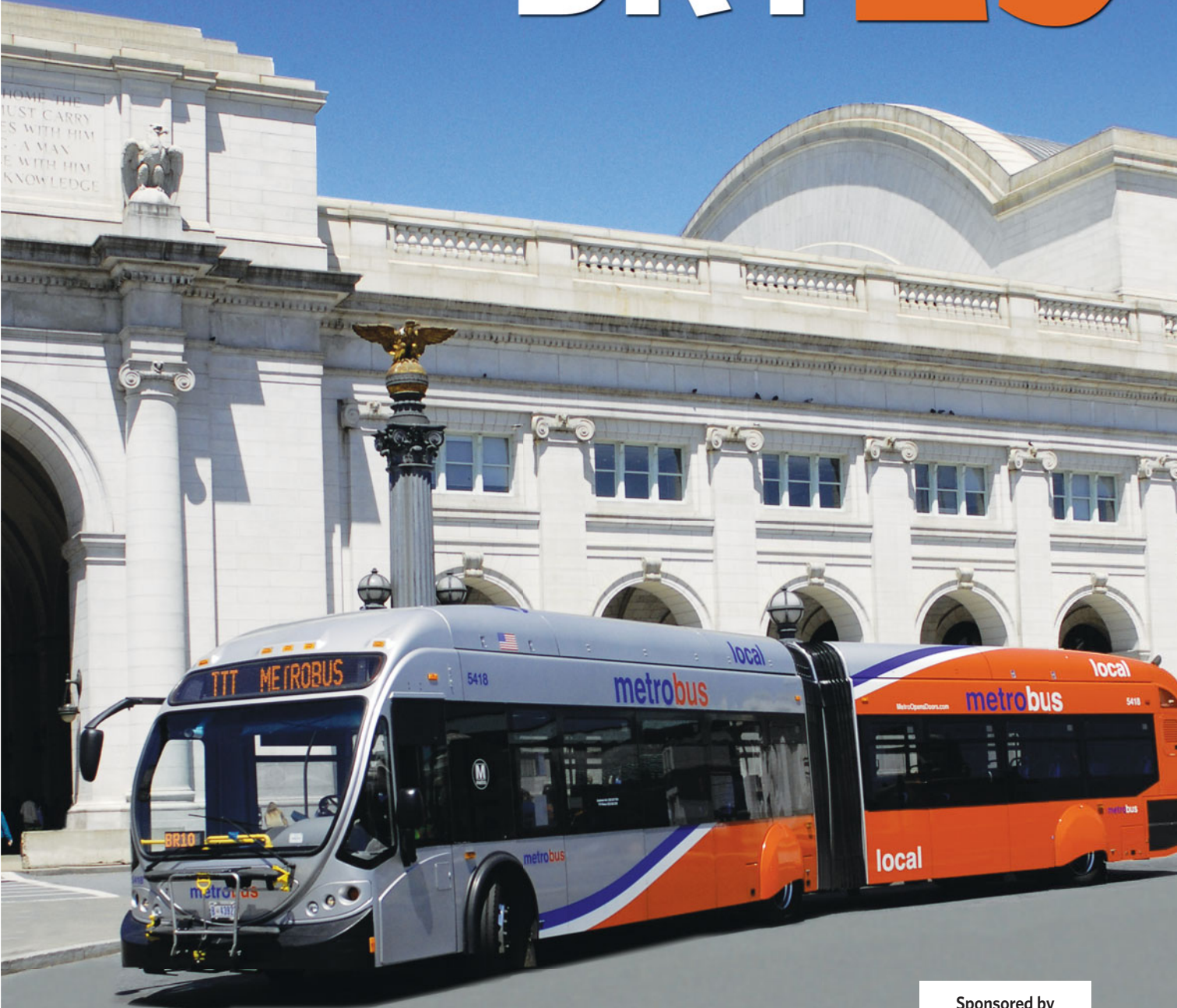


# METRO'S BRT 25



Analysis of  
**Bus Rapid Transit Projects**  
in North America

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# New BRT Projects

## Gather Momentum Across the U.S.

Several projects are in the planning stages, many of them on the West Coast. Although funding is once again a common hurdle, with financial support hinging on tight application deadlines, transit agencies are pushing ahead.

