Florida High Speed Transportation System (FHSTS) Proposal

Chapter I
Business Entity Information and Applicant Qualifications

31 October 1995

Submitted to:
Florida Department of Transportation
High Speed Program Office
605 Suwannee Street, Room 507
Tallahassee, Florida 32399-0450

Florida Maglev Consortium, Inc.
2620 Cow Creek Road • Edgewater, Florida 32141

COP 95-228

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(FHSTS) Proposal

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Submitted to:

Florida Department of Transportation
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605 Suwannee Street, Room 507
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Prepared by:

Florida Maglev Consortium, Inc.
(FMLC)
2620 Cow Creek Road
Edgewater, FL 32141

FOREWORD

The Florida Maglev Consortium, Inc. (FMLC) is pleased to offer this proposal in response to the Florida High Speed Transportation System (FHSTS) Request for Proposal (RFP). Chapters I through IV and Chapter VII are submitted as separately bound volumes. Chapters V and VI are bound as one volume. Appendices, when provided, are bound with the volume to which they apply. FMLC offers a modern solution to both Florida's near- and far-term transportation needs. This solution was brought to fruition by a public/private partnership involving grants from the Florida Department of Transportation (FDOT) and Volusia County, and private investments by members of the consortium.

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ACRONYMS

ADA	Americans with Disabilities Act
AMT	American Maglev Technologies, Inc.
ANSI	American National Standards Institute
AVO	automatic vehicle operation
AVP	automatic vehicle protection
Beeline	Bee Line Expressway, SR 528
BPMs	best management practices
CBD	central business district
CBSC	communication based sensing and control
CC	central control
CCC	central control center
CDR	Critical Design Review
CFD	computational fluid dynamics
COTS	commercial-off-the-shelf
CPU	computer processing unit
CRC	Coleman Research Corporation, Inc.
CRS	computerized reservation system
CVC	centralized vehicle control
CVCS	centralized vehicle control system
d/sec	degrees per second
D_RAMP	design of reliability, availability, maintainability, performance and safety
DBMS	data base management system
DCL	Disney Cruise Lines
DELTEK	The accounting software package used by Coleman Research Corporation.
DOD	Department of Defense
DOT	Department of Transportation
EEO	Equal Employment Opportunity
EM	electro magnetic
EMF	electric and magnetic field
EPA	Environmental Protection Administration
FDDI	fiber distributed data interface
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMLC	Florida Maglev Consortium, Inc
FOIRL	fiber optic inter-repeater link
FPC	Florida Power Corporation
FP&L	Florida Power and Light Company
FPSC	Florida Public Service Commisksion
FRA	Federal Railroad Administration
ft	feet
FTA	Florida Transit Authority

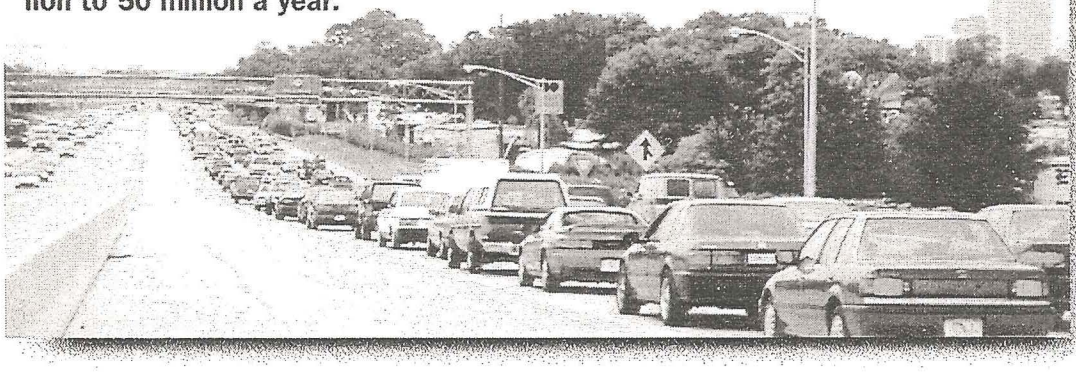
g	32.2 ft. per second^2
g/sec	g per second
GOAA	Greater Orlando Aviation Authority
GPS	Global Positioning System
GTO	gate turn-off
HSGT	High Speed Ground Transportation
HSGGTS	High Speed Guided Ground Transportation System
HVAC	Heating, Ventilation, Air Conditioning
Hz	cycle
I-4	Interstate 4
I-95	Interstate 95
ID	identification
IEEE	Institute of Electrical and Electronic Engineering
IGBT	insulated gate bipolar transistors
in	inch
INFO	Integrated Fleet Operations
ISA	industry standard architecture
KV	kilovolt
KW	kilowatt
KWH	kilowatt hour
L	span length
LAN	local area network
LHV	long haul vehicle
MAGNET	maglev network
MARTA	Metropolitan Atlanta Rapid Transit Authority
MIS	Management Information System
MJ	mega joules
mph	miles per hour
m/sec	meters per second
min	minutes
NFIP	National Flood Insurance Program
OLE	Object Linking and Embedding
OUC	Orlando Utilities Commission
PC	personal computer
PDR	Preliminary Design Review
PTS	positive train separation
PVS	positive vehicle separator
R&D	research and development
RDBMS	Relational Data Base Management System
RF	radio frequency

RFP	Request for Proposal
ROW	rights-of-way
RTCS	Real Time Computing System
s	second
SBD	safe breaking distance
SBDE	safe breaking distance envelope
SCADA	Supervisory Central and Data Acquisition
SCAT	Southern Coalition Advanced Transportation
SCR	silicon controlled rectifiers
SHV	short haul vehicle
SMTP	Simple Mail Transport Protocol
SNMP	Simple Network Management Protocol
SPCC	spill prevention, countermeasure and control
SR	State Road
SQL	Structured Query Language
STIP	Statewide Transportation Improvement Program
TECO	Tampa Electric Company
TGV	Tres Grande Vitesse
TCP/IP	Transmission Control Protocol/Internet Protocol
UHF	ultra-high frequency
UPS	uninterruptible power supply
USF&WL	US Fish and Wildlife Service
VBCS	vehicle borne control and sensing
VBCS	vehicle borne control system
VBPDS	vehicle borne position-determination system
VOCMS	Vehicle Operable Condition Monitoring System
WSP	wayside sensor package
WSS	wayside sensor sets
WWW	World-Wide Web
WZC	wayside zone controllers
WZS	wayside zone sensors

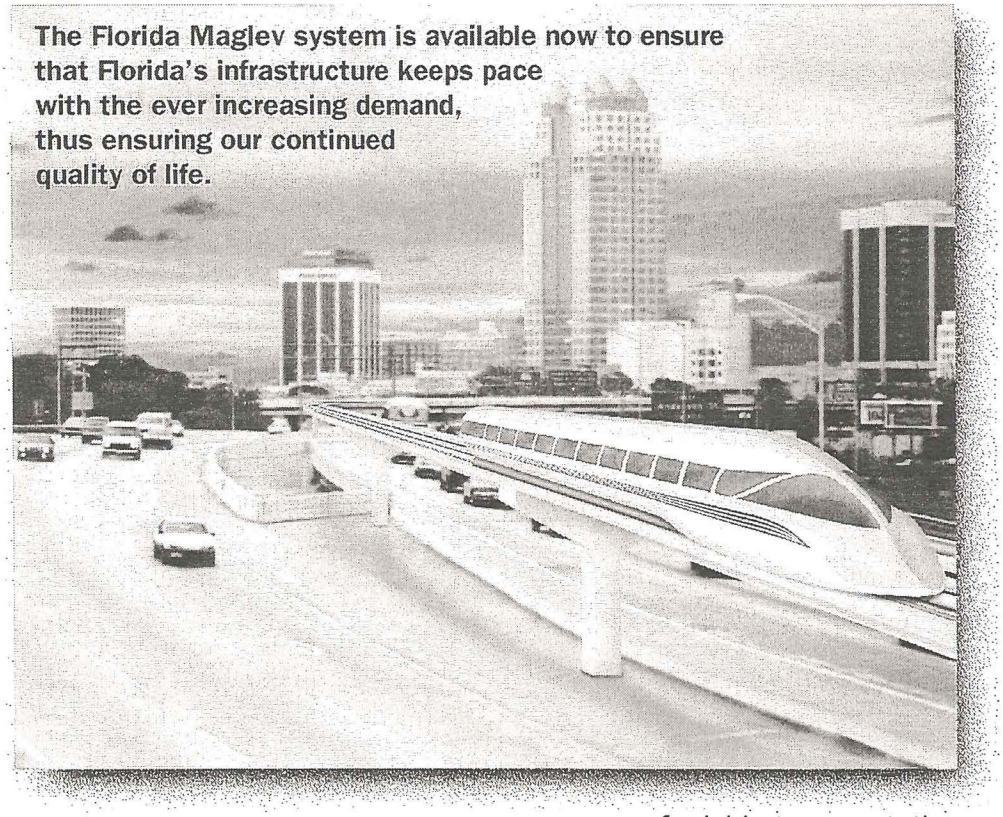
Introduction

A fast, safe, dependable, frequent and affordable high speed transportation system will provide the background for the continued positive growth and prosperity of the State of Florida.

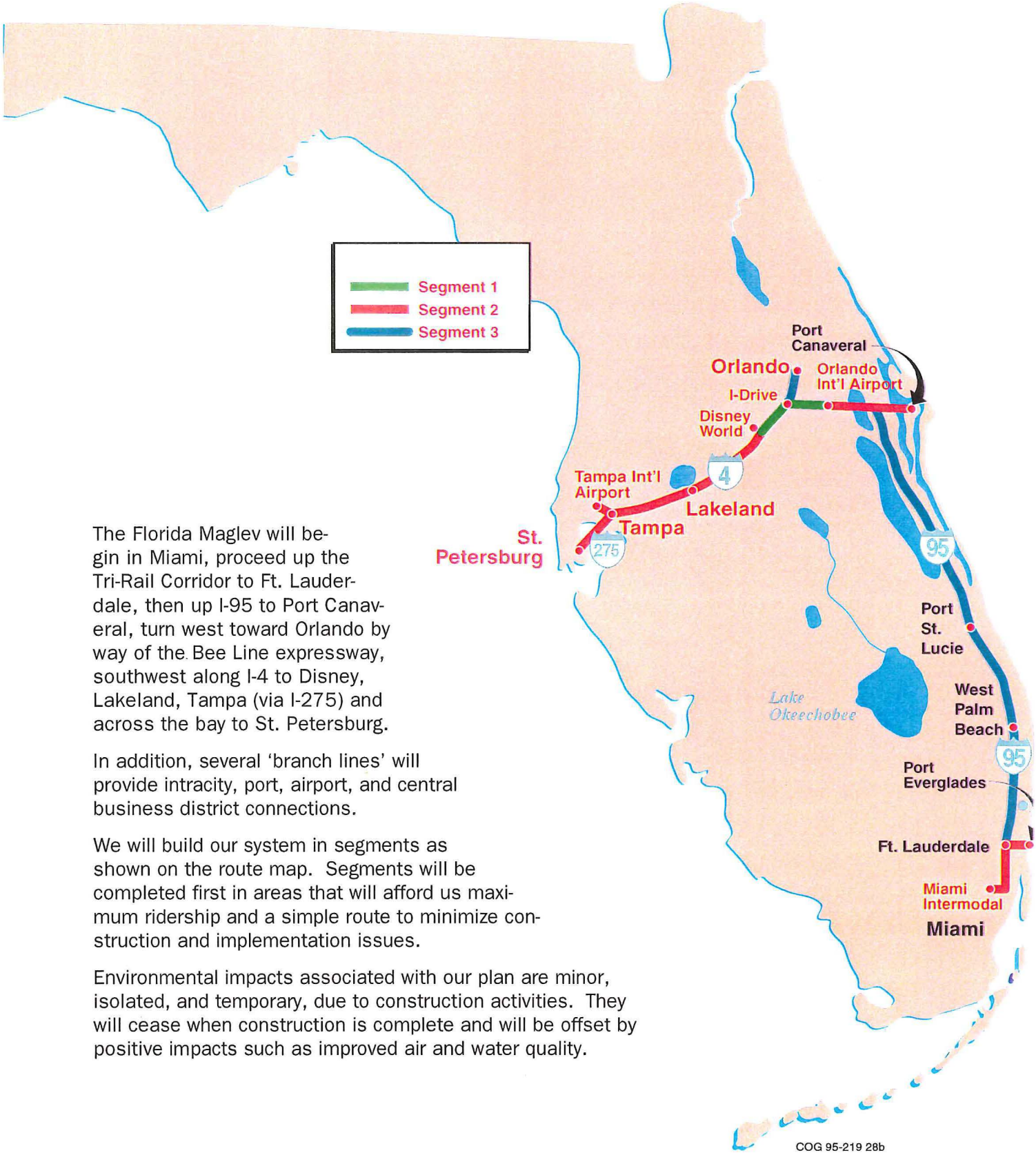
Our transportation infrastructure has been pushed to its limits by today's demands, and by the year 2000, Florida's population will have grown from 13.8 million to over 15.5 million. Visitor numbers will grow from 35 million to 50 million a year.



The Florida Maglev system is available now to ensure that Florida's infrastructure keeps pace with the ever increasing demand, thus ensuring our continued quality of life.



The Florida Maglev system is a high speed transit system consisting of safe, quiet, non-polluting vehicles that will traverse the state on a dedicated elevated guideway constructed in the medians of existing interstate highways. This fast, frequent, and affordable transportation system will be part of a seamless intermodal system that also will include airlines, buses, local rail lines, taxis, and cruise ships and will divert travelers from Florida's crowded roadways and congested airports.



The Florida Maglev will begin in Miami, proceed up the Tri-Rail Corridor to Ft. Lauderdale, then up I-95 to Port Canaveral, turn west toward Orlando by way of the Bee Line expressway, southwest along I-4 to Disney, Lakeland, Tampa (via I-275) and across the bay to St. Petersburg.

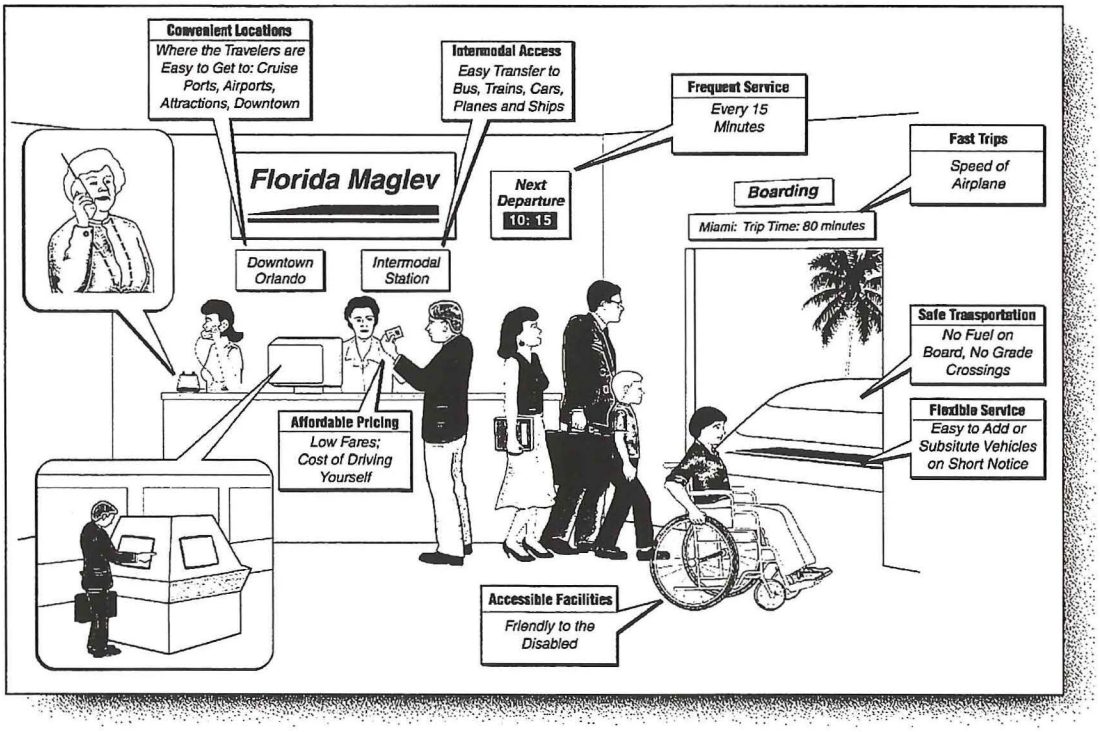
In addition, several 'branch lines' will provide intracity, port, airport, and central business district connections.

We will build our system in segments as shown on the route map. Segments will be completed first in areas that will afford us maximum ridership and a simple route to minimize construction and implementation issues.

Environmental impacts associated with our plan are minor, isolated, and temporary, due to construction activities. They will cease when construction is complete and will be offset by positive impacts such as improved air and water quality.

The Florida Maglev will be a major component of Florida's overall transportation system, offering the options necessary to attract Florida's resident, business and vacation travelers.

Our system will be an integral part of Florida's intermodal transit system consisting of airplanes, automobiles, rental cars, local rail lines, cruise ships, and buses. Transition from our system to these other modes of transportation will be *seamless*. For example, a rider could be able to purchase a single ticket from Delta Air Lines that includes a flight to Orlando and a trip on the Florida Maglev system to Port Canaveral to board a cruise ship. In addition, riders could be able to check their bags at departure across multiple modes and pick them up at their final destination.



	Florida Maglev	High-Speed Railroad	Automobile System
American Technology	Yes	No	Yes
Florida-Built Technology	Yes	No	Yes
300 mph Speed	Yes	No	No
Use Existing Right-of-Way	Yes	Possibly	Sometimes
Handles 30 million Passengers	Yes	No	Varies
Financially Self-Supporting	Yes	No	No
Low Environmental Impact	Yes	Varies	No
High-Frequency (Every 15 min.)	Yes	No	Yes, Except for Rush Hour
Access to:			
• Port Canaveral	Yes	No	Yes
• Port of Miami	Yes	No	Yes
• Port Everglades	Yes	No	Yes
• St. Petersburg	Yes	No	Yes
• Miami Airport	Yes	Unknown	Yes
• Tampa Airport	Yes	Unknown	Yes
• Disney	Yes	Yes	Yes
Cost under $12m/mile	Yes	No	No

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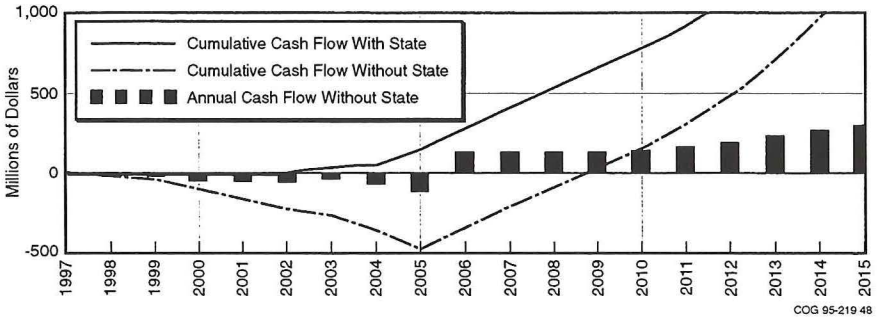
Riders will use our system because it offers the speed of an airplane at the price of a car and reaches destinations not accessed by trains. In addition our plan offers convenient station locations at desired origin and destination points and dependable, safe service.

Our system will attract more resident, business, and tourist passengers than conventional rail systems because the Florida Maglev's higher top speed, average speed, and acceleration allow:

- Shorter trip times
- More frequent departures
- Scheduling of intermediate stops without significant increase in trip times.

The State of Florida's $70 million commitment per year for 30 years combined with private financing through bonds during construction, will provide start-up funds to design, integrate, and construct the system.



Florida Maglev Net Cash Flow

Financing requirements will cease in the year 2005 when the system becomes fully operational, and we will pay debt from revenue.

Public/Private Partnership

The developers of the Florida Maglev, the Florida Maglev Consortium, Inc. (FMLC) has demonstrated a proven commitment to public-private partnership. FMLC was conceived by its earliest member, American Maglev Technology of Florida Inc. (AMT), as a public-private partnership among a collection of high-tech companies, local governments in Volusia County and the Florida Department of Transportation (FDOT). With seed capital from the local government, plus FDOT matches of funds obtained from both private sources and a variety of federal grants, AMT and FMLC moved quickly to complete the final technology research and the development of a working prototype.

Earlier this year, the Florida Department of Community Affairs (FDCA) joined the team to provide both leadership and support. Their efforts provided access to federal funds, later matched by FDOT, that have contributed strongly to the success of the program.

No foreign competitor has the proven experience of working with local governments, FDOT, and the FDCA to deliver a public/private partnership in service to Florida. FMLC and our Florida-based team members have successfully proven our ability to work in partnership with governments in Florida and to create a new technology, a new industry, and new jobs for our state. Despite many years of deployment of subsidized systems overseas, no foreign competitor has ever successfully completed a public/private partnership in the United States.

