



Strategic Regional Transit Plan

December 2008

Chapter 8: ***Capital Cost Assumptions***

1.0 CAPITAL COST ASSUMPTIONS

Capital costs for the Strategic Regional Transit Plan were estimated based on recently constructed systems. Standard cost categories were consolidated for the level of detail required for this study and would need to be expanded to comply with Federal Transit Administration (FTA) standard cost categories. Cost categories used for this study include guideway and track, vehicles, maintenance facility, stations, right-of-way, and contingency. Unit costs used vary by mode and are shown in the attached table. A square foot right-of-way estimate of \$150 per square foot include fully allocated costs of acquisition as an average of right-of-way for urbanized counties in Florida from the Florida Department of Transportation (FDOT).

When determining the costs associated with the alternatives, additional consideration was given to elevation of the proposed alignment. Metrorail requires grade separation from automobiles along the entire alignment due to the high voltage third rail. Commuter rail, LRT, and exclusive lane BRT may require some grade separation along the alignment.

Right-of-way cost assumptions include a cross section width of 30 feet for Bus Rapid Transit (BRT) and Metrorail, and 40 feet for Light Rail Transit (LRT) and Commuter Rail. Once the basic components of the right-of-way costs were identified, each mode was given a factor of the total projected right-of-way cost compared to the actual anticipated cost. Metrorail received a factor of 1.0 due to the need for 100% grade separated right-of-way, and the lack of existing right-of-way in the locations of the proposed alignments. Commuter rail received a factor of 0.5 as much of the right-of-way to be used could be purchased in a single transaction. The rapid bus factor is 0.25 because a majority of the alternatives would operate alongside or within an existing transportation corridor with the exception of intersection improvements and station/stop locations. The exception is the North-South Premium bus, which received a factor of 0.1, as a majority of the alignment would operate in mixed traffic on existing right-of-way.

Unit Costs by Mode – FTA Standard Cost Categories

Description	Cost (Millions)	Unit	Notes
BRT			
At-Grade Construction	\$6.5	Mile	2 roadway lanes, 10' bike path
Elevated Construction	\$20.0	Mile	typically
Vehicle	\$0.85	Each	Articulated vehicle (seats 80)
Maintenance Facility	\$15.0	Each	100 bus capacity (20 mile system, 20 min headway, 30 sec dwell)
Maintenance Facility / Vehicle	\$0.15	/vehicle	MF capacity / cost for MF
At-Grade Station	\$0.3	Each	
Elevated Station	\$1.5	Each	
Cross-Section Width	30	FT	
Contingency (include site work and system-wide elements)			
Construction	10	%	
Design	30	%	
LRT			
STA 2000 ft-1 mile apart similar to Heavy Rail			
At-Grade Construction	\$11.5	Mile	double track
Elevated Construction	\$37.0	Mile	
LRT Vehicle w/Cab	\$1.8	Each	
LRT Vehicle w/o Cab	\$1.8	Each	
Maintenance Facility	\$30.0	Each	30 vehicle capacity (20 mile system, 20 min headway, 30 sec dwell)
Maintenance Facility / Vehicle	\$1.00	/vehicle	MF capacity / cost for MF
At-Grade Station	\$0.65	Each	
Elevated Station	\$3.2	Each	
Cross-Section Width	40	FT	does not include STA platform (20-24' additional feet required for platform)
Contingency (include site work and system-wide elements)			
Construction	10	%	
Design	30	%	
DMU Vehicle			
At-Grade Construction	\$8.5	Mile	
Elevated Construction	\$34.5	Mile	
DMU Vehicle (single level)	\$3.7	Each	self-propelled, based on Colorado Railroad Company per Vikas
Locomotive		Each	
Vehicle w/o Cab		Each	
Maintenance Facility	\$25.0	Each	30 vehicle capacity (20 mile system, 20 min headway, 30 sec dwell)
Maintenance Facility / Vehicle	\$0.83	/vehicle	MF capacity / cost for MF
At-Grade Station	\$4.0	Each	
Elevated Station	\$7.5	Each	
Cross-Section Width	40	FT	does not include STA platform (20-24' additional feet required for platform)
Contingency (include site work and system-wide elements)			
Construction	10	%	
Design	30	%	
Commuter Rail (example: Tri-Rail)			
STA 2-5 miles apart			
At-Grade Construction	\$8.5	Mile	
Elevated Construction	\$34.5	Mile	
Locomotive	\$3.5	Each	
Vehicle w/o Cab	\$2.5	Each	
Maintenance Facility	\$25.0	Each	30 vehicle capacity (20 mile system, 20 min headway, 30 sec dwell)
Maintenance Facility / Vehicle	\$0.83	/vehicle	MF capacity / cost for MF
At-Grade Station	\$4.0	Each	
Elevated Station	\$7.5	Each	
Cross-Section Width	40	FT	does not include STA platform (20-24' additional feet required for platform)
Contingency (include site work and system-wide elements)			
Construction	10	%	
Design	30	%	
Heavy Rail (example: Miami Metro Rail)			
STA .5-1mile apart +			
At-Grade Construction	n/a	Mile	
Elevated Construction	\$53.4	Mile	
Vehicle w/Cab	\$3.0	Each	
Vehicle w/o Cab	\$2.3	Each	
Maintenance Facility	\$30.0	Each	30 vehicle capacity (20 mile system, 20 min headway, 30 sec dwell)
Maintenance Facility / Vehicle	\$1.00	/vehicle	MF capacity / cost for MF
At-Grade Station	n/a	Each	
Elevated Station	\$12.0	Each	
Cross-Section Width	30	FT	does not include STA platform (20-24' additional feet required for platform)
Contingency (include site work and system-wide elements)			
Construction	10	%	
Design	30	%	

Source: Unit costs- Chuck Pineda, C&B (703) 288-5924
 Vehicle costs - Vikas Jain, C&B