Across the U.S., bus rapid transit system plans are moving along at a healthy speed. While funding is a concern for many, two newly operating systems are already experiencing unanticipated ridership increases.

>BY NICOLE SCHLOSSER, Associate Editor

THIS YEAR, METRO’s BRT 25 Survey results cover 35 projects, 33 in the U.S., and two in Canada. Many of these highlighted rapid transit systems are still in the planning stages, with start dates ranging from 2009 to 2014.

METRO caught up with many of the systems we reported on last year, and several are still making progress, even while experiencing slight delays. However, since last year, two systems surveyed are now defunct or delayed: Atlanta’s Northwest Corridor I-75 - Metro Atlanta-Cumberland; and Altamonte Springs, Fla.

Included in the roundup, we have a handful of new projects, including Dakota County and Bloomington, Minn.-based Minnesota Valley Transit Authority’s (MVTAs) Cedar Avenue Transitway, and Albany, N.Y.-based Capital District Transportation Authority’s (CDTA) Washington/Western BRT.

Two of the projects listed opened in 2008: the 3500 South BRT, operated by Utah Transit Authority (UTA), and the Euclid Corridor Project-Health Line system, operated by Greater Cleveland Regional Transit Authority (GCRTA). After only a few months, both systems have already proven very popular. Danielle Willis, GCRTA project officer, reports “a 39 percent service and ridership increase for three consecutive months” since the BRT’s opening in October, 2008. Janelle Ericson, UTA’s engineering and construction planner, says that ridership almost doubled within three months after the system opened.

Regionally, the newest projects are emerging mostly on the west coast, with nearly half of them being planned in Seattle. King County Metro Transit’s Rapid-Ride project will feature five new lines, opening from 2010 through 2013, totaling $171 million.

Of those surveyed, the Midwest weighed in with the second-highest number of BRT projects, reporting five in the region, and two in Minnesota. The Cedar Avenue Transitway is expected to be fully operational in 2011. In Minneapolis, Metro Transit plans to roll out the I-35W BRT line later this year. The total for these projects combined is $233.5 million. Of the responding projects, 34 provided capital costs or an estimate.

Financial backing for these projects ranges from FTA Small Starts, New Starts and other federal funding (68.5 percent of projects) to state funding (31 percent) and local support, including sales tax (54 percent).

When asked about challenges, survey respondents most often cited funding and operations planning and coordination with property owners (each at 20 percent). The second most common challenge was land use coordination. Other project hurdles referenced include “coordination among 15 local, regional and state agencies and other private organizations”; and “completing design and construction phases within an aggressive schedule.”

Transit authorities will purchase a total of 119 vehicles in 2009, or an average of three buses per project listed. The decrease, at almost 50 percent, is a significant drop from last year’s total of 254 vehicles.

Survey respondents are looking to use clean diesel and hybrid electric propulsion — 54.2 percent and 51.4 percent, respectively — while only 14.2 percent of respondents chose CNG. These numbers are similar to 2008, with only a slight decrease in hybrid-electric (56.6 percent) and an increase in clean diesel (43.3 percent). Only one agency was undecided.

Propulsion choices

<table>
<thead>
<tr>
<th>PROPELION TYPE</th>
<th>QUANTITY</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean diesel</td>
<td>19</td>
<td>54.2%</td>
</tr>
<tr>
<td>Hybrid-electric</td>
<td>18</td>
<td>51.4%</td>
</tr>
<tr>
<td>CNG</td>
<td>5</td>
<td>14.2%</td>
</tr>
<tr>
<td>Trolley</td>
<td>1</td>
<td>2.8%</td>
</tr>
<tr>
<td>To be determined</td>
<td>1</td>
<td>2.8%</td>
</tr>
<tr>
<td>LNG</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Fuel cell</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Clean diesel and hybrid-electric dominated the selected propulsion choices, with CNG coming in at a distant third. (Note: Since many transit authorities selected two propulsion methods, percentages overlap.)
High Capacity