Rather than exporting billions of taxpayer dollars to a foreign government-subsidized company, FDOT and the citizens of Florida have the opportunity to secure for the next century, not just a highly effective transportation system for our state, but world leadership of an entirely new industry, with markets in every corner of the globe.

Governor Lawton Chiles and Congressman John Mica at the October 15, 1994 groundbreaking of the American Maglev Test Facility in Edgewater, Florida. Governor Chiles: "I look forward to selling this to the Swiss and the Germans and the Japanese..."

Chapter I

BUSINESS ENTITY INFORMATION AND APPLICANT QUALIFICATIONS

INTRODUCTION

Putting a smart, economical, flexible, dependable, safe, and utilitarian high speed transportation system in place will provide the backbone for the continued growth and prosperity of the state of Florida. Recognizing this, the Florida Department of Transportation (FDOT) has embarked on a path to establish this vital backbone, through the issuance of the Florida High Speed Transpiration System (FHSTS) Request For Proposal (RFP). Florida Maglev Consortium, Inc. (FMLC) has every intention of participating in providing a solution to the requirements of the FHSTS initiative. With a clear eye on the long term, FMLC was deliberately organized and fine-tuned to actively contribute to the technology-driven revolution that is transforming our transportation culture. Florida's transportation infrastructure has been pushed to its limits by today's demands. Technology now offers a way to provide new transportation modes and services that will allow the infrastructure to grow fast enough to keep pace with the ever-increasing demand, thus enhancing the quality of our lives. As the rate of change accelerates, so does the opportunity to succeed. This was the driving motivation behind the organization of FMLC.

Three factors were considered in organizing FMLC.

- A Corporation formed with two partners who can provide unique lost-cost technology and the skills and experience to successfully design, build, and operate the proposed system

- Facilitating the creation of a collection of specialist companies organized horizontally to address specific tasks

- Establishing a committed effort to drive growth through superior consumer marketing.

Technical, supportability, cost, schedule, and programmatic risk concerns were very carefully weighed in addressing the feasibility of using magnetic levitation (maglev) to meet the requirements of a high speed transportation system. It was recognized that maglev had been demonstrated, but its application to the demands of a fully operational environment had not. Also, it was recognized that programmatic issues such as safety, environmental, and advocacy concerns would impact the construction and operation of a high speed transportation system. Supportability, cost, and schedule requirements also greatly contributed to our view that a conventional railroad team could not meet the requirement. Therefore, we organized a team of contractors who had demonstrated the ability to apply innovative technology to the design, engineering, construction, and operation of a new transportation system.

As illustrated by Figure I-1, FMLC has formed a carefully selected, predominantly Floridian team of the companies who are leaders in their respective fields to respond to the FHSTS

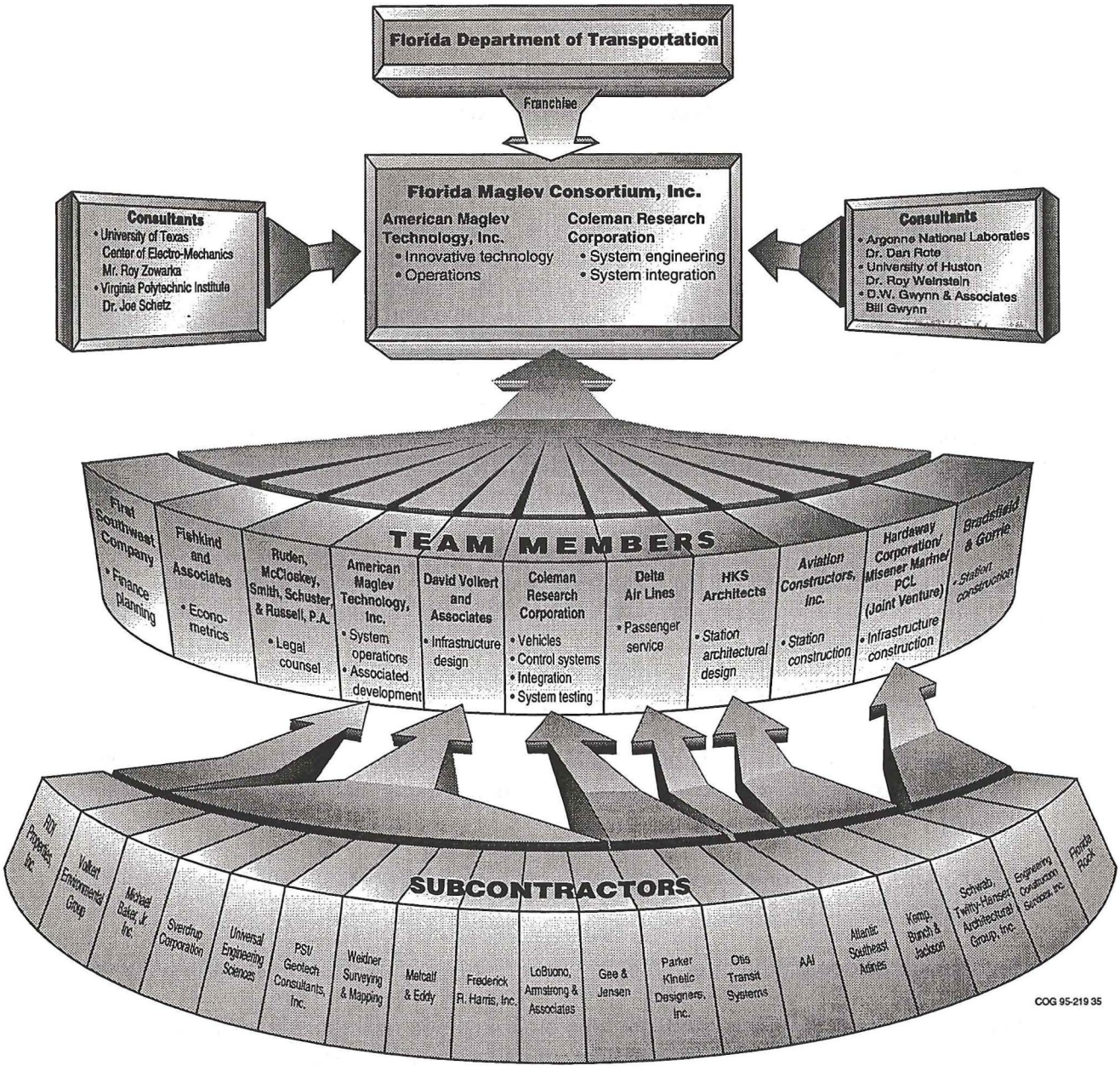


Figure I-1. The FMLC Team members have long-standing proven track records in their fields.

RFP. The key attribute of the consortium that will contribute to an effective and efficient performance is the combination of the skill, talent, and experience, bringing the following to the program:

- A detailed understanding of what it takes to ensure the creation, implementation, completion, operation, and maintenance of a high speed transportation system

- Working knowledge of market pressures, regulatory actions, legislative mandates, and economic conditions that affect the transportation area

- A management commitment by the two partners, American Maglev Technology, Inc. (AMT), and Coleman Research Corporation (CRC) to provide a streamlined, dedicated, and autonomous management and technical team with the resources and management visibility to accomplish the job.

As directed by the RFP, this volume is organized in four major parts.

A. OWNERSHIP AND FORM OF BUSINESS ENTITY

1. DEFINE OWNERSHIP AND STRUCTURE OF APPLICANT

This proposal is submitted by FMLC, who is the applicant, in response to the FHSTS RFP dated February 28, 1995, and is the entity to whom the franchise request is to be awarded. FMLC consists of two shareholders: CRC and AMT. The two corporations will act both as principals and contractors, performing certain functions within their areas of expertise.

CRC was established in 1980 by Mr. T.J. Coleman. It is a nationwide corporation specializing in high-technology systems engineering, research, and development. CRC's corporate headquarters is located in Orlando, Florida and its primary operations are in Orlando, Florida; Huntsville, Alabama; Washington, DC; El Paso, Texas; and additional operations in many other areas of the country. The company currently employs approximately 1,200 engineering, scientific, and support personnel. CRC was recently acquired by Thermo Electron Corporation in the spring of 1995. Thermo Electron is a heavily diversified corporation specializing in high technology research and development, with 1994 sales of approximately $1.6 billion.

CRC established its reputation as a total systems engineering and integration company, and has a long history of providing excellent engineering support services. CRC has diversified and extended its capabilities to include software engineering and hardware system development, message processing and data fusion, communications, independent software validation and verification, and large-scale database development.

CRC has extensive experience in the development of complex systems involving electrical, electronic, mechanical, electromechanical and software technologies. This involves all aspects of engineering development including: system concept formulation, hardware design, software development, prototyping, system fabrication, integration, system test, production, fielding, and contractor logistics support. CRC also has been heavily involved in the program management of projects of all sizes with the associated experience in planning, contracts, budgets and, financing. CRC's experience includes work performed for the Department of Defense (DOD) including all branches of the military, the Department of Energy (DOE), and many civilian contractors.

AMT was founded specifically to develop practical and cost-effective applications of maglev technology. It was formed as a result of the efforts of Park Square, Inc. of Atlanta, Georgia, a construction consulting firm with 14 years of experience in

master planning, programming, program management, phasing, detailed construction scheduling, cost/budget control, and expedition of extremely complex projects. Park Square, in cooperation with Dr. Kent R. Davey of the Georgia Institute of Technology, has designed an entirely new technology for maglev transportation based on an unprecedented and unique use of a linear dc motor, which allows for a passive guideway that dramatically decreases construction and operational costs. Support from Volusia County and subsequent federal, state, and academic grants permitted the creation of AMT., a corporation with all its resources dedicated to the construction of viable, low-cost maglev transportation systems.

The following information is provided in conjunction with the Applicant:

a. The applicant's legal name is Florida Maglev Consortium, Inc. (FMLC). Its principal place of business is located in Florida, is 2620 Cow Creek Road, Edgewater, Florida 32141. FMLC's telephone number at that location is (904)427-6643.

b. CORPORATION

(1) Certificate of Status From the Florida Secretary of State

See Figure A.1.b-1 through -3 for the Certificates of Status from the Florida Secretary of State for the Florida Maglev Consortium and two shareholders.

(2) Names and addresses of each corporate officer:

John Wilson, President
c/o American Maglev Technology, Inc.
2620 Cow Creek Road
Edgewater, Florida 32141

Jeff Wilson, Vice President, Marketing
c/o American Maglev Technology, Inc.
2620 Cow Creek Road
Edgewater, Florida 32141

Max Chapman, Vice President, System Development
614 West Moore
Terrell, Texas 75160

Ed Acacia, Vice president, Business Operations
CRC Launch Systems Group
7675 Municipal Drive
Orlando, Florida 32819

Roger Byers, Vice President, System Operations
c/o American Maglev Technology, Inc.
2620 Cow Creek Road
Edgewater, Florida 32141

State of Florida

Department of State

I certify from the records of this office that FLORIDA MAGLEV CONSORTIUM, INC., is a corporation organized under the laws of the State of Florida, filed on October 18, 1995.

The document number of this corporation is P95000080010.

I further certify that said corporation has paid all fees and penalties due this office through December 31, 1995, and its status is active.

I further certify that said corporation has not filed Articles of Dissolution.

Given under my hand and the
Great Seal of the State of Florida,
at Tallahassee, the Capital, this the
Nineteenth day of October, 1995

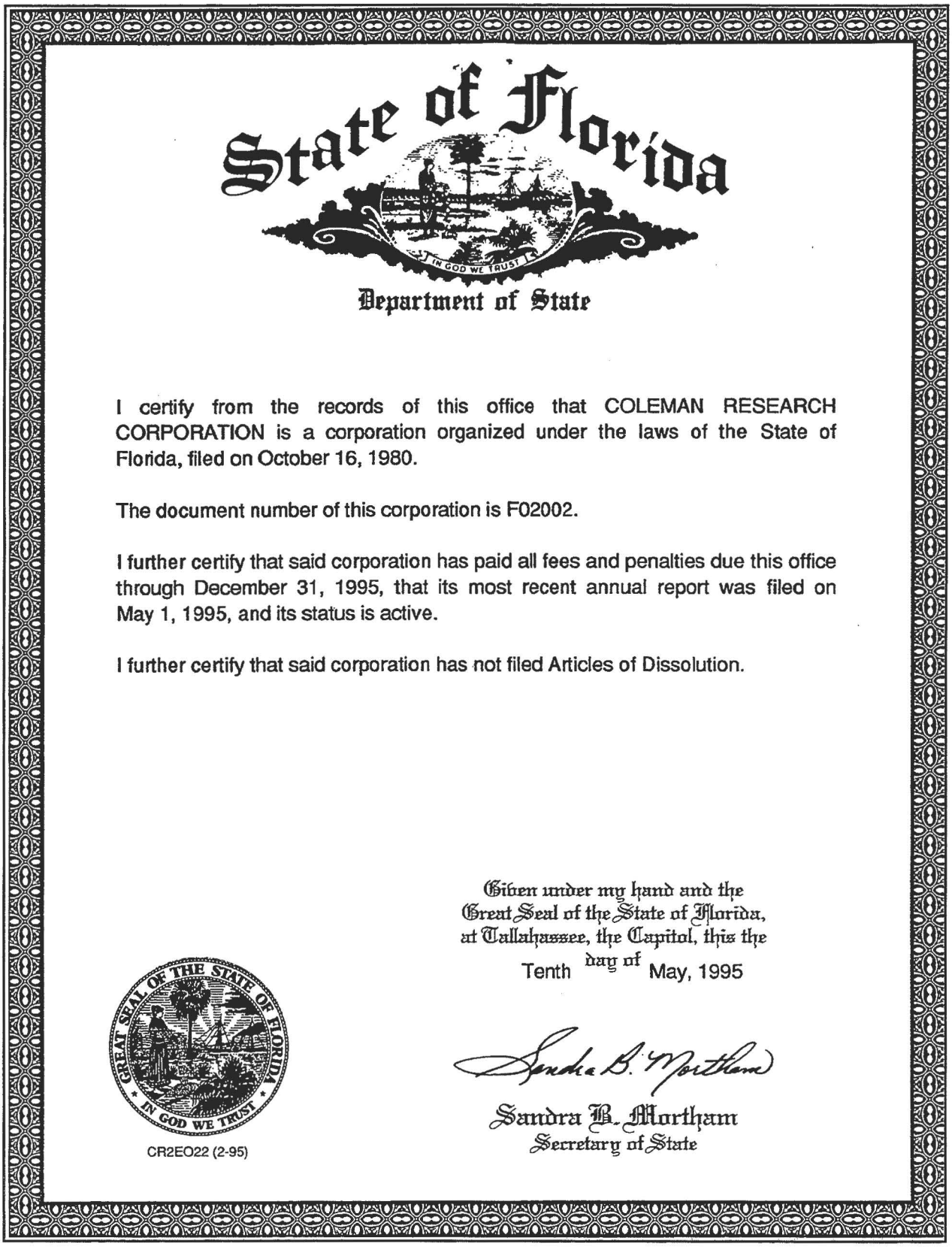
Sandra B. Mortham

Sandra B. Mortham
Secretary of State

CR2EO22 (1-95)

COG 95-213 23

**Figure A.1.b-1. Florida Maglev Consortium, Inc.
Certificate of Status**



State of Florida

Department of State

I certify from the records of this office that COLEMAN RESEARCH CORPORATION is a corporation organized under the laws of the State of Florida, filed on October 16, 1980.

The document number of this corporation is F02002.

I further certify that said corporation has paid all fees and penalties due this office through December 31, 1995, that its most recent annual report was filed on May 1, 1995, and its status is active.

I further certify that said corporation has not filed Articles of Dissolution.

Given under my hand and the Great Seal of the State of Florida, at Tallahassee, the Capitol, this the Tenth day of May, 1995

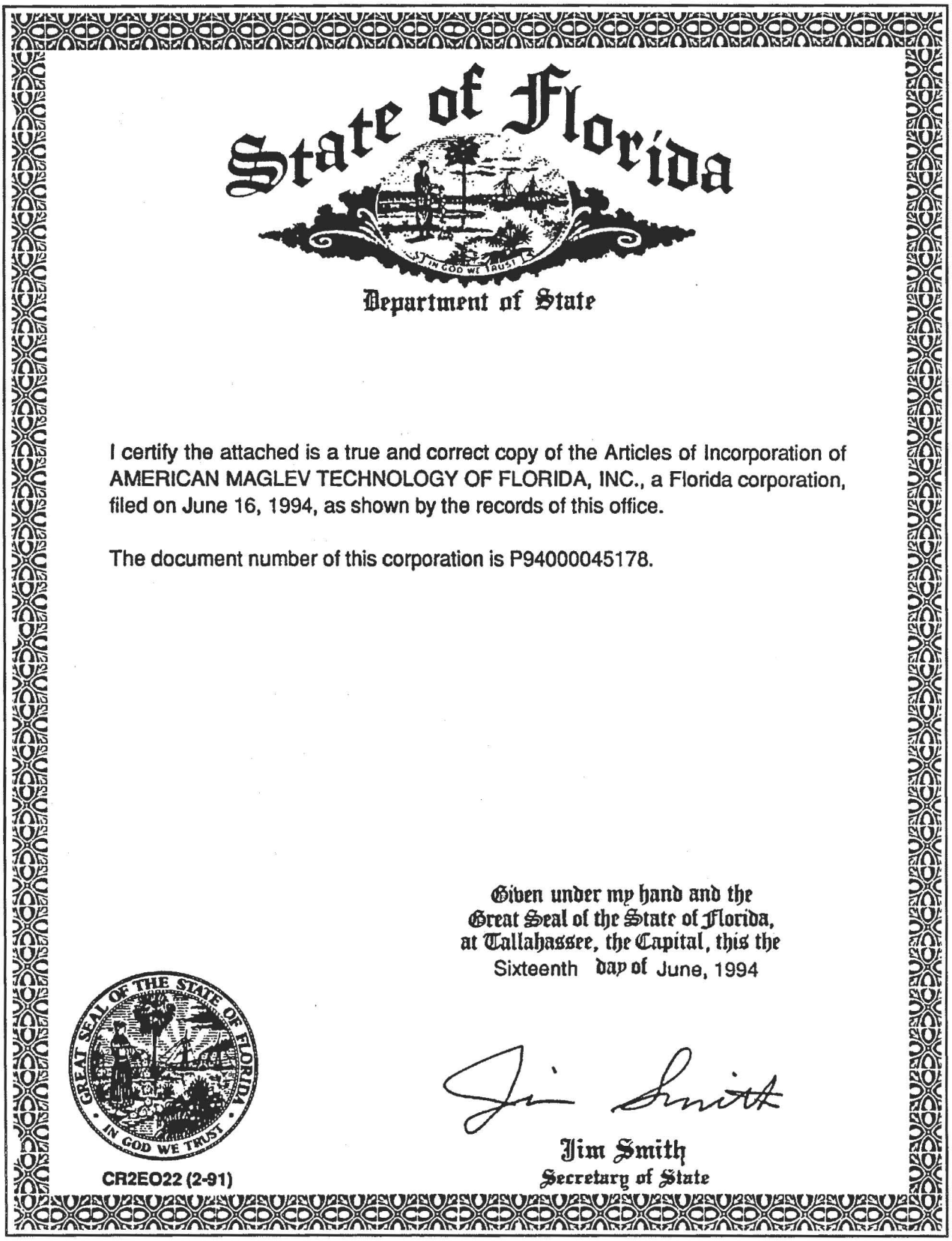
Sandra B. Mortham

Sandra B. Mortham
Secretary of State

CR2EO22 (2-95)

COG 95-213 08

Figure A.1.b-2. Coleman Research Corporation Certificate of Status



State of Florida

Department of State

I certify the attached is a true and correct copy of the Articles of Incorporation of AMERICAN MAGLEV TECHNOLOGY OF FLORIDA, INC., a Florida corporation, filed on June 16, 1994, as shown by the records of this office.

The document number of this corporation is P94000045178.

Given under my hand and the
Great Seal of the State of Florida,
at Tallahassee, the Capital, this the
Sixteenth day of June, 1994

Jim Smith
Secretary of State

CR2EO22 (2-91)

COG 95-213 09

Figure A.1.b-3. American Maglev Technology of Florida, Inc. Certificate of Status

(3) Names and addresses of each shareholder owning or controlling more than five percent of the Corporation.

FMLC is a wholly owned subsidiary of Florida Maglev Holding Corporation (FMHC), a Florida corporation. Holding has issued 100 shares of its common stock, each are of common stock being entitled to one vote on all matters as to which shareholders are entitled to vote under Florida law. Seventy-five shares of common stock have been issued to American Maglev Technology, Inc. of Florida, Inc. and 25 shares have been issued to Coleman Research Corporation.

AMT is a corporation organized under the laws of the State of Florida, 95 percent of the issued common stock of which is owned by Park Square Technology Ltd. Company, a Georgia limited liability company. Park Square Technology Ltd. Company is entitled to one vote per share on all matters upon which shareholders are entitled to vote. Park Square Technology Ltd. Company has three members (equity owners), each of whom are entitled to vote their respective percentage interests on all matters upon which members are entitled to vote in accordance with Georgia law. The three members are Dr. Davey, who owns 47.5 percent; and A. B. Martin, who owns 5 percent; and Park Square, Inc., a Georgia corporation, which owns 47.5 percent. Park Square, Inc. is owned 100 percent by Tony J. Morris, who is entitled to one vote per share for each share of common stock in Park Square, Inc.

