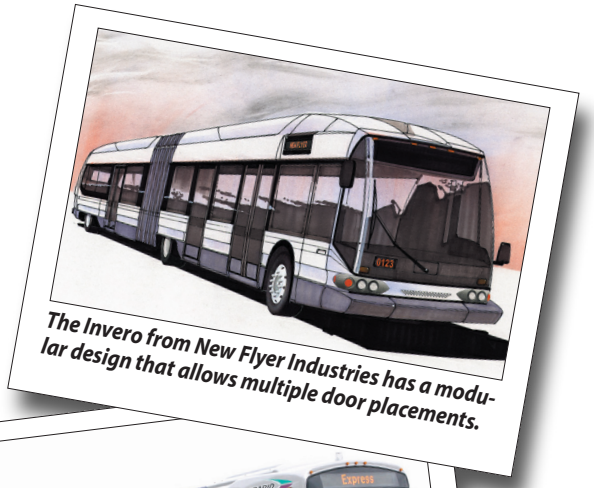
The Search for the Perfect BRT Vehicle

The Phileas from Advanced Public Transport Systems offers advanced guidance systems.



The Invero from New Flyer Industries has a modular design that allows multiple door placements.

The Civis from Irisbus has rail-like exterior styling as well as automatic docking capability.

The 45-foot CompoBus from North American Bus Industries offers higher capacity than 40-footers.

Demand for BRT vehicles is rising. But is the market ahead of the product? Issues like styling, cost, advanced propulsion and guidance systems need to be addressed.

By Steve Hirano, Editor

Bus rapid transit (BRT) seems to be a solution that can be plugged into many problems.

Need a low-cost alternative to light rail? BRT. Looking for an environmentally friendly mode of public transportation? BRT. Trying to attract choice riders to your bus system? BRT. Need a high-capacity vehicle to provide frequent service with minimal dwell times? BRT. The list of questions goes on, with the same answer.

But there's another question that needs to be addressed: How can BRT vehicle manufacturers meet the slew of design and production demands of the transit properties that have recently fallen in love with the BRT concept, especially on the higher end? The answer: Not easily.

"Market interest is expanding dramatically," says **Cliff Henke**, manager of external affairs for **North American Bus Industries** (NABI). "A year ago there were about 40 cities looking at BRT; now there are about 150." This burgeoning demand has outstripped the manufacturers' ability to respond. "As a manufacturer, we would ask that the properties have a little bit of patience," Henke says.

Henke says that the majority of cities are interested in "conventional" BRT, which uses traditional transit buses with some styling enhancements and component upgrades. But there's also the high-end district, which is populated by the likes of **Irisbus**' Civis and the Phileas by **Advanced Public Transport Systems** (APTS). Bridging the gap between these alternatives is one challenge facing the supplier community.

What do they want?

Choosing the right vehicle for a specific application is the challenge facing transit agencies. Making matters more difficult, many of these properties plan

to implement their BRT programs incrementally. What might work for the first couple of years could be outdated by the time infrastructure improvements, such as BRT stations with docking capabilities, are completed.

"Part of the dilemma is the definition of a BRT vehicle," says **John Marino**, CEO of **Irisbus North America**. "It has become very clouded." The Civis, with its rail-like exterior styling, electric driveline, optical guidance system and automatic docking capability, offers many key attributes of BRT service. "A true BRT vehicle should have the capability of automatic docking and some form of automatic guidance, but that's not a consensus in the industry," Marino says.

Though untested outside Europe, the Civis is scheduled to make its U.S. debut in August when the first of 10 vehicles will begin revenue service in Las Vegas. It's also being considered by the **Greater Cleveland Regional Transit Authority** (GCRTA) in a procurement of 21 BRT vehicles that is still being negotiated.

According to Marino, two Civis units have been operating for two years in Rouen, France, along a 15-mile, 46-station BRT system with three overlapping lines. The two Civis operate shoulder to shoulder with 38 Irisbus standard mechanical-drive articulated buses that were outfitted with the optical guidance system. These standard models are being replaced with Civis units, he says.