>BY NICOLE SCHLOSSER, Associate Editor

**T**HIS YEAR, METRO'S BRT 25 SURVEY results feature 43 projects, 42 of which are located in the U.S., with one in Canada.

There are plenty of new projects this time around, including the Swift BRT from Everett, Wash.-based **Community Transit**, which debuted the service late last year; three upcoming BRT lines from Chicago's **Pace Suburban Bus**; the Escondido Rapid Bus run by **San Diego Association of Governments (SANDAG)**; Livermore, Calif.-based **Livermore Amador Valley Transit Authority's** Rapid project and the **Washington Area Metropolitan Transit Authority's** four current BRT lines.

Seattle's **King County Metro Transit** added a sixth BRT line to its RapidRide project; the F Line is

slated to begin running in 2013.

Back on the list is the \$24 million Altamonte Springs, Fla. **LYNX FlexBus** project. Coming back from a delay, the system is now slated for completion in 2011.

As with last year, the region producing the highest number of new BRT systems was the West Coast, with a total of 16 projects expected to begin operation between 2010 and 2017. Combined, BRT projects in this region total \$2.3 billion. In Stockton, Calif., **San Joaquin RTD's** Route 44 Airport Express is scheduled to begin operating in September 2010. SANDAG's new SuperLoop line will feature the region's first gasoline-electric hybrid public buses with service every 10 minutes during peak hours and every 15 minutes during non-peak hours.

Project funding ranges from FTA Very Small Starts and other federal funding (80 percent) to state support (28 percent) and local backing, primarily in the form of sales tax (64 percent). This year, based on the projects surveyed, it appears that federal funding was up slightly and local funding doubled, while state support dipped slightly, compared to last year (31 percent).

Funding was once again the most common challenge cited this year, at 36 percent, with land

use and project coordination rolling in at 24 percent and 16 percent, respectively. Many respondents commented that they had to react to strict time constraints to obtain funding or deal with delays in receiving support. Other difficulties noted were construction, at 12 percent, and gaining community support (eight percent).

Transit agencies plan to purchase a total of 102 vehicles in 2010, a slight drop from the 119 anticipated purchases in 2009's survey. On average, this comes to approximately two buses per project listed.

The majority of survey respondents are looking to fuel their buses with clean diesel, at 64 percent, with nearly as many also selecting hybrid-electric propulsion, at 60 percent. Twenty-eight percent of those surveyed chose CNG, up significantly from 2009's 14 percent.

For ITS use, agencies mainly selected passenger information (100 percent), signal manipulation (96 percent) and voice announcement (84 percent). Respondents also mentioned plans to offer Wi-Fi to passengers (King County Metro), provide a **Fas-Trak** facility with variable pricing for solo drivers (SANDAG) and add **NextBus** signs (Aspen, Colo.'s **Roaring Fork Transportation Authority**).

### Fuel choices

PROPULSION TYPE	QUANTITY	%
Clean diesel	16	64%
Hybrid-electric	15	60%
CNG	7	28%
Trolley	2	8%
Fuel cell	1	4%
LNG	0	0%

Clean diesel and hybrid electric were the most popular propulsion choices, with CNG coming in at a distant third. (Note: many transit authorities selected two propulsion methods, so percentages overlap.)

