



Dade County
Metropolitan Planning
Organization

**Dade County
Transit Corridors
Transitional Analysis**

**Technical
Memorandum
Task 5:**
Capital Cost Estimating
Process and Results

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DADE COUNTY TRANSIT CORRIDORS TRANSITIONAL ANALYSIS

TECHNICAL MEMORANDUM

CAPITAL COST ESTIMATING PROCESS AND RESULTS

INTRODUCTION

This technical memorandum documents the capital cost estimating results for the transit improvement alternatives considered as part of the Dade County Transit Corridors Transitional Analysis.

The report provides an overview of the process, identifies the sources of the unit cost data, and provides back-up for the various capital cost estimates that are presented in the study's Corridor Evaluation Report.

CAPITAL COST ESTIMATING APPROACH

Capital costs are one time expenditures to design, construct, and equip the transit improvement alternatives under consideration. The procedures followed were consistent with the level of detail at which the alternatives were defined and are appropriate for the purposes of this study. Each of the alternatives was sketched onto aerial mapping of the various corridors, showing the alignment, stations, and related facilities locations. These locations are representative of where these facilities could be placed for the purposes of developing capital costs estimate. Actual locations would be based on more detailed planning and engineering and community consultation in subsequent phases of a selected project.

Based on these preliminary concept plans, estimates of length of guideway by type (two-track, at-grade or aerial rail, for example), number of stations by type (busway, light rail at-grade, aerial rail) and amount of parking, real estate and related facilities are estimated. Systems costs (propulsion power, signals, and communications) are based on the type and length of guideway, and costs for new, modified, or additional vehicles are based on the results of the operations analysis (see Technical Memorandum Task 5: Operating and Maintenance Cost Estimating Process and Results). To these costs are added costs for real estate (for right-of-way, stations and other facilities) design, construction management, insurance, and agency costs. Finally a contingency cost of twenty percent to cover unanticipated conditions was added.

SOURCES OF UNIT PRICE INFORMATION

1. METRORAIL PHASE I, Dade County, Florida
2. METROMOVER PHASE I AND PHASE II, Dade County, Florida
3. Miami Beach Light Rail Transit
4. 1992 Transportation Costs, Florida Department of Transportation, Office of Policy Planning, Economic and Demographic Research and Analysis Section, September 1992.
5. Baltimore Central Light Rail Line, Phase I

6. Sacramento Light Rail System
7. Portland Light Rail System

ORGANIZATION OF REPORT

Exhibit "A" describes capital cost estimate summary for each of the corridors.

Exhibit "B" summarizes alternative total capital cost and capital cost/mile for each of the corridors.

Exhibit "C" provides the detail capital cost computations and that for each of the alternatives in the corridors studied.

Exhibit "D" shows unit costs for station categories and vehicle types used in capital cost computations.

Exhibit "E" provides detailed station costs, surface parking costs and elevated parking costs for each of the alternatives in the corridors studied.

Exhibit "F" provides capital cost estimate breakdown for the two segments of the South Corridor -- from Dadeland South to Cutler Rider and from Cutler Ridge to Homestead/Florida City with the Surface Parking option.

Exhibit "G" provides capital cost estimate for the South Corridor with at-grade (surface) parking option.

Exhibit "H" provides West Beach Corridor -- Seaport Link only capital cost estimate.

EXHIBIT "A"

Dade County Transit Corridors Transitional Study Capital Cost Estimate Summary

1. SOUTH CORRIDOR

1.1 S1 Busway

This alternative consists of a busway along the F.E.C. right-of-way from the Dadeland South Metrorail station to SW 312th Street in Homestead.

- Length 16.9 miles
- Twelve Stations \$2,400,000
- Park-and-Ride Facilities \$28,200,000
- Vehicle cost saving \$7,200,000
- Total cost \$88,734,000
- Cost per mile \$5,241,000

1.2 S2 Hybrid LRT

This alternative consists of a "Hybrid" LRT along the F.E.C. right-of-way from the Dadeland South Metrorail station to SW 344th Street in Florida city.

- Length 19.6 miles
- Twelve stations \$30,000,000
- Park-and-Ride Facilities \$28,125,000
- Vehicle cost \$40,250,000
- Total cost \$541,763,000
- Cost per mile \$27,611,000

1.3 S3 Metrorail

This alternative consists of an extension of the Metrorail line along the F.E.C. right-of-way from the Dadeland South Metrorail station to SW 344th Street in Florida City.

- Length 19.6 miles
- Ten stations \$100,000,000
- Park-and-Ride Facilities \$30,600,000
- Vehicle cost \$31,650,000
- Total cost \$868,456,000
- Cost per mile \$44,261,000

2. KENDALL CORRIDOR

2.1 K1 Busway

This alternative consists of a reversible busway on the Snapper Creek and Shula Expressways and a reversible bus lane on SW 104th Street.

- Length 7.4 miles
- Six Stations \$1,200,000
- Two Park-and-Ride Facilities \$3,000,000
- Vehicle cost saving \$8,600,000
- Total cost \$22,003,000
- Cost per mile \$2,993,000

2.2 K2 Hybrid LRT

The Hybrid LRT alternative would operate in the median of Kendall Drive.

- Length 7.1 miles
- Seven stations \$17,500,000
- Four Park-and-Ride Facilities \$25,500,000
- Vehicle cost \$58,050,000
- Total cost \$348,373,000
- Cost per mile \$48,791,000

2.3 K3 Metrorail

This alternative consists of an extension of the Metrorail line on the Snapper Creek Expressway and Kendall Drive.

- Length 7.8 miles
- Six stations \$90,000,000
- Four Park-and-Ride Facilities \$30,075,000
- Vehicle cost \$18,900,000
- Total cost \$474,586,000
- Cost per mile \$60,732,000

3. North Corridor

3.1 N1 Busway

This alternative consists of a reversible bus lane in the median of NW 27th Avenue.

- Length 7.8 miles
- Eight stations \$1,600,000
- Three Park-and-Ride Facilities \$4,950,000
- Vehicle cost saving \$8,200,000
- Total cost \$30,571,000
- Cost per mile \$3,930,000

3.2 N2 Metrorail

This alternative consists of an extension of the Metrorail line north on NW 27th Avenue to NW 215th Street.

- Length 9.5 miles
- Seven stations \$105,000,000
- Six Park-and-Ride Facilities \$16,350,000
- Vehicle cost \$4,650,000
- Total cost \$495,478,000
- Cost per mile \$52,349,000

3.3 N3 Metrorail

This alternative consists of an extension of the Metrorail line to NW 215th Street via NW 27th Avenue.

- Length 11.6 miles
- Seven stations \$92,500,000
- Six Park-and-Ride Facilities \$19,050,000
- Vehicle cost \$2,650,000
- Total cost \$529,974,000
- Cost per mile \$45,836,000

4. Northeast Corridor

4.1 NE1 Busway

This alternative consists of a busway in the F.E.C. right-of-way from downtown Miami to NE 199th Street.

- Length 12.8 miles
- Fifteen stations \$3,000,000
- Four Park-and-Ride Facilities \$22,700,000
- Vehicle cost saving \$9,600,000

- Total cost \$87,679,000
- Cost per mile \$6,831,000

4.2 NE2 "Regular" LRT

This alternative consists of a "Regular" LRT line in the F.E.C. right-of-way which terminates in downtown Miami.

- Length 12.7 miles
- Thirteen stations \$32,500,000
- Four Park-and-Ride Facilities \$15,075,000
- Vehicle cost \$20,800,000
- Total cost \$395,716,000
- Cost per mile \$31,220,000

4.3 NE3 "Hybrid" LRT

This alternative consists of a "Hybrid" LRT line in the F.E.C. right-of-way which branches from the Stage-I Metrorail line.

- Length 12.8 miles
- Twelve stations \$30,000,000
- Four Park-and-Ride Facilities \$19,725,000
- Vehicle cost \$38,850,000
- Total cost \$439,409,000
- Cost per mile \$33,382,000

4.4 NE4 Metrorail

This alternative consists of an extension of Metrorail from Overtown station to NE 199th Street on the F.E.C. right-of-way.

- Length 12.8 miles
- Nine stations \$90,000,000
- Four Park-and-Ride Facilities \$25,200,000
- Vehicle cost \$31,950,000
- Total cost \$653,053,000
- Cost per mile \$51,216,000

5. Miami Beach Corridor

This alternative consists of an LRT alignment across MacArthur Causeway to 71st Street in Miami Beach.