CRC is a wholly owned subsidiary of Thermo Electron Corporation, a Delaware corporation, the capital stock of which is listed and publicly traded on the New York Stock Exchange. According to filings with the Securities Exchange Commission, the only owner of more than 5 percent of the outstanding capital stock of Thermo Electron Corporation is Fidelity Management and Research (FMR) Company, a wholly owned subsidiary of FMR Corp., the principal shareholders of which are Edward C. Johnson and Abigail P. Johnson, each of whom own 24.9 percent of the voting stock of FMR Corp. and, pursuant to shareholder agreements with family members and trusts, control FMR Corp. Although FMR Company owns 6,828,129 shares of the common stock of Thermo Electron which, at one vote per share, constitutes 8.2 percent of the voting interest in Thermo Electron, the applicant does not consider FMR Company to be a key component of the applicant as their involvement in Thermo Electron is as a passive investor and its 8.2 percent interest does not give it control over this publicly traded corporation. Accordingly, the applicant would characterize itself, loosely, as a partnership between entities controlled by Tony J. Morris, on the one hand, and Thermo Electron Corporation through its CRC subsidiary on the other hand.

Addresses of key component entity shareholders of the applicant are shown below.

Florida Maglev Holding Corporation
2620 Cow Creek Road
Edgewater, Florida 32141

American Maglev Technology of Florida, Inc.
2620 Cow Creek Road
Edgewater, Florida 32141

Park Square Technology Ltd. Company
142 South Park Square
Marietta, Georgia 30060

Park Square, Inc.
142 South Park Square
Marietta, Georgia 30060

Coleman Research Corporation
5950 Lakehurst Drive
Orlando, Florida 32819-8343

Thermo Electron Corporation
81 Wyman Street
Waltham, Massachusetts 02154-1223

c. NOT APPLICABLE

d. NOT APPLICABLE

e. CONTRACTORS/SUBCONTRACTORS

The contractors and subcontractors are identified below. Second-tier contractors are indented under the contractors to which they report. Appendix I contains the letters of commitment.

American Maglev Technology, Inc. (Consortium shareholder)

Coleman Research Corporation (Consortium shareholder)
- AAI Corporation
- Parker Kinetic Designs, Inc.
- Otis Transit Systems

First Southwest Company

Fishkind & Associates

Ruden, McCloskey, Smith, Schuster & Russell, P.A.

RDI Properties, Inc.

Delta Air Lines
- Atlantic Southeast Airlines

David Volkert & Associates
Michael Baker, Jr., Inc.
Sverdrup Corporation
Universal Engineering Sciences
Volkert Environmental Group
Professional Service Industries/Geotech Consultants, Inc.
Weidener Surveying and Mapping
Metcalf & Eddy
Frederick R. Harris, Inc. a division of Frederick R. Harris, Inc.
Gee & Jensen

Hardaway, Misener, PCL Joint Venture
Engineering Construction Services, Inc.
Florida Rock

HKS, Inc.
Kemp, Bunch, & Jackson, Inc.
Schwab, Twitty & Hanser Architectural Group, Inc.

Aviation Constructors, Inc.
Brasfield & Gorrie

f. SOCIALLY AND ECONOMICALLY DISADVANTAGED BUSINESS ENTERPRISES (DBE)

It is the policy of FMLC and its entities to give qualified socially and economically disadvantaged business enterprises (DBEs) maximum opportunity to participate in subcontracting programs. The scope of this program includes, but is not limited to:

- Encouraging solicitations from DBE business concerns
- Making sufficient allowances for appropriate economic quantities and reasonable delivery schedules to encourage these concerns to compete
- Assisting DBE suppliers in establishing and maintaining a quality control system to ensure that materials and standards meet the required standards.

The following business enterprises have been identified as socially and economically disadvantaged as defined by Rule 14-78.002, Florida Administrative Code:

- Geotech Consultants International, Inc.
- Weidener Surveying and Mapping, P.A.
- Engineering and Construction Services, Inc.

See Figures A.1.f-1 through -6 for current certifications.

FLORIDA DEPARTMENT OF TRANSPORTATION

LAWTON CHILES
GOVERNOR

605 Suwannee Street, Tallahassee, Florida 32399-0450

BEN G. WATTS
SECRETARY

November 10, 1994

Weidener Surveying &
Mapping, P.A.
Ms. Margarita Weidener
10418 N.W. 31st Terrace
Miami, FL 33172

RE: **DISADVANTAGED BUSINESS ENTERPRISE CERTIFICATION**

Dear Ms. Weidener:

The Department is pleased to announce that your company has been certified as a Disadvantaged Business Enterprise (DBE) for a maximum period of one year, which is subject to continued eligibility and also subject to actions of any other governmental agencies which may affect the minority status of your firm. This agency's certification enables the company to compete in the subcontract work of the Department as a minority owned and operated company. It is not a guarantee that the company will receive work.

If at any time there is a change in the ownership and control of the company, a new Schedule "A" is to be forwarded without delay to the Department. If you desire recertification consideration, a new Schedule "A" must be submitted to the Department ninety (90) days prior to expiration of your current certification for agency review and consideration.

Questions concerning the certification process may be directed to this office at (904) 488-3145.

Sincerely,

Howard Jemison
DBE Certification Manager
Minority Programs Office

HJ:lw

CERTIFICATION EXPIRATION DATE: JANUARY 24, 1996

COG 95-213 05

Figure A.1.f-1. Disadvantaged Business Enterprise Certificate for Weidener Surveying & Mapping, P.A.

State of Florida

Commission on Minority Economic and Business Development
Minority Business Advocacy and Assistance Office

Engineering & Construction Services, Inc.

is certified as a Minority Business Enterprise
under the provisions of Chapter 287, Florida Statutes,
for a one year period from February 24, 1995 to February 24, 1996.

Crandell O. Jones
Executive Administrator

Marsha Nims
Certification Manager

COG 95-213 06

Figure A.1.f-2. Disadvantaged Business Enterprise Certificate for Engineering & Construction Services, Inc.

FLORIDA DEPARTMENT OF TRANSPORTATION

LAWTON CHILES
GOVERNOR

605 Suwannee Street, Tallahassee, Florida 32399-0450

BEN G. WATTS
SECRETARY

October 10, 1995

Geotech Consultants International, Inc.
Mr. K. Owusu Amaning
2265 Lee Road, Suite 221
Winter Park, FL 32789

RE: **DISADVANTAGED BUSINESS ENTERPRISE CERTIFICATION**

Dear Mr. Amaning:

The Department is pleased to announce that your company has been certified as a Disadvantaged Business Enterprise (DBE) for a maximum period of one year, which is subject to continued eligibility and also subject to actions of any other governmental agencies which may affect the minority status of your firm. This agency's certification enables the company to compete in the subcontract work of the Department as a minority owned and operated company. It is not a guarantee that the company will receive work.

If at any time there is a change in the ownership and control of the company, a new Schedule "A" is to be forwarded without delay to the Department. If you desire recertification consideration, a new Schedule "A" must be submitted to the Department ninety (90) days prior to expiration of your current certification for agency review and consideration.

Questions concerning the certification process may be directed to this office at (904) 921-7383.

Sincerely,

Howard Jemison
DBE Certification Manager
Minority Programs Office

HJ:lw.

CERTIFICATION EXPIRATION DATE OCTOBER 19, 1996

COG 95-218 04

Figure A.1.f-3. Disadvantaged Business Enterprise Certificate for Geotech Consultants International, Inc.

Additional subcontractors will be required to perform certain categories of work. The construction joint venture plans to prequalify at least three certified DBE firms in each category and competitively bid this work. The low responsive DBE firm in each category will be awarded a contract. Certified DBE firms identified for bids at this time are listed as follows:

(1) Surveying

Echezabal & Associates, Inc., P.O. Box 280056, Tampa, Florida 33682. Henry Echezabal, telephone (813)237-4234.

Tomasino & Associates, Inc. P.O. Box 16488 Temple Terrace, Florida 33687. Paul Tomasino, telephone (813)988-9102.

Lannes & Garcia, Inc. 359 Alcazar Avenue, Coral Gables, Florida 33134. Angela Lannes, telephone (305)666-7090.

(2) Foundation (Partial)

Jayaldon Enterprises Inc. 2831 Ringling Boulevard, Suite D113, Sarasota, Florida.Sylvia S. Best, telephone (813)955-5680.

Piling Products, Inc., 102 State Road 13, Suite A, Fruit Grove, Florida 32259 Sandra Koslow, telephone (904)287-8000.

Jensen of Jacksonville, 9200 Phillips Highway, Jacksonville, Florida 32256. Lucy Jensen, telephone (904)268-7766.

(3) Furnish And Tie Reinforcing

Amber Reinforcing, Inc., 10991 55 San Jose Boulevard, Suite 103, Jacksonville, Florida 32223. Kathy Riggs, telephone (904)260-9987.

Jayaldon Enterprises Inc. 2831 Ringling Boulevard, Suite D113, Sarasota, Florida. Sylvia S. Beste, telephone (813)955-5680.

V & M Erectors, Inc., 9830 Pines Boulevard, Pembroke Pines, Florida 33024. Vern Nix, Telephone (305)437-9998.

(4) Maintenance Of Traffic Barricades And Fencing

Highway Safety Devices, Inc., 11558 U.S. Highway 92 East, Seffner, Florida 33584. Marian J. Price, telephone (813)759-1559.

Traffic Control Products of Florida, Inc., 5514 Carmack Road, Tampa, Florida 33610. Karen Wasielewski, telephone (813)621-8484.

Advance Barricades & Signing, Inc. P.O. Box 1745, Jupiter, Florida 33468. Eleanor Heaton, telephone (407)746-5123.

Signal Group, Inc., 33 Commerce Way, Jupiter, Florida 33458.
Ann Copeland, telephone (407)744-3206.

(5) Landscaping

Leigh Green-Way Sod Company, 6839 Old Polk City Road, Lakeland, Florida 33809. Leigh Boutwell, telephone (813)858-0081.

Hydro-Grass Seeding, Inc., 1240 11th Street E, Palmetto, Florida 34221
Marilyn Wilson, telephone (813)729-1777.

Triple J of Lee County, Inc., P.O. Box 6742, Fort Myers, Florida 33911
Janet R. Pease, telephone (813)337-2177.

(6) Sitework-Clearing

Petticoat Contracting, Inc., 11025 Blasius Road, Jacksonville, Florida 32256.
Elaine Jones, telephone (904)751-0888.

S&S Contracting, Inc., 8346 D. NW, South River Drive, Miami, Florida 33166.
Jerry Smith, telephone (305)887-5777.

ABC Landscaping & Development, Inc., 817 Dixon Boulevard, Cocoa, Florida 32922.
James Goins, telephone (407)636-4734.

(7) Electrical Signalization

Florida Industrial Electric, Inc., 811 Wilma Street, Longwood, Florida 32750.
Errol Johnson, telephone (407)331-1551.

Signal Group, Inc., 33 Commerce Way, Jupiter, Florida 33458.
Ann Copeland, telephone (407)744-3206.

Electric Machinery Enterprises, Inc.

(8) Concrete Work

Bonn J. Contracting, Inc. of Florida, 9319 E. Colonial Drive, Orlando, Florida 32817. Bonnie Rimel, telephone (407)273-8431.

D.A.B. Constructors, Inc., P.O. Box 1589 Inglis, Florida 34449.
Debora Bochschmidt, telephone (904)447-5488.

Coastal Materials of Alabama, P.O. Box 447, Valparaiso, Florida 32588.
Carolyn Flemming, telephone (904)678-1099.

(9) Trucking

Today Trucking Corporation, P.O. Box 15035, Tampa, Florida 33684.
Braulio Nontero, telephone (813)920-2976.

S & S Contracting, Inc., 8346 D. NW, South River Drive, Miami, Florida 33166.
Jerry Smith, telephone (305)887-5777.

Pancho Trucking Company, Inc., P.O. Box 15086, Tampa, Florida 33864.
Tony Gutierrez, telephone (813)875-3941.

D'Elegance Management Ltd, Inc. P.O. Box 215 Pahokee, Florida 33476.
Metra Hughes, telephone (407)924-7330.

g. GOVERNMENT AGENCIES

None of the participants in this proposal are government agencies.

2. ORGANIZATION

a. OWNERSHIP AND ORGANIZATION

Figure A.2.a-1 shows the ownership relationships of the applicant as described in paragraph A.1.b.

b. PROGRAM INTERNAL STRUCTURE AND ASSIGNED RESPONSIBILITIES

Figure A.2.b-1 shows the proposed FMLC program organization, which includes all major functions and subfunctions. FMLC will retain the functions of project control, business management, legal, safety control, quality assurance, and marketing. FMLC will contract to its team members the functions of system design, engineering, construction, operations, and maintenance. The solid lines in the figure indicate the delegations to be made by the president to his key officers (subordinates). In each case, the subordinate has the responsibility and authority for managing his assigned functions. These include organizing and planning workloads, enforcing performance requirements, meeting cost and schedule goals, resolving interface problems, and participating as a member of the management team in planning overall program activities.

FMLC's modus operandi is one of planning, organizing, staffing, controlling, and directing. It may be defined as strategic in scope and will provide direction by:

- Ensuring the best possible use of resources—personnel, machines, materials, facilities, capital, and time
- Integrating all aspects of the program into an efficient, unified effort
- Providing a baseline for evaluating performance
- Better preparing for future risks and contingencies.

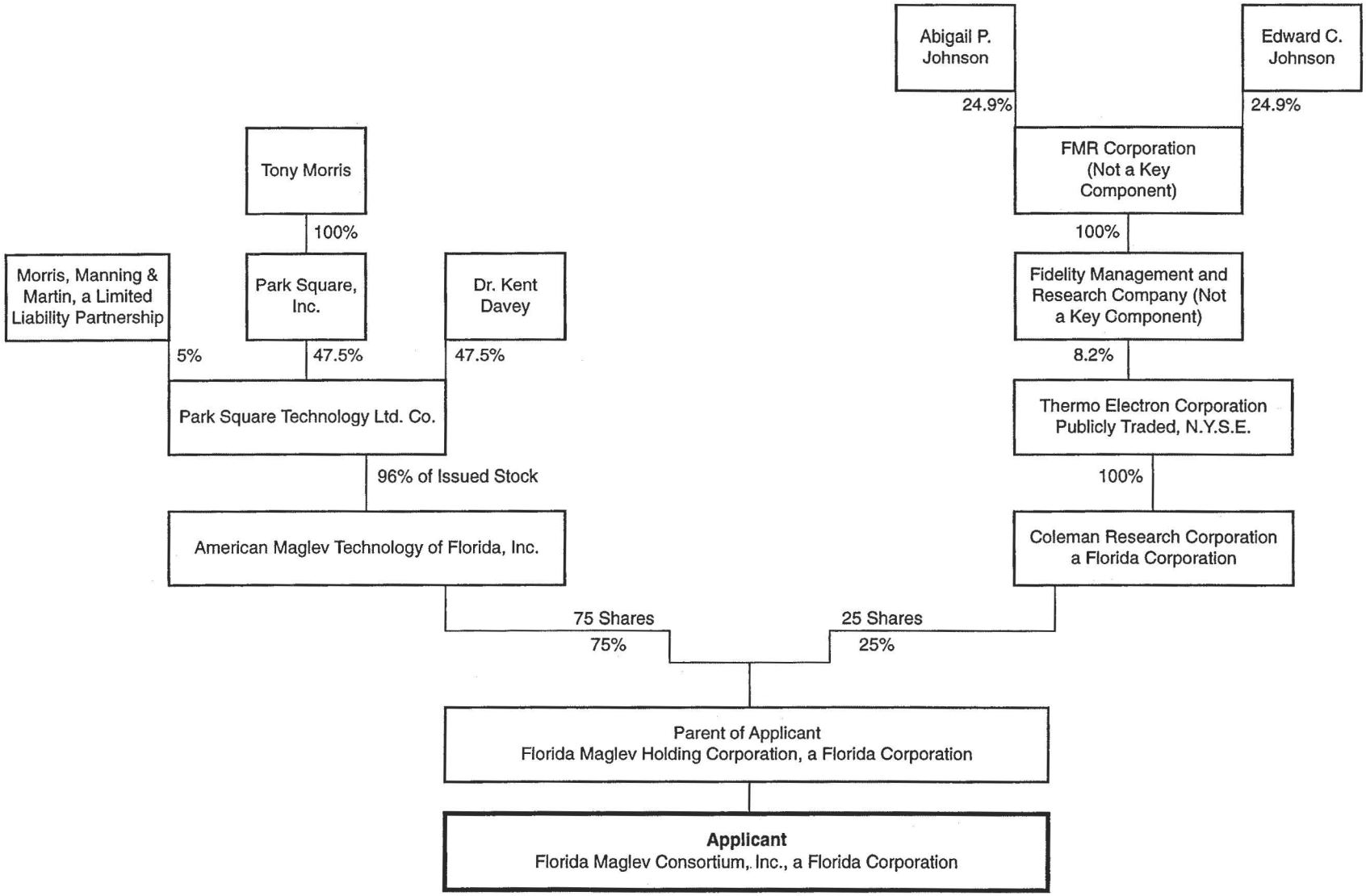


Figure A.2.a-1. FMLC Ownership Chart

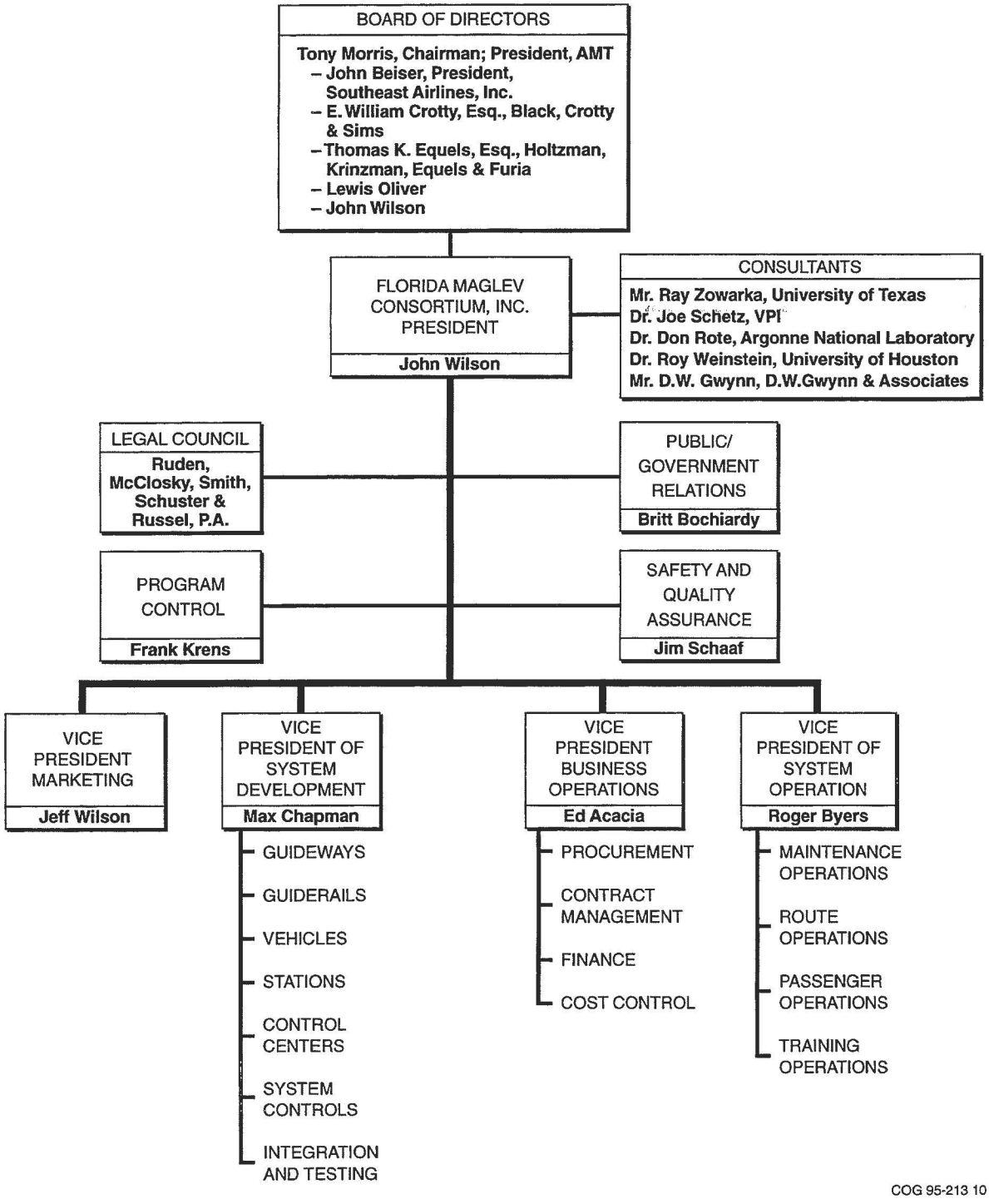


Figure A.2.b-1. The Florida Maglev Consortium, Inc. is organized to provide a fast, frequent, and flexible high speed transportation system.

