**Introduction**

Promoting the development and use of zero-emission airport shuttle buses will help the California Air Resources (CARB) achieve the emission reduction strategies outlined in the Mobile Source Strategy, State Implementation Plan and the Sustainable Freight Action Plan. Vehicles like airport shuttle buses that operate on fixed routes, have
stop-and-go operations, maintain low average speeds, and are centrally maintained and fueled are ideal candidates for targeting zero-emission battery and fuel cell electric technologies.

The purpose of this survey is to gather detailed information about everyday operations of airport shuttle bus fleets and to better understand variations among different types of fleet operations. This survey will help CARB to better estimate individual fleet costs (including vehicles and infrastructure) and understand potential opportunities and challenges associated with incorporating airport shuttles with zero-emission operating capabilities into the fleet. Accuracy and completeness of fleet data, including data collected in this survey, will be vital to CARB’s efforts in developing a measure that integrates efficiently with airports and other businesses involved with airport shuttle bus operation and achieves the desired emission reductions. For more information regarding the Zero-Emission Airport Shuttle Bus measure please visit <https://www.arb.ca.gov/msprog/asb/asb.htm>.

**Directions:**

**This survey (beginning on page 2) is to be completed by airport personnel (or other entity) who operates/owns/ maintains airport shuttle buses for your airport. If your airport has more than one third party entity operating shuttle buses, please deliver one survey to each company.** An electronic version of the survey is available at: <https://www.arb.ca.gov/msprog/asb/asbsurvey.htm>. If you are writing your responses by hand and need extra space, you can add extra pages at the end of this survey with the airport/company name, your contact information and the question number to which the answer refers.

Surveys should be returned directly to the California Air Resources Board upon completion. CARB will work closely with the Airport Shuttle Bus Workgroup to interpret the results. Please submit any inquiries, along with the completed survey by
***October 6, 2017***. You can either submit the electronic version via email to
Mr. Anthony Poggi at anthony.poggi@arb.ca.gov or you can print the survey and mail it to the following address:

California Air Resources Board

Incentives and Technology Advancement Branch, 5th Floor

Attn. Anthony Poggi

P.O. Box 2815

Sacramento, CA 95812-2815

Thank you for your assistance in completing this important survey.

 We appreciate your efforts.

1. Company/Contact Information

|  |  |
| --- | --- |
| Airport Name |  |
| Mailing Address |  |
| City |  |
| State/Province |  |
| Zip |  |
| Primary Airport Contact Name |  |
| Primary Airport Contact Email |  |
| Primary Airport Contact Phone Number |  |
| Shuttle Bus Operation Entity (if different from airport) |  |
| Primary Shuttle Bus Contact Name |  |
| Primary Shuttle Bus Contact Phone Number |  |
| Primary Shuttle Bus Contact Email |  |

SAMPLE

1. What is the total number of shuttle buses (e.g. shuttles/buses/vans/cutaways) in your fleet? Include any/all on-airport passenger transport vehicles (8,501 lbs. gross vehicle weight rating (GVWR) and greater) servicing terminals, rental car facilities, parking facilities, and airside operations at this airport.  *If there are no airport shuttle buses operating at your airport, please disregard the rest of this survey and submit.*
2. Have you reduced or expanded the number of shuttle buses in your fleet over the last 5 years? Do you have plans to do so over the next 5 years? If yes, please describe the reason(s) for the expansion/contraction and the number of vehicles involved.
3. Are you interested in receiving more information about financial incentives for purchasing zero-emission shuttle buses? [ ]  Yes [ ]  No

1. Please fill in the table below to record any agency/company involved in the maintenance, operation, or ownership of the airport shuttle bus fleet (including your own). If there are multiple entities involved in one category, please list all of them. Please include the NAICS code(s) for each business in the designated area. For airports, please leave the NAICS code blank.