- Length 9.3 miles
- Twenty-Four stations \$9,197,000
- Three Park-and-Ride Facilities \$2,340,000
- Vehicle cost \$46,800,000
- Total cost \$288,883,000
- Cost per mile \$31,083,000

6. West Corridor

6.1 W1 Metrorail

This alternative consists of a Metrorail line along SR 836, through the Airport Multimodal Center, to the Stage-I Metrorail line at Earlington Heights.

- Length 12.4 miles
- Eight stations \$85,000,000
- Seven Park-and-Ride Facilities \$19,875,000
- Vehicle cost \$64,800,000
- Total cost \$60,009,000
- Cost per mile \$48,938,000

6.2 W2 "Hybrid" LRT

This alternative consists of a "Hybrid" LRT or Metrorail alignment along SR 836 and a branch to the Airport Multimodal Center.

- Length 14.1 miles
- Twelve stations \$145,000,000
- Seven Park-and-Ride Facilities \$23,250,000
- Vehicle cost \$65,000,000
- Total cost \$760,753,000
- Cost per mile \$54,134,000

6.3 W3 "Hybrid" LRT

This alternative consists of a "Hybrid" LRT alignment along SR 836, the Blue Lagoon area and SW 8th Street, and a branch to the Airport Multimodal Center.

- Length 14.7 miles
- Fourteen stations \$112,500,000
- Eight Park-and-Ride Facilities \$22,200,000
- Vehicle cost \$72,600,000
- Total cost \$712,982,000

- Cost per mile \$48,450,000

6.4 **W4 Flagler LRT**

This alternative consists of a "Regular" LRT alignment on Flagler Street and SW 8th Street.

- Length 13.8 miles
- Twenty stations \$21,400,000
- Six Park-and-Ride Facilities \$16,050,000
- Vehicle cost \$85,600,000
- Total cost \$513,614,000
- Cost per mile \$37,302,000

7. **West Beach Corridor**

7.1 **WB1 via Metrorail**

This "Hybrid" LRT alternative includes an exclusive right-of-way from F.I.U. to the Stage-I Metrorail line at Earlington Heights via SR 836 and the Airport Multimodal Center, an elevated line from the Metrorail line at Overtown station through the CBD, at-grade alignment across MacArthur Causeway to the Convention Center (20th Street) in Miami Beach, and a branch to the Seaport.

- Length 20.0 miles
- Twenty-Six stations \$142,500,000
- Eight Park-and-Ride Facilities \$25,425,000
- Vehicle cost \$152,750,000
- Total cost \$979,013,000
- Cost per mile \$48,997,000

7.2 **WB2 "Hybrid" LRT**

This alternative includes an exclusive right-of-way from F.I.U. to Downtown Miami along SR 836 and the Miami River, at an-grade alignment across MacArthur Causeway to the Convention Center (20th Street) in Miami Beach, and branches to Airport and Seaport.

- Length 21.8 miles
- Twenty-Five stations \$217,500,000
- Eight Park-and-Ride Facilities \$25,725,000
- Vehicle cost \$89,800,000
- Total cost \$1,119,052,000
- Cost per mile \$51,469,000

7.3 WB3 "Hybrid" LRT

This alternative includes an exclusive right-of-way from F.I.U. to Downtown Miami and the seaport along SR 836 and the Miami River, a tunnel under Government Cut, an at-grade alignment to the Convention Center (20th Street) in Miami Beach, and a branch to the Airport Multimodal Center.

- Length 21.7 miles
- Nineteen stations \$187,500,000
- Eight Park-and-Ride Facilities \$22,425,000
- Vehicle cost \$79,800,000
- Total cost \$1,208,179,000
- Cost per mile \$58,417,000

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EXHIBIT "B"

17-Nov-92

Dade County Transit Corridors Transitional Study
Preliminary Capital Cost Estimates

Alternative	Cost	Cost per Mile
TSM/Base	N/A	N/A
S1 Busway	\$88,734,000	\$5,241,000
S2 "Hybrid" LRT	\$541,763,000	\$27,611,000
S3 Metrorail	\$868,456,000	\$44,261,000
K1 Busway	\$22,003,000	\$2,993,000
K2 "Hybrid" LRT	\$348,373,000	\$48,791,000
K3 Metrorail	\$474,586,000	\$60,732,000
N1 Busway	\$30,571,000	\$3,930,000
N2 Metrorail	\$495,478,000	\$52,349,000
N3 Metrorail	\$529,974,000	\$45,836,000
NE1 Busway	\$87,379,000	\$6,807,000
NE2 "Regular" LRT	\$395,716,000	\$31,220,000
NE3 "Hybrid" LRT	\$439,409,000	\$33,382,000
NE4 Metrorail	\$653,053,000	\$51,216,000
B1 LRT	\$288,883,000	\$31,063,000
W1 Metrorail	\$604,309,000	\$48,938,000
W2 "Hybrid" LRT	\$760,753,000	\$54,134,000
W3 "Hybrid" LRT	\$712,982,000	\$48,450,000
W4 Flagler LRT	\$513,614,000	\$37,302,000
WB1 via Metrorail	\$979,013,000	\$48,997,000
WB2 "Hybrid" LRT	\$1,119,052,000	\$51,469,000
WB3 "Hybrid" LRT	\$1,208,179,000	\$58,417,000

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EXHIBIT "C"

Dade County Transit Corridors Transitional Study

Preliminary Cost Estimates

Cost Categories	Units of Measure	Unit Cost	South Corridor with Elevated Parking					
			S1		S2		S3	
			Busway		"Hybrid" LRT		Metrorail	
			Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
Guideway At-Grade	miles	\$7,000,000			19.24	\$134,680,000		\$0
Guideway Elevated	miles	\$15,000,000					19.24	\$288,600,000
Tail Tracks	miles	\$10,000,000			0.38	\$3,800,000	0.38	\$3,800,000
Special Structures	lump sum							
Busway At-Grade	miles	\$2,112,000	16.93	\$35,756,000				
Busway Elevated	miles							
Guideway/Busway Total	miles		16.93	\$35,756,000	19.62	\$138,480,000	19.62	\$292,400,000
Systems	feet	\$1,200			103,600	\$124,320,000	103,600	\$124,320,000
Stations	lump sum			\$2,400,000		\$30,000,000		\$100,000,000
Parking	lump sum			\$28,200,000		\$28,125,000		\$30,600,000
Vehicles	lump sum			(\$7,200,000)		\$40,250,000		\$31,650,000
Sub Total				\$59,156,000		\$361,175,000		\$578,970,000
Design/CM/Admin.		@ 21%		\$12,423,000		\$75,847,000		\$121,584,000
Insurance		@ 4%		\$2,366,000		\$14,447,000		\$23,159,000
Right of Way	lump sum							
Sub Total				\$73,945,000		\$451,469,000		\$723,713,000
Contingency		@20%		\$14,789,000		\$90,294,000		\$144,743,000
Grand Total				\$88,734,000		\$541,763,000		\$868,456,000
Cost/Mile				\$5,241,000		\$27,611,000		\$44,261,000

Dade County Transit Corridors Transitional Study

Preliminary Cost Estimates

Cost Categories	Units of Measure	Unit Cost	Kendall Corridor					
			K1		K2		K2	
			Busway		"Hybrid" LRT		Metrorail	
			Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
Guideway At-Grade	miles	\$7,000,000			6.63	\$46,410,000	1.73	\$12,110,000
Guideway Elevated	miles	\$15,000,000			0.32	\$4,800,000	5.89	\$88,350,000
Tail Tracks	miles	\$10,000,000			0.19	\$1,900,000	0.19	\$1,900,000
Special Structures	lump sum							
Busway At-Grade	miles	\$2,112,000	6.31	\$13,327,000				
Busway Elevated	miles	\$4,752,000	1.04	\$4,942,000				
Guideway/Busway Total	miles		7.35	\$18,269,000	7.14	\$53,110,000	7.81	\$102,360,000
Systems	feet	\$1,200			37,700	\$45,240,000	41,260	\$49,512,000
Stations	lump sum			\$1,200,000		\$17,500,000		\$90,000,000
Parking	lump sum			\$3,000,000		\$25,500,000		\$30,075,000
Vehicles	lump sum			(\$8,600,000)		\$58,050,000		\$18,900,000
Sub Total				\$13,869,000		\$199,400,000		\$290,847,000
Design/CM/Admin.		@ 21%		\$2,912,000		\$41,874,000		\$61,078,000
Insurance		@ 4%		\$555,000		\$7,976,000		\$11,634,000
Right of Way	lump sum			\$1,000,000		\$41,061,000		\$31,929,000
Sub Total				\$18,336,000		\$290,311,000		\$395,488,000
Contingency		@20%		\$3,667,000		\$58,062,000		\$79,098,000
Grand Total				\$22,003,000		\$348,373,000		\$474,586,000
Cost/Mile				\$2,993,000		\$48,791,000		\$60,732,000