Each consortium vice president (System Development and System Operation) will be responsible for defining and promulgating program requirements to team member contractors through negotiated contracts. Thus, once the consortium identifies requirements, it is the assigned contractor's responsibility to identify the criteria and to perform within contract objects and constraints. The functions of the vice president for Business Operations include procurement, industrial relations, contract management, finance, and cost needs and concerns. As the expectations and sophistication of transportation needs grow, it is imperative that the consortium be a leader and not a follower. The Public/Government Relations Office will work very closely with Marketing to develop a Marketing Plan to meet this objective.

The Program Control organization has the responsibility to plan, organize, and direct activities in program planning, performance management, information management, and operation of the Management Information Center (MIC). Direct coordination with the performing contractors will be maintained to ensure effective scheduling and statusing. The Performance Management Unit will prepare cost, schedule, and technical performance plans and identify variances. The Information Management Unit will ensure timely receipt of contractually required documents and operate the MIC.

The Safety and Quality Assurance Office will have cognizance and authority over all program activities as they relate to safety and quality.

The rationale for the proposed organization is summarized as follows:

- To minimize costs and provide autonomous control of all resources required to accomplish the RFP requirements, a dedicated organization has been formed.

- The total dedication of the consortium and its direct line of communication with its key functional elements (i.e., planning, financial, engineering, construction, and operation) will provide a highly responsive integrated team with maximum flexibility. The strong functionally aligned organization will lead to a significant skill mix and direct labor cost economies.

3. KEY PERSONNEL

Table B.3-1 provides the names, education, and experience of principal key personnel. Table B.3-2 provides the contractor key personnel. We have carefully selected our key personnel for their demonstrated ability to accomplish the design, construction, fabrication, operation, and management of the Florida Maglev.

The selection process leading to the designation of the personnel named as key staff has resulted in an outstanding team of experienced and dedicated personnel. The depth and applicability of the experience of these individuals both singularly and collectively are a major strength of our proposal.

Table B.3-1. Principal Key Personnel

Title	Name	Experience
Florida Maglev Consortium, Inc.		
Board Chairman	Tony Morris	Over 15 years and $8 billion of project engineering and management experience; managed such large-scale development and construction projects as mass transit stations and systems, airports, high rise apartments, stadiums, hotels, hospitals, and waste-treatment plants. Founder and President of Park Square Consultants, Inc. Education: BS, Civil Engineering, Georgia Tech University.
Board Member	John Beiser	Over 28 years experience in all aspects of airline operation, including development of passenger and cargo sales programs, management of travel agency functions, development of leisure destination markets, and cooperative marketing programs with other airlines. Currently, President of Atlantic Southeast Airlines, Inc., which he co-founded and developed into the largest regional airline serving the southeastern United States. Education; Ohio University.
Board Member	E. William Crotty, Esquire	Over 39 years in the practice of law in the state of Florida. General counsel for the Sun Bank of Volusia County; Security First Federal Savings & Loan Association of Daytona Beach; National Association of Stock Car Racing; Halifax Hospital Medical Center, and other institutions in Central Florida. Local Florida Counsel for the Attorney General's office of the State of Ohio; local Florida Counsel for Risk Management of the State of Florida Insurance Commissioner's office. Has been Chairman of several organizations; among these are: Savings & Loan Committee of the Corporations, Banking, and Business Law Section; the Board of Sun Bank of Volusia County in Daytona Beach; and the Attorneys Committee. Has been chairman of the State of the Florida Council for the Blind; Member of the Board of Directors of the Florida Chamber of Commerce; former President of the Dayton Chamber of Commerce. Education: BA with honors, Dartmouth College; LLB with honors, University of Michigan Law School; LLM in Taxation, New York University Law School (President of class); PhD, Bethune Cookman College (honorary).
Board Member	Thomas Equels, Esquire	Practiced law in the State of Florida for over 15 years, specializing in litigation with particular emphasis on the prosecution and defense of civil racketeering, business tort, and commercial matters. Has represented national and state governments, banks, insurance companies and aviation companies. Some of his most significant successful cases were a bank fraud against an international lender (jury award of $2.6 million and invalidation of a $9-million mortgage); prosecution of civil racketeering claim involving extortion and homicides (million-dollar plus award followed by criminal arrest and prosecution of certain defendants); obtained a $44 million judgment against Manuel Noreiga and wife. Currently is lead counsel for the Republic of Panama; lead counsel in a $23-million breach-of-contract suit against the Resolution Trust Corporation; lead counsel representing the State of Delaware Insurance Commissioner, as a Receiver, in an effort to recover several million dollars purloined by insiders

Table B.3-1. Principal Key Personnel (Continued)

Title	Name	Experience
Florida Maglev Consortium, Inc.		
		in a major insurance company. Education: BS summa cum laude, Troy State University ; MS Troy State University; Law Degree with high honors, Florida State University.
Board Member	Lewis Oliver	Member of the Florida and Georgia Bar Associations. Attorney for Atlanta law firm of Boudreau and Ward: Assistant City Attorney in Orlando, Florida for Land Use, Development, and Planning. Project Director and Special Counsel for New Orlando City Hall Project. Served as Special Counsel for City of Orlando Community Redevelopment Agency and Downtown Development Board. Education: BA summa cum laude, Stetson University; JD cum laude, Georgetown University.
Board Member, SCAT President, FMLC	John Wilson	Over 20 years experience in environmental technologies. President and Chief Executive Officer of Southern Coalition for Advanced Transportation (SCAT), a regional technology partnership among more than 50 business, government, and academic institutions developing state-of-the-art electric and hybrid transportation systems. At SCAT, manages a portfolio of over $25 million in member-cost-shared electric and hybrid research and demonstration projects ranging from advanced components and manufacturing techniques to market-ready vehicles and transportation systems. Prior to joining SCAT, was senior vice president and Environmental Practice Director for the international public relations firm of Hill and Knowlton. Has worked for members of Congress in energy and environment positions, headed the Southern Governors' Association, and directed energy policy groups including the Renewable Energy Institute. Education: Emory University.
Program Control	Frank Krens	Over 26 years experience in research, development, and production of weapon systems. Includes 11 years at U.S. Navy laboratories, 10 years at Martin Marietta Corporation, and 5 years at Coleman Research Corporation. Currently, Director of Business Development at Coleman Research Corporation. At Martin Marietta Aerospace, performed system engineering on several successful guided missile programs, also served as Advanced Concepts Systems Manager for 9 years. BS Aerospace Engineering, Penn State University; seminars and short courses on management, business development, and supervision; postgraduate engineering courses.
Public /Government Relations	Britt Bochiardy	Associated with several real estate firms in Florida. Chairman of Volusia County's "Green Ribbon" Economic Diversification Committee; former member of the Executive Board of the Volusia County Business Development Corporation. Currently chairs the International Trade Council and is active member of the Florida Space Business Round Table. Serves on boards of the Florida-Caribbean Institute and Space Coast Development Commission. Member of the High Speed Rail Task Force of Volusia County and Florida High Speed Rail Advisory Committee.

Table B.3-1. Principal Key Personnel (Continued)

Title	Name	Experience
Coleman Research Corporation		
Safety and Quality Assurance	Jim Schaaf	Over 34 years experience with electromagnetic research, development, and test program management; military and industrial logistics: and missile systems development. Program Management assignments have included pre-prototype development and electromagnetic effects testing for wideband RF pulse technology development; management of a $1.2 billion foreign military sales program for the U.S. Army Missile Command and HAWK Project Office; and a variety of missile programs including preflight safety controls and countdowns at major missile ranges, life-cycle-cost studies, and range safety studies. Recent efforts included assessment of a new linear DC motor concept for application to maglev transportation systems, which resulted in several design improvements to increase performance and reduce costs; other recent study activities have included the analysis of electromagnetic gun system parameters and identification of critical issues for railgun subsystems. MS electrical Engineering (electromagnetics), University of Alabama; BS Electrical Engineering, Virginia Military Institute; Studies in Logistics, Continuing Education Division of the University of Alabama; Program Managers Course, Defense Systems Management College, Command and General Staff College.
Vice President, Marketing	Jeffrey Wilson	Over nine years experience in strategic pricing, cost analysis, and contract analysis. Currently responsible for all pricing, traffic, cost analysis, and capacity management for the number one ranked bulk chemicals motor carrier in the U.S. with annual revenues of $250 million. Accomplishments include development and implementation of innovative pricing strategies, targeted fare products, and pricing/seat inventory management systems worldwide for Delta Airlines; creation of transatlantic "EuroSaver" fares and U.S. domestic three-tiered "EarlySaver" fares, together representing $390 million during one summer-fall season; development of all pricing and yield management information technology systems at Delta. Previous responsibilities included direction of all field sales for Delta in the U.S. northeast region, 20 district offices with annual revenue of $2.5 billion. Education: MBA Business Administration, Marketing, and Strategic Planning, University of Southern California; BA Environmental Studies, University of California Santa Barbara.
Construction Manager	Max B. Chapman	Over 25 years experience in real estate construction. Ten years as chief engineer and chief estimator for a major general contractor. Four years as President of a mid-size general contraction company and another four years as Senior Vice President of a major contractor. Recent project experience includes the Orlando City Hall, a 260,000-square-foot government building; and the 515,000-square-foot General Services Administration Building in Arlington, Virginia. The latter was a $100-million project. Since 1981, has overseen construction of more than eight-million square feet of office space. Education: BS, Building Construction, Auburn University.

Table B.3-1. Principal Key Personnel (Continued)

Title	Name	Experience
Florida Maglev Consortium, Inc.		
Vice President, Business Operations	Ed Acacia	Over 15 years experience in finance management and budget analysis. Has managed major projects from research and development to full-scale production. Currently oversees all proposals, negotiations, and revenue forecasting for the Business Operations Department of the Launch Systems Group and the Orlando Group. Has been responsible for budget preparation and control, sales and profit projections, overhead budget management, proposal preparation and negotiations, and special Government reporting.
Vice President, System Operations	Roger Byers	Over 28 years experience with all major airline operations including: passenger, air cargo, ground support equipment, and line maintenance. Currently, Station Manager for Delta Air Lines at Daytona Beach, a position held for the past 16 years. Assumed total responsibility for Delta's marketing and public relations for the City of Daytona Beach. Previous experience includes integration of personnel after merger of Northeast Airlines into Delta; worked with Delta Facilities Departments in the development, planning, and construction of new $30-million airport terminal and associated facilities at Daytona Beach International Airport.; directed smooth transition from old terminal facilities to new terminal with no interruption of service; provided specialized training for Delta personnel during different periods in his career. Education: Business Administration, Florida Christian College; Airline Training and Business Administration, Humboldt Institute.
Consultant	Ray Zowarka	Over 21 years as an engineer and scientist specializing in Electromechanics at the Center for Electromechanics at the University of Texas. Expert in the operation, control, modeling, and analysis of pulsed power systems. Also has extensive experience with the design of diagnostics for railgun and pulsed power supplies. Other expertise includes the design, construction, and testing of opening switches used in homopolar generator/inductor (HPG/I) systems. His present responsibilities include participation in a DOD railgun program as well as managing the Center's participation in magnetically levitated train contracts. Projects under his direction are the design and construction of high-performance railguns operating in high vacuum and driven with both HPG/I and capacitor bank power supplies, the design and construction of high performance tactical electromagnetic launchers, and the simulation and design of maglev systems. He is author of 86 technical papers and reports. Education: MS Electrical Engineering, University of Texas; BS Engineering Science, Trinity University.
Consultant	Dr Donald Rote	Over 23 years experience as a research physicist. During the past 12 years has concentrated on practical applications of electromagnetic phenomena and superconductivity. Most of his research since 1970 has been related to transportation technologies as a Principal Investigator or Program Manager. His most recent assignment was Manager of the Maglev Analysis Technology Development Section within the Center

Table B.3-1. Principal Key Personnel (Continued)

Title	Name	Experience
Florida Maglev Consortium, Inc.		
		for Transportation Research. Also serves as coordinator for all maglev activities at Argonne and as Technical advisor to the National Maglev Initiative. Earlier work involved teaching and research in theoretical nuclear physics. Education: PhD Theoretical Nuclear Physics, Case Western University; MA Physics, Case Western University; BES Engineering Science, Cleveland State University.
Consultant	Dr. Joseph A. Schetz	Over 20 years experience in research into turbulent flow, hydrodynamic nonlinear characteristics, viscous flow problems, boundary layer characteristics and problems, turbulent wake problems, and thermal pollution. Author of numerous papers and books on subjects related to his main studies. Has been a consultant to the Applied Physics Laboratory of Johns Hopkins University since 1964. Listed in the American Men and Women of Science, Who's Who in Engineering, Who's Who in Aviation, Who's Who in Technology Today. Education: PhD Princeton University; MSE Princeton University; MA Princeton University; BS Webb Institute of Naval Architecture.
Consultant	Dr. Roy Weinstein	Over 40 years involvement in physics research including superconducting magnets and subatomic particle studies. Currently professor of Physics and Director, Institute for Beam Particle Dynamics at the University of Houston. Has contributed to the Physics Departments of Northeastern University, Stanford University, Harvard, Bohr Institute (Copenhagen), and Massachusetts Institute of Technology both as Visiting Scholar and as Dean, Fellow, and Professor.
Consultant	D.W. Gwynn	Over 30 years experience in transportation and traffic engineering. Before forming his own company, was Chief Executive Officer at the Orlando-Orange County Expressway Authority responsible for operations, planning, design, right-of-way construction, and financing of existing and proposed toll facilities in Central Florida. This involved 26 miles of new expressways, which were completed in three years and $20-million under budget; and management of 36 existing expressways. Directed the sale of over $1-billion in revenue bonds. As Chief Engineer, administered all road and bridge projects on more than 32,000 miles of county and city roads with the use of Federal or state funds. Recipient of numerous honors and awards. Authored several papers and lectured at professional organizations and universities on traffic safety and control. Education: BS Civil Engineering, Virginia Military Institute; MS Civil Engineering West Virginia University; Professional Engineer in New Jersey and Florida.

Table B.3-1. Principal Key Personnel (Continued)

American Maglev Technology, Inc.		
President: Tony Morris Chairman of the Board, FMLC. See resume above. Business Development Director: Lewis Oliver Board Member, FMLC. See resume above. Government Relations: Britt Bochiardi Public/Government Relations, FMLC. See resume above.		
Title	**Name**	**Experience**
Technology Director	Dr. Kent Davey	Has worked on maglev technology since the mid-80's. Holds two patent applications that form the core of AMT's maglev system; also holds four patents related to electric motor construction and 13 patents pending on a variety of magnetic-field-related technology. Was Research Scientist with Oceanographic Research and Development Agency. Previously, Assistant Professor of Electrical Engineering at Georgia Tech. Also held positions with New Orleans Public Service, Inc. and Westinghouse Electric corporation in Pittsburgh. Education: BS Electrical Engineering, Tulane University; MS Physics, University of Pittsburgh; MS Electrical Power Engineering, Carnegie-Mellon University; PhD Electrical Engineering, Massachusetts Institute of Technology.
Public Relations Director	Beverly Hanson	Over 25 years experience in journalism, public relations, marketing, advertising, and video production. Photo-journalist and later Editor of Atlanta's Apartment Scene magazine. Two years free-lance writing and as southeast editor and correspondent for two national trade journals. Seven years as marketing and Public Relations Manager with FABRAP architects in Atlanta. In 1986 opened advertising agency that later became Frazer-Hanson-Berner with full-time staff of ten people. As Creative Editor with FHB Advertising, was responsible for development and production of marketing campaigns, brochures, newspaper and magazine ads, radio and TV commercials, public relations campaigns and presentations.
Chief Administrative Officer, Park Square, Inc.	Angie Missing	Over 14 years experience in the construction industry. Responsible for all administrative functions. Provides hands on control of all accounting transactions. Is directly involved with all purchases and contract negotiations. Education: Business Administration, Kennesaw State College.

Table B.3-1. Principal Key Personnel (Continued)

Title	Name	Experience
Coleman Research Corporation		
Integration	Dr. Todd Strong	Over 33 years experience in heavy civil construction management and direction of research and development laboratory and field activities. Twenty-eight years with U.S. Corps of Engineers and staffs over 1100 personnel and annual budgets in excess of $130 million. Representative activities have included: (1) development of a $200 million petroleum distribution network with 80 miles of pipelines with multiple pumping stations and suspension bridges to cross mountains, off-shore feeds from ships, and extensive on-shore storage for five categories of fuel; (2) director of engineering for a 15,000-person district of a major city, to include numerous major construction projects, operation of all utility plants and distribution, extensive city planning/zoning initiatives, and maintenance of over 1100 buildings from hospitals to apartment and office complexes: (3) construction of five municipal water purification plants, six heavy bridges, three airfield runways, and 30 miles of roadways; (4) technical director for a $1.2 million-per-year research and development program: (5) conducted numerous studies and fabrication of environmental sensor systems. Education: Ph.D. Civil Engineering, University of New Mexico; MS Civil Engineering, United States Military Academy; BS Electrical Engineering, Purdue University; BS Engineering, United States Military Academy; Registered Professional Engineer, Pennsylvania and Virginia.
Vice President Coleman Research, General Manager, Orlando Group	John Gardner	More than 32 years in-depth experience in all facets of hardware engineering operations , and program and financial management. Since 1993 has been Vice President and General Manager of the Orlando Group Division of Coleman Research Corporation. At McDonnell Douglas between 1986 and 1993, was Vice President and General Manager of the Laser Systems and Electronics Division. Previous positions at McDonnell Douglas were Vice President and General Manager of the Electronic Systems Company; Vice President of Defense Electronics; and Vice President of Engineering and Operations. Director of Systems Office at the Strategic Defense Initiative Organization from 1982 through 1986, Earlier at SDIO, was Assistance Deputy Undersecretary of Defense for Defensive Systems. Education: Advanced Management Program, Harvard University; MS Aeronautics, California Institute of Technology; BS Mathematics and Physics, Louisiana State University.
Integration	George Joseph	Over 28 years of engineering experience in directing and conducting conceptual designs, requirement specifications, and tradeoff and performance analyses of complex advanced concepts and fielded systems. Since 1989 has been Vice President in Charge of Engineering at Coleman Research Corporation responsible for development and management of all engineering departments. Between 1982 and 1989 was responsible for coordinating and directing all

Table B.3-1. Principal Key Personnel (Continued)

Title	Name	Experience
Coleman Research Corporation		
		concept definition, design tasks, simulation, and guidance and control analyses. Was System Lead Engineer at Martin Marietta Aerospace between 1977 and 1982. Education: MS Aero-Astronautical Engineering, Ohio State University; BS Aero-Astronautical Engineering, Ohio State University.
Hardware Integration/ Assembly	Joel Greenstein	Over 34 years of management and engineering experience in a variety of systems development efforts. Expertise comprises structures, system configuration synthesis, dynamics, training systems, and engineering software development. Since 1986 has been Vice President in Charge of International Programs at Coleman Research Corporation. Responsibilities include interface with foreign corporations and Governments, technical aspects of multinational systems, software sales; hardware-in-the-loop system design and proposal preparation; technical assistance to foreign parties, and export license issues. Since 1983, also served as Director of Mechanical Engineering, managing a variety of research and development projects. From 1985 to 1987 was Director of Navy Programs and Training Systems, directing all aspects of U.S. Naval Training Program activity. Education: MS Applied Mechanics, Stevens Institute of Technology; BME Mechanical Engineering, The Cooper Union.
Harware, Vehicle Controls	Carl Barrett	Over 34 years experience in systems analysis and simulation, and in the exploratory and advanced development of electronic sensors for tactical fire control and missile guidance systems. Also, Engineering Director at Coleman Research since 1981. From 1972 to 1981 was Principal Engineer in the Electronics Division of Martin Marietta Corporation. Was Technical Lead Engineer, System Engineer, and Task Manager for several Helicopter fire control and acquisition radar, RF sensor, and related programs. Previous experience was as Senior Staff engineer in the Advanced Systems Radar Laboratory of the Electronics and Space Division of Emerson Electric (1969 to 1972) and as a member of the Technical Staff in the Advanced Systems Department of Electromagnetic Sensor Systems Division of Rockwell International (1963 to 1969). Education: MS Electrical Engineering, Mississippi State University; BS Electrical Engineering, Mississippi State University.
Requirements	Dr. David Gloeckner	Over 26 years of research and teaching experience in experimental and theoretical physics, computer modeling, operations and systems analysis, intelligence analysis and flight test analysis. Vice president in Charge of Advanced Programs at Coleman Research Corporation since 1985; was also Principal Investigator on short studies for the Strategic Defense Initiative Office (SDIO). From 1982 to 1985, as a member of the Advanced Concepts Group at Martin Marietta, was Program Manager for the Tactical Aerospace Assessment Study Program. Was also Principal Investigator on several study programs including electromagnetic launches and mission and system effectiveness analysis.