# BRT 25 2010

City	Project-Agency	Capital Cost	Year of start	Number of BRT vehicles	Running way features	Station characteristics	Vehicle styles	Fare collection characteristics	Propulsion	ITS Use
<b>1. Albany, N.Y.</b>	NY5 BRT (Bus Plus) - Capital District Transportation Authority	\$25 million	2010	15	Mixed-flow arterials	Basic stops/shelters, enhanced stops, designated stations, land use policies, pedestrian-friendly policies	Conventional, low floors, enhanced aesthetics, passenger amenities, added doors, wider aisles, quieter operation	On-board, cash/coin, magnetic strip	Hybrid-electric	Signal manipulation, vehicle tracking, passenger information, voice announcement, security
<b>2. Altamonte Springs, Fla.</b>	FlexBus - Central Florida Regional Transportation Authority (dba LYNX)	\$24.2 million	2011	25	Mixed-flow arterials, at-grade transitways	Enhanced stops, designated stations, land use policies, reservation kiosks at all stops	Low floors	Off-board, prepay at kiosk or via Internet	Clean diesel	Vehicle tracking, passenger information, voice announcement, security, dynamic trip reservations
<b>3. Aspen, Colo.</b>	VelociRFTA - Roaring Fork Transportation Authority (RFTA)	\$50 million	2013	16	Mixed-flow freeways, dedicated arterials	Enhanced stops, designated stations, intermodal terminals, pedestrian-friendly areas	Low floors	Self-service, cash/coin, magnetic strip	Hybrid-electric, clean diesel	Signal manipulation, vehicle tracking, passenger information, voice announcement, Next-Bus signs
<b>4. Bloomington, Minn.</b>	Cedar Avenue Transitway - Dakota County and Minnesota Valley Transit Authority	\$167.5 million	2009	9	Mixed-flow arterials, mixed-flow freeways, at-grade transitways	Designated stations, land use policies, pedestrian-friendly areas	Low floors, enhanced aesthetics, passenger amenities, added doors, quieter operation	Off-board, on-board, self-service, smart card	TBD	Signal manipulation, precision docking, vehicle guidance, vehicle tracking, passenger information, security
<b>5. Boston</b>	Silver Line Waterfront (Routes SL1 and SL2) - Massachusetts Bay Transportation Authority	\$601 million	2004	32	Mixed-flow arterials, mixed-flow freeways, at-grade transitways, subways	Basic stops/shelters, designated stations, intermodal terminals, land use policies, pedestrian-friendly areas	Articulated, low floors, passenger amenities, 60-foot dual mode articulated vehicles with PA/VMS, luggage racks (airport vehicles only), distinctive paint scheme	Off-board, on-board, barrier-enforced, cash/coin, smart card, magnetic strip	Clean diesel, trolley	Passenger information, voice announcement