Dade County Transit Corridors Transitional Study

Preliminary Cost Estimates

Cost Categories	Units of Measure	Unit Cost	North Corridor					
			N1		N2		N3	
			Busway		Direct Metrorail		Golden Glades Metrorail	
			Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
Guideway At-Grade	miles	\$7,000,000					1.47	\$10,290,000
Guideway Elevated	miles	\$15,000,000			9.28	\$139,200,000	9.91	\$148,650,000
Tail Tracks	miles	\$10,000,000			0.19	\$1,900,000	0.19	\$1,900,000
Special Structures	lump sum							
Busway At-Grade	miles	\$2,112,000	7.78	\$16,431,000				
Busway Elevated	miles							
Guideway/Busway Total	miles		7.78	\$16,431,000	9.47	\$141,100,000	11.57	\$160,840,000
Systems	feet	\$1,200			49,975	\$59,970,000	61,050	\$73,260,000
Stations	lump sum			\$1,600,000		\$105,000,000		\$92,500,000
Parking	lump sum			\$4,950,000		\$16,350,000		\$19,050,000
Vehicles	lump sum			(\$8,200,000)		\$4,650,000		\$2,650,000
Sub Total				\$14,781,000		\$327,070,000		\$348,300,000
Design/CM/Admin.		@ 21%		\$3,104,000		\$68,685,000		\$73,143,000
Insurance		@ 4%		\$591,000		\$13,083,000		\$13,932,000
Right of Way	lump sum			\$7,000,000		\$4,060,000		\$6,270,000
Total				\$25,476,000		\$412,898,000		\$441,645,000
Contingency		@20%		\$5,095,000		\$82,580,000		\$88,329,000
Grand Total				\$30,571,000		\$495,478,000		\$529,974,000
Cost/Mile				\$3,930,000		\$52,349,000		\$45,836,000

Dade County Transit Corridors Transitional Study

Preliminary Cost Estimates

Cost Categories	Units of Measure	Unit Cost	Northeast Corridor							
			NE1		NE2		NE3		NE4	
			Busway		"Regular" LRT		"Hybrid" LRT		Metrorail	
			Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
Guideway At-Grade	miles	\$7,000,000			12.68	\$88,760,000	10.79	\$75,530,000		
Guideway Elevated	miles	\$15,000,000					1.77	\$26,550,000	12.56	\$188,400,000
Tail Tracks	miles	\$10,000,000				\$10,045,000	0.19	\$1,900,000	0.19	\$1,900,000
Special Structures	lump sum									
Busway At-Grade	miles	\$2,112,000	12.84	\$27,118,000						
Busway Elevated	miles									
Guideway/Busway Total	miles		12.84	\$27,118,000	12.68	\$98,805,000	12.75	\$103,980,000	12.75	\$190,300,000
Systems	feet	\$1,200			66,925	\$80,310,000	69,500	\$83,400,000	67,325	\$80,790,000
Stations	lump sum			\$3,000,000		\$32,500,000		\$30,000,000		\$90,000,000
Parking	lump sum			\$22,700,000		\$15,075,000		\$19,725,000		\$25,200,000
Vehicles	lump sum			(\$9,600,000)		\$20,800,000		\$38,850,000		\$31,950,000
Sub Total				\$43,218,000		\$247,490,000		\$275,955,000		\$418,240,000
Design/CM/Admin.		@ 21%		\$9,076,000		\$51,973,000		\$57,951,000		\$87,830,000
Insurance		@ 4%		\$1,729,000		\$9,900,000		\$11,038,000		\$16,730,000
Right of Way	lump sum			\$18,793,000		\$20,400,000		\$21,230,000		\$21,411,000
Total				\$72,816,000		\$329,763,000		\$366,174,000		\$544,211,000
Contingency		@20%		\$14,563,000		\$65,953,000		\$73,235,000		\$108,842,000
Grand Total				\$87,379,000		\$395,716,000		\$439,409,000		\$653,053,000
Cost/Mile				\$6,807,000		\$31,220,000		\$33,382,000		\$51,216,000

Dade County Transit Corridors Transitional Study

Preliminary Cost Estimates

Cost Categories	Units of Measure	Unit Cost	Miami Beach Corridor	
			B1	
			MacArthur Causeway	
			LRT	
			Quantity	Total Cost **
Guideway At-Grade	miles			\$58,626,000
Tail tracks	miles			\$10,045,000
Special Structures				
Guideway Total				\$68,671,000
Systems	feet			\$28,649,000
Stations				\$9,197,000
Parking				\$2,340,000
Vehicles				\$46,800,000
Sub Total				\$155,657,000
Design/CM/ADMN		@ 19%		\$29,575,000
Insurance		@ 4%		\$6,226,000
Right of Way				\$45,331,000
Total Project				\$236,789,000
Contingency		@ 22%		\$52,094,000
Grand Total				\$288,883,000
Cost/Mile				\$31,063,000

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** Reflects cost estimate prepared for Miami Beach Light Rail Line, December 1988, and expressed in 1992 dollars.

Dade County Transit Corridors Transitional Study Preliminary Cost Estimates

Cost Categories	Units of Measure	Unit Cost	West Corridor							
			W1							
			Metrorail South of S.R. 836 Airport Route Site 4		Metrorail North of S.R. 836 Airport Route Site 4		Metrorail North of S.R. 836 Airport Route Site 5		Metrorail South of S.R. 836 Airport Route Site 5	
			Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
Guideway At-Grade	miles	\$7,000,000	5.06	\$35,420,000	5.06	\$35,420,000	5.06	\$35,420,000	5.06	\$35,420,000
Guideway Elevated	miles	\$15,000,000	6.70	\$100,500,000	6.85	\$102,750,000	6.83	\$102,450,000	6.72	\$100,800,000
Tail Tracks	miles	\$10,000,000	0.57	\$5,700,000	0.57	\$5,700,000	0.57	\$5,700,000	0.57	\$5,700,000
Special Structures	lump sum		0.05	\$638,000					0.05	\$638,000
Guideway Total	miles		12.33	\$142,258,000	12.48	\$143,870,000	12.46	\$143,570,000	12.35	\$142,558,000
Systems	feet	\$1,200	65,100	\$78,120,000	65,900	\$79,080,000	65,800	\$78,960,000	65,200	\$78,240,000
Stations	lump sum			\$85,000,000		\$85,000,000		\$85,000,000		\$85,000,000
Parking	lump sum			\$19,875,000		\$19,875,000		\$19,875,000		\$19,875,000
Vehicles	lump sum			\$64,800,000		\$64,800,000		\$64,800,000		\$64,800,000
Sub Total				\$390,053,000		\$392,625,000		\$392,205,000		\$390,473,000
Design/CM/Admin.		@ 21%		\$81,911,000		\$82,451,000		\$82,363,000		\$81,999,000
Insurance		@ 4%		\$15,602,000		\$15,705,000		\$15,688,000		\$15,619,000
Right of Way	lump sum			\$15,500,000		\$15,500,000		\$15,500,000		\$15,500,000
Total				\$503,066,000		\$506,281,000		\$505,756,000		\$503,591,000
Contingency		@ 20%		\$100,613,000		\$101,256,000		\$101,151,000		\$100,718,000
Grand Total				\$603,679,000		\$607,537,000		\$606,907,000		\$604,309,000
Cost/Mile				\$48,962,000		\$48,677,000		\$48,700,000		\$48,938,000