Table B.3-1. Principal Key Personnel (Continued)

Title	Name	Experience
Coleman Research Corporation		
		From 1978 to 1982, was Director of Computer Applications at Pacific Sierra Research Corporation. Was Research Staff Member from 1976 with the Institute for Defense Analyses. Was a Post-Doctoral Appointee at the Argonne National Laboratory from 1972 to 1974. Education: Ph.D. Physics, University of Chicago; MS Physics, University of Chicago; BS Physics, University of Florida; NSF Post-Doctoral Fellow, Rutgers University.
Testing and Safety	Frank Krens	Over 26 years experience in research, development, and production of weapon systems. Includes 11 years at Navy laboratories, 10 years at Martin Marietta, and 5 years at Coleman Research Corporation. Director of Business Development at Coleman Research Corporation since 1993; was Director in charge of Procurements from 1992 to 1993; was Director in charge of Guided Munitions from 1989 to 1992. From 1987 to 1989, was a Program Manager at Martin Marietta Aerospace, where he performed system engineering on several successful guided missile programs; was Advanced Concepts Systems Manager between 1979 and 1986. From 1977 to 1979 was Technical Representative at the Naval Sea Systems Command, and from 1968 to 1977 was an Aerospace Engineer. Education: BS Aerospace Engineering, Penn State University; seminars and short courses on management, business development, and supervision; postgraduate engineering courses.

Figure B.3-2. Contractor Key Personnel

Company	Title	Name	Time Applied* (Percent)
AAI Corporation	Principal Development Engineer	John P. Rolfes	100
Parker Kinetic Designs	Vice President, Engineering	James M. Weldon	100
Otis Transit Systems	Senior Mechanical Engineer	Robert J. Summersell	100
First Southwest Company	Financial Advisor	James Lentz	100
Fishkind & Associates	Associate	Stanely P. Gerberer	100
Ruden McClosky, Smith, Schuster, & Russell, P.A.	Partner	Jeffrey D. DeCarlo	100
Atlantic Southeast Airlines	John W. Beiser	President	100
David Volkert & Associates	Principal-in-charge	Jack W. Roberts	100
Michael Baker, Jr., Inc.	Engineering Manager	Thomas J. Martin	100
Sverdrup Corporation	Principal for transit and Director for major projects	Douglas R. Campion	100
Universal Engineering Sciences	Project Manager	Bruce H. Woloshin	100
Volkert Environmental Group	Project Manager	Kyle Parker	100
Professional Service Industries/Geotech Consultants, Inc.	Chief Engineer	Dr. Sayed M. Sayed	100
Weidener Surveying and Mapping	Principal-in-charge	Margarita Weidener	100
Metcalf & Eddy	Vice President and Division Director	Michael J. Nardone	100
Frederick R. Harris and LoBuono, Armstrong & Associates	President	Joseph LoBuono	100
Gee & Jensen	Vice President	Robert K. Tolema	100
The Hardaway Company	Area Manager	John W. Brown	100
Misener Marine Construction, Inc.	Executive Vice President	Richard C. Kermode	100
PCL Civil Constructors, Inc.	Vice President and District Manager	Jerry Harder	100

*Percentage applies to applicable phase

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Figure B.3-2. Contractor Key Personnel (Continued)

Company	Title	Name	Time Applied* (Percent)
Engineering Construction Services, Inc.	President	M.J. Parker	100
HKS, Inc.	President	C. Joe Buskuhl	100
Aviation Constructors, Inc.	Construction Executive	Douglas A. Cooper	100
Brasfield & Gorrie General Contractor, Inc.	Vice President, Division Manager	John R. Mills	100

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4. OFFICIAL APPLICANT CONTACT

Tony Morris
American Maglev Technologies, Inc.
2620 Cow Creek Road
Edgewater, Florida 32141
Telephone (904) 427-6643
Fax (904) 427-2067

John Gardner
Coleman Research Corporation, Inc.
5950 Lakehurst Drive.
Orlando, Florida 32819
Telephone (407)944-3700
Fax (407)345-8616

B. BUSINESS ENTITY FINANCIAL INFORMATION

FMLC and Florida Maglev Holding Company (FMHC) are both newly organized corporations with no prior operating history and, accordingly, have no audited financial statements, and no Dun & Bradstreet reports have been made on either. Appendix II contains opening balance sheets for FMLC and FMHC. In March, 1995, CRC became a wholly owned subsidiary of Thermo Electron Corporation whose financial statement is in Appendix III with that of CRC and AMT.

C. APPLICANT'S PRIOR EXPERIENCE

The FMLC team's present and past product line accomplishments provide the best tangible proof of the technological expertise of our team, its ability to perform, and the esprit de corps of its people to achieve the very best possible results in each endeavor undertaken.

The following tables present a matrix synopsis of FMLC'S technical expertise as it relates to the six elements:

- Experience with large capital and transportation infrastructure projects

- Familiarity with Florida Department of Transportation rules and procedures
- Experience and familiarity with Federal laws, rules and procedures
- Experience with rail projects
- Experience with providing passenger transportation services (land, sea, and air)
- Experience with public/private partnerships.

1. EXPERIENCE WITH LARGE CAPITAL AND TRANSPORTATION INFRASTRUCTURE PROJECTS

Matrices reflecting FMLC's experience with large capital and transportation infrastructure projects are shown in Tables C.1-1 through -3. A notation is made in the table of the function addressed by the respective team member, with a reference to the sequence number in Appendix IV where a summary of that effort is located.

2. EXPERIENCE WITH RAIL PROJECTS

Table C.2-1 is a matrix reflecting FMLC's experience with rail projects. The matrix identifies summaries of the projects in Appendix III by their sequence numbers.

3. EXPERIENCE WITH PROVIDING PASSENGER TRANSPORTATION SERVICES (LAND, SEA, AND AIR)

Passenger Transportation is the responsibility of Delta Air Lines (see Letter of Intent, Appendix I) and Atlantic Southeast Airlines. Their experience in this area is unchallenged, since It is their primary business. Delta's transportation networks extend throughout the world, and their scope is evidenced by the fact that Delta Air Lines is the largest US airline as measured by aircraft departures and passengers enplaned.

Atlantic Southeast Airlines has grown to be the largest regional carrier in the southeast during its 18 years of existence. It provides air service to 64 markets with over 4,100 flights per week

4. EXPERIENCE WITH PUBLIC/PRIVATE PARTNERSHIPS

A matrix identifying FMLC'S experience with public/private partnerships is shown in Table C.4-1. The matrix identifies summaries of this experience in Appendix IV by their sequence numbers.

Thermo Electron Corporation. CRC's parent company has developed many large public works projects involving public/private relationships, and will provide its expertise and support to its subsidiary when needed. Typical projects completed by Thermo Electron are shown in Table C.4-2.

Figure C.1-1. The Florida Maglev Consortium has demonstrated experience in large capital and transportation infrastructure projects.

Function	Team Member*											
	Delta Airlines	AMT Inc.	CRC	Ruden, McClosky, Smith, Schuster & Russell, P.A.	David Volkert and Assoc.	The Hardaway Co.	Misener Marine Construction Co., Inc.	Michael Baker, Jr. Inc.	Sverdrup Corp.	LuBuono, Armstrong & Assoc.	AAI, Corp.	Otis Transit Stytem
Planning	See page 3, Appendix IV	12	3-7		17-27	46-61		91, 95	96, 97, 99	100-101	103	104, 105
Financing		12		13-16							103	
Property acquisition		12									103	
Engineering/ design		12	3-7		17-27		66	89-95	96-98	100-102	103	104,105
Environment		12	106		18, 27			90, 91, 95	97		103	
Construction		12				46-61	62-88				103	104, 105
Utility coordination		12			18, 20		79, 81				103	
Operations/ maintenance		12	3-7								103	104,105
Marketing		12									103	

**For each team member, the number in the matrix reflects the sequence number referenced in Appendix IV, Prior Experience.*

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Table C.1-2. The Florida Maglev Consortium has a working familiarity with the Florida Department of Transportation rules and procedures.

Activity	Team Member*					
	Delta Airlines	David Volkert and Associates	The Hardaway Company	Misener Marine Construction Company, Inc.	LoBuono, Armstrong & Associates	American Maglev Technology, Inc.
Right-of-way acquisition		17-27				12
Construction of large, complex systems		17-27	46, 48, 51	62-73 75, 77, 81 83-87	100-101	12
Operations of large, complex systems	See page 3, Appendix IV					12

**For each team member, the number in the matrix reflects the sequence number referenced in Appendix IV, Prior Experience.*

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Figure C.1-3. The Florida Maglev Consortium has a working familiarity with federal laws, rules, and procedures.

Activity	Team Member*					
	Delta Airlines	David Volkert and Associates	The Hardaway Company	American Maglev Technology, Inc.	Michael Baker, Jr., Inc.	Sverdrup Corporation
Qualification for federal funds (existing and proposed)	See page 3, Appendix IV			8	93, 95	98
Safety certification requirements		30		12	92	
Labor, planning, and environmental			51, 53, 55, 58		90, 92, 95	98

**For each team member, the number in the matrix reflects the sequence number referenced in Appendix IV, Prior Experience.*

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Table C.2-1. The Florida Maglev Consortium has experience with rail projects.

Activity	Team Member*						
	David Volkert and Assoc.	Weidener Surveying & Mapping, P.A.	Misener Marine Construction Company, Inc.	Sverdrup Corp.	AAI, Corp.	Michael Baker, Jr., Inc.	Otis Transit System
Planning	28, 32			96, 97	103	91, 94	104, 105
Financing					103		
Design	28-36	37-45		96-98	103		104, 105
Right-of-way acquisition				97	103		
Rail system construction	29		64		103		104, 105
Rail system operation and maintenance					103		104, 105

**For each team member, the number in the matrix reflects the sequence number referenced in Appendix IV, Prior Experience.*

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Table C.4-1. The Florida Maglev Consortium has demonstrated experience in participating in public/private partnerships.

Function	Team Member*		
	Coleman Research Corporation/ Thermo Electron Corporation	American Maglev Technology, Inc.	Sverdrup Corporation
Public/private partnerships	1, 2	8, 9, 10 - 12	97

**For each team member, the number in the matrix reflects the sequence number referenced in Appendix IV, Prior Experience.*

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Figure C.4-2. Public Works Projects Completed by Thermo Electron

Project in Operation	Technology	Power (mw)	Total Project Financing ($ Millions)
Atlas	Waste heat recovery system	2	1.5
Hoffman	Low speed diesel cogeneration	23	28.0
Sebring	Low speed diesel cogeneration	3	8.0
Dade	Gas-turbine cogeneration combined cycle	30	40.0
Hemphill	Wood fueled	16	31.0
Gorbell	Wood fueled	16	31.0
Whitefield	Wood fueled	16	31.0
Mendota	Biomass fueled	28	72.0
Woodland	Biomass fueled	28	82.0
Delano I	Biomass fueled	30	91.0
Delano II	Biomass fueled	22	80.0
San Diego	Recycling/waste processing (550,000 tons/year)	N/A	135.0

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D. ASSIGNMENT OF RESPONSIBILITIES

FMLC and its contractors possess all the capabilities that are needed to plan, manage, and execute the Florida Maglev franchise. The FMLC organization features a very strong management and support team structured to optimally support the Florida Maglev System and to specifically perform those tasks shown in Table D-1. The keys to ensuring responsive, quality support for all FMLC team members are as follows:

- Create a management structure with clear lines of authority and responsibility
- Instill a teamwork philosophy that encourages free flow of communications.

We have defined these relationships within the organization so that all team members understand the management philosophy and procedures of centralized program management and decentralized program execution.

All contractors on the project team have been assigned functions that are in their primary business area and in which they have been highly successful.

FMLC established the team, directs its activities, provides overall administration and marketing; and controls the finances, schedule and subcontracted development, production and construction efforts and operations. FMLC is a new entity, formed to produce and operate the Florida Maglev System. FMLC will use a proven management system that is a Department of Defense certified cost, schedule, status, and control system currently in use by CRC to plan, track, and control the project.

First Southwest Company, in consultation with Ruden, McClosky, Smith, Schuster & Russell, has developed the financing plan, obtained commitments for public and private funding, and will administer the scheduling and implementation of the financing plan.

More specifically, the FMLC vice president of System Development will contract with:

- CRC for the design, integration, and assembly of the vehicle, control centers, system control, and integration
- AMT for guiderails design
- David Volkert & Associates as the General Engineering Consultant for infrastructure design
- The Hardaway Company, Misener Marine, and PCL Joint Venture for construction of the guideway system
- HKS Architects for station design
- Brasfield & Gorrie and Aviation Constructors, Inc. for station construction.

Table D-1. Assignment of Team Responsibilities

Function	To Be Performed By:	Applicant (A), Member (M) or Outside Party (OP)*
Overall management and administration	Florida Maglev Consortium, Inc.	A
Financing plan and commitments	First Southwest Company; Ruden, McClosky, Smith, Schuster & Russell, P.A.	C
Technology application	Coleman Research Corporation	C
Planning	American Maglev Technologies, Inc. Fishkind & Associates	C C
Environmental management	Volkert Environmental Services, Inc.	S
Right-of-way mapping and acquisition	David Volkert & Associates, Inc. Weidner Surveying & Mapping	C S
Geotechnical work	David Volkert & Associates, Inc.	C
Infrastructure design	David Volkert & Associates, Inc., Volkert Environmental Group, Professional Services Industries/Geotech Consultants, Inc., Metcalf & Eddy, Michael Baker, Jr., Inc., Suerdrup Corporation, Universal Engineering Sciences, Fredrick R. Harris, Inc., LoBuono, Armstrong & Associates, Gee & Jensen	C S S S S S S S S S S
Infrastructure construction	Hardaway, Misener, PCL Joint Venture, The Hardaway Corporation/Misener Marine Construction, Inc./PCL (3-firm joint venture), Engineering Construction Services, Inc., Florida Rock	C S S
System testing and performance guarantees	Coleman Research Corporation	C
Operations and operating costs	Florida Maglev Consortium	A
Passenger service – (see Delta Air Lines Letter of Intent, Appendix I)	Delta Airlines Corporation	C
Baggage Service	Atlantic Southeast Airlines	S
Maintenance of equipment	Vehicles – Coleman Research Corporation	C
Maintenance of track and signal control systems	Track – American Maglev Technologies, Inc. Control Systems – Coleman Research Corporation	C C

*_Applicant_ (A) is defined as shareholder. (A)
Member (M) is defined as contractor (C) or subcontractor (S).
Outside Party (OP) is defined as consultant.

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Table D-1. Assignment of Team Responsibilities (Continued)

Function	To Be Performed By:	Applicant (A), Member (M) or Outside Party (OP)*
Administration	Florida Maglev Consortium	C
Labor relationships and human resources (training)	Delta Air Lines/Atlantic Southeast Airlines (Training)	C
Local government and agency coordination	Ruden, McClosky, Smith, Schuster & Russel, P.A.	C
Associated development	American Maglev Technologies, Inc.	C
Legal counsel	Ruden, McClosky, Smith, Schuster & Russel, P.A.	C
Marketing	Florida Maglev Consortium	A
Consulting	Ray Zowarka Dr. Don Rote Dr. Joe Schetz Dr. Roy Weinstein Bill Gwynn	OP OP OP OP OP

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**Applicant* (A) is defined as shareholder. (A)
Member (M) is defined as contractor (C) or subcontractor (S).
Outside Party (OP) is defined as consultant.

The FMLC vice president of System Operation will contract with:

- Coleman Research Corporation for maintenance of vehicles, signals and control
- American Maglev Technology, Inc. for guiderail maintenance
- Delta Air Lines (see Letter of Intent, Appendix I) for route, passenger, and training operations.

FMLC has generated the overall plans for the project and will continue to provide overall planning. Each team member will contribute to the overall plans and will provide detailed plans for their areas of responsibility. Consultants will be used in areas requiring specialized expertise. As shown in Table D-2, a partial list has been developed.

Table D-2. Consultants have been selected for their areas of expertise.

Name	Affiliation	Area of Expertise
Dr. Don Rote	Argonne National Labortories	Maglev technology
Dr. Roy Weinstein	University of Houston	Magnetics
Mr. Ray Zowarka	University of Texas	Electro-mechanics
Dr. Joe Schetz	Virginia Polytechnic Institute	Wind tunnel testing
Mr. David Gwynn	D.W. Gwynn & Associates	Transportation and traffic engineering

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APPENDIX I

LETTERS OF COMMITMENT

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AMERICAN MAGLEV
Technology, Inc.
P.O. Box 10, Edgewater, Fl 32132
2620 Cow Creek Rd., Edgewater, Fl 32141
(904) 427-6643 • Fax (904) 427-2067

October 31, 1995

Florida Department of Transportation
605 Swanee Street
Tallahassee, FL 32599-0450

Gentlemen:

American Maglev Technology is totally committed to assuring the success of Florida's high speed transportation system.

We have assembled a Florida domiciled team for design, engineering and construction representing the highest level of professional expertise available in their respective fields. These firms represent over five thousand jobs already existing around the state with the potential of more than doubling that number if our application is successful.

All of us are determined to bring in this unique project on time, within budget and in the process provide Florida with a showcase transportation system that will become a model for others to emulate.

Sincerely,

Tony J. Morris, Managing Director
American Maglev Technology, Inc.

CRC

Coleman Research Corporation

25 October 1995
COM/95-137

Florida Maglev Consortium
2620 Cow Creek Road
Edgewater, FL 32141

Dear Mr. Tony Morris:

Coleman Research Corporation (CRC) is fully committed to assuring the success of Florida's High Speed Transportation System. CRC has been providing high-quality, responsive engineering, systems design and systems integration support in the State of Florida for fifteen years.

CRC, a Florida Corporation, understands the importance of and the need for a state-of-the-art high-speed transportation system in Florida. CRC looks forward to directly contributing to the Florida Maglev Consortium's desire to make such a system a reality in the State of Florida.

The Florida Maglev Consortium is comprised of some of Florida's most recognized and fastest growing contractors. The expertise possessed by CRC and the other Florida Maglev Consortium team members will ensure that the State of Florida receives a state-of-the-art transportation system that will answer Florida's transportation needs while enhancing our quality of life and will be a model for transportation systems around the world for decades to come.

Coleman Research Corporation is a wholly-owned subsidiary of Thermo Electron Corporation, a diversified corporation specializing in high-technology products and services with 1995 sales of $1.6 billion.

Sincerely,

COLEMAN RESEARCH CORPORATION

James B. Morrison
President

201 South Orange Avenue • Suite 1300 • Orlando, Florida 32801 • (407) 244-3700 • Fax: (407) 244-5752

Parker Kinetic Designs, Inc.
A Parker Drilling Company

October 19, 1995

American Maglev Technology, Inc.
2620 Cow Creek Road
Edgewater, Florida 32141

Attention: Mr. Tony J. Morris

Subject: PKD Commitment to Maglev Technology and the Florida DOT High Speed Train

Dear Tony:

We hereby commit our continued support in the development, and implementation of American Maglev's train system for the upcoming Florida DOT proposal. As experienced designers and integrators in the areas of high current density, high compliance brush systems, state of the art control, data acquisition and telemetry systems, and high energy power systems, we stand ready, willing and able to provide basic engineering, design and full systems integration support for the Florida high speed train systems.

We believe the PKD team has both the unique capabilities and experience necessary to support American Maglev in working toward solving the many challenges associated with making this technology a resounding success.

We look forward to continued work on the vehicle systems, including resolution of current collector life issues, development of onboard power conditioning and control systems in the prototype and production stages, and development of prototype regenerative braking systems, track-side power conditioning, and the fully integrated head end telemetry/control.

Please find attached a more detailed summary of our engineered systems capability. We look forward to continued work with you on practical implementations of the many prototype system concepts we have initiated together at the Edgewater test track.

Sincerely,

James M. Weldon

James M. Weldon
VP of Engineering

JCW
Attachments
cc: Britt Bouchiardy - AMT General Manager
Dr. Kent Davey - AMT Technical Director

5806 Mesa Drive, Suite 335 • Austin, Texas 78731 • Ph 512 302 4500 • Fx 512 302 4855

A subsidiary of
United Industrial Corporation

AAI Corporation

P. O. BOX 126 • HUNT VALLEY, MD 21030-0126

RICHARD R. ERKENEFF
PRESIDENT AND CEO

October 25, 1995

John Gardner, Vice President
Coleman Research Corporation
5950 Lakehurst Drive
Orlando, Florida 32819

Re: Vehicle Shell

Dear Mr. Gardner:

AAI Corporation is pleased to accept your invitation to join the Florida Maglev Consortium Vehicle Team as the supplier and manufacturer of the vehicle's body.

AAI's past experience in the design and manufacture of defense vehicles and our success in the public transportation industry as a supplier of light rail and trolley bus bodies make us an ideal partner for your exciting project.

We are committed to assist you develop your Maglev vehicle by providing you the best expertise available in public transportation vehicle shell design and manufacture. We look forward to working with you.

Please accept my regards and personal commitment to providing you the best possible product.

