

## Shoulder Running Case Studies in U.S. - where 24/7 operation is possible or allowed

Location	inside/outside - facility type	permanent / temporary	Priced?	Types of vehicles can use?	Times shoulder use allowed	In operation since:	Other Comments
Minnesota -- 290 mile network of Bus Only shoulders - Minneapolis St Paul.	typically outside - various types of facilities	Interim - and some deployments have been removed since inception	no	buses only	any time mainline traffic is less than 35 mph.	1992	Buses can only go 15 miles faster than mainline - no faster than 35 mph on shoulder. 10 foot minimum shoulder running width. Facilities vary in length from .3 mi to 9 miles
New Jersey - Mountainside Bus Route 22	outside - arterial	permanent	no	buses only	anytime traffic is congested	many years	1 mile long
Georgia - Route 400 in Atlanta	outside - freeway	permanent	no	buses only	any time mainline traffic is less than 35 mph.	2005	Buses can only go 15 miles faster than mainline -12 mile long facility
Washington, Seattle bus service on SR 520	outside -- freeway	permanent	no	buses only and HOV 3+	24 /7	1970s	2.7 mile long - 13-14 foot shoulder - buses can travel at same speed as GP lanes
California - San Diego I-805/SR 52	outside -- interstate / SH	permanent	no	buses only	any time mainline traffic id less than 30 mph	2005	Buses can go only 10 mph fster than mainline. Shoulder is at least 10 ft wide in all areas.
Delaware - Wilmington US 202	outside - arterial US route	permanent	no	buses only	24/7	many years	intended to serve as a transit queue jump for buses headed for I-95
Florida -Miami, Florida Turnpike, SR 826, SR 836	outside - various types	permanent	no	buses only	any time maintline traffic is "congested"	2005	Buses can go no faster than 35 mph on shoulder. Shoulder is typically 10 foot wide / 12 foot in high volume areas.
Florida - Miami I-95 express Lanes converted existing single lane HOV to a two lane HOT by reducing GP and HOT lane widths to 11 ft	inside - interstate	permanent -- part of UPA project	yes	HOV 3+, transit, hybrids motorcycles and toll paying SOVs	24/7	2008	HOT lanes can operate at max speeds of 55 mph. variable pricing
Minnesota - Minneapolis I-94 --in response to bridge collapse - conversion of bus only shoulders to all vehicle shoulder access	outside - interstate	temporary - due to bridge collapse -- was converted back to bus only in 2008 but now under study for shoulder HOT operation	no	all traffic	24/7	2007	11 foot travel lane with no additional shoulder on right side.

Minnesota - I-35 W - Minneapolis conversion of bus only shoulder to HOT shoulder	inside - interstate	permanent - part of UPA project	yes	all vehicles - SOV pays dynamically set toll	facility open 24/7 - tolled only during peaks, except for downtown are which is tolled at all times.	2009	17 -19 foot between median barrier and end of lane width. 14 mile long facility.
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