Dade County Transit Corridors Transitional Study
Preliminary Cost estimates

Cost Categories	Units of Measure	Unit Cost	West Corridor			
			W2			
			Metrorail North of S.R. 836 Southern Multimodal		Metrorail South of S.R. 836 Southern Multimodal	
			Quantity	Total Cost	Quantity	Total Cost
Guideway At-Grade	miles	\$7,000,000	5.06	\$35,420,000	5.29	\$37,030,000
Guideway Elevated	miles	\$15,000,000	7.51	\$112,650,000	7.08	\$106,200,000
Tail Tracks	miles	\$10,000,000	0.57	\$5,700,000	0.57	\$5,700,000
Special Structures,	lump sum				0.05	\$638,000
Guideway Total	miles		13.14	\$153,770,000	12.94	\$149,568,000
Systems	feet	\$1,200	69,400	\$83,280,000	68,300	\$81,960,000
Stations	lump sum			\$135,000,000		\$135,000,000
Parking	lump sum			\$23,250,000		\$23,250,000
Vehicles	lump sum			\$65,000,000		\$65,000,000
Sub Total				\$460,300,000		\$454,778,000
Design/CM/Admin.		@ 21%		\$96,663,000		\$95,503,000
Insurance		@ 4%		\$18,412,000		\$18,191,000
Right of Way	lump sum			\$23,000,000		\$23,000,000
Total				\$598,375,000		\$591,472,000
Contingency		@20%		\$119,675,000		\$118,294,000
Grand Total				\$718,050,000		\$709,766,000
Cost/Mile				\$54,630,000		\$54,869,000

Dade County Transit Corridors Transitional Study

Preliminary Cost Estimates

Cost Categories	Units of Measure	Unit Cost	West Corridor (cont'd.)							
			W2							
			SR 836 "Hybrid" LRT North Airport Site 4		SR 836 "Hybrid" LRT North Airport Site 5		SR 836 "Hybrid" LRT South Airport Site 4		SR 836 "Hybrid" LRT South Airport Site 5	
			Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
Guideway At-Grade	miles	\$7,000,000	5.06	\$35,420,000	5.06	\$35,420,000	5.28	\$36,960,000	5.28	\$36,960,000
Guideway Elevated	miles	\$15,000,000	8.27	\$124,050,000	8.55	\$128,250,000	8.16	\$122,400,000	8.20	\$123,000,000
Tail Tracks	miles	\$10,000,000	0.57	\$5,700,000	0.57	\$5,700,000	0.57	\$5,700,000	0.57	\$5,700,000
Special Structures	lump sum		0.05	\$638,000	0.05	\$638,000	0.05	\$638,000	0.05	\$638,000
Guideway Total	miles		13.9	\$165,808,000	14.18	\$170,008,000	14.01	\$165,698,000	14.05	\$166,298,000
Systems	feet	\$1,200	73,400	\$88,080,000	74,900	\$89,880,000	74,000	\$88,800,000	74,200	\$89,040,000
Stations	lump sum			\$145,000,000		\$145,000,000		\$145,000,000		\$145,000,000
Parking	lump sum			\$23,250,000		\$23,250,000		\$23,250,000		\$23,250,000
Vehicles	lump sum			\$65,000,000		\$65,000,000		\$65,000,000		\$65,000,000
Sub Total				\$487,138,000		\$493,138,000		\$487,748,000		\$488,588,000
Design/CM/Admin.		@ 21%		\$102,299,000		\$103,559,000		\$102,427,000		\$102,603,000
Insurance		@ 4%		\$19,486,000		\$19,726,000		\$19,510,000		\$19,544,000
Right of Way	lump sum			\$23,226,000		\$23,226,000		\$23,226,000		\$23,226,000
Total Project				\$632,149,000		\$639,649,000		\$632,911,000		\$633,961,000
Contingency		@ 20%		\$126,430,000		\$127,930,000		\$126,582,000		\$126,792,000
Grand Total				\$758,579,000		\$767,579,000		\$759,493,000		\$760,753,000
Cost/Mile				\$54,568,000		\$54,110,000		\$54,191,000		\$54,134,000

Dade County Transit Corridors Transitional Study

Preliminary Cost Estimates

Cost Categories	Units of Measure	Unit Cost	West Corridor (cont'd.)					
			W3				W4	
			S.R. 836/S.W. 8th St. "Hybrid" LRT Airport Site 4		S.R. 836/S.W. 8th St. "Hybrid" LRT Airport Site 5		Flagler Street LRT	
			Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
Guideway At-Grade	miles	\$7,000,000	8.48	\$59,360,000	8.49	\$59,430,000	13.77	\$96,390,000
Guideway Elevated	miles	\$15,000,000	5.66	\$84,900,000	5.66	\$84,900,000		
Tail Tracks	miles	\$10,000,000	0.57	\$5,700,000	0.57	\$5,700,000		\$10,045,000
Special Structures	lump sum		0.05	\$638,000	0.05	\$638,000	0.05	\$638,000
Guideway Total	miles		14.71	\$150,598,000	14.72	\$150,668,000	13.77	\$107,073,000
Systems	feet	\$1,200	77,650	\$93,180,000	77,700	\$93,240,000	72,700	\$87,240,000
Stations	lump sum			\$112,500,000		\$112,500,000		\$21,400,000
Parking	lump sum			\$22,200,000		\$22,200,000		\$16,050,000
Vehicles	lump sum			\$72,600,000		\$72,600,000		\$85,600,000
Sub Total				\$451,078,000		\$451,208,000		\$317,363,000
Design/CM/Admin.		@ 21%		\$94,726,000		\$94,754,000		\$66,646,000
Insurance		@ 4%		\$18,043,000		\$18,048,000		\$12,695,000
Right of Way	lump sum			\$30,142,000		\$30,142,000		\$31,308,000
Total Project				\$593,989,000		\$594,152,000		\$428,012,000
Contingency		@ 20%		\$118,798,000		\$118,830,000		\$85,602,000
Grand Total				\$712,787,000		\$712,982,000		\$513,614,000
Cost/Mile				\$48,468,000		\$48,450,000		\$37,302,000

Dade County Transit Corridors Transitional Study

Preliminary Cost Estimates

Cost Categories	Units of Measure	Unit Cost	West Beach Corridor							
			WB1		WB2		WB3			
			Metrorail – MacArthur Causeway "Hybrid" LRT		SR 836 MacArthur Causeway "Hybrid" LRT		SR 836 Government Cut Tunnel "Hybrid" LRT Deep Tunnel		SR 836 Government Cut Tunnel "Hybrid" LRT Shallow Tunnel	
			Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
Guideway At-Grade	miles	\$7,000,000	11.65	\$81,550,000	12.7	\$88,900,000	12.07	\$84,490,000	12.07	\$84,490,000
Guideway Elevated	miles	\$15,000,000	7.77	\$116,550,000	8.47	\$127,050,000	8.05	\$120,750,000	8.05	\$120,750,000
Tail tracks	miles	\$10,000,000	0.57	\$5,700,000	0.57	\$5,700,000	0.57	\$5,700,000	0.57	\$5,700,000
Special Structures	lump sum						1.10	\$132,148,000	1.68	\$195,956,000
Guideway Total	miles		19.99	\$203,800,000	21.74	\$221,650,000	20.69	\$343,088,000	20.69	\$406,896,000
Systems	feet	\$1,200	105,500	\$126,600,000	114,800	\$137,760,000	109,200	\$131,040,000	109,200	\$131,040,000
Stations	lump sum			\$142,500,000		\$217,500,000		\$187,500,000		\$187,500,000
Parking	lump sum			\$25,425,000		\$25,725,000		\$22,425,000		\$22,425,000
Vehicles **	lump sum			\$152,750,000		\$89,800,000		\$79,800,000		\$79,800,000
Sub Total				\$651,075,000		\$692,435,000		\$763,853,000		\$827,661,000
Design/CM/Admin.		@ 21%		\$136,726,000		\$145,411,000		\$160,409,000		\$173,809,000
Insurance		@ 4%		\$26,043,000		\$27,697,000		\$30,554,000		\$33,106,000
Right of Way	lump sum			\$2,000,000		\$67,000,000		\$52,000,000		\$52,000,000
Total Project				\$815,844,000		\$932,543,000		\$1,006,816,000		\$1,086,576,000
Contingency		@ 20%		\$163,169,000		\$186,509,000		\$201,363,000		\$217,315,000
Grand Total				\$979,013,000		\$1,119,052,000		\$1,208,179,000		\$1,303,891,000
Cost/Mile				\$48,997,000		\$51,469,000		\$58,417,000		\$63,045,000

** Does not include vehicles for premium service between Airport and Seaport.

EXHIBIT "D"