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<th>Year of start</th>
<th>Number of BRT vehicles</th>
<th>Running way features</th>
<th>Station characteristics</th>
<th>Vehicle styles</th>
<th>Features collection characteristics</th>
<th>Propulsion</th>
<th>ITS Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Albany, N.Y.</td>
<td>NYS BRT (Bus Plus) - Capital District Transportation Authority</td>
<td>$22 million</td>
<td>2010</td>
<td>15</td>
<td>Mixed-flow arterials</td>
<td>Basic stops/shelters, enhanced stops, designated stations, intermodal terminals, land use policies, pedestrian-friendly areas</td>
<td>Conventional, low floors, enhanced aesthetics, passenger amenities, quieter operation, hybrid propulsion</td>
<td>On-board, self-service, cash/coin, magnetic strip</td>
<td>Hybrid-electric</td>
<td>Signal manipulation, vehicle tracking, passenger information, voice annunciation, security</td>
</tr>
<tr>
<td>Albany, N.Y.</td>
<td>Washington/Western BRT - Capital District Transportation Authority</td>
<td>$50 million</td>
<td>2014</td>
<td>15</td>
<td>Mixed-flow arterials, dedicated arterials</td>
<td>Basic stops/shelters, enhanced stops, designated stations, intermodal terminals, land use policies, pedestrian-friendly areas</td>
<td>Conventional, articulated, low floor, enhanced aesthetics, passenger amenities, quieter operation, hybrid propulsion</td>
<td>On-board, self-service, cash/coin, smart card, magnetic strip</td>
<td>Hybrid-electric</td>
<td>Signal manipulation, vehicle tracking, passenger information, voice annunciation, security</td>
</tr>
<tr>
<td>2. Aspen, Colo.</td>
<td>To be determined - Roaring Fork Transportation Authority (RFTA)</td>
<td>$61.2 million</td>
<td>2011</td>
<td>15</td>
<td>At-grade transitways</td>
<td>Basic stops/shelters, enhanced stops, designated stations</td>
<td>Low floors, quieter operation</td>
<td>On-board, smart card</td>
<td>Hybrid-electric, clean-diesel</td>
<td>Vehicle tracking, passenger information, voice annunciation, security</td>
</tr>
<tr>
<td>Bloomington, Minn.</td>
<td>Cedar Avenue Transitway - Dakota County and Minnesota Valley Transit Authority</td>
<td>$97.5 million</td>
<td>2009</td>
<td>12</td>
<td>Mixed-flow arterials, mixed-flow freeways, at-grade transitways</td>
<td>Enhanced stops, designated stations, pedestrian-friendly areas</td>
<td>Low floors, enhanced aesthetics, passenger amenities, added doors</td>
<td>Off-board, on-board, smart card</td>
<td>To be determined</td>
<td>Signal manipulation, precision docking, vehicle guidance, vehicle tracking, passenger information, security</td>
</tr>
<tr>
<td>4. Boston</td>
<td>Silver Line Phase 1 - Massachusetts Bay Transportation Authority</td>
<td>$52 million</td>
<td>2002</td>
<td>17</td>
<td>CNG</td>
<td>To be determined</td>
<td>Articulated, low floors</td>
<td>On-board, cash/coin, smart card, magnetic strip</td>
<td>CNG</td>
<td>Signal manipulation, vehicle tracking, passenger information, voice annunciation</td>
</tr>
<tr>
<td>5. Chicago</td>
<td>To be determined - Pace Suburban Bus</td>
<td>To be determined</td>
<td>2011</td>
<td>TBD</td>
<td>Mixed-flow arterials</td>
<td>Enhanced stops, designated stations, intermodal terminals, pedestrian-friendly areas</td>
<td>Low floors, enhanced aesthetics</td>
<td>On-board, on-board, barrier-enforced, cash/coin, smart card, magnetic strip</td>
<td>Clean diesel</td>
<td>Passenger information, voice annunciation</td>
</tr>
<tr>
<td>6. Cleveland</td>