<b>Boston</b>	Silver Line Washington Street (SL4 and SL5) - Massachusetts Bay Transportation Authority	\$53 million	2009	21	Mixed-flow arterials, at-grade transitways	Basic stops/shelters, enhanced stops, designated stations, intermodal terminals, land use policies, pedestrian-friendly areas	Articulated, low floors, 60-foot articulated vehicles with PA/VMS, distinctive paint scheme	On-board, cash/coin, smart card, magnetic strip	CNG	Signal manipulation, vehicle tracking, passenger information, voice announcement
<b>6. Chicago</b>	Cermak Arterial Rapid Transit - Pace Suburban Bus; Dempster Arterial Rapid Transit - Pace Suburban Bus; Milwaukee Arterial Rapid Transit - Pace Suburban Bus	TBD	2015; 2013; 2012	TBD	Mixed-flow arterials	Enhanced stops, designated stations, intermodal terminals, pedestrian-friendly areas	Low floors, enhanced aesthetics	On-board, cash/coin, smart card, magnetic strip	Clean diesel	Signal manipulation, vehicle tracking, passenger information, voice announcement
<b>7. Denver</b>	16th St. Transit Mall - Denver Regional Transportation District	\$27 million	1982	36	At-grade transitways	Basic stops/shelters, designated stations, intermodal terminals	Low floors, added doors, wider aisles, quieter operation, custom-made vehicles	Free service	CNG, hybrid-electric	Vehicle tracking, voice announcement, APC
<b>Denver</b>	US 36 - Denver Regional Transportation District	\$194 million	2016	TBD	Mixed-flow freeways	Designated stations, intermodal terminals	TBD	On-board	CNG, clean diesel	Vehicle tracking, passenger information
<b>8 Escondido, Calif.</b>	Escondido Rapid Bus - San Diego Association of Governments (SANDAG)	\$4.3 million	2010	0	Mixed-flow arterials	Enhanced stops, pedestrian-friendly areas	Conventional	TBD	CNG	Signal manipulation, vehicle tracking, passenger information
<b>9. Everett, Wash.</b>	Swift BRT - Community Transit	\$29.4 million	2009	15	Mixed-flow arterials	Designated stations, intermodal terminals, pedestrian-friendly areas, raised 10-inch curbs, roadside markers, information kiosks, lighting and weather barriers	Articulated, low floors, enhanced aesthetics, passenger amenities, added doors, wider aisles, quieter operation, hybrid diesel-electric propulsion, three on-board bike racks, passive restraint system for wheelchair users	Off-board, self-service, cash/coin, smart card, random fare inspection on vehicles	Hybrid-electric, clean diesel	Signal manipulation, CAD/AVL, APCs, announcement, and real-time passenger information
<b>10. Hartford, Conn.</b>	New Britain-Hartford Bus Rapid Transit - Connecticut DOT	\$572 million	2013	31	At-grade transitways, grade-separated transitways	Basic stops/shelters, enhanced stops, designated stations, intermodal terminals, land use policies, pedestrian-friendly areas	Conventional, articulated, low floors, enhanced aesthetics, passenger amenities	Off-board, self-service, cash/coin, smart card	Hybrid-electric, clean diesel, fuel cell	Signal manipulation, vehicle tracking, passenger information, voice announcement, security