Nov 3, 1992

Station Categories with Corresponding Unit Cost

Station Category	Description	Unit Cost
1	Elevated, side Platform, Double Track, Mezzanine, Fare collection Barrier	\$15,000,000
2	Elevated, Center Platform, Double Track, Fare Collection Barrier	\$10,000,000
3	At Grade, Exclusive Right of Way, High Platform All Technology, Fair Collection Barrier	\$2,500,000
4	At Grade, Low Platform, Canopy, Lighting	\$300,000
5	Busway with small Canopy, Lighting	\$200,000

Vehicle Types with Corresponding Unit Cost

Description	Unit Cost
Bus	\$200,000
Standard Light Rail Vehicle (LRV)	\$2,000,000
Hybrid Light Rail Vehicle/Metrorail	\$2,150,000
Standard Heavy Rail Vehicle (HRV)	\$2,150,000
Hybrid Heavy Rail Vehicle	\$2,150,000

EXHIBIT "E"

South Corridor Stations

Hybrid LRT Alternative S2:

Station Location	Station Category	Station Cost Per Unit	Parking Spaces	Parking Cost @ Grade @ \$1500/Space	Parking Cost Elevated @ \$7,500/Space	Total Cost	
						From	To
SW 112th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
SW 136th St	3	\$2,500,000	50	\$75,000	\$375,000	\$2,575,000	\$2,875,000
SW 152nd St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
SW 175th St	3	\$2,500,000	620	\$930,000	\$4,650,000	\$3,430,000	\$7,150,000
SW 193rd St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
SW 202nd St	3	\$2,500,000	500	\$750,000	\$3,750,000	\$3,250,000	\$6,250,000
SW 226th St	3	\$2,500,000	60	\$90,000	\$450,000	\$2,590,000	\$2,950,000
SW 248th St	3	\$2,500,000	230	\$345,000	\$1,725,000	\$2,845,000	\$4,225,000
SW 268th St	3	\$2,500,000	660	\$990,000	\$4,950,000	\$3,490,000	\$7,450,000
SW 288th St	3	\$2,500,000	570	\$855,000	\$4,275,000	\$3,355,000	\$6,775,000
SW 312th St	3	\$2,500,000	780	\$1,170,000	\$5,850,000	\$3,670,000	\$8,350,000
SW 344th St	3	\$2,500,000	280	\$420,000	\$2,100,000	\$2,920,000	\$4,600,000
Sub Total -->	12	\$30,000,000	3,750	\$5,625,000	\$28,125,000	\$35,625,000	\$58,125,000

Metrorail Alternative S3:

Station Location	Station Category	Station Cost Per Unit	Parking Spaces	Parking Cost @ Grade @ \$1500/Space	Parking Cost Elevated @ \$7,500/Space	Total Cost	
						From	To
SW 112th St	2	\$10,000,000	0	\$0	\$0	\$10,000,000	\$10,000,000
SW 136th St	2	\$10,000,000	100	\$150,000	\$750,000	\$10,150,000	\$10,750,000
SW 152nd St	2	\$10,000,000	0	\$0	\$0	\$10,000,000	\$10,000,000
SW 175th St	2	\$10,000,000	630	\$945,000	\$4,725,000	\$10,945,000	\$14,725,000
SW 202nd St	2	\$10,000,000	560	\$840,000	\$4,200,000	\$10,840,000	\$14,200,000
SW 226th St	2	\$10,000,000	180	\$270,000	\$1,350,000	\$10,270,000	\$11,350,000
SW 268th St	2	\$10,000,000	880	\$1,320,000	\$6,600,000	\$11,320,000	\$16,600,000
SW 288th St	2	\$10,000,000	620	\$930,000	\$4,650,000	\$10,930,000	\$14,650,000
SW 312th St	2	\$10,000,000	830	\$1,245,000	\$6,225,000	\$11,245,000	\$16,225,000
SW 344th St	2	\$10,000,000	280	\$420,000	\$2,100,000	\$10,420,000	\$12,100,000
Sub Total -->	10	\$100,000,000	4,080	\$6,120,000	\$30,600,000	\$106,120,000	\$130,600,000

Kendall Corridor Stations

"Hybrid" LRT Alternative K2:

Station Location	Station Category	Station Cost Per Unit	Parking Spaces	Parking Cost Surface @ \$1500/Space	Parking Cost Structure @ \$7,500/Space	Total Cost	
						From	To
SW 78th Ave	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
SW 87th Ave	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
SW 97th Ave P/R	3	\$2,500,000	460	\$690,000	\$3,450,000	\$3,190,000	\$5,950,000
SW 107th Ave	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
SW 117th Ave P/R	3	\$2,500,000	210	\$315,000	\$1,575,000	\$2,815,000	\$4,075,000
SW 127th Ave P/R	3	\$2,500,000	350	\$525,000	\$2,625,000	\$3,025,000	\$5,125,000
SW 137th Ave P/R	3	\$2,500,000	2,380	\$3,570,000	\$17,850,000	\$6,070,000	\$20,350,000
Sub Total ->	7	\$17,500,000	3,400	\$5,100,000	\$25,500,000	\$22,600,000	\$43,000,000

Metrorail Alternative K3:

SW 78th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
SW 87th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
SW 99th Ave P/R	1	\$15,000,000	180	\$270,000	\$1,350,000	\$15,270,000	\$16,350,000
SW 107th Ave P/R	1	\$15,000,000	670	\$1,005,000	\$5,025,000	\$16,005,000	\$20,025,000
SW 123rd Ave P/R	1	\$15,000,000	410	\$615,000	\$3,075,000	\$15,615,000	\$18,075,000
SW 137th Ave P/R	1	\$15,000,000	2,750	\$4,125,000	\$20,625,000	\$19,125,000	\$35,625,000
Sub Total ->	6	\$90,000,000	4,010	\$6,015,000	\$30,075,000	\$96,015,000	\$120,075,000

North Corridor Stations

Direct Metrorail Alternative N2:

Station Location	Station Category	Station Cost Per Unit	Parking Spaces	Parking Cost @ Grade @ \$1500/Space	Parking Cost Elevated @ \$7,500/Space	Total Cost	
						From	To
NW 103rd St P/R	1	\$15,000,000	470	\$705,000	\$3,525,000	\$15,705,000	\$18,525,000
NW 113th St (MDCC)	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 135th St P/R	1	\$15,000,000	300	\$450,000	\$2,250,000	\$15,450,000	\$17,250,000
NW 166th St P/R	1	\$15,000,000	240	\$360,000	\$1,800,000	\$15,360,000	\$16,800,000
NW 183rd St P/R	1	\$15,000,000	520	\$780,000	\$3,900,000	\$15,780,000	\$18,900,000
NW 199th St P/R	1	\$15,000,000	230	\$345,000	\$1,725,000	\$15,345,000	\$16,725,000
NW 215th St P/R	1	\$15,000,000	420	\$630,000	\$3,150,000	\$15,630,000	\$18,150,000
Sub Total ->	7	\$105,000,000	2,180	\$3,270,000	\$16,350,000	\$108,270,000	\$121,350,000

Golden Glades Metrorail Alternative N3:

NW 103rd St P/R	1	\$15,000,000	420	\$630,000	\$3,150,000	\$15,630,000	\$18,150,000
NW 113th St (MDCC)	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 135th St P/R	1	\$15,000,000	350	\$525,000	\$2,625,000	\$15,525,000	\$17,625,000
Golden Glades P/R	3	\$2,500,000	380	\$570,000	\$2,850,000	\$3,070,000	\$5,350,000
NW 183rd St P/R	1	\$15,000,000	760	\$1,140,000	\$5,700,000	\$16,140,000	\$20,700,000
NW 199th St P/R	1	\$15,000,000	300	\$450,000	\$2,250,000	\$15,450,000	\$17,250,000
NW 215th St P/R	1	\$15,000,000	330	\$495,000	\$2,475,000	\$15,495,000	\$17,475,000
Sub Total ->	7	\$92,500,000	2,540	\$3,810,000	\$19,050,000	\$96,310,000	\$111,550,000

Northeast Corridor stations

LRT Alternative NE2:

Station Location	Station Category	Station Cost Per Unit	Parking Spaces	Parking Cost @ Grade @ \$1500/Space	Parking Cost Elevated @ \$7,500/Space	Total Cost	
						From	To
Overtown	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NW 15th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 20th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 36th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 54th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 61th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 79th St P/R	3	\$2,500,000	470	\$705,000	\$3,525,000	\$3,205,000	\$6,025,000
NE 96th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 125th St P/R	3	\$2,500,000	360	\$540,000	\$2,700,000	\$3,040,000	\$5,200,000
NE 135th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 163rd St P/R	3	\$2,500,000	580	\$870,000	\$4,350,000	\$3,370,000	\$6,850,000
NE 185th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 199th St P/R	3	\$2,500,000	600	\$900,000	\$4,500,000	\$3,400,000	\$7,000,000
Sub Total ->	13	\$32,500,000	2,010	\$3,015,000	\$15,075,000	\$35,515,000	\$47,575,000