Sincerely,

Dick Erkeneff

R. R. Erkeneff
President

RJC:pab

Telephone: 410-628-3300
Fax: 410-683-6498
E-mail: erkeneff@aaicorp.com

Express Deliveries:
AAI Corporation
Bldg. 110, Dock 110-02
York Rd. & Industry Ln.
Cockeysville, MD 21030

UNITED TECHNOLOGIES OTIS ELEVATOR

Otis Transit Systems, Inc.

Four Farm Springs
Farmington, Connecticut 06032
203/676-5318
FAX: 203/676-6687
U.S. Toll-Free 1-800/PPL-MOVR

Tuesday, October 24, 1995

Mr. Tony Morris
American Maglev Technologies, Inc.
2620 Cow Creek Road
Edgewater, FL 32132

Dear Tony:

Otis Transit Systems, Inc. is pleased to participate as a contractor to the Florida Maglev Consortium which consists of American Maglev Technologies, Inc. and Coleman Research Corporation.

We understand that the Florida Maglev Consortium is submitting an application to the Florida Department of Transportation for the Florida High Speed Rail RFP.

Sincerely,

Robert Summersell
Sales and Program Manager

maglev18

FIRST SOUTHWEST COMPANY

Commitment Letter

Florida Department of Transportation Request for Proposal
Florida High Speed Transportation System

Chapter 1E Requirement

First Southwest Company (FSC), an investment banking firm based in Dallas, Texas with two Florida regional offices in Orlando and Miami, is pleased to participate on the Florida High Speed Rail Consortium Team.

FSC will serve as senior managing underwriter for either debt or equity issued in connection with the award of the franchise to FMLC.

FSC is a full service investment banking firm whose resources are committed to the successful sale of securities issued by the FMLC team. First Southwest Company has been actively engaged in the distribution of similar securities for the past forty-nine (49) years and has a high degree of confidence in the enclosed financing proposal.

Sincerely,

James L. Lentz
Senior Director
Orlando, Florida

JL/eh
95-10-0H

INVESTMENT BANKERS
651 Bryn Mawr Street • Orlando, Florida 32804-4427 • 407-426-9611 • FAX 407-426-7835

RUDEN, McCLOSKY, SMITH, SCHUSTER & RUSSELL, P.A.

ATTORNEYS AT LAW

701 BRICKELL AVENUE
SUITE 1900
MIAMI, FLORIDA 33131

(305) 789-2700
FORT LAUDERDALE (305) 764-6660
FAX (305) 789-2793

FORT LAUDERDALE
NAPLES
SARASOTA

ST. PETERSBURG
TALLAHASSEE
TAMPA

WRITER'S DIRECT DIAL NUMBER

(305)789-2762

October 16, 1995

Mr. Tony Morris
Park Square Consultants
142 S. Park Avenue
Marietta, GA 30060

Dear Tony:

Ruden, McClosky, Smith, Schuster & Russell, P.A. is pleased to act as legal counsel to Florida MagLev Consortium, Inc. in connection with the Florida high-speed rail project. We appreciate the opportunity and look forward to working with you on this unique project.

Very truly yours,

RUDEN, McCLOSKY, SMITH,
SCHUSTER & RUSSELL, P.A.

Jeffrey D. DeCarlo

JDD:sy

MIA:15728:1

LETTER OF INTENT

This Letter of Intent effective the 17th day of October, 1995, is between Delta Air Lines, Inc. ("Delta") and American MagLev Technology, Inc. ("AMT").

RECITALS

AMT is seeking a franchise to operate an intercity rapid rail system in the State of Florida. Following the award to AMT of the Florida franchise, Delta and AMT intend to meet and consider the following marketing relationship pursuant to which passengers would be transported on connecting Delta aircraft and AMT high speed train service.

1. INTERLINING AND PRORATES

The parties intend to meet and consider.

A. The extent to which Delta and AMT can coordinate their schedules and operations in order to maximize connections between their services; and

B. The favorable proration of passenger fares between them.

2. FREQUENT FLYER PROGRAM

The parties intend to consider ATM's participation in Delta's Frequent Flyer program at a compensation level and upon other terms and conditions to be discussed.

3. COMPUTER RESERVATION SYSTEMS

AMT intends to hold discussions with Delta automation system representatives to explore possibilities to enhance the use of automated reservations systems for ATM's high speed rail service connect to Delta flights.

4. PASSENGER/RESERVATIONS HANDLING

Delta and AMT intend to review the feasibility of (A) cooperating on passenger handling matters, (B) Delta providing reservations services to AMT, and (C) Delta employees working on a contract basis for AMT passenger services, in order to accommodate AMT passengers connecting with Delta flights and vice versa under the arrangements referred to herein.

5. CODE SHARING

Delta and AMT intend to hold discussions and consider commercial opportunities regarding AMT's high speed rail service connecting to Delta flights that would be provided under a code sharing arrangement, including a "Delta Connection" arrangement.

6. PROMOTION

In the event definitive agreements are reached, Delta and AMT would consider sharing the cost of promoting and advertising their relationship and the services to be provided by them, and would discuss advertising and promotional initiatives.

7. DEFINITIVE AGREEMENTS

Following the award to AMT of the franchise to operate the intercity rapid rail system in the State of Florida, Delta and AMT intend to meet to determine if definitive agreements can be reached incorporating terms along the lines of the foregoing provisions and such other terms and provisions as may be agreed to by the parties. Neither AMT nor Delta shall have any liability to the other by virtue of AMT's failure to obtain such franchise or the inability of either party to reach agreement on the terms of an agreement. Delta and AMT intend that all such discussions and definitive agreements, if any, shall be consistent with and subject to all applicable laws, government regulations and approvals.

8. CONFIDENTIALITY

Delta and AMT intend to keep confidential any non-public information regarding their respective companies and commercial operations shared in connection with the Letter of Intent and any related agreements.

9. PUBLIC ANNOUNCEMENTS

A. This Letter of Intent is not, and shall not be construed to be, a license for AMT to use the trade name Delta Air Lines, or any of the logos, trademarks or service marks of Delta, except as expressly authorized in writing by Delta. Prior to the publication of any materials, public announcements, press releases or other information provided to the media regarding this Letter of Intent and any related agreements, or other promotional materials featuring Delta or referencing Delta air transportation, AMT shall submit such materials to Delta for written approval. No such materials shall be distributed by AMT without Delta's written approval.

B. This Letter of Intent is not, and shall not be construed to be, a license for Delta to use the name American MagLev Technology, Inc., or any of the logos, trademarks or service marks of AMT, except as expressly authorized in writing by AMT. Prior to the publication of any materials, public announcements, press releases or other information provided to the media regarding this Letter of Intent and any related agreements, or other promotional materials featuring AMT or referencing AMT rail transportation, Delta shall submit such materials to AMT for written approval. No such materials shall be distributed by Delta without AMT's written approval.

IN WITNESS WHEREOF, the parties have caused this Letter of Intent to be executed by their duly authorized representatives, effective on the day and year first above written.

American MagLev Technology, Inc.

By: _____

Title: _____

Delta Air Lines, Inc.

Robert W. Coggin

Executive Vice President-Marketing

ATLANTIC SOUTHEAST AIRLINES, INC.
100 HARTSFIELD CENTRE PARKWAY
SUITE 800
ATLANTA, GEORGIA 30354-1356

JOHN W. BEISER
PRESIDENT

October 12, 1995

Mr. Tony Morris
American Maglev
Technology, Inc.
P. O. Box 10
Edgewater, FL 32132

Dear Tony:

This letter will serve to confirm that Atlantic Southeast Airlines, Inc. (ASA) is interested in providing certain passenger and baggage handling functions for American Maglev's operation in the state of Florida. This service would be provided in conjunction with American Maglev's transportation network being operated as part of the Delta Connection program.

We are looking forward to a long and mutually beneficial relationship with American Maglev.

Very truly yours,

John W. Beiser

JWB/dln

cc: Beverly Hanson

Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

1408 North Westshore Boulevard
Austin Center West, Tower II, Suite 612
Tampa, Florida 33607
Box 21387, Tampa, FL 33622-1387

(813) 289-7546
FAX (813) 289-5651

September 28, 1995

Mr. Jack W. Roberts, P.E.
Senior Vice President - Florida Division
David Volkert & Associates, Inc.
3409 West Lemon Street
Tampa, Florida 33609

Re: Request for Proposal
Florida High Speed Transportation System
Florida Maglev Consortium, Inc.

Dear Mr. Roberts:

It is our understanding that David Volkert & Associates, Inc. (Volkert) will serve as the General Engineering Consultant (GEC) to the Florida Maglev Consortium, Inc. if the Consortium is selected as the franchise for the Florida High Speed Transportation System.

Our firm, Michael Baker, Jr., Inc., accepts you invitation to be a member of the GEC team and commits to serve in this capacity for Volkert and the Consortium.

We look forward to being part of the team to bring this project to the State of Florida.

Sincerely,

MICHAEL BAKER, JR., INC.

Mark D. Macy, P.E.
Florida Regional Manager

MDM/aar

October 4, 1995

Tony Morris, Managing Director
Florida Maglev Consortium, Inc.
2620 Cow Creek Road
Edgewater, Florida 32141

RE: Florida High Speed Transportation System
Florida Maglev Consortium, Inc.

Dear Mr. Morris:

David Volkert & Associates, Inc. (Volkert) accepts the invitation to serve as the General Engineering Consultant for the Florida Maglev Consortium, Inc. in the post-franchise of the Florida High Speed Transportation System.

It is our understanding that Volkert will lead the engineering effort for the planning, design and construction of the fixed guideway. Volkert will also be responsible for directing the environmental management, geotechnical, right-of-way mapping, and right-of-way acquisition services for the project.

We look forward to participating in this effort to bringing this unprecedented project to the State of Florida.

Sincerely,
DAVID VOLKERT & ASSOCIATES, INC.

Jack W. Roberts

Jack W. Roberts, P.E.
Senior Vice President – Florida Division

3409 West Lemon Street • Suite 1 • Tampa, FL 33609 • (813) 875-1365 • Fax (813) 874-7656

Birmingham, AL Gulf Shores, AL Mobile, AL Metropolitan Washington, DC Ft. Walton Beach, FL Miami, FL New Orleans, LA

Sverdrup Civil, Inc.
13723 Riverport Drive
Maryland Heights, Missouri 63043
314 436-7600

28 September 1995

Mr. Jack W. Roberts, P.E.
Senior Vice President - Florida Division
David Volkert & Associates, Inc.
3409 West Lemon Street
Tampa, Florida 33609

RE: Request for Proposal
Florida High Speed Transportation System
Florida MagLev Consortium, Inc.

Dear Mr. Roberts:

It is our understanding that David Volkert & Associates, Inc. (Volkert) will serve as the General Engineering Consultant (GEC) to the Florida Maglev Consortium, Inc. if the Consortium is selected as the franchisee for the Florida High Speed Transportation System.

Our firm, Sverdrup Civil, Inc., accepts your invitation to be a member of the GEC team and commits to participating in this capacity for Volkert and the Consortium.

We look forward to being a part of the winning team to bring this project to the State of Florida.

Sincerely,

SVERDRUP CIVIL, INC.

D R Campion

Douglas R. Campion
Principal - Transit

mc: Paul N. Pappas, V.P. & Manager
Sverdrup Civil, Inc. - Florida

UNIVERSAL
ENGINEERING SCIENCES
Consultants In: Geotechnical Engineering • Environmental Sciences • Construction Materials Testing

Offices In:
• Orlando
• Gainesville
• Fort Myers
• Merritt Island
• St. Augustine
• Daytona Beach
• West Palm Beach

October 26, 1995

Mr. Britt Brochiardy
American Maglev Technology Inc.
Edgewater, FL 32141

FLORIDA HIGH SPEED RAIL

PROPOSAL

LETTER OF COMMITTMENT

Dear Mr. Bochiardy:

It is with great pleasure that I confirm that all of the members of Universal Engineering Sciences, Incorporated are fully committed to the success of the American Maglev Technology Joint Venture and to this important project.

Sincerely,

Universal Engineering Sciences, Inc.

Ian Caddie
Vice President

3532 Maggie Blvd. • Orlando, FL 32811 • (407) 423-0504

VOLKERT
ENVIRONMENTAL
GROUP, INC.

September 28, 1995

Mr. Jack W. Roberts, P.E.
Senior Vice President - Florida Division
David Volkert & Associates, Inc.
3409 West Lemon Street, Suite 1
Tampa, Florida 33609

RE: Request for Proposal
Florida High Speed Transportation System
Florida Maglev Consortium, Inc.

Dear Mr. Roberts:

It is our understanding that David Volkert & Associates, Inc. (Volkert) will serve as the General Engineering Consultant (GEC) to the Florida Maglev Consortium, Inc. if the Consortium is selected as the franchise for the Florida High Speed Transportation System.

Our firm, Volkert Environmental Group, Inc. (Volkert), accepts your invitation to be a member of the GEC team and commits to serve in this capacity for Volkert and the Consortium.

We look forward to being part of the team to bring this project to the State of Florida.

Sincerely,

Volkert Environmental Group, Inc.

Kyle E. Parker, P.E.
Vice President

KEP/rcm

P. O. Box 7434 • Mobile, AL 36670 • 3809 Moffett Road 36618 • (334) 342-1070 • Fax (334) 342-7962

Birmingham, AL Gulf Shores, AL Metropolitan Washington, D.C. Ft. Walton Beach, FL Miami, FL Tampa, FL New Orleans, LA

PSI Environmental Geotechnical Construction
Consulting • Engineering • Testing

September 29, 1995

Mr. Jack W. Roberts, P.E.
Senior Vice President - Florida Division
David Volkert & Associates, Inc.
3409 West Lemon Street
Tampa, FL 33609

RE: Request for Proposal
Florida High Speed Transportation System
Florida Maglev Consortium, Inc.

Dear Mr. Roberts:

It is our understanding that David Volkert & Associates, Inc. (Volkert) will serve as the General Engineering Consultant (GEC) to the Florida Maglev Consortium, Inc. if the Consortium is selected as the franchisee for the Florida High Speed Transportation System.

PSI, accepts your invitation to be a member of the GEC team and commits to serve in this capacity for Volkert and the Consortium.

We look forward to being part of the team to bring this project to the State of Florida.

Sincerely,

Henri V. Jean
Vice President
Geotechnical / Drilling Division

Sameer S. Moussly
Senior Vice President

f:\usr\geo\public\proposal\099550.514

PSI • 5801 Benjamin Center Drive, Suite 112 • Tampa, FL 33634 • Phone 813/886-1075 • Fax 813/888-6514

Weidener Surveying & Mapping P.A.
10418 N.W. 31 Terrace
Miami, Florida 33172
(305) 599-6381 • Fax 599-2797

29 September 1995

Mr. Jack W. Roberts, P.E.
Senior Vice President - Florida Division
David Volkert & Associates, Inc.
3409 West Lemon Street
Tampa, Florida 33609

Re: Request for Proposal
Florida High Speed Transportation System
Florida Maglev Consortium, Inc.

Dear Mr. Roberts:

It is our understanding that **David Volkert & Associates, Inc. (Volkert)** will serve as the General Engineering Consultant (GEC) to the Florida Maglev Consortium, Inc. if the Consortium is selected as the franchisee for the Florida High Speed Transportation System.

Our firm, Weidener Surveying and Mapping P.A. (WSM), accepts your invitation to be a member of the GEC team and commits to serve in this capacity for Volkert and the Consortium.

We look forward to being part of the team to bring this project to the State of Florida.

Sincerely,
WEIDENER SURVEYING AND MAPPING P.A.

Margarita Weidener

Margarita Weidener, PLS
President

wp20:roberts.let

Metcalf & Eddy
An Air & Water Technologies Company

October 19, 1995

Mr. Jack W. Roberts, P.E.
Senior Vice President- Florida Division
David Volkert & Associates, Inc.
3409 West Lemon Street
Tampa, Florida 33609

Re: Request for Proposal
Florida High Speed Transportation System
Florida Maglev Consortium, Inc.

Dear Mr. Roberts:

It is our understanding that David Volkert & Associates, Inc. (Volkert) will serve as the General Engineering Consultant (GEC) to the Florida Maglev Consortium, Inc. if the Consortium is selected as the franchisee for the Florida High Speed Transportation System.

Our firm, Metcalf & Eddy, Inc., accepts your invitation to be a member of the GEC team and commits to serve in this capacity for Volkert and the Consortium.

We look forward to being part of the team to bring this project to the State of Florida.

Sincerely,

Michael J Nardone, P.G.
Vice President

400 Sawgrass Corporate Parkway, Sunrise, FL 33325
TEL: 305-846-8611 FAX: 305-846-8886

THE
HARDAWAY
COMPANY
P.O. Box 1360
Columbus, Georgia 31993
706-322-3274
FAX: 706-322-7856

Mason H. Lampton
President

VIA FACSIMILE

August 14, 1995

Mr. Richard Kermode
Misener Marine, Inc.
5440 W. Tyson Avenue
Tampa, Florida 33611

Dear Dick:

This letter confirms my company's commitment to the American Maglev Consortium. We have entered into a joint venture with Misener Marine Construction and PCL of Florida to address the Consortium's construction needs.

We have had vast experience with pre-cast products in our pre-cast operation located in Port Tampa. We have produced the majority of product used by the Florida Department of Transportation on the west coast and central Florida over the past thirty years. We have vast experience with people transportation and that of cargo to include docks, railroads, airports and highways. We constructed the elevated railways used at the Tampa Airport which may resemble the Maglev concept.

We are dedicated to a first class product. We deliver top quality, on time and within budget. We look forward to meeting with Maglev to discuss developments as they occur.

Yours truly,

THE HARDAWAY COMPANY

Mason H. Lampton
President

MHL/ms

Misener Marine Construction, Inc.

5440 West Tyson Avenue
P.O. Box 13427
Tampa, Florida 33681-3427

Telephone 813 839-8441
Telefax 813 831-7498

National Construction Associates, Inc.
Post Office Box 260744
Tampa, Florida 33685-0744

Attention Mr. Richard C. Kermode
Senior Consultant

Reference JLB/lam

31 July 1995

Subject Florida High Speed Transportation System
RFP Dated February 28, 1995

Gentlemen:

Pursuant to your letter of July 31, 1995, Misener Marine Construction, Inc. is pleased to confirm our interest in being an exclusive member of American Maglev's team to create a comprehensive and innovative transportation system for the State of Florida.

We are a multidiscipline organization specializing in the construction of heavy civil projects. Company experience constructing transportation elements extends back to the 1950s. We have performed work for a large number of the Departments of Transportation; especially, here in our home state. More specifically, our list of clients involved in the movement of people and/or cargo includes CSX Transportation, Inc., Seaboard Coastline Railroad, Walt Disney World Design and Engineering, Otis Elevator, Protexa Burlington Northern, and Mobile Mining and Mineral Company.

Misener has an absolute commitment to managing quality, cost and schedule in its projects. You have our assurance that any work performed will receive the highest attention of Misener and will be treated among our most important programs.

We are confident American Maglev, its team members and the State of Florida will benefit from our relationship.

Respectfully submitted,
Misener Marine Construction, Inc.

John L. Bolles
Manager of Business Development

Enclosures
cc: Mr. Theodore Knight
Mr. Britt Bochiardy

Via Fax: (813) 831-7498

August 16, 1995

Mr. Richard Kermode
National Construction Associates, Inc.
5700 Memorial Highway
Suite 105
Tampa, FL 33615-5200

Dear Dick:

This letter confirms our commitment to the American Maglev Consortium. We intend to enter into a Joint Venture with Misener Marine, Inc. and The Hardaway Company to address the consortium's construction needs.

PCL is one of North America's premier construction companies. Our annual volume has consistently exceeded one billion dollars. We are an industry leader in the construction of bridges and transportation infrastructure. Our reputation is built on our commitment to teamwork and our dedication to quality, schedule and cost effectiveness.

We look forward to meeting with Maglev to further discuss this exciting opportunity.

Yours truly,

PCL CIVIL CONSTRUCTORS, INC.

Robert W. Fouty
Vice President and District Manager

RWF/tla

PCL CIVIL CONSTRUCTORS, INC.
P.O. Box 22485, 2000 South Colorado Boulevard, Suite 10800, Denver, Colorado 80222 Telephone: (303) 639-4917 ♦ Fax: (303) 639-4920

Engineering & Construction Services, Inc.

September 27, 1995

Mr. Richard Kermode
National Construction Associates, Inc.
P.O. Box 260744
Tampa, Florida 33685-0744

Re: Florida High Speed Transportation System
American Maglev Proposal

Dear Mr. Kermode:

Reference your telephone conversation this date.

Engineering & Construction Services (ECS) would be pleased to join the "American Maglev Team" to lead the "DBE Group" in this High Speed Transportation Project.

I look forward to meeting with you on Monday, October 2nd in my Orlando Office to discuss ECS' participation in further detail.

If there is any additional information that you need, please give me a call.