Form vs. function

"What we have found is that many cities haven't made up their minds on how they want to define BRT service," says **Bill Stanton**, director of marketing and product development for **New Flyer Industries**. Some cities have piled into the BRT bandwagon prematurely because of the political cachet, he says. "The politicians want to stand in front of it and cut the ribbon."

Stanton also asserts that many cities are distracted by cosmetic details. "They talk about curb appeal, but not about interiors," he says. "The KFC interiors that we have in most buses are not going to cut it. That has to be addressed if BRT is going to be successful."

New Flyer entered the BRT market by reconfiguring its Invero low-floor product. Stanton says the bus is modular in design, allowing for the doors to be positioned to accommodate multiple entry points and off-board fare collection, two attributes commonly assigned to BRT. It can be powered by hybrid diesel electric, helping to meet another BRT attribute — advanced propulsion.

With the growing popularity of hybrid propulsion, some of the uncertainty about power systems is alleviated, but questions still remain about the viability and availability of advanced propulsion. "We're waiting for the propulsion technologies to mature," says NABI's Henke. As a bus platform developer and systems integrator rather than a propulsion developer, NABI has

little control over the availability of components such as advanced propulsion systems, Henke adds.

Last fall, **Valley Metro** in Phoenix ordered 56 45-foot LNG CompoBuses from NABI for a new BRT suburban express service. In addition to a sleek exterior styling, Henke says the buses offer 18% more capacity due to the addition of seven seats. Because the composite body is lighter than its steel counterparts, the lengthening of the vehicle from 40 to 45 feet does not significantly affect operating costs, Henke says.

Evolving Metro Rapid

In Los Angeles, a BRT service called Metro Rapid has been successful in building ridership along four mixed-traffic corridors by implementing high-frequency service and signal priority. Officials at the **Los Angeles County Metropolitan Transportation Authority** (MTA) tout a 40% increase in ridership, including a large percentage of choice riders, and have plans for several more BRT routes in the coming years.

The MTA opted for a simple solution to its initial BRT vehicle needs. Instead of high-end, rail-like vehicles costing more than $1 million each, the MTA chose 40-foot low-floor buses built by NABI. The buses have a distinctive paint scheme, but are otherwise standard vehicles.

That's not to say, however, that the MTA isn't interested in ramping up the image of its Metro Rapid program with more sophisticated vehicles. The MTA recently attempted to procure up to 92 BRT vehicles that were closer to the rail-like Phileas and Civis. They received five bids from four manufacturers, but withdrew the procurement in late 2002. Their reluctance to move forward provides a micro-level view of the market being ahead of the product.

Richard Hunt, the MTA's deputy executive officer for vehicle technology, says the agency was a bit premature. "The technology that we were trying to implement is not quite mature yet," he says. "There were too many risks on the part of the manufacturers and on our part." To fill the void, the MTA will procure CNG articulated buses that can be used for Metro Rapid service as well as traditional fixed-route applications.

The MTA's bidders were Irisbus, APTS, NABI and New Flyer. New Flyer's Stanton says the bid was dropped because none of the vehicles met the criteria with respect to compliance, price and delivery. The more advanced technology vehicles — the Civis and Phileas — underwent close scrutiny by the MTA, including trips to the Netherlands and France for demonstrations. "The limited seating capacity of both products and the limited top speed of the Phileas mitigated other advantages such as styling, guidance systems and interior layout," Stanton says.

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>
> **Mark Pangborn, assistant general manager Lane Transit District, Eugene, Ore.**

But Hunt says the biggest hurdle that the manufacturers faced was timely delivery. "We wanted the vehicles sooner than the proposers would be able to manufacture them," he says. "Universally, that was the biggest issue we faced."

Hunt remains optimistic that the MTA will eventually procure high-technology BRT vehicles. "We're not dropping the issue," he says. "We just punted this time."

The high-tech alternative

In Eugene, Ore., **Lane Transit District** (LTD) has no intention of punting its dream of a high-end BRT vehicle.