|  |  |  |
| --- | --- | --- |
| **Ownership** | **Operation** | **Maintenance** |
| **Company/Agency Name** | **NAICS Code** | **Company/Agency Name** | **NAICS Code** | **Company/Agency Name** | **NAICS Code** |
| 1. |  | 1. |  | 1. |  |
| 2. |  | 2. |  | 2. |  |
| 3. |  | 3. |  | 3. |  |

1. The proposed regulation may require in-use diesel and CNG shuttle buses be replaced with
zero-emission vehicles.  What specific characteristics of your business contribute towards your concern or support of such a proposed regulation?  (size and scale of operations, shuttle routes, and vehicle purchase patterns, etc.) Please explain below.
2. A small business is defined as having fewer than 100 full time employees; being independently owned and operated; not dominant in its field; and having annual gross receipts of $2 million or less. Are you a small business?
3. Please fill in the blank spaces below to provide information about your shuttle bus purchase cycle. As these numbers may vary from year-to-year, please use trends/estimations/averages to provide your answers. Please use the empty box if you need to provide any additional clarifying information.

|  |  |
| --- | --- |
| * Average vehicle lifespan: \_\_\_ years.
 | * Average turnover: \_\_\_ ­­vehicles per year.
 |
| * Average number of vehicles purchased simultaneously: \_\_\_
 | * Percentage of shuttle purchases involving used vehicles: ­\_\_\_ %
 |

1. Please rank the following factors in order of importance (numbering from 1-11) when evaluating shuttle bus purchases.

|  |  |
| --- | --- |
| * \_\_\_ Total Cost of Ownership
 | * \_\_\_ Cost-Sharing Opportunities
 |
| * \_\_\_ Capital Cost
 | * \_\_\_ Fuel Economy
 |
| * \_\_\_ Payback Return
 | * \_\_\_ Performance
 |
| * \_\_\_ Safety
 | * \_\_\_ Capacity
 |
| * \_\_\_ Reliability
 | * \_\_\_ Familiarity with Technology
 |
| * \_\_\_ Length/Complexity of Procurement

 Timeline |  |

1. Do you currently have or are you in the process of purchasing any zero-emission vehicles in your shuttle bus fleet? If yes, how many?
2. Do you consider the purchase of zero-emission shuttle buses or other zero-emission technology in your annual vehicle purchases? If not, what are the issues that prevent the purchase of zero-emission shuttle buses?
3. Who do you contact when beginning a new vehicle purchase? *(e.g., dealer, chassis manufacturer, body manufacturer, co-op, or internal purchasing agent)*

1. The Low Carbon Fuel Standard is designed to encourage the use of cleaner low-carbon fuels in California (<https://www.arb.ca.gov/fuels/lcfs/lcfs.htm>). Have you signed up for the LCFS program
(e.g. utilizing the reporting tool, credit banking & transfer system)? [ ]  Yes [ ]  No
2. Are you using any low carbon fuels in your airport shuttle buses in California? If yes, please select the fuel type(s) below. If no, please select the box next to “None”.

[ ]  CNG [ ]  Renewable CNG [ ]  Battery Electric [ ]  Hydrogen [ ]  Biodiesel

 [ ]  Renewable Diesel [ ]  None [ ]  Don’t Know

1. Describe how you typically purchase fuels by fuel type. *(e.g., annual contracts, spot market, utility, off-site, etc.)*
2. Shuttle Bus Route Information: Please fill in the table below with information about your shuttle bus fleet’s route(s). Use a different line for each unique route traveled by vehicles in your fleet. Please begin with the routes that are most commonly traveled.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Route #** | **Round Trip Distance (miles)** | **Number of Stops**  | **Maximum Speed (mph)** | **Average Speed (mph)** | **Round Trips per Day** | **Locations/Purpose**(e.g. parking facilities, rental car facilities, employee transport, tarmac/airside) |
| **1** | Ex: 1 | 3 | 25 | 20 | 20 | parking, rental car |
| **2** |  3 | 2 | 30 | 25 | 6 | employee transport |
| **1** |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |
| **3** |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |

***The survey continues on the following page.***

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|  | **Last eight Digits of VIN #** | **License Plate #** | **Body Type****(e.g.Transit, Cutaway)** | **Length****(feet)** | **GVWR****(lbs.)** | **Engine Model Year** | **Fuel Type** | **Capacity**  | **Operation** |
| **Seated** | **Total** | **Avg. Miles**  | **Daily Hours of Operation** | **Estimated****Daily Idle Time (minutes)\***  | **Mid-Day Refueling Required? (Y/N)**  |
| **Annual** | **Daily** |
| 1 | Ex: B6631490 | 9X4XXXX | Transit | 35 | 32,320 | 2010 | CNG | 25 | 40 | 45,000 | 125 | 15 | 60 | N |
| 2 | 87257320 | 3C2XXXX | “ “ | “ “ | “ “ | “ “ | “ “ | “ “ | “ “ | “ “ | “ “ | “ “ | “ “ | N |
| 3 | D4109754 | 8Z3XXXX | Cutaway | 30 | 23,350 | 2013 | Diesel | 20 | 30 | 60,000 | 175 | 18 | 90 | Y |
| 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 |  |  |  |  |  |   |  |  |  |  |  |  |  |  |
| 18 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

1. Airport Shuttle Bus Information: Please fill in the table below with information about shuttle bus (8,501 lbs gross vehicle weight rating and greater) operating at your airport. For your convenience, please group similar/identical vehicles together. Do not include vehicle information from transit agencies or from other fleets that transport passengers to/from airports. There is no need to repeat identical information for consecutive vehicles (see example).

*\*Daily idle time refers to the amount of time the vehicle is stopped with the engine running while on route (e.g. loading or unloading passengers). To estimate the daily idle time use the following formula:* ***#of daily round trips*** *x* ***avg #of stops per round trip*** *x* ***avg. #of minutes idling at each stop.***

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|  | **Last Eight Digits of VIN #** | **License Plate #** | **Body Type****(e.g.Transit, Cutaway)** | **Length****(feet)** | **GVWR** | **Engine Model Year** | **Fuel Type** | **Capacity**  | **Operation** |
| **Seated** | **Total** | **Avg. Miles**  | **Daily Hours of Operation** | **Estimated****Daily Idle Time (minutes)\***  | **Mid-Day Refueling Required? (Y/N)**  |
| **Annual** | **Daily** |
| 19 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 26 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 27 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 29 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 31 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 32 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 33 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 34 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 35 |  |  |  |  |  |   |  |  |  |  |  |  |  |  |
| 36 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 37 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 38 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 39 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 40 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 41 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 42 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 43 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 44 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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| **Seated** | **Total** | **Avg. Miles**  | **Daily Hours of Operation** | **Estimated****Daily Idle Time (minutes)\***  | **Mid-Day Refueling Required? (Y/N)**  |
| **Annual** | **Daily** |
| 45 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 46 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 47 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 48 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 49 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 50 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 51 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 52 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 53 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 54 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 55 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 56 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 57 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 58 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 59 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 61 |  |  |  |  |  |   |  |  |  |  |  |  |  |  |
| 62 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 63 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 64 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 65 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 66 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 67 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 68 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 69 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 70 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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|  | **Last Eight Digits of VIN #** | **License Plate #** | **Body Type****(e.g.Transit, Cutaway)** | **Length****(feet)** | **GVWR** | **Engine Model Year** | **Fuel Type** | **Capacity**  | **Operation** |
| **Seated** | **Total** | **Avg. Miles**  | **Daily Hours of Operation** | **Estimated****Daily Idle Time (minutes)\***  | **Mid-Day Refueling Required? (Y/N)**  |
| **Annual** | **Daily** |
| 71 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 72 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 73 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 74 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 75 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 76 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 77 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 78 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 79 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 80 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Thank you for completing this survey!**