# BRT 25 2010

City	Project-Agency	Capital Cost	Year of start	Number of BRT vehicles	Running way features	Station characteristics	Vehicle styles	Fare collection characteristics	Propulsion	ITS Use
<b>11. Kansas City, Mo.</b>	Troost MAX - Kansas City Area Transportation Authority	\$30 million	2010	14	Mixed-flow arterials, dedicated arterials	Enhanced stops, designated stations, identifying marker	Low floors, enhanced aesthetics, added doors, unique style	On-board, limited trial of off-vehicle fare collection	Hybrid-electric, clean diesel	Signal manipulation, vehicle tracking, passenger information, voice announcement, real-time arrival info
<b>12. Livermore, Calif.</b>	Rapid - Livermore Amador Valley Transit Authority (LAVTA)	\$22 million	2011	14	Mixed-flow arterials	Basic stops/shelters, enhanced stops, designated stations	Conventional, low floors, enhanced aesthetics, passenger amenities, quieter operation	On-board, cash/coin, smart card	Hybrid-electric	Signal manipulation, vehicle tracking, passenger information, voice announcement, security
<b>13. Minneapolis</b>	I-35W BRT - Metro Transit	\$80 million	2012	14	Mixed-flow freeways, dedicated arterials	Enhanced stops, designated stations, pedestrian-friendly areas	Low floors, enhanced aesthetics, passenger amenities	Off-board, on-board, self-service, cash/coin, smart card, magnetic strip	Hybrid-electric, clean diesel	Signal manipulation, vehicle tracking, passenger information, voice announcement, security
<b>14. Orange, Calif.</b>	BRAVO! - Orange County Transportation Authority (OCTA)	\$45 million	TBD	92	Mixed-flow arterials, mixed-flow freeways	Enhanced stops, intermodal terminals	Conventional, low floors, enhanced aesthetics, may use articulated buses at a future date	On-board, self-service, cash/coin, magnetic strip	CNG	Signal manipulation, vehicle tracking, passenger information, voice announcement, security
<b>15. Orlando, Fla.</b>	LYMMO - Central Florida Regional Transportation Authority	\$21 million	1997	10	At-grade transitways	Basic stops/shelters, designated stations, intermodal terminals, pedestrian-friendly areas	Low floors, enhanced aesthetics, added doors	Free service	Clean diesel	Signal manipulation, vehicle tracking, passenger information, voice announcement, security
<b>16. Provo, Utah</b>	Provo-Orem Rapid Transit - Utah Transit Authority (UTA)	\$182 million	2015	0	Mixed-flow arterials, at-grade transitways	Enhanced stops, designated stations, intermodal terminals	Low floors, enhanced aesthetics, passenger amenities, added doors, wider aisles	Off-board, cash/coin, smart card, magnetic strip	Clean diesel	Signal manipulation, passenger information
<b>17. Salt Lake City</b>	5600 West (Mountain View Corridor) Utah Transit Authority (UTA)	\$100 million	2015	14	Mixed-flow arterials, at-grade transitways	Enhanced stops, designated stations, intermodal terminals	Low floors, enhanced aesthetics, passenger amenities, added doors, wider aisles	Off-board, cash/coin, smart card, magnetic strip	Clean diesel	Signal manipulation, passenger information
<b>18. San Diego</b>	I-15 BRT - San Diego Association of Governments (SANDAG); Mid-City Rapid - San Diego Association of Governments (SANDAG); Southbay BRT - San Diego Association of Governments (SANDAG); SuperLoop - San Diego Association of Governments (SANDAG)	\$1.5 billion; \$43 million; \$94 million; \$39 million	2012; 2012; 2013; 2011	34; 15; TBD; 12	At-grade transitways, grade-separated transitways; Mixed-flow arterials, at-grade transitways; Mixed-flow arterials	Basic stops/shelters, enhanced stops, designated stations, intermodal terminals, land use policies, pedestrian-friendly areas; Enhanced stops, designated stations, intermodal terminals, pedestrian-friendly areas; Basic stops/shelters, enhanced stops, designated stations; Basic stops, shelters, enhanced stops, designated stations; distinctive shelter and lighting, NextBus message signs	Conventional, articulated, low floors, enhanced aesthetics, passenger amenities, quieter operation; Articulated, low floors enhanced aesthetics; Conventional, low floors, quieter operation	On-board, cash/coin, smart card; off-board, on-board, cash/coin, smart card; Off-board, on-board, cash/coin, smart card; Smart card; On-board, smart card, compass card system used throughout San Diego MTS service area	CNG; CNG; TBD; Hybrid-electric	Signal manipulation, collision sensing, vehicle tracking, passenger information, voice announcement, security, managed lanes, FasTrak facility with variable pricing for solo drivers; Signal manipulation, vehicle tracking, passenger information; Vehicle tracking, passenger information; Signal manipulation, vehicle tracking, passenger information
<b>19. San Francisco</b>	Van Ness Avenue BRT - San Francisco County Transportation Authority	\$118 million	2014	60	Dedicated arterials	Enhanced stops, designated stations, level-boarding, pre-payment	Articulated, low floors, enhanced aesthetics, passenger amenities, added doors	Off-board, on-board, self-service, cash/coin, smart card	Hybrid-electric, trolley	Signal manipulation, precision docking, passenger information, voice announcement