The agency is hoping to implement BRT service along a four-mile corridor in late 2004. During its vehicle procurement, LTD officials received only one bid. That came from APTS, the Holland-based manufacturer of the Phileas. One of the reasons that no other manufacturer submitted a bid was that transit officials wanted a vehicle that had doors on both sides. The Phileas was the only BRT vehicle that fit the bill.

There were other reasons, of course. **Mark Pangborn**, assistant general manager at LTD, says the Phileas has an advanced computer guidance system that utilizes magnets embedded in the busway. This avoids some of the problems associated with optical guidance systems, which he says can be thwarted by debris such as leaves or snow. Also, the vehicle has all-wheel steering, which allows it to dock with great precision, he says.

Pangborn says the agency plans to order five or six of the vehicles, but is awaiting final pricing from the manufacturer.

So what's the drawback? The Phileas is basically an untested vehicle. According to APTS' **Anton Klostermann**, a few units are being tested in Eindhoven in the Netherlands. He says 10 more vehicles will be delivered this year and all will be operational by the end of the year.

That doesn't help Pangborn, though.

The lack of historical data on the maintenance and operation of the Phileas is a source of concern. "There's no one we can ask about their start-up costs and their maintenance experience," says Pangborn. "This a new level of technology. Whenever you have that, any number of problems can arise." The bottom line, however, is that the transit board is willing to accept the risks, or, as Pangborn says, "at least understand the risks."

Eyes on Cleveland

In Cleveland, construction on the $264 million Euclid Corridor Transportation Project is scheduled to start in 2004 and to be completed in 2006. As mentioned earlier, the GCRTA is weighing vehicle proposals, including the Civis and more conventional buses. In a Jan. 13 op-ed piece published in the *Cleveland Plain Dealer*, **Joseph Calabrese**, CEO and general manager of GCRTA, explained that the agency en-

visions a vehicle that is "more like a light rail vehicle than a bus."

Specifically, the GCRTA is looking for a 60-foot, articulated low-floor bus that is powered by hybrid diesel electric. In a recent project newsletter distributed by the GCRTA, photos of the Civis and Phileas were used as "examples of possible Euclid Corridor vehicles." The vehicles will operate in dedicated lanes with off-board fare collection.

Whether or not the final selection will be one of the high-end European-style BRT vehicles or the more traditional vehicles manufactured in North America is open to speculation. At press time, a board vote on the vehicle selection was scheduled for March.

Cool enough for Reno?

An ambitious BRT program is being nurtured to reality in Reno, Nev. The **Regional Transportation Commission** (RTC) is pushing for BRT service along the six-mile Virginia Street corridor. RTC officials are positioning the service as a "quantum leap forward" in public transit, with vehicles that "look and operate like a grounded monorail system."

The image that the RTC is trying to build is a system that's "cool," says **Tina Wu**, senior planner. "What we told the public is that this vehicle will be distinctive," she adds. If the Civis experience in Las Vegas is a good one, Wu says she would be inclined to lean in that direction. But she also expressed interest in working with a North American manufacturer. "I'm hoping that by the time we get ready for procurement, one of the domestic manufacturers will come up with a vehicle that we can use."

The RTC is still in the early stages of the BRT project, having just devised the draft phase implementation plan. The strategy is to start with a mixed-use traffic model and then transition to a fixed guideway. "We'll have a dedicated lane, eventually," she says. "To preserve the running time, you really do need the exclusive lane."

Widespread interest

APTS, Irisbus, NABI and New Flyer are not the only bus manufacturers immersed in BRT projects.

Van Hool is working with **AC Transit** in Oakland, Calif., on a 60-foot articulated bus that could be used for BRT. **Gillig Corp.** is readying plans for a phased deployment of BRT vehicles that would start with enhanced conventional vehicles and transition to more rail-like vehicles over the next several years.

Doubtless, other bus manufacturers are also coming up with game plans to meet the rising demand for BRT vehicles in North America. Although it's not clear how successful BRT will be on a large scale, the need for innovative, cost-effective and truly rapid transit *is* clear.

"We've got to compete with the car," says LTD's Pangborn. "If we can't do that, then transit's market share will remain the same. We need to have a product that's convenient and fast and that the public will look at and say, 'I want to get on *that*.'" M