<td>Euclid Corridor Project/ Health Line System - Greater Cleveland Regional Transit Authority</td>
<td>$200 million</td>
<td>2008</td>
<td>17</td>
<td>Mixed-flow arterials</td>
<td>Enhanced stops, designated stations, land use policies, pedestrian-friendly areas</td>
<td>Articulated, low floors, enhanced aesthetics, passenger amenities, added doors</td>
<td>Off-board</td>
<td>Hybrid-electric</td>
<td>Signal manipulation, precision docking, vehicle tracking, voice annunciation, security</td>
</tr>
<tr>
<td>7. Denver</td>
<td>16th Street Mall - Denver Regional Transit District</td>
<td>$27 million</td>
<td>1982</td>
<td>26</td>
<td>At-grade transitways</td>
<td>Basic stops, no shelters, pedestrian-friendly areas</td>
<td>Low floors, added doors, quieter operation</td>
<td>Free shuttle</td>
<td>Hybrid-electric</td>
<td>Passenger information, voice annunciation, Automatic Passenger Counters (APC)</td>
</tr>
<tr>
<td>8. Eugene, Ore.</td>
<td>Franklin EmX - Lane Transit District</td>
<td>$24 million</td>
<td>2007</td>
<td>6</td>
<td>Mixed-flow arterials, dedicated arterials, at-grade transitways</td>
<td>Land use policies, pedestrian-friendly areas</td>
<td>Articulated, low floors, enhanced aesthetics, passenger amenities, added doors</td>
<td>Off-board</td>
<td>Hybrid-electric</td>
<td>Signal manipulation, voice annunciation, security</td>
</tr>
<tr>
<td>Eugene, Ore.</td>
<td>Gateway EmX Extension - Lane Transit District</td>
<td>$41.3 million</td>
<td>2010</td>
<td>6</td>
<td>Mixed-flow arterials, dedicated arterials, at-grade transitways</td>
<td>Designated stations, land use policies, pedestrian-friendly areas</td>
<td>Articulated, low floors, enhanced aesthetics, passenger amenities, added doors</td>
<td>Off-board, self-service</td>
<td>Hybrid-electric</td>
<td>Signal manipulation, voice annunciation, security</td>
</tr>
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</table>
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<th>Propulsion</th>
<th>ITS Use</th>
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</thead>
<tbody>
<tr>
<td>10. Kansas City, Mo.</td>
<td>Main Street MAX BRT - Kansas City Area Transportation Authority</td>
<td>$27 million</td>
<td>2005</td>
<td>13</td>
<td>Mixed-flow arterials, mixed-flow freeways, dedicated arterials</td>
<td>Enhanced stops, designated stations</td>
<td>Low floors, enhanced aesthetics, passenger amenities, wider aisles</td>
<td>On-board</td>
<td>Clean diesel</td>
<td>Signal manipulation, vehicle tracking, passenger information, voice announcement</td>
</tr>
<tr>
<td>12. Miami</td>
<td>US 1 Busway - Miami-Dade Transit Agency</td>
<td>$37 million</td>
<td>2007</td>
<td>Dedicated</td>
<td>Basic stops/shelters</td>
<td>Conventional, articulated</td>
<td>On-board, cash/coin, smart card</td>
<td>Hybrid-electric, clean diesel</td>
<td>To be determined</td>
<td></td>
</tr>
<tr>
<td>13. Minneapolis</td>
<td>I-35W BRT - Metro Transit</td>
<td>$66 million</td>
<td>2009</td>
<td>32</td>
<td>Mixed-flow arterials, mixed-flow freeways, dedicated arterials, at-grade transitways</td>
<td>Enhanced stops, designated stations, pedestrian-friendly areas, freeway online stations</td>
<td>Low floors, enhanced aesthetics, passenger amenities</td>
<td>Off-board, on-board, self-service, cash/coin, smart card, magnetic strip</td>
<td>Hybrid-electric, clean diesel</td>
<td>Signal manipulation, vehicle tracking, passenger information, voice announcement</td>
</tr>
<tr>
<td>15. Orange, Calif.</td>