LRT Alternative NE3:

NW 15th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 20th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 36th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 54th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 61th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 79th St P/R	3	\$2,500,000	640	\$960,000	\$4,800,000	\$3,460,000	\$7,300,000
NE 96th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 125th St P/R	3	\$2,500,000	480	\$720,000	\$3,600,000	\$3,220,000	\$6,100,000
NE 135th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 163rd St P/R	3	\$2,500,000	690	\$1,035,000	\$5,175,000	\$3,535,000	\$7,675,000
NE 185th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NE 199th St P/R	3	\$2,500,000	820	\$1,230,000	\$6,150,000	\$3,730,000	\$8,650,000
Sub Total -->	12	\$30,000,000	2,630	\$3,945,000	\$19,725,000	\$33,945,000	\$49,725,000

Metrorail Alternative NE4:

NW 15th St	2	\$10,000,000	0	\$0	\$0	\$10,000,000	\$10,000,000
NE 36th St P/R	2	\$10,000,000	250	\$375,000	\$1,875,000	\$10,375,000	\$11,875,000
NE 54th St P/R	2	\$10,000,000	300	\$450,000	\$2,250,000	\$10,450,000	\$12,250,000
NE 79th St P/R	2	\$10,000,000	480	\$720,000	\$3,600,000	\$10,720,000	\$13,600,000
NE 96th St P/R	2	\$10,000,000	60	\$90,000	\$450,000	\$10,090,000	\$10,450,000
NE 125th St P/R	2	\$10,000,000	480	\$720,000	\$3,600,000	\$10,720,000	\$13,600,000
NE 135th St P/R	2	\$10,000,000	120	\$180,000	\$900,000	\$10,180,000	\$10,900,000
NE 163rd St P/R	2	\$10,000,000	800	\$1,200,000	\$6,000,000	\$11,200,000	\$16,000,000
NE 199th St P/R	2	\$10,000,000	870	\$1,305,000	\$6,525,000	\$11,305,000	\$16,525,000
Sub Total ->	9	\$90,000,000	3,360	\$5,040,000	\$25,200,000	\$95,040,000	\$115,200,000

West Corridor Stations

Metrorail Alternative W1:

Station Location	Station Category	Station Cost Per Unit	Parking Spaces	Parking Cost @ Grade @ \$1500/Space	Parking Cost Elevated @ \$7,500/Space	Total Cost	
						From	To
FIU P/R	2	\$10,000,000	1,220	\$1,830,000	\$9,150,000	\$11,830,000	\$19,150,000
NW 107th Ave P/R	2	\$10,000,000	550	\$825,000	\$4,125,000	\$10,825,000	\$14,125,000
NW 97th Ave P/R	2	\$10,000,000	120	\$180,000	\$900,000	\$10,180,000	\$10,900,000
NW 87th Ave P/R	2	\$10,000,000	280	\$420,000	\$2,100,000	\$10,420,000	\$12,100,000
Palmetto Expy P/R	2	\$10,000,000	120	\$180,000	\$900,000	\$10,180,000	\$10,900,000
NW 57th Ave P/R	2	\$10,000,000	180	\$270,000	\$1,350,000	\$10,270,000	\$11,350,000
NW 42nd Ave P/R	2	\$10,000,000	180	\$270,000	\$1,350,000	\$10,270,000	\$11,350,000
Airport Multimodal	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
Sub Total - >		8	\$85,000,000	2,650	\$3,975,000	\$19,875,000	\$88,975,000

SR 836 Alternative W2:

FIU P/R	2	\$10,000,000	1,350	\$2,025,000	\$10,125,000	\$12,025,000	\$20,125,000
NW 107th Ave P/R	2	\$10,000,000	670	\$1,005,000	\$5,025,000	\$11,005,000	\$15,025,000
NW 97th Ave P/R	2	\$10,000,000	120	\$180,000	\$900,000	\$10,180,000	\$10,900,000
NW 87th Ave P/R	2	\$10,000,000	350	\$525,000	\$2,625,000	\$10,525,000	\$12,625,000
Palmetto Expy P/R	2	\$10,000,000	120	\$180,000	\$900,000	\$10,180,000	\$10,900,000
NW 57th Ave P/R	2	\$10,000,000	180	\$270,000	\$1,350,000	\$10,270,000	\$11,350,000
NW 42nd Ave P/R	2	\$10,000,000	310	\$465,000	\$2,325,000	\$10,465,000	\$12,325,000
Airport Multimodal	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 37th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 27th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 22nd Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 12th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
Sub Total - >		12	\$145,000,000	3,100	\$4,650,000	\$23,250,000	\$149,650,000

West Corridor Stations (Cont'd.)

SR 836/SW 8th St Alternative W3:

Station Location	Station Category	Station Cost Per Unit	Parking Spaces	Parking Cost @ Grade @ \$1500/Space	Parking Cost Elevated @ \$7,500/Space	Total Cost	
						From	To
FIU P/R	3	\$2,500,000	1,520	\$2,280,000	\$11,400,000	\$4,780,000	\$13,900,000
NW 107th Ave	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NW 97th Ave P/R	3	\$2,500,000	420	\$630,000	\$3,150,000	\$3,130,000	\$5,650,000
NW 87th Ave P/R	3	\$2,500,000	350	\$525,000	\$2,625,000	\$3,025,000	\$5,125,000
Palmetto Expy P/R	3	\$2,500,000	60	\$90,000	\$450,000	\$2,590,000	\$2,950,000
SW 8th St @ F.E.C. P/R	3	\$2,500,000	60	\$90,000	\$450,000	\$2,590,000	\$2,950,000
Flagler St @ F.E.C. P/R	3	\$2,500,000	180	\$270,000	\$1,350,000	\$2,770,000	\$3,850,000
NW 57th Ave P/R	2	\$10,000,000	60	\$90,000	\$450,000	\$10,090,000	\$10,450,000
NW 42nd Ave P/R	2	\$10,000,000	310	\$465,000	\$2,325,000	\$10,465,000	\$12,325,000
Airport Multimodal	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 37th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 27th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 22nd Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 12th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
Sub Total ->	14	\$112,500,000	2,960	\$4,440,000	\$22,200,000	\$116,940,000	\$134,700,000

Flagler Street Alternative W4:

FIU P/R	3	\$2,500,000	1,220	\$1,830,000	\$9,150,000	\$4,330,000	\$11,650,000
NW 107th Ave	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NW 97th Ave P/R	3	\$2,500,000	240	\$360,000	\$1,800,000	\$2,860,000	\$4,300,000
NW 87th Ave P/R	3	\$2,500,000	280	\$420,000	\$2,100,000	\$2,920,000	\$4,600,000
Palmetto Expy P/R	3	\$2,500,000	60	\$90,000	\$450,000	\$2,590,000	\$2,950,000
SW 8th St @ F.E.C.	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
Flagler St @ F.E.C.	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
NW 57th Ave P/R	4	\$300,000	170	\$255,000	\$1,275,000	\$555,000	\$1,575,000
NW 49th Ave	4	\$300,000	0	\$0	\$0	\$300,000	\$300,000
NW 42nd Ave	4	\$300,000	0	\$0	\$0	\$300,000	\$300,000
Airport Multimodal	4	\$300,000	0	\$0	\$0	\$300,000	\$300,000
NW 7th St P/R	4	\$300,000	170	\$255,000	\$1,275,000	\$555,000	\$1,575,000
NW 37th Ave	4	\$300,000	0	\$0	\$0	\$300,000	\$300,000
NW 32nd Ave	4	\$300,000	0	\$0	\$0	\$300,000	\$300,000
NW 27th Ave	4	\$300,000	0	\$0	\$0	\$300,000	\$300,000
NW 22nd Ave	4	\$300,000	0	\$0	\$0	\$300,000	\$300,000
NW 17th Ave	4	\$300,000	0	\$0	\$0	\$300,000	\$300,000
NW 12th Ave	4	\$300,000	0	\$0	\$0	\$300,000	\$300,000
NW 8th Ave	4	\$300,000	0	\$0	\$0	\$300,000	\$300,000
Government Center	4	\$300,000	0	\$0	\$0	\$300,000	\$300,000
Sub Total ->	20	\$21,400,000	2,140	\$3,210,000	\$16,050,000	\$24,610,000	\$37,450,000

