files:

- The Altoona Bus Testing Center (Altoona) is currently testing a 23-foot version of the ARBOC Mobility Spirit of Mobility bus model built on a 159-inch wheelbase GM Chassis in the 7-year/200,000-mile service life category.
- After the 23-foot Spirit of Mobility completes full testing and the resulting Bus Testing Report is released to the public, variants of this bus model will be eligible for partial testing procedures; only those tests in which we might reasonably expect to obtain significantly different data would need to be repeated.

- ARBOC states that all of its bus bodies use similar construction techniques.
- The 23-foot diesel version has a full-fuel curb weight of 10,050 lbs, the 26-foot version has a curb weight of 10,640 lbs, and the 28-foot version has a curb weight of 11,040 lbs. All versions have a gross vehicle weight rating (GVWR) of 14,200 lbs due to the maximum GVWR of the chassis.
- The 23-foot version has a passenger capacity of 19 seated and 6 standees (information on ARBOC's website indicates that two pairs of the seats on each length bus can be converted to wheelchair positions). Considering the 14,200-pound GVWRs of all three versions, the empty weights of each version, and applying the standard 150 pounds assumed for each passenger's weight, total passengers should be limited to 23 seated (with no standees) plus a driver on the 26-foot, and 20 seated (with 5 empty seats and no standees) plus the driver on the 28-foot versions in order to avoid exceeding the GVWR. ARBOC has stated that the 28-foot version is designed to accommodate up to 8 wheelchair positions; this version reduces the seated passenger capacity of this configuration. We note that at the 600-pound threshold for each wheelchair passenger and their chair (powered chairs can be quite heavy), 8 wheelchair positions could add up to 4,800 pounds, which is greater than the available payload of the vehicle.
- The common GVWR of all three configurations limits the payloads that can be carried and would therefore not be expected to increase structural and component loads on the longer wheelbase versions compared to those of the 23-foot version when following Altoona's standard test procedures (which include loading up to but not beyond GVWR). Thus we would not expect to obtain significantly different data from additional testing at Altoona.

I wish to stress that available seating notwithstanding, the 14,200-pound GVWR of the GMC 4500 chassis limits the number of passengers that can be carried by the 26 and 28-foot versions without exceeding the GVWR. Exceeding the GVWR of the chassis could have an adverse effect on the vehicle's reliability, safety (handling and stability), performance, structural integrity, and fuel economy, and grantees should be made aware before purchase that the Bus Testing Report may not provide reliable information on these buses when operated in excess of GVWR.

This determination is based on the information provided in your submission or mentioned above. Should you make any other changes to the vehicle, additional testing may be required. If you require any further assistance with this or other matters concerning bus testing, please feel free to contact me at the address above, or by e-mail (marcel.belanger@dot.gov), fax (202-366-3765), or telephone (202-366-0725).

Sincerely,



Marcel Belanger
Bus Testing Program Manager
Office of Mobility Innovation, TRI-12