Cordially,

MJ Parker
President

5757 Blue Lagoon Drive • Suite 110 • Miami, Florida 33126
(305) 262-7417 • FAX (305) 261-7224

GENERAL OFFICE: 155 East 21st Street / P.O. Box 4667 / Jacksonville, Florida 32201 / (904) 355-1781
FLORIDA ROCK INDUSTRIES INC Mining, Ready Mix Concrete, and Construction Products

September 7, 1995

Mr. Richard C. Kermode
National Construction Associates, Inc.
Post Office Box 260744
Tampa, Florida 33685

Dear Mr. Kermode:

We are pleased to accept your invitation to join the American Maglev Consortium as a guaranteed material supplier to the construction team.

We are the largest Florida based construction materials supplier and would be honored to be a part of such a major project for our state.

Our company prides itself on its ability to perform really large jobs such as the Dames Point Bridge, the Barnett Tower, St. John's River Power Park, Jacksonville National Airport, Dulles Airport, St. Petersburg Baseball Park, the new Jaguar Stadium, Tampa Hockey Arena, The Dolphin Hotel and many others. We have the greatest respect for the three contractors that are involved and look forward to working with them to develop a definitive agreement and a winning bid on the project.

Sincerely yours,

John Baker

John D. Baker II
President

JDBII/sw

Jeffrey B Hill AIA
Vice President

October 12, 1995

Ms. Beverly Hanson
Florida Maglev Consortium
2620 Cow Creek Road
Edgewater, FL 32141

Re: Florida High Speed Rail Proposal

Dear Beverly:

I am writing to confirm HKS' commitment to provide architectural services related to Florida Maglev Consortium's Florida high speed rail proposal. As you know, HKS Inc. has extensive experience in the management of large scale multi-discipline projects combined with over 15 years of Florida experience in our Tampa Office. In addition, HKS has just recently opened a second Florida Office in Orlando which would also be involved in this endeavor. I have attached a brief summary of HKS' capabilities as well as resumes on key HKS personnel who would be involved in this project.

We wish you the best of luck on your proposal, and look forward to assisting you on this project in the future.

Best regards,

Jeffrey B. Hill, AIA

JBH/bk

Attachments

cc: Joe Buskuhl

Aviation Constructors, Inc.

Terry A. Stratton
President

October 10, 1995

Mr. Tony Morris, President
Florida MAGLEV Consortium
2620 Cow Creek Road
Edgewater, FL 32141

Reference: Project Letter of Commitment
FDOT High Speed Rail Transportation System

Dear Tony:

ACI is pleased to offer its commitment to the Florida MAGLEV Consortium for the role of Construction Manager for all station construction. As you know ACI has long served the transportation industry, most notably in the aviation field.

However, my background includes extensive construction experience of three (3) elevated rapid transit stations for WMATA in the Washington, DC area; the Ft. Totten, Tacoma Park and Silver Springs stations with road overpasses included. In addition, enclosed herein are photos showing major works at O'Hare International Airport and the Cincinnati/Northern Kentucky International Airport. In Chicago, we constructed Terminal 3 and Concourse L, a $100,000,000 project that included elevated roadway and tunnel elements, as well as station and support construction for the MATRA people mover. In Cincinnati, a $375,000,000 project successfully completed by ACI included an underground AGT system by Otis. This underground element included a two level tunnel constructed within 30' of an existing active concourse, the lower level of which was utilized for a $40,000,000 automated baggage handling system, that works!

ACI is a subsidiary of the Cleveland Group, Inc., a diversified construction services holding company which includes heavy electrical construction operations with experience on BART and Miami Rapid Transit Systems as well as performing as prime electrical on the Plant Vogtle Nuclear Power Plant.

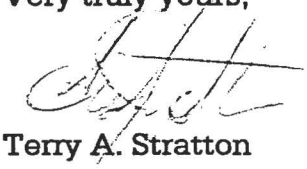
We will be able to perform all work required of us on a bonded, at risk, basis if desired.

ACI has worked in Florida since 1989 and has a permanent branch office in Daytona Beach. I have operated in Florida since 1970 and have worked in all areas of the State. Doug Cooper, our Construction Executive in charge of our Daytona Beach Office and Michael Weigel, also of our Daytona Beach Office will provide project leadership and management for this contemplated work.

2690 Cumberland Parkway, Suite 200, Atlanta, Georgia 30339
(404) 431-0800 Fax: (404) 434-4583

We look forward to the consortium's success in this exciting venture.

Very truly yours,



Terry A. Stratton
President

TAS/tsw

900 Winderley Place
Suite 250
Maitland, Florida 32751
(407) 660-8090
FAX (407) 875-1926

BRASFIELD & GORRIE
General Contractor, Inc.

October 9, 1995

Mr. Tony Morris
Florida Maglev Consortium, Inc.
2620 Cow Creek Road
Edgewater, FL 32141

Re: Florida High Speed Transportation System

Dear Tony:

Please accept this as our letter of interest and commitment to pursue the general construction component of the Florida High Speed Transportation System. Brasfield & Gorrie has the experience, financial resources, and the personnel to build this important project. If you need any additional information please let me know.

Sincerely,

BRASFIELD & GORRIE
GENERAL CONTRACTOR, INC.

John R. Mills
Vice President
Manager - Orlando Division

JRM/rmh

P:\4_PUBLIC\PROPOSAL\MAGLEV.WPD

LoBuono, Armstrong & Associates
A DIVISION OF FREDERIC R. HARRIS, INC.
1629 Mahan Center Boulevard / Tallahassee, Florida 32308 904/878-4485

October 25, 1995

Mr. Jack W. Roberts, P.E.
Senior Vice President - Florida Division
David Volkert & Associates, Inc.
3409 West Lemon Street
Tampa, Florida 33609

RE: Request for Proposal
Florida High Speed Transportation System
Florida Maglev Consortium, Inc.

Dear Mr. Roberts:

It is our understanding that David Volkert & Associates, Inc. (Volkert) will serve as the General Engineering Consultant (GEC) to the Florida Maglev Consortium, Inc. if the Consortium is selected as the franchisee for the Florida High Speed Transportation System.

Our firm, LoBuono, Armstrong & Associates, accepts your invitation to be a member of the GEC team and commits to serve in this capacity for Volkert and the Consortium.

We look forward to being part of the team to bring this project to the State of Florida.

Sincerely,

LoBuono, Armstrong & Associates

Joseph P. LoBuono, P.E.
President

cc: LAA File No. 06-8014-15

APPENDIX II

FINANCIAL STATEMENTS

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AMERICAN MAGLEV TECHNOLOGY OF FLORIDA, INC.
JUNE 30, 1995

STATEMENT OF OPERATIONS AND ACCUMULATED DEFICIT

Revenues		$ 2,125,651
Construction Costs and Expenses		
Direct Costs on Contracts	$1,948,484	
Indirect costs and operating expenses applicable to contract revenues	178,013	
		2,126,497
Gross Loss		(846)
Indirect costs and operating expenses		
Depreciation and Amortization	$ 23,227	
Legal	64,633	
Management Fees	130,000	
Marketing	18,300	
Rent	31,132	
Supplies	20,889	
Telephone	18,625	
Other	70,226	
	377,032	
Less indirect costs and operating expenses applicable to contract revenues	178,013	
		199,019
NET LOSS		(199,865)
Retained earnings at July 01, 1994		-------
Accumulated deficit at June 30, 1995		(199,865)

AMERICAN MAGLEV TECHNOLOGY OF FLORIDA, INC.
JUNE 30, 1995

ASSETS

CURRENT		
Cash		$ 59,980
Accounts Receivable		198,240
Total Current Assets		$258,220
PROPERTY AND EQUIPMENT - AT COST		
Office Equipment	$ 15,298	
Leasehold Improvements	83,858	
	99,156	
Less Accumulated Depreciation:	(19,133)	
		80,023
OTHER ASSETS		
Patents, net of accumulated amortization of $1,108	17,726	
Organizational costs, net of accumulated amortization of $2,986	11,944	
		29,670
		$367,913

LIABILITIES AND STOCKHOLDERS' EQUITY

CURRENT LIABILITIES		
Accounts Payable		$357,310
Billings in excess of cost and estimated earnings		107,794
Accrued liabilities		15,496
Total Current Liabilities		480,600
LONG TERM DEBT		87,178
STOCKHOLDERS' EQUITY (DEFICIT)		
Common Stock - authorized 100 shares of $1 par value; issued and outstanding 100 shares	$ 100	
Accumulated Deficit	(199,965.)	
		(199,865)
		367,913

Consolidated Statement of Income

(In thousands except per share amounts)	*1994*	*1993*	*1992*
Revenues:			
Product revenues	$1,418,306	$1,103,558	$ 808,928
Service revenues	141,438	121,987	114,268
Research and development contract revenues	25,604	24,173	25,776
	1,585,348	1,249,718	948,972
Costs and Expenses:			
Cost of products	824,845	664,201	521,668
Cost of services	103,800	91,292	87,307
Expenses for research and development and new lines of business (a)	103,676	87,027	62,343
Selling, general and administrative expenses	373,247	281,849	207,660
Costs associated with divisional and product restructuring (Note 12)	650	6,616	–
	1,406,218	1,130,985	878,978
Operating Income	179,130	118,733	69,994
Gain on Issuance of Stock by Subsidiaries (Note 10)	25,283	39,863	30,212
Other Income (Expense), Net (Note 11)	(810)	(27,477)	1,764
Income Before Income Taxes, Minority Interest, and Cumulative Effect of Change in Accounting Principle	203,603	131,119	101,970
Provision for Income Taxes (Note 9)	69,231	33,400	27,474
Minority Interest Expense	30,962	21,086	13,902
Income Before Cumulative Effect of Change in Accounting Principle	103,410	76,633	60,594
Cumulative Effect of Change in Accounting Principle, Net of Tax (Note 8)	–	–	1,438
Net Income	$ 103,410	$ 76,633	$ 59,156
Earnings per Share Before Cumulative Effect of Change in Accounting Principle:			
Primary	$ 2.10	$ 1.75	$ 1.51
Fully diluted	$ 1.85	$ 1.57	$ 1.41
Earnings per Share:			
Primary	$ 2.10	$ 1.75	$ 1.48
Fully diluted	$ 1.85	$ 1.57	$ 1.38
Weighted Average Shares:			
Primary	49,245	43,779	40,049
Fully diluted	64,680	55,520	47,163
(a) Includes costs of:			
Research and development contracts	$ 20,925	$ 20,435	$ 19,426
Internally funded research and development	78,852	58,943	38,675
Other expenses for new lines of business	3,899	7,649	4,242
	$ 103,676	$ 87,027	$ 62,343

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Balance Sheet

(In thousands except share amounts)	*1994*	*1993*
ASSETS		
Current Assets:		
Cash and cash equivalents	$ 382,797	$ 325,744
Short-term available-for-sale investments, at quoted market value (amortized cost of $617,837) (Note 2)	614,915	–
Short-term investments, at cost (quoted market value of $377,183)	–	374,450
Accounts receivable, less allowances of $21,619 and $14,129	332,668	267,377
Unbilled contract costs and fees	42,113	32,574
Inventories:		
Raw materials and supplies	128,876	110,437
Work in process	44,711	38,055
Finished goods	59,795	44,330
Prepaid income taxes (Note 9)	62,488	39,258
Prepaid expenses	14,321	12,318
	1,682,684	1,244,543
Assets Related to Projects Under Construction:		
Restricted funds, at quoted market value	–	34,100
Facilities under construction	–	128,040
	–	162,140
Property, Plant and Equipment, at Cost:		
Land	43,990	40,570
Buildings	143,727	116,895
Alternative-energy and waste-recycling facilities	335,064	199,800
Machinery, equipment and leasehold improvements	270,386	224,629
	793,167	581,894
Less: Accumulated depreciation and amortization	179,215	134,423
	613,952	447,471
Long-term Available-for-sale Investments, at Quoted Market Value (amortized cost of $65,218) (Note 2)	62,451	–
Long-term Marketable Securities, at Cost (quoted market value of $45,125)	–	43,630
Other Assets	85,338	102,347
Cost in Excess of Net Assets of Acquired Companies (Note 3)	575,524	473,579
	$3,019,949	$2,473,710

	1994	1993
LIABILITIES AND SHAREHOLDERS' INVESTMENT		
Current Liabilities:		
Notes payable and current maturities of long-term obligations (Note 6)	$ 82,997	$ 64,686
Accounts payable	112,245	85,278
Accrued payroll and employee benefits	71,835	49,029
Accrued income taxes	35,845	7,713
Accrued installation and warranty costs	33,442	26,049
Other accrued expenses (Note 3)	200,136	183,491
	536,500	416,246
Deferred Income Taxes (Note 9)	57,899	48,387
Other Deferred Items	57,723	58,152
Liabilities Related to Projects Under Construction (Note 6):		
Payables and accrued expenses	–	10,680
Tax-exempt obligations	–	142,069
	–	152,749
Long-term Obligations (Note 6):		
Senior convertible obligations	620,000	275,000
Subordinated convertible obligations	186,661	238,386
Tax-exempt obligations	130,985	–
Nonrecourse tax-exempt obligations	95,300	108,800
Other	16,807	25,275
	1,049,753	647,461
Minority Interest	327,734	277,681
Commitments and Contingencies (Note 7)		
Common Stock of Subsidiary Subject to Redemption ($15,390 redemption value)	–	14,511
Shareholders' Investment (Notes 4 and 5):		
Preferred stock, $100 par value, 50,000 shares authorized; none issued		
Common stock, $1 par value, 175,000,000 shares authorized; 51,025,340 and 47,950,580 shares issued	51,025	47,951
Capital in excess of par value	485,293	467,076
Retained earnings	465,548	362,138
Treasury stock at cost, 38,318 and 31,898 shares	(1,631)	(1,212)
Cumulative translation adjustment	(3,557)	(13,591)
Deferred compensation (Note 8)	(2,657)	(3,839)
Net unrealized loss on available-for-sale investments (Note 2)	(3,681)	–
	990,340	858,523
	$3,019,949	$2,473,710

The accompanying notes are an integral part of these consolidated financial statements.

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COLEMAN RESEARCH CORPORATION AND SUBSIDIARY

CONSOLIDATED FINANCIAL STATEMENTS
WITH ACCOUNTANTS' REPORT HEREIN

THOMAS, BECK & ZURCHER, P.A.
Certified Public Accountants
111 North Orange Avenue, Suite 750
Orlando, Florida 32801-2322

(407) 843-4021
Fax (407) 422-6342

Board of Directors
Coleman Research Corporation and Subsidiary
Orlando, Florida

INDEPENDENT AUDITORS' REPORT

We have audited the accompanying consolidated balance sheets of Coleman Research Corporation and Subsidiary as of December 31, 1993 and 1992, and the related consolidated statement of earnings, stockholders' equity, and consolidated cash flows for the year ended December 31, 1993. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above presents fairly, in all material respects, the consolidated financial position of Coleman Research Corporation and Subsidiary as of December 31, 1993 and 1992, and the results of its operations and its cash flows for the year ended December 31, 1993, in conformity with generally accepted accounting principles.

Because we were not engaged to audit the consolidated statements of earnings, changes in stockholders' equity and cash flows for the year ended December 31, 1992, we did not extend our auditing procedures to enable us to express an opinion on the consolidated results of operations and cash flows. Accordingly, we do not express an opinion on them.

The 1991 consolidated financial statements were reviewed by us and our report thereon dated April 1, 1992, stated we were not aware of any material modifications that should be made to those statements for them to be in conformity with generally accepted accounting principles. However, a review is substantially less in scope than an audit and does not provide a basis for the expression of an opinion on the financial statements taken as a whole.

As discussed in Note N, the 1993 and 1992 financial statements have been restated and reissued to reflect subsequent events.

Thomas, Beck & Zurcher, P.A.

October 24, 1994

Thomas, Beck, & Zurcher, P.A.

COLEMAN RESEARCH CORPORATION AND SUBSIDIARY

CONSOLIDATED BALANCE SHEETS (Continued)

December 31, 1993 and 1992

LIABILITIES AND STOCKHOLDERS' EQUITY

	1993	1992
CURRENT LIABILITIES:		
Accounts payable	$5,109,684	$1,327,087
Billings in excess of costs and estimated gross profit on contracts	2,114,234	730,700
Notes payable	5,375,225	1,000,000
Obligations under capital lease agreements	52,441	-
Payroll taxes payable	108,589	319,465
Accrued expenses	7,524,181	6,013,173
Deferred income taxes	3,390,745	3,522,861
Total current liabilities	23,675,099	12,913,286
LONG-TERM LIABILITIES:		
Obligations under capital lease agreements, excluding current maturities	130,954	-
Accrued rent	38,087	28,613
Deferred income taxes	350,990	104,662
Total liabilities	24,195,130	13,046,561
STOCKHOLDERS' EQUITY:		
Common stock, $.001 par value, 50,000,000 authorized; 13,075,868 and 11,334,940 issued	13,076	11,335
Additional paid-in capital, in excess of par value	10,107,969	5,934,899
Retained earnings	5,547,441	5,312,213
	15,668,486	11,258,447
Treasury stock at cost, 258,921 and 214,360 shares	(471,924)	(333,559)
Total stockholders' equity	15,196,562	10,924,888
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$39,391,692	$23,971,449

The Accompanying Notes Are An Integral Part of These Consolidated Financial Statements

COLEMAN RESEARCH CORPORATION AND SUBSIDIARY

CONSOLIDATED BALANCE SHEETS

December 31, 1993 and 1992

ASSETS

	1993	1992
CURRENT ASSETS:		
Cash and cash equivalents	$ 245,176	$ 410,505
Accounts receivable	26,456,048	15,910,719
Notes receivable	326,503	481,991
Advances and employee receivables	27,331	16,431
Accrued interest	1,013	64,524
Prepaid rent	66,612	111,928
Prepaid income taxes	128,078	468,396
Prepaid expenses	90,507	36,063
Total current assets	27,341,268	17,500,557
PROPERTY AND EQUIPMENT - AT COST:		
Furniture and fixtures	1,506,988	767,623
Equipment, computers and software	10,159,712	5,584,977
Computer equipment on operating lease	313,385	313,385
Leasehold improvements	688,117	139,244
Total	12,668,202	6,805,229
Less: Accumulated depreciation	(4,711,386)	(3,092,795)
Net property and equipment	7,956,816	3,712,434
Equipment under capital lease agreements, net of accumulated amortization of $14,996 in 1993 and $-0- in 1992	192,398	-
Total property and equipment	8,149,214	3,712,434
OTHER ASSETS:		
Investment in non-marketable equity security	10,000	-
Notes receivable	1,681,299	365,631
Lease deposits	222,256	75,749
Agreements not to compete, net of accumulated amortization of $334,167 in 1993 and $233,611 in 1992	175,833	136,389
Goodwill, net of accumulated amortization of $128,948 in 1993 and $80,429 in 1992	1,811,822	1,860,341
Construction in progress	-	320,348
Total other assets	3,901,210	2,758,458
TOTAL ASSETS	$39,391,692	$23,971,449

The Accompanying Notes Are An Integral Part of These Consolidated Financial Statements

Coleman Research Corporation
Balance Sheet
As of December 31, 1994

	12/31/94
Current Assets	
Cash	207,571
Unbilled Receivable	11,801,099
Billed Receivable	18,522,899
Allowance for Bad Debt	(44,765)
Other Receivable	2,290,206
Prepaid Expenses	827,294
Prepaid Taxes	(4,663,520)
Total Current Assets	28,940,784
Property & Equipment	
Machinery & Equipment	16,506,682
Leasehold Improvements	1,352,691
Capital Equipment Lease	298,257
Property & Equipment @ Cost	18,157,630
Accumulated Depreciation	
Machinery & Equipment	(7,011,993)
Leasehold Improvements	(90,182)
Capital Equipment Lease	(120,282)
Total Accumulated Depreciation	(7,222,457)
Net Property & Equipment	10,935,173
Other Assets	
Intangible Assets	2,715,620
Accumulated Amortization	(605,357)
Total Other Assets	2,110,263
Total Assets	41,986,220
Current Liabilities	
Accounts Payable	12,828,872
Notes Payable	2,638,000
Short Term Lease Obligations	62,432
Accrued Salaries & Taxes	8,013,689
Other Accrued Expenses	848,665
Total Current Liabilities	24,391,658
Long Term Liabilities	
Long Term Lease Obligations	97,160
Deferred Income Taxes	350,990
Total Long Term Liabilities	448,150
Stockholders Equity	
Common Stock	2,532,908
Additional Paid in Capital	7,765,335
Beginning Retained Earnings	5,547,441
Current Year Net Income	1,300,728
Total Stockholders Equity	17,146,412
Total Liabilities & Equity	41,986,220

UNAUDITED

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APPENDIX III

APPLICABLE EXPERIENCE

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APPLICABLE EXPERIENCE

The team members of FMLC bring a depth of experience in all the disciplines required for the successful completion of the Florida Maglev System.

FMLC contractors have a long history of providing professional engineering services for public projects governed by federal, state and local agency yards rules and procedures. Project implementation relative to the rules and procedures has included planning, property acquisition, engineering/design, environmental studies, permitting, construction, utility coordination and operation/maintenance. Many of these services have been provided to the Florida Department of Transportation (FDOT).