West-Beach Corridor Stations

Metrorail-MacArthur Causeway Alternative WB1:

Station Location	Station Category	Station Cost Per Unit	Parking Spaces	Parking Cost @ Grade @ \$1500/Space	Parking Cost Elevated @ \$7,500/Space	Total Cost	
						From	To
FTU P/R	2	\$10,000,000	1,410	\$2,115,000	\$10,575,000	\$12,115,000	\$20,575,000
NW 107th Ave P/R	2	\$10,000,000	610	\$915,000	\$4,575,000	\$10,915,000	\$14,575,000
NW 97th Ave P/R	2	\$10,000,000	120	\$180,000	\$900,000	\$10,180,000	\$10,900,000
NW 87th Ave P/R	2	\$10,000,000	350	\$525,000	\$2,625,000	\$10,525,000	\$12,625,000
Palmetto Expy P/R	2	\$10,000,000	120	\$180,000	\$900,000	\$10,180,000	\$10,900,000
NW 57th Ave P/R	2	\$10,000,000	180	\$270,000	\$1,350,000	\$10,270,000	\$11,350,000
NW 42nd Ave P/R	2	\$10,000,000	260	\$390,000	\$1,950,000	\$10,390,000	\$11,950,000
Airport Multimodal	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
Earlington Heights			0	\$0	\$0	\$0	\$0
Alapattah			0	\$0	\$0	\$0	\$0
Santa Clara			0	\$0	\$0	\$0	\$0
Civic Center			0	\$0	\$0	\$0	\$0
Culmer			0	\$0	\$0	\$0	\$0
Overtown/Arena			0	\$0	\$0	\$0	\$0
Biscayne Blvd - Bayside	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
Seaport	2	\$10,000,000	0	\$0	\$0	\$10,000,000	\$10,000,000
Bicentennial Park	2	\$10,000,000	0	\$0	\$0	\$10,000,000	\$10,000,000
Watson Island	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
Palm Island	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
Terminal Island	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
Alton Road P/R	3	\$2,500,000	340	\$510,000	\$2,550,000	\$3,010,000	\$5,050,000
Meridian Ave	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
N.W. 7th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
N.W. 12th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
N.W. 17th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
N.W. 20th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
Sub Total ->	26	\$142,500,000	\$3,390	\$5,085,000	\$25,425,000	\$147,585,000	\$167,925,000

SR 836-MacArthur Causeway Alternative WB2:

FTU P/R	2	\$10,000,000	1,350	\$2,025,000	\$10,125,000	\$12,025,000	\$20,125,000
NW 107th Ave P/R	2	\$10,000,000	660	\$990,000	\$4,950,000	\$10,990,000	\$14,950,000
NW 97th Ave P/R	2	\$10,000,000	120	\$180,000	\$900,000	\$10,180,000	\$10,900,000
NW 87th Ave P/R	2	\$10,000,000	350	\$525,000	\$2,625,000	\$10,525,000	\$12,625,000
Palmetto Expy P/R	2	\$10,000,000	120	\$180,000	\$900,000	\$10,180,000	\$10,900,000
NW 57th Ave P/R	2	\$10,000,000	180	\$270,000	\$1,350,000	\$10,270,000	\$11,350,000
NW 42nd Ave P/R	2	\$10,000,000	310	\$465,000	\$2,325,000	\$10,465,000	\$12,325,000
Airport Multimodal	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 37th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 27th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 22nd Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 12th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
Miami Ave (Arena)	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
Biscayne Blvd - Bayside	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
Seaport	2	\$10,000,000	0	\$0	\$0	\$10,000,000	\$10,000,000
Bicentennial Park	2	\$10,000,000	0	\$0	\$0	\$10,000,000	\$10,000,000
Watson Island	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
Palm Island	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
Terminal Island	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
Alton Road P/R	3	\$2,500,000	340	\$510,000	\$2,550,000	\$3,010,000	\$5,050,000
Meridian Ave	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
N.W. 7th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
N.W. 12th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
N.W. 17th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
N.W. 20th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
Sub Total ->	25	\$217,500,000	3,430	\$5,145,000	\$25,725,000	\$222,645,000	\$243,225,000

West-Beach Corridor Stations (Cont'd.)

SR 836-Government Cut Alternative WB3:

Station Location	Station Category	Station Cost Per Unit	Parking Spaces	Parking Cost @ Grade @ \$1500/Space	Parking Cost Elevated @ \$7,500/Space	Total Cost	
						From	To
FIU P/R	2	\$10,000,000	1,290	\$1,935,000	\$9,675,000	\$11,935,000	\$19,675,000
NW 107th Ave P/R	2	\$10,000,000	610	\$915,000	\$4,575,000	\$10,915,000	\$14,575,000
NW 97th Ave P/R	2	\$10,000,000	120	\$180,000	\$900,000	\$10,180,000	\$10,900,000
NW 87th Ave P/R	2	\$10,000,000	350	\$525,000	\$2,625,000	\$10,525,000	\$12,625,000
Palmetto Expy P/R	2	\$10,000,000	120	\$180,000	\$900,000	\$10,180,000	\$10,900,000
NW 57th Ave P/R	2	\$10,000,000	180	\$270,000	\$1,350,000	\$10,270,000	\$11,350,000
NW 42nd Ave P/R	2	\$10,000,000	250	\$375,000	\$1,875,000	\$10,375,000	\$11,875,000
Airport Multimodal	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 37th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 27th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 22nd Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 12th Ave	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
Miami Ave (Arena)	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
Biscayne Blvd - Bayside	1	\$15,000,000	0	\$0	\$0	\$15,000,000	\$15,000,000
NW 3rd St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
N.W. 7th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
N.W. 12th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
N.W. 17th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
N.W. 20th St P/R	3	\$2,500,000	70	\$105,000	\$525,000	\$2,605,000	\$3,025,000
Sub Total ->	19	\$187,500,000	2,990	\$4,485,000	\$22,425,000	\$191,985,000	\$209,925,000

EXHIBIT "F"

Dade County Transit Corridors Transitional Study
Preliminary Cost Estimates

Cost Categories	Units of Measure	Unit Cost	South Corridor From Dadeland South To Cutler Ridge					
			S1A		S2A		S3A	
			Busway		"Hybrid" LRT		Metrorail	
			Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
Guideway At-Grade	miles	\$7,000,000			7.77	\$54,390,000		\$0
Guideway Elevated	miles	\$15,000,000					7.77	\$116,550,000
Tail Tracks	miles	\$10,000,000			0.38	\$3,800,000	0.38	\$3,800,000
Special Structures	lump sum							
Busway At-Grade	miles	\$2,112,000	7.77	\$16,410,000				
Busway Elevated	miles							
Guideway/Busway Total	miles		7.77	\$16,410,000	8.15	\$58,190,000	8.15	\$120,350,000
Systems	feet	\$1,200			43,000	\$51,600,000	43,000	\$51,600,000
Stations	lump sum			\$1,400,000		\$15,000,000		\$50,000,000
Parking	lump sum			\$1,905,000		\$1,755,000		\$1,935,000
Vehicles	lump sum			(\$3,600,000)		\$20,125,000		\$15,825,000
Sub Total				\$16,115,000		\$146,670,000		\$239,710,000
Design/CM/Admin.		@ 21%		\$3,384,000		\$30,801,000		\$50,339,000
Insurance		@ 4%		\$645,000		\$5,867,000		\$9,588,000
Right of Way	lump sum							
Sub Total				\$20,144,000		\$183,338,000		\$299,637,000
Contingency		@20%		\$4,029,000		\$36,668,000		\$59,927,000
Grand Total				\$24,173,000		\$220,006,000		\$359,564,000
Cost/Mile				\$1,428,000		\$27,015,000		\$44,151,000