<td>BRAVO - Orange County Transportation Authority (OCTA)</td>
<td>$45 million</td>
<td>2010</td>
<td>92</td>
<td>Mixed-flow arterials, mixed-flow freeways</td>
<td>Enhanced stops, intermodal terminals</td>
<td>Conventional, low floors, enhanced aesthetics, may use articulated buses at a future date</td>
<td>On-board, self-service, cash/coin, smart card</td>
<td>CNG</td>
<td>Signal manipulation, vehicle tracking, passenger information, voice announcement, security</td>
</tr>
<tr>
<td>16. Orlando, Fla.</td>
<td>LynxMO - Central Florida Regional Transportation Authority</td>
<td>$27 million</td>
<td>1997</td>
<td>9</td>
<td>At-grade transitways</td>
<td>Basic stops/shelters, designated stations, intermodal terminals, land use policies, pedestrian-friendly areas</td>
<td>Conventional, low floors, passenger amenities, wider aisles</td>
<td>No-fare collected</td>
<td>Clean diesel</td>
<td>Signal manipulation, passenger information, voice announcement, real-time information</td>
</tr>
<tr>
<td>17. Ottawa, Ontario</td>
<td>The Transitway-OC Transpo</td>
<td>$500 million</td>
<td>1983</td>
<td>500</td>
<td>Mixed-flow arterials, at-grade transitways, grade-separated transitways</td>
<td>Designated stations</td>
<td>Articulated, low/medium, three double-deckers</td>
<td>On-board, proof of payment on 277 articulated buses</td>
<td>Hybrid-electric, clean diesel</td>
<td>Signal manipulation, vehicle tracking, security, automated trip planner, automated telephone system for stops, automated passenger counting system</td>
</tr>
</tbody>
</table>
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</tr>
</thead>
<tbody>
<tr>
<td>18. Provo, Utah</td>
<td>Provo-Orem Rapid Transit - Utah Transit Authority (UTA)</td>
<td>$220 million</td>
<td>2012</td>
<td>30</td>
<td>Mixed-flow arterials, dedicated arterials, at-grade transitways</td>
<td>Enhanced stops, designated stations, intermodal terminals, land use policies, pedestrian-friendly areas</td>
<td>Articulated, low floors, enhanced aesthetics, passenger amenities, added doors, quieter operation</td>
<td>Off-board, self-service, cash/coin, smart card</td>
<td>Clean diesel</td>
<td>Signal manipulation, collision-sensing, vehicle tracking, passenger information, voice annunciation</td>
</tr>
<tr>
<td>19. Sacramento, Calif.</td>
<td>Stockton Boulevard Enhanced Bus (Route 501) - Sacramento Regional Transit District</td>
<td>$33 million</td>
<td>2004</td>
<td>8</td>
<td>Mixed-flow arterials</td>
<td>Basic stops/shelters</td>
<td>Conventional, low floors, enhanced aesthetics, passenger amenities</td>
<td>On-board, cash/coin, magnetic strip</td>
<td>CNG</td>
<td>Signal manipulation, passenger information, security, one-queue jump</td>
</tr>
<tr>
<td>20. Salt Lake City</td>
<td>3500 S BRT (MAX) - Utah Transit Authority (UTA)</td>
<td>$33 million</td>
<td>2008</td>
<td>10</td>
<td>Mixed-flow arterials, dedicated arterials, at-grade transitways</td>
<td>Enhanced stops, designated stations, intermodal terminals</td>
<td>Low floors, enhanced aesthetics, added doors, quieter operation</td>
<td>Off-board, on-board, self-service, cash/coin, smart card</td>
<td>Clean diesel</td>
<td>Signal manipulation, collision-sensing, vehicle tracking, voice annunciation</td>
</tr>
<tr>
<td>21. San Diego</td>
<td>I-15 BRT - San Diego Association of Governments (SANDAG)</td>
<td>$1.3 billion</td>
<td>2012</td>
<td>49</td>
<td>At-grade transitways</td>
<td>Designated stations, intermodal terminals, land use policies, pedestrian-friendly areas</td>
