



CITY AND COUNTY OF SAN FRANCISCO
San Francisco Municipal Transportation Agency
Request for Proposals
THE PROCUREMENT OF
30-Foot, 40-FOOT AND 60-FOOT LOW FLOOR
DIESEL HYBRID COACHES

Proposal Section	Title	Bid Submission Requirements
3	Technical Characteristics	Technical Characteristics

New Flyer is submitting the Technical Characteristics information as requested per Section 3 A through K. We are dividing this key section into two separate parts. Section 3 for 35-40 Foot buses as all this information would be applicable to both models and Section 3 for 60' buses. In addition we have attached our XcelSior model overview.



Xcelsior®

The New Flyer Xcelsior® – Better by Design

In 2007, New Flyer worked closely with customer focus groups to understand what changes were necessary to take our low floor bus to the next level. This valuable input led us to the launch of the Xcelsior® in 2010. The Xcelsior® is designed to provide best in class features that reduce overall life cycle costs for our customers, and improve the passenger and driver experience.



To date, New Flyer has more than **4,400 Xcelsior® buses** delivered or on order.

Broad Range of Vehicle Options

The New Flyer Xcelsior® has the broadest range of vehicle options in the industry. It is currently available in 35', 40' and 60' models, with a full range of available propulsion options.

	Vehicle Length			Propulsion				
	35'	40'	60'	Diesel	CNG	Hybrid	Electric Trolley	Battery Electric
New Flyer Xcelsior®	●	●	●	●	●	●	●	●

In addition to the propulsion options noted above, New Flyer also offers a wide range of available engineered features which allow each transit agency to customize the Xcelsior to meet their service needs.

Best Overall Reliability

New Flyer buses are often called the “workhorses” of their fleet. During New Product Development, we conduct rigorous testing to assure vehicle performance and reliability. These tests include Altoona structural durability, Bodycote (shaker table), HVAC testing, side and front crashworthiness testing, emergency obstacle avoidance testing, and testing for engine cooling systems, interior and exterior noise testing and suspension/ride quality testing.

Ongoing product improvements are developed based on feedback received from our customer service team, who continually monitors in service issues as well as MTBR metrics with our customers.

New Flyer Xcelsior® Design Highlights

Improved Fuel Economy Increasing fuel prices remain a constant concern for our customers.



We have successfully reduced the weight on Xcelsior® by 8% compared to previous models, which has delivered an improvement in fuel economy.

- The Xcelsior® XDE40 (diesel-electric hybrid) achieved **the best fuel economy ever recorded at Altoona: 5.88 mpg.**
- Proven success has been achieved by Brampton Transit, our first Xcelsior® delivery in 2012. Brampton Transit has experienced an 8% reduction in fuel consumption by their Xcelsiors as compared to other like models in their fleet.

Reduced Vehicle Weight Vehicle weight impacts maintenance expense and infrastructure for our customers.

Weight reductions were achieved on the Xcelsior® by optimizing the structure and incorporating lighter weight components such as the single reduction axle and lighter-weight seats wherever possible. The suspension was optimized to reduce weight and a portion of the passenger flooring is composite as standard.

In addition, we have ongoing initiatives internally and with our suppliers to continue to find ways to reduce vehicle weight. We anticipate that Xcelsior will achieve the following additional life cycle savings due to reduced vehicle weight and improved weight distribution.:

- **Longer Tire Life:** Recent studies have shown that a 1% reduction in weight can result in a 2% increase in tire mileage.
- **Longer Brake Life:** We anticipate brake linings on to last longer. Recent studies have documented longer brake material life as a result of weight reduction.

Automotive Styling



In 2005, in response to transit systems' demands for improved bus styling, we introduced our Restyled/LFR and our Advanced Styled/LFA models. Xcelsior™ builds on this momentum with newer, upgraded styling.

Features that deliver improved styling include:

- The industry's first LED headlight pods
- Bumpers integrated into the style of the bus
- Integrated roofline provides **BRT styling without added weight & cost**
- Redesigned drip rails, which are less visible
- Virtually no visible fasteners
- True flush windows designed to fit into the fiberglass side panels

Improved Accessibility



As the company that first introduced low-floor buses to North America, we recognize the importance of ensuring our buses meet the accessibility needs of all passengers.