Dade County Transit Corridors Transitional Study
Preliminary Cost Estimates

Cost Categories	Units of Measure	Unit Cost	South Corridor From Cutler Ridge To Homestead/Fla.City					
			S1B		S2B		S3B	
			Busway		"Hybrid" LRT		Metrorail	
			Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
Guideway At-Grade	miles	\$7,000,000			11.48	\$80,360,000		\$0
Guideway Elevated	miles	\$15,000,000					11.48	\$172,200,000
Tall Tracks	miles	\$10,000,000			0.38	\$3,800,000	0.38	\$3,800,000
Special Structures	lump sum							
Busway At-Grade	miles	\$2,112,000	9.17	\$19,367,000				
Busway Elevated	miles							
Guideway/Busway Total	miles		9.17	\$19,367,000				
Systems	feet	\$1,200			11.86	\$84,160,000	11.86	\$176,000,000
Stations	lump sum			\$1,000,000	62,600	\$75,120,000	62,600	\$75,120,000
Parking	lump sum			\$3,735,000		\$3,870,000		\$4,185,000
Vehicles	lump sum			(\$3,600,000)		\$20,125,000		\$15,825,000
Sub Total				\$20,502,000		\$198,275,000		\$321,130,000
Design/CM/Admin.		@ 21%		\$4,305,000		\$41,638,000		\$67,437,000
Insurance		@ 4%		\$820,000		\$7,931,000		\$12,845,000
Right of Way	lump sum							
Sub Total				\$25,627,000		\$247,844,000		\$401,412,000
Contingency		@20%		\$5,125,000		\$49,569,000		\$80,282,000
Grand Total				\$30,752,000		\$297,413,000		\$481,694,000
Cost/Mile				\$1,816,000		\$25,085,000		\$40,629,000

EXHIBIT "G"

Dade County Transit Corridors Transitional Study
Preliminary Cost Estimates

Cost Categories	Units of Measure	Unit Cost	South Corridor with At-grade Parking					
			S1		S2		S3	
			Busway		"Hybrid" LRT		Metrorail	
			Quantity	Total Cost	Quantity	Total Cost	Quantity	Total Cost
Guideway At-Grade	miles	\$7,000,000			19.24	\$134,680,000		\$0
Guideway Elevated	miles	\$15,000,000					19.24	\$288,600,000
Tall Tracks	miles	\$10,000,000			0.38	\$3,800,000	0.38	\$3,800,000
Special Structures	lump sum							
Busway At-Grade	miles	\$2,112,000	16.93	\$35,756,000				
Busway Elevated	miles							
Guideway/Busway Total	miles		16.93	\$35,756,000	19.62	\$138,480,000	19.62	\$292,400,000
Systems	feet	\$1,200			103,600	\$124,320,000	103,600	\$124,320,000
Stations	lump sum			\$2,400,000		\$30,000,000		\$100,000,000
Parking	lump sum			\$5,640,000		\$5,625,000		\$6,120,000
Vehicles	lump sum			(\$7,200,000)		\$40,250,000		\$31,650,000
Sub Total				\$36,596,000		\$338,675,000		\$554,490,000
Design/CM/Admin.		@ 21%		\$7,685,000		\$71,122,000		\$116,443,000
Insurance		@ 4%		\$1,464,000		\$13,547,000		\$22,180,000
Right of Way	lump sum							
Sub Total				\$45,745,000		\$423,344,000		\$693,113,000
Contingency		@20%		\$9,149,000		\$84,669,000		\$138,623,000
Grand Total				\$54,894,000		\$508,013,000		\$831,736,000
Cost/Mile				\$3,242,000		\$25,891,000		\$42,390,000

ZSOCOB.WK3/Jan 5, 1993

South Corridor Stations

"Hybrid" LRT Alternative S2:

Station Location	Station Category	Station Cost Per Unit	Parking Spaces	Parking Cost @ Grade @ \$1500/Space	Parking Cost Elevated @ \$7,500/Space	Total Cost	
						From	To
SW 112th St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
SW 136th St	3	\$2,500,000	50	\$75,000	\$375,000	\$2,575,000	\$2,875,000
SW 152nd St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
SW 175th St	3	\$2,500,000	620	\$930,000	\$4,650,000	\$3,430,000	\$7,150,000
SW 193rd St	3	\$2,500,000	0	\$0	\$0	\$2,500,000	\$2,500,000
SW 202nd St	3	\$2,500,000	500	\$750,000	\$3,750,000	\$3,250,000	\$6,250,000
Sub Total ->	6	\$15,000,000	1,170	\$1,755,000	\$8,775,000	\$16,755,000	\$23,775,000
SW 226th St	3	\$2,500,000	60	\$90,000	\$450,000	\$2,590,000	\$2,950,000
SW 248th St	3	\$2,500,000	230	\$345,000	\$1,725,000	\$2,845,000	\$4,225,000
SW 268th St	3	\$2,500,000	660	\$990,000	\$4,950,000	\$3,490,000	\$7,450,000
SW 288th St	3	\$2,500,000	570	\$855,000	\$4,275,000	\$3,355,000	\$6,775,000
SW 312th St	3	\$2,500,000	780	\$1,170,000	\$5,850,000	\$3,670,000	\$8,350,000
SW 344th St	3	\$2,500,000	280	\$420,000	\$2,100,000	\$2,920,000	\$4,600,000
Sub Total ->	6	\$15,000,000	2,580	\$3,870,000	\$19,350,000	\$18,870,000	\$34,350,000
Total ->	12	\$30,000,000	3750	\$5,625,000	\$28,125,000	\$35,625,000	\$58,125,000

Metrorail Alternative S3:

Station Location	Station Category	Station Cost Per Unit	Parking Spaces	Parking Cost @ Grade @ \$1500/Space	Parking Cost Elevated @ \$7,500/Space	Total Cost	
						From	To
SW 112th St	2	\$10,000,000	0	\$0	\$0	\$10,000,000	\$10,000,000
SW 136th St	2	\$10,000,000	100	\$150,000	\$750,000	\$10,150,000	\$10,750,000
SW 152nd St	2	\$10,000,000	0	\$0	\$0	\$10,000,000	\$10,000,000
SW 175th St	2	\$10,000,000	630	\$945,000	\$4,725,000	\$10,945,000	\$14,725,000
SW 202nd St	2	\$10,000,000	560	\$840,000	\$4,200,000	\$10,840,000	\$14,200,000
Sub Total ->	5	\$50,000,000	1,290	\$1,935,000	\$9,675,000	\$51,935,000	\$59,675,000
SW 226th St	2	\$10,000,000	180	\$270,000	\$1,350,000	\$10,270,000	\$11,350,000
SW 268th St	2	\$10,000,000	880	\$1,320,000	\$6,600,000	\$11,320,000	\$16,600,000
SW 288th St	2	\$10,000,000	620	\$930,000	\$4,650,000	\$10,930,000	\$14,650,000
SW 312th St	2	\$10,000,000	830	\$1,245,000	\$6,225,000	\$11,245,000	\$16,225,000
SW 344th St	2	\$10,000,000	280	\$420,000	\$2,100,000	\$10,420,000	\$12,100,000
Sub Total ->	5	\$50,000,000	2,790	\$4,185,000	\$20,925,000	\$54,185,000	\$70,925,000
Sub Total ->	10	\$100,000,000	4,080	\$6,120,000	\$30,600,000	\$106,120,000	\$130,600,000

EXHIBIT "H"

Dade County Transit Corridors Transitional Study
Preliminary Cost Estimates

Cost Categories	Units of Measure	Unit Cost	West Beach Corridor -- Seaport Link Only			
			WB1		WB2	
			Metrorail - MacArthur Causeway "Hybrid" LRT		SR 836 MacArthur Causeway "Hybrid" LRT	
			Quantity	Total Cost	Quantity	Total Cost
Guideway At-Grade	miles	\$7,000,000				
Guideway Elevated	miles	\$7,500,000	2.86	\$21,450,000	2.86	\$21,450,000
Tall tracks	miles	\$10,000,000				
Special Structures	lump sum					
Guideway Total	miles		2.86	\$21,450,000	2.86	\$21,450,000
Systems	feet	\$700	15,120	\$10,584,000	15,120	\$10,584,000
Stations	lump sum			\$10,000,000		\$10,000,000
Parking	lump sum					
Vehicles **	lump sum					
Sub Total				\$42,034,000		\$42,034,000
Design/CM/Admin.		@ 21%		\$8,827,000		\$8,827,000
Insurance		@ 4%		\$1,681,000		\$1,681,000
Right of Way	lump sum					
Total Project				\$52,542,000		\$52,542,000
Contingency		@ 20%	1	\$10,508,000		\$10,508,000
Grand Total				\$63,050,000		\$63,050,000
Cost/Mile				\$22,017,000		\$22,017,000

** Does not include vehicle costs.