<td>Passenger amenities, quieter operation, road coach</td>
<td>Off-board, on-board, self-service, cash/coin, smart card</td>
<td>CNG</td>
<td>Signal manipulation, passenger information</td>
</tr>
<tr>
<td>22. San Francisco</td>
<td>Van Ness Avenue BRT - San Francisco County Transportation Authority</td>
<td>$304.2 million</td>
<td>2012</td>
<td>46</td>
<td>At-grade transitways</td>
<td>Designated stations, pedestrian-friendly areas</td>
<td>Low floors, level boarding</td>
<td>Off-board, self-service</td>
<td>Clean diesel</td>
<td>Trolley</td>
</tr>
<tr>
<td>23. Seattle</td>
<td>RapidRide-A Line - King County Metro Transit</td>
<td>$26 million</td>
<td>2010</td>
<td>16</td>
<td>Mixed-flow arterials, dedicated arterials</td>
<td>Basic stops/shelters, enhanced stops, designated stations, intermodal terminals, A line only, pedestrian-friendly areas, three levels of stop amenities: basic, enhanced and stations</td>
<td>Articulated, low floors, enhanced aesthetics, passenger amenities, added doors, wider aisles</td>
<td>Off-board on A line (B,C,D), E lines to be determined; on-board, cash/coin, smart card, off-board smart card reader at stations</td>
<td>Hybrid-electric</td>
<td>Signal manipulation, vehicle tracking, passenger information, voice annunciation, security</td>
</tr>
<tr>
<td>24. Stockton, Calif.</td>
<td>Route 40-Metro Express - San Joaquin RTD</td>
<td>$4.8 million</td>
<td>2007</td>
<td>6</td>
<td>Mixed-flow arterials</td>
<td>Designated stations, one transit center and two transfer hub stations</td>
<td>Low floors, enhanced aesthetics, passenger amenities, wider doors, LCD message display, visual and verbal recorded messages</td>
<td>Off-board, self-service, cash/coin, credit, debit cards</td>
<td>Hybrid-electric</td>
<td>Signal manipulation, vehicle tracking, passenger information, voice annunciation, security, APC, passenger ridership statistics</td>
</tr>
<tr>
<td>Stockton, Calif.</td>
<td>Route 42-Airport Express - San Joaquin RTD</td>
<td>$9.34 million</td>
<td>2010</td>
<td>5</td>
<td>Mixed-flow arterials</td>
<td>Designated stations, intermodal terminals, land use policies, pedestrian-friendly areas, raised boarding platforms and one transit center</td>
<td>Low floors, wider boarding doors</td>
<td>Off-board, self-service, cash/coin, magnetic strip, credit, debit cards</td>
<td>Hybrid-electric</td>
<td>Clean diesel</td>
</tr>
<tr>
<td>25. Winnipeg, Manitoba</td>
<td>Southeastern Transit Corridor - Winnipeg Transit</td>
<td>$338 million</td>
<td>2012</td>
<td>To be determined</td>
<td>Mixed-flow arterials, dedicated arterials, grade-separated transitways</td>
<td>Enhanced stops, designated stations, land use policies, pedestrian-friendly areas</td>
<td>Conventional, articulated, low floors, enhanced aesthetics, passenger amenities, quieter operation</td>
<td>Onboard, cash/coin, smart card</td>
<td>Clean diesel</td>
<td>Signal manipulation, vehicle tracking, passenger information, voice annunciation</td>
</tr>
</tbody>
</table>

**Note:** The table provides a summary of BRT projects in various cities, including the capital cost, year of start, number of BRT vehicles, running way features, station characteristics, vehicle styles, fare collection characteristics, propulsion, and ITS use. The projects listed are from various regions and include details such as the type of BRT operation, vehicle features, and the technologies used for passenger information and security.
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