Xcelsior® improves on the original design with the following features:

- **Best-in-class step height** of 14 inches un-kneeled and 10" kneeled
- The front door opening was widened by two inches (33.8" clear opening between handles)
- Our latest proprietary ramp has been improved to **the industry's best slope ratio of 1:7**, which is a much gentler slope for passengers with mobility devices
- Increased space in entryway to make it easier on passengers

Improved Passenger Experience



We strive to provide a comfortable and safe trip experience for your passengers.

The New Flyer Xcelsior® offers the following improvements over prior models:

- Improved ride quality with improvements to the suspension system and reduced un-sprung weight
- Roof mounted HVAC system, for improved efficiency, better weight distribution and ride quality.
- Improved visibility by narrowing the window posts from 12" to 5"
- Improved passenger lighting
- **Increased headroom** by 3 inches and head clearance over the interior lights on the upper rear deck
- Upgraded proprietary stanchion layout (no castings)
- Available glass roof hatches which are 50% larger, allows natural light
- Increased number of forward-facing seats from 27 to 35
- Increased **overall seating capacity from 39 to 40**
- Incorporated barriers to enhance the safety for seated passengers.

Improved Driver Experience



Engaged and aware drivers are a critical element to providing exceptional and safe transit service to passengers

The New Flyer Xcelsior® is designed to improve the comfort and experience for your drivers, with the following features

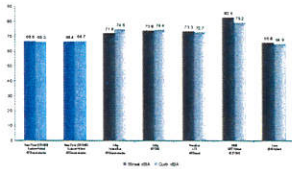
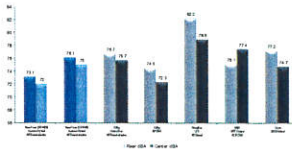
- The overall dash design has been upgraded with a more contemporary, ergonomic design
- We have introduced the **industry's only electronic instrument panel**, which is more modern in appearance and functionality and has a three year warranty standard. The standard LCD display can be programmed for customer specific messages or graphics.
 - Up to 31 illuminated tell tales and up to four LCD screen displays to ensure your drivers are fully aware of the vehicle status at all times.



Xcelsior®

- The new recessed overhead control panel above the driver's window gives access to the controls and instrumentation and gives the overall area a cleaner appearance
- The driver's field of view has been improved with smaller window pillars and dash clearance
- Industry's first LED headlights were introduced for better visibility, which can also accommodate many of today's bike racks with no interference

Quieter Ride



New Flyer has provided **the industry's quietest heavy duty transit vehicle**, both for passengers (interior noise) and your communities (exterior noise), based on Altoona Test results.

We have reduced the noise levels on Xcelsior® through:

- Single-reduction rear axle
- Roof-mounted air-conditioning
- Improved insulation in the engine compartment

New Flyer's engineers, together with experts in acoustic design, spent a lot of time understanding the methods of noise transfer through the vehicle and devised ways to interrupt the noise path for an overall quieter bus.

Improved Maintenance Access Points



We want to help our customers reduce the amount of time and money spent on maintenance. To do this, we have designed Xcelsior® with features that **improve the accessibility to components** and systems for regular maintenance, such as:

- Improved access to engine turbocharger and auxiliary heater
- Separate battery compartment located forward of engine compartment for increased battery life
- Hinged upper rear service doors for access to EPA 2010 exhaust and air intake components
- Removable corner pillars
- Swing-out fan belt guard

Reduced Maintenance Expense



In addition to our improvements to overall bus reliability, and design of features improving maintenance accessibility for our customers, New Flyer has also incorporated a number of components into the Xcelsior® design which have **inherent lower life cycle costs**. These features include:

- Industry's first LED headlights with best-in-class 6-year warranty; we estimate that these LED headlights will save you approximately \$2400 over 12 years
- Lower-maintenance all-wheel disc brakes, requiring approximately 50% the labor of drum brakes and less expensive replacement parts.
- Fiberglass exterior panels with optional side impact panels

Attached you will find an Xcelsior® vehicle brochure, with key vehicle features and specifications.