



Lead Industries Association, Inc.

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SUBJECT: ELECTRIC VEHICLE STUDIES

TO THE MEMBERS OF THE LEAD INDUSTRIES ASSOCIATION, INC.:

The Electric Vehicle Council, of which your association is a member, has just produced two studies on electric vehicles that may be of interest to you or your colleagues.

We are attaching summaries of each study for your convenience. A single copy of both studies is here in our library, and we will be happy to loan either to you for review.

Sincerely,

CAB ip
Encl.

CONNEL A. BAKER, JR.
Engineer, Technical Service

ASSESSMENT OF THE POTENTIAL FOR ELECTRICMINI-BUS SYSTEMS FOR MIDTOWN MANHATTANEXECUTIVE SUMMARY & CONCLUSIONPURPOSE

The purpose of this study was to review potential uses for electrically powered mini-buses in midtown Manhattan. The problems of congestion, air and noise pollution, and passenger needs were studied relative to those means of transportation available and now used in midtown. Surveys were conducted to determine what the response to a mini-bus shuttle system would be, what factors were important to potential riders and how much fare they would be willing to pay.

FINDINGS

This study found that an electric mini-bus shuttle system could serve to ameliorate the following transportation problems:

Congestion: An electric mini-bus shuttle could serve to relieve congestion by competing with the private taxi; it carries more passengers per vehicle and would thus reduce the total number of vehicles on the street.

Air Pollution: The electric vehicle produces no ground level emissions; it could be beneficial in meeting the 1975 Clean Air Standards and is desirable as an urban vehicle.

Noise Pollution: The electric vehicle produces significantly less noise than a gas powered motor vehicle.

Underserved Areas: Where certain common destinations are underserved by mass transit, taxis now fill this gap. The electric mini-bus could provide this service. Presently there is no direct public transportation from Grand Central to

The West Side via the Avenue of the Americas; there is serious over-crowding on subway facilities from Grand Central on the East Side; there are no subway stops within the theatre district, nor is there direct transportation into the theatre district from Penn Station; there is no surface travel connecting the two ends of Manhattan's shopping district represented by Bloomingdale's and Macy's.

A mini-bus system could meet these needs. It could also adapt easily to meet changing transportation needs in Manhattan.

RESULT

As a result of the study, it is recommended that a system of electric mini-buses be instituted to meet transportation needs in three areas:

1. Commuter transportation from Grand Central Station,
2. Transportation from Penn Station and Grand Central Station to and around the Broadway theatre district, and
3. A retail shoppers' shuttle.

The focus of this system is to meet specific transportation needs. Instead of simply transversing Manhattan, this service was designed to respond to particular transportation destinations. The origins and destinations of potential passengers along with the specific character of certain types of travel were considered here in order to determine the most rational responsive transit possible.

BATTERY-POWEREDPERSONNEL AND BURDEN-CARRYING VEHICLESA MARKET STUDYSUMMARY OF FINDINGS

A total of 17,907 battery-powered, and 10,466 I.C.-engine-powered in-plant or on-premises vehicles of the types covered in this survey are in use in the types of customer establishments covered. It is likely that the total population of these types of vehicles ranged from less than 5 per cent of the establishments in the food and motel classifications, to 36 per cent and more in fabricated metals, transportation equipment, and glass container manufacturing plants, and in amusement parks and convention halls. Manufacturing plants surveyed account for 75 per cent of the battery-powered vehicle population; service and leisure establishments account for 21 per cent; and warehouses account for 4 per cent.

There is a clear relationship between the size of the manufacturing plants and the extent to which battery-powered vehicles are used. Only 5 per cent of manufacturing plants with 100 to 249 employees use these vehicles, whereas more than half of the plants with 1,000 employees or more use these vehicles. Manufacturing plants with 1,000 or more employees, however, account for only 0.8 per cent of all manufacturing establishments in the U.S. These larger plants use 65 per cent of the battery-powered vehicles used in all manufacturing plants.

The largest numbers of battery-powered vehicles are found in plants manufacturing transportation equipment, electrical equipment, machinery and fabricated metals. These plants account for 72 per cent of the battery-powered vehicles used by all of the types of manufacturing plants covered in this survey.

Among service and leisure establishments covered in this survey, amusement parks and zoos were the largest users of battery-powered vehicles, with roughly 10 times as many in use as in other large user establishments in this category, such as motel chains and airports.

Among the warehouse group of establishments, the largest usage of battery-powered vehicles was in grocery warehouses; beverages and drugs and chemicals warehouses.

Annual purchases of battery-operated vehicles by the types of establishments covered in this survey, are estimated at 2,864. If vehicles purchased by types of establishments not covered in this survey were included, it is likely the total annual purchases of battery-powered vehicles will increase about 8 per cent, and in ten years it is estimated that purchases of these vehicles will increase about 70 per cent, compared with 1972.

Nearly all users of battery-powered vehicles were satisfied with the performance of their vehicles. Only a small percentage of vehicle users indicated that changes in performance characteristics of the vehicles might expand their purchases. The nature of these performance changes may be summarized as longer battery life, and the ability to pull a heavier load. These changes would result in replacement of gas-powered with battery-powered vehicles. Nearly all establishments which are non-users of battery-powered vehicles emphasized that they had no need for these vehicles, and that changes in performance would have no effect on their purchases.

First cost does not appear to be a primary deterrent to purchases of battery-powered vehicles. Fewer than one out of five of the establishments covered in this survey would increase their purchases of battery-powered vehicles if the first cost were lower. More than half of these establishments indicated that the first cost would have to be reduced between 20 and 40 per cent in order for them to increase their purchases. Lower first cost would not increase purchases for the great majority of survey respondents, because they have no need for additional battery-powered vehicles. They emphasize that need, not cost, is all that matters, and that they have all that they need. This point was made by 85 per cent of the users of battery-powered vehicles who said that lower first cost would not increase their purchases.

Lower operating cost also does not appear to be a significant factor in increasing purchases of battery-powered vehicles. Fewer than 4 per cent of the establishments covered in the survey indicated that lower operating cost would increase their purchases. Operating cost is of no consequence according to 40 per cent of the respondents, and 36 per cent said they had no need for more vehicles.

Few survey respondents had any knowledge of the electrical energy consumption of their battery-powered vehicles. A rough estimate of electrical energy required to recharge the batteries of the types of vehicles covered in this study is 39 million kilowatt hours a year. If the types of establishments not covered in this survey are included, it is likely that energy consumption would be roughly doubled, to about 80 million kilowatt hours annually. If all in-plant transportation vehicles, such as internal-combustion-engine-powered vehicles and bicycles were converted to battery-powered vehicles, then the potential electrical energy usage for recharging batteries would be roughly doubled again, to about 150 million kilowatt hours annually.