# BRT 25 2010

City	Project-Agency	Capital Cost	Year of start	Number of BRT vehicles	Running way features	Station characteristics	Vehicle styles	Fare collection characteristics	Propulsion	ITS Use
<b>20. San Jose, Calif.</b>	El Camino BRT - Santa Clara Valley Transportation Authority; Santa Clara Alum Rock BRT - Santa Clara Valley Transportation Authority; Stevens Creek BRT - Santa Clara Valley Transportation Authority	\$209 million; \$29 million; \$65 million	2015; 2014; 2017	17; 23; 13	Mixed-flow arterials, at-grade transitways; Mixed-flow arterials, at-grade transitways; Mixed-flow arterials, at-grade transitways	Enhanced stops, designated stations, intermodal terminals, land use policies, pedestrian-friendly areas; Enhanced stops, designated stations, intermodal terminals, land use policies, pedestrian-friendly areas; Enhanced stops, designated stations, intermodal terminals, land use policies, pedestrian-friendly areas	Articulated, low floors, enhanced aesthetics, passenger amenities, added doors, wider aisles, quieter operations; Articulated, low floors, enhanced aesthetics, passenger amenities, added doors, wider aisles, quieter operations	Off-board, cash/coin, smart card; Off-board, cash/coin, smart card; off-board, cash/coin, smart card	Hybrid-electric; Hybrid-electric; Hybrid-electric	Signal manipulation, passenger information; Signal manipulation, passenger information; Signal manipulation, passenger information
<b>21. Seattle</b>	RapidRide- A Line - King County Metro Transit; RapidRide-B Line - King County Metro Transit; RapidRide-C Line - King County Metro Transit; RapidRide-D Line - King County Metro Transit; RapidRide-E Line - King County Metro Transit; RapidRide-F Line - King County Metro Transit	\$26 million; \$28 million; \$28 million; \$44 million; \$45 million; \$33 million	2010; 2011; 2012; 2012; 2013; 2013	16; 18; 15; 28; 23; 13	Mixed-flow arterials, dedicated arterials	Basic stops/shelters, enhanced stops, designated stations, intermodal terminals, pedestrian-friendly areas; basic stops/shelters, enhanced stops, designated stations, pedestrian-friendly areas (A and F); Basic stops/shelters, enhanced stops, designated stations, pedestrian-friendly areas	Articulated, low floors, enhanced aesthetics, passenger amenities, added doors, wider aisles	Off-board, on-board, cash/coin, smart card, off-board smart card reader at stations pilot test on A Line	Hybrid-electric	Signal manipulation, vehicle tracking, passenger information, voice announcement, security, passenger Wi-Fi
<b>22. Stockton, Calif.</b>	Route 40-Metro Express - San Joaquin RTD	\$4.5 million	2007	6	Mixed-flow arterials, designated stations, pedestrian-friendly areas, stations are branded for BRT service with special gull wing roof design and paint scheme	Enhanced aesthetics, passenger amenities, added doors, quieter operation, aerodynamic front panels and windshield, wider double-boarding doors and interior AV message board	Low floors, enhanced aesthetics, passenger amenities, added doors, quieter operation	Off-board, self-service, cash/coin, magnetic strip, honor system boarding and deboarding at front and rear doors	Hybrid-electric, clean diesel	Signal manipulation, vehicle tracking, passenger information, voice announcement, security, APC passenger boarding and deboarding recording passenger counts at front and rear doors
<b>Stockton, Calif.</b>	Route 44-Airport Express - San Joaquin RTD	\$9.7 million	2010	6	Mixed-flow arterials	Designated stations, pedestrian-friendly areas, station shelters are branded for BRT service with special gull wing roof design and paint scheme	Low floors, enhanced aesthetics, passenger amenities, added doors, quieter operation, special paint scheme, aerodynamic front panels and windshield, wider double-boarding doors, and interior AV message board	Off-board, self-service, cash/coin, magnetic strip, honor system boarding and deboarding at front and rear doors	Hybrid-electric, clean diesel	Signal manipulation, vehicle tracking, passenger information, voice announcement, security, APC passenger boarding and deboarding recording passenger counts at front and rear doors
<b>23 Washington, D.C.</b>	30s Line (District of Columbia) - Washington Metropolitan Area Transit Authority; Georgia Avenue MetroExtra Line (District of Columbia) - Washington Metropolitan Area Transit Authority; Pike Ride (Columbia Pike in Arlington County and Fairfax County) - Washington Metropolitan Area Transit Authority; REX (Alexandria City and Fairfax County) - Washington Metropolitan Area Transit Authority	\$16 million; \$10.6 million; \$19.2 million; \$19 million	2009; 2007; 2003; 2004	8; 11; 12; 7	Mixed-flow arterials, at-grade transitways	Basic stops/shelters, enhanced stops, intermodal terminals, pedestrian-friendly areas	Conventional, low floors, enhanced aesthetics, passenger amenities	On-board, cash/coin, smart card	CNG	Signal manipulation, vehicle tracking, passenger information, voice announcement
<b>24. Winnipeg, Manitoba</b>	Southwest Transit Corridor - Winnipeg Transit	\$138 million	2012	TBD	Mixed-flow arterials, dedicated arterials, grade-separated transitways	enhanced stops, designated stations, land use policies, pedestrian-friendly areas	Conventional, articulated, low floors, enhanced aesthetics, passenger amenities, quieter operation	On-board, cash/coin, smart card	Hybrid-electric, clean diesel	Signal manipulation, vehicle tracking, passenger information, voice announcement, security
<b>25. West Valley City, Utah</b>	3500 South BRT (MAX) - Utah Transit Authority (UTA)	\$10.6 million	2010	14	Mixed-flow arterials, at-grade transitways	Enhanced stops, designated stations, intermodal terminals	Low floors, enhanced aesthetics, passenger amenities, added doors, wider aisles	Off-board, cash/coin, smart card, magnetic strip	Clean diesel	Signal manipulation, passenger information