Agencies involved in these projects have included: United States Coast Guard; United States Corps of Engineers; Federal Highway Administration; United States Environmental Protection Agency yards; United States Fish and Wildlife Service; National Marine Fisheries Service; Federal Emergency yards Management Agency yards; Florida Department of Environmental Protection; Florida Water Management Districts; Florida Game and Fresh Water Fish Commission; State Historic Preservation Office; Department of Community Affairs; various Regional Planning Councils; and numerous local government agencies.

The following is a partial listing of laws, rules and procedures planning, project development and environment (PD&E) projects:

FEDERAL

CFR 658, Farmlands Definitions

CFR 930, Federal Consistency with Approved Management Programs, 1972

CFR 450, Rules Implementing the Intermodal Surface Transportation Efficiency Act and Section 8 of Federal Transit Administration

CFR 650, U.S. Coast Guard Permitting at Navigable Waterways

CFR 770, Air Quality, Conformity with State Implementation Plan

CFR 771, Federal-Aid Policy Guide, Subchapter H – Right-of-Way and Environment, Part 771 – Environmental Impact and Related Procedures, 1991

CFR 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise

CFR 115.60, U.S. Coast Guard Issues, Public Hearings

CFR 327.4, U.S. C.O.E., Joint Public Hearing with Section 404 Permitting

CFR 328.3(b), Regulatory Programs of the Corps of Engineers: Final Rule

CFR 800, Procedures for the Protection of Historic and Cultural Properties

CFR 51, Title 1, The Clean Air Act Amendments of 1990

CFR 1500-1508 and 43 FR 55978-56007, Council on Environmental Quality (CEQ), Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 1978

CFR 402, Interagency Coordination – Endangered Species Act of 1973, as amended USC 4201, Farmland Protection Act of 1981

USC 461, Archaeological and Historic Preservation Act; and 23 USC 305

USC 470, Public Law 89-665, Section 106, National Historic Preservation Act, as amended; also Sections 110(d) and 110(f)

USC 662, Section 2 of the Fish and Wildlife Coordination Act of 1934

USC 1452, 1456, Sections 303 and 307 of the Coastal Zone Management Act of 1972

USC 1271, The Wild and Scenic Rivers Act

USC 1536, Section 7 of the Endangered Species Act of 1973

USC 109(n), Standards, Bicycle and Pedestrian Facilities

USC 128, Public Hearings

USC 134, Intermodal Surface Transportation Efficiency Act of 1991

USC 138 and 49 USC 303, Section 4(f), U.S. Department of Transportation Act of 1966

USC 1251, Clean Water Act of 1977

USC 1241, Resource Conservation and Recovery Act

USC 300(f), Safe Drinking Water Act

USC 4371, Environmental Quality Improvement Act of 1970

USC 4601, Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended

USC 4901, Noise Control Act of 1972

USC 7401, Clean Air Act, as amended

USC 9601, et seq., Comprehensive Environmental Response, Compensation and Liability Act

P.L. 91-190, National Environmental Policy Act of 1969

P.L. 92-500, Federal Water Pollution Control Act, as amended

Fed. Reg., Vol. 47, No. 158, Coastal Barrier Resources Act: Delineation Criteria, 1982

Fed. Reg., Vol. 48, No. 195, Coastal Barrier Resources Act: Advisory Guidelines, Final Rule, 1983

Fed. Reg., Vol. 47, No. 173, National Wild and Scenic River Systems: Final Revised Guidelines for Eligibility Classification and Management for River Areas

Fed. Reg., Vol. 52, No. 167, Environmental Impact and Related Procedures, 1987

Fed. Reg., Vol. 55, No. 48, Memorandum of Agreement (MOA): Clean Water Act, Section 404 (b)(1) Guidelines: Correction

Americans with Disabilities Act of 1990

Endangered Species Act, Final Rule, FR 19926-19963, 1986

Farmland Protection Policy Act of 1984

National Ambient Air Quality Standards, EPA

Title VI, Civil Rights Act of 1964, as amended

Title VIII, Civil Rights Act of 1968, as amended

Executive Order 11593, Protection and Enhancement of the Cultural Environment

Executive Order 11988, Floodplain Management, 1977

Executive Order 11990, Protection of Wetlands, 1977

Executive Order 12372, Advance Notification

Executive Order 12898, Environmental Justice, 1994

Presidential Directive, Wild and Scenic Rivers and National Trails, 1979

U.S. DOT Order 5610.1c, Procedures for Considering Environmental Impacts

U.S. DOT Order 5650.2, Floodplain Management and Protection, 1979

U.S. DOT Order 5660.1A, Preservation of the Nation's Wetlands, 1978

U.S. DOT FHWA Notice N6640.19, Guidelines for Preparation and Processing of Notice of Intent

U.S. DOT FHWA Tech. Adv. T6640.8, Guidance for Preparing and Processing Environmental and 4(f) Documents

U.S. DOT FHWA Section 4(f) Policy Paper, September 24, 1987

U.S. DOT FHWA Environmental Policy Statement; Thomas D. Larson April 20, 1990

Federal-Aid Highway Program Manual 7-7-2, Environmental Impact and Related Procedures

Federal Highway Program Manual 6-7-3-2, Regulatory Floodway Involvement

Letter of Agreement, FHWA and Soil Conservation Service, January 9, 1985 (Farmlands)

STATE

F.S. 253, Archaeological and Historic Resources

F.S. 258.35-258.46, Florida Aquatic Preserve Act, as updated

F.S. 163, Consistency with DCA-Approved Local Comprehensive Plan

F.S. 267, Historic Preservation

F.S. 334.044(2), Florida Transportation Plan and Florida Transportation Code

F.S. 335.065, Bicycle and Pedestrian Ways

F.S. 335.17, Noise Impact Assessment

F.S. 335.18, Access Management

F.S. 337, Contamination Site Assessment

F.S. 337.243, Corridor Protection, Public Hearings

F.S. 337.273, Transportation Corridors, Acquisition

F.S. 338, Toll and Bond Facilities

F.S. 339, Florida Transportation Plan

F.S. 339.09, Right-of-Way and Relocation Program

F.S. 339.155, Transportation Planning

F.S. 380.045, Consistency with Resource Planning and Management Plans

F.S. 380.23, Coastal Zone Management Program

F.S. 403.061, Outstanding Florida Waters Rule

F.A.C. 17-3.041, Outstanding Florida Waters Designation

F.A.C. 17-4.242, Outstanding Florida Waters, Permitting

F.A.C., 17-25, Storm Water Rule

F.A.C. 17-28, Ground Water Rule

F.A.C. 17-40, State Water Policy

Executive Order 81-105, Coastal Barrier Resources, 1981

Executive Order 93-194, Advance Notification

FDEP Rule 17-2, Air Pollution, as revised

State Implementation Plan, Air Quality (SIP)

Passenger transportation is not identified in any of the following project experience paragraphs because of the nature of the contractors, Delta Airlines and Atlantic Southeast Airlines, responsible for this function. It is their primary business, and their transportation networks provide the service to the general public in contrast to support for limited contracts. Thus, their functions are identical with the passenger transportation functions envisioned for the Florida High Speed Transportation System. Delta Airlines is the largest U.S. airline as measured by aircraft departures and passengers enplaned. It is the third largest U.S. airline as measured by operating revenues and revenue passengers flown.

Atlantic Southeast Airlines is the largest regional carrier in the southeast. It provides air service to 64 markets with over 4,100 flights per week. In 1994 it posted record revenues, net income, and passenger traffic.

Typical project experience of the other key players in the Florida High Speed Transportation System is identified in the following paragraphs.

1. Advanced Electric Cogeneration Plan
FMLC Contractor: Coleman Research Corporation (Thermo Electron Corporation)
Partners: U.S. Department of Energy; KFX Corporation, et al

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Thermo Electron and the U.S. Department of Energy (DOE) together designed and built an advanced electric cogeneration plant. After completion of the plant, ownership was transferred to Hoffman La Roche for operation. Thermo Ecotek, a subsidiary of Thermo Electron Corporation and KFX corporation are now constructing a coal benificiation system demonstration plant of 500,000 tons per year in which low Btu coal will be preprocessed to increase Btu content for use in utility boilers as a replacement for high-sulfur coal currently burned, thereby reducing the acid rain problem. The economic feasibility of this plant is based on Section 29, Tax Credits, which are computed on the basis of oil barrel equivalent (OBE) coal fuel sold. Thermo Electron has conducted several other projects involving profit sharing, tax credits, and royalties in partnership with public agencies and utilities.

Contact: John Brogan
U.S. Department of Energy, MS 56
1000 Independence Avenue, Washington D.C. 20586
Telephone: (202) 586-1477

Contact: Gene Brandt
206 RaRoche Drive, Belvedere, New Jersey
Telephone: (908) 475-5300

2. Advanced Rankine Cycle Engine
FMLC Contractor: Coleman Research Corporation
Partners: U.S. Department of Energy; Ford, Environmental Protection Agency

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

In the seventies, Thermo Electron/Ford and the U.S. Government through the Environmental Protection Agency (EPA) sponsored an advanced auto engine development program using an organic rankine cycle on a 50-50 cost-sharing basis.

Contact: John Brogan
U.S. Department of Energy, MS 56
1000 Independence Avenue, Washington D.C. 20586
Telephone: (202) 586-1477

3. Theater Missile Defense Targets, Hera Target Program
FMLC Contractor: Coleman Research Corporation
Customer: U.S. Army Space and Strategic Defense Command Target, Test, and Evaluation Directorate

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

CRC's Launch Systems Group (LSG) in Orlando, Florida, provides surrogate ballistic missiles to be used as targets for several developmental Theater Missile Defense (TMD) programs. Patriot, THAAD, Ground Based Radar (GBR), ERINT, Corps SAM, Standard Missile 2 Block 4A (Navy Lower Tier TMD) and Navy Upper Tier TMD plan to use the CRC Hera target. Air Force Boost Phase Intercept and Ascent Phase Intercept programs are also considering the use of Hera. The TMD systems are one of the highest priorities for the DOD.

CRC 's current Theater Missile Defense (TMD) targets contract with the U.S. Army Space and Strategic Defense Command (USASSDC) includes the assembly, integration, and launch of 75 missiles into suborbital flight. The payloads will serve as targets for theater missile defense flight experiments. The contract includes:

- Requirements analysis
- Systems engineering
- Interface specifications
- Aerospace vehicle design
- Development and analysis of precision guidance systems
- Control system development
- Software development
- Test planning
- Vehicle assembly
- Systems integration and test
- System simulation
- Instrumentation and telemetry
- System safety engineering
- System security engineering
- Ground testing
- Range integration
- Ground support equipment design
- Full system testing.

CRC's targets provide high-fidelity emulation of threat vehicle flight kinematics, signatures, and warhead features, plus extensive countermeasure experiments, instrumentation, and telemetry to assess interceptor effectiveness. CRC provides the boosters, payloads, support equipment, mission planning, mission data analysis, and launch services. We are supported

in this effort by three major subcontractors and a large network of aerospace material suppliers. CRC performs the assembly of the vehicles with associated integration and test.

Target systems design and integration takes place at the Launch Systems facility. Final assembly and launch are conducted at White Sands Missile Range and other national ranges by the CRC launch services crew. In April of 1995 CRC conducted a successful first launch of the Hera target missile at White Sands Missile Range. During this first launch, all test objectives were met 100 percent. This is considered a rarity in missile development. CRC is now preparing for its second launch.

Contact: William Schick
U.S. Army Space and Strategic Defense Command
P.O. Box 1500, Huntsville, Alabama 35807-3801; CSSD-CM-TM
Telephone: (205) 955-3044

4. Theater High Altitude Defense (THAAD) System
FMLC Contractor: Coleman Research Corporation
Customer: U.S. Army Space and Strategic Defense Command

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This program involved developing the Integrated Logistics Support (ILS) requirements that were incorporated into the THAAD Operational Requirements Document (ORD). This involved performing logistics modeling and trade studies to define the current THAAD preferred support concept. A THAAD system MANPRINT Management Plan was also developed. This effort involved:

- ILS planning
- MANPRINT
- Training
- Facilities
- Maintenance concept
- Logistics support analysis.

Contact: William Schick
U.S. Army Space and Strategic Defense Command
P.O. Box 1500, Huntsville, Alabama 35807-3801; CSSD-CM-TM
Telephone: (205) 955-3044

5. Orlando Science Center Information System
FMLC Contractor: Coleman Research Corporation
Customer: Orlando Science Center, Orlando, Florida

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

CRC supported the installation of the information system for the Orlando Science Center (OSC), which is developing a state-of-the-art facility. In this effort, CRC conducted a system feasibility study and analysis. CRC worked closely with OSC personnel to determine the necessary hardware and software resources to meet their specific ticketing, scheduling, membership, fund development, and accounting requirements.

CRCO set up and configured the OSC administrative and operations network. This network ensures that OSC employees are efficiently connected to each other and the world. The network includes 150 administration office nodes, 9 point-of-sale station nodes, 24 ticket sale station nodes, two DEC MicroVax 3100 ticketing, scheduling, membership, and fund development servers, and two Windows NT advanced server application servers. The two Windows NT servers provide modem-based telephone service, and a remote mail server provides access to the Internet and the Florida Information Resource Network (FIRN).

CRC provided training to OSC employees to use and operate their new networked computer system.

Contact: Harry Smith
Orlando Science Center
810 E. Rollins St. Orlando, Florida 32803
Telephone: (407) 896-7151

6. Collins Hall Information System
FMLC Contractor: Coleman Research Corporation
Customer: U.S. Army War College

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

CRC developed the information system for the U.S. Army War College's Center for Strategic Leadership, which is the Army's Strategic Level Modeling and Simulation Center. This included the design, installation, and integration of the system's visual systems, computer networks, and telephone systems for a 155,000-square-foot, state-of-the-art simulation and war game facility. This program had a variety of challenges, including;

- Interface a variety of wide area networks (WAN) and dedicated circuits to the local area networks (LAN)
- Provide applications that can be accessed from either the Collins Hall or the main academic building, Root Hall (instructional and research facility)
- Display computer graphics at 1024 X 768 resolution from LAN to the visual information system
- Segregate heavy usage on LAN to provide aggregate throughput of over 50 Mbps over a 10 Mbps nominal network architecture
- Connect local mail system (cc:mail) to the Defense Data Network (DDN) using SMTO mail protocol., which provides network access to active and reserve military units and defense contractors
- Connect different computers (Mac, PCs, and Sun workstations) to network and allow applications to work on all systems
- Maintain security of sensitive and classified information.

The program resulted in a facility with four separate networks (two unclassified, one secret, and one top secret) containing over 500 PCs and workstations; six separate visual information control consoles with the ability to video teleconference with other centers; three portable television studios with dual remote-controlled cameras and audio systems; and nine hardcopy conversion carts for digitizing documents and physical objects for display over the visual information system. This system contained 195,000 feet of coaxial cable and 1,000 feet of single-mode fiber optic cable. The Collins Hall system also provides network access to the Air War College, Naval War College, National Defense University, the Pentagon, Concepts and Analysis Agency (CAA), and the Defense Simulation Internet (DSI).

Contact: Professor Doug Campbell
U.S. Army War College, Center for Strategic Leadership
Carlisle, Pennsylvania 17013
Telephone: (717) 245-4550

7. Root Hall Information System
FMLC Contractor: Coleman Research Corporation
Customer: U.S. Army War College

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The U.S. Army War College's instructional and Research Facility, Root Hall, now uses current information technologies such as multimedia, interactive groupware, and automated research tools to improve learning while lowering costs. CRC designed the information systems and performed the integration, configuration, and testing for the network and all associated data systems. this project had several challenges, including:

- Maintain security of sensitive information while allowing easy access by authorized users
- Connect different computers (Macs, PCs, and Sun workstations) to a common network and allow applications to work across all systems.
- Connect local mail system (cc:mail) to the Defense Data Network (DDN) using SMTP mail protocol while maintaining full functionality
- Segregate heavy usage on the local area network (LAN) to provide aggregate throughput over 100 Mbps on a 10 Mbps nominal network architecture using twisted-pair wiring.
- Display computer graphics at varying resolutions from LAN to the visual information system
- Provide applications that can be accessed from either the main academic building, Root Hall, or the war game building, Collins hall
- Interface a variety of wide area networks (WAN) and dedicated circuits to the local area networks (LAN) to include the FDDI campus backbone, the Internet, the Defense Data Network (DDN), and the Defense Simulation Internet.

The program resulted in a campus-wide high speed (100 Mbps) network allowing access to centralized and distributed databases and shared applications. This system contained 350,000 linear feet of copper network cabling. 16.000 linear feet of multi-node and single-node fiber-optic cabling, three SPARC Center 2000 file and database servers, over 400 individual computers, and over 80 printers. The system also includes 20 seminar rooms with visual information control consoles, and video teleconferencing capabilities. The campus-wide network interconnected Root Hall, the Military history Institute, Garrison Headquarters, Medical Supply, the Hospital, the Peacekeeping Institute, the Collins Hall Center for Strategic Leadership, Carlisle Barracks, the National defense University, the Pentagon, MILNET, and Concepts Analysis Agency (CAA).

Contact: Major Bridgeford, U.S. Army War College, Resource Management Division
Carlisle, Pennsylvania 17013
Telephone: (717) 245-3707

8. Joint Project Agreement for Technology Demonstration Test Facility
FMLC Contractor: Americaqn Maglev Technology, Inc.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

American Maglev Technology, Inc., the developer of the technology has executed and performed a Joint Project Agreement (JPA) with the Florida Department of Transportation with respect to the Technology Demonstration Test Facility in Edgewater, Florida. The JPA involves a combination of private dollar-funded technology research and local, state, and federal government assistance for technology development.

Contact: Nick Serianni, Florida Department of Transportation
605 Suwannee Street, MS 67, Tallahassee, Florida 32399
Telephone: (904) 488-2462

9. Orlando City Hall Project, Florida
FMLC Contractor: American Maglev Technology, Inc.
Customer: City of Orlando

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Applicant staffer Lew Oliver was responsible for the invention, negotiation, drafting and implementation of the Public/Service partnership between the City of Orlando and Lincoln Property Company for the construction of Orlando's new City Hall. The partnership was featured in David Osborne's book, Reinventing Government.

Contact: Tom Kohler, Executive Director, City of Orlando CPA
100 South Orange Avenue, Sta 900, Orlando, Florida 32801
Telephone: (407)246-2555

10. Church Street Market Project, Orlando, Florida
FMLC Contractor: American Maglev Technology, Inc.
Customer: TO COME

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Applicant staffer Lew Oliver was responsible for the invention, negotiation, and drafting of the agreement that resulted in the Church Street Market retail complex, which is credited with reviving downtown Orlando. The project involved the construction of a private retail complex on city-owned land with lease terms and a purchase option.

Contact: Tom Kohler, Executive Director, City of Orlando CPA
100 South Orange Avenue, Sta 900, Orlando, Florida 32801
Telephone: (407) 246-2555

11. Texas Ranger Stadium Complex, Texas
FMLC Contractor: American Maglev Technology, Inc.
Customer: TO COME

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Applicant staffer Tony Morris was a participant in the Stadium Complex, which constructed a new stadium and other private facilities on publicly-owned land.

Contact: Jack Hill, VP Development Texas Rangers
P.O. Box 90111, 1250 Copeland Road, Arlington, Texas 76004
Telephone: (817) 273-5000

12. Orlando-Orange County Expressway
FMLC Contractor: American Maglev Technology, Inc.
Customer: Orlando-Orange County Expressway Authority

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Applicant consultant, David Gwynn, was chief Executive Officer responsible for operations, planning, design, right-of-way, construction, and financing of existing and proposed toll facilities in Central Florida. He directed the planning, design, construction, and financing of 26 miles of new expressways in addition to managing the Authority's existing 36 miles of expressways.

Contact: David Gwynn
1497 South Kirkman Road, Suite 2099, Orlando, Florida 32811
Telephone: (407) 297-6656

13. Aviation Revenue Bonds, Dade County, Florida
FMLC Contractor: Ruden, McClosky, Smith, Schuster, & Russell, P.A.
Customer: Dade County, Florida

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The firm acted as bond counsel for this issue of $100,000,000 of Series W bonds, the purpose of which was to finance airport improvements.

Contact: Mr. Orlando R. Cruz, Associate Director-Finance Planning/Government Funding,
Dade County Aviation Department, Miami International Airport
FIS Building, Concourse E, 5th Floor, Miami, FL 33122
Telephone: (305) 876-7020

14. Aviation Revenue Bonds, Dade County, Florida
FMLC Contractor: Ruden, McClosky, Smith, Schuster, & Russell, P.A.
Customer: Dade County, Florida

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The firm acted as bond counsel for this $110,000,000 issue of Series U bonds, the purpose of which was to finance airport improvements.

Contact: Mr. Orlando R. Cruz, Associate Director-Finance Planning/Government Funding
Dade County Aviation Department, Miami International Airport
FIS Building, Concourse E, 5th Floor, Miami, Florida 33122
Telephone: (305) 876-7020

15. Seaport General Obligation Bonds, Port of Miami, Florida
FMLC Contractor: Ruden, McClosky, Smith, Schuster, & Russell, P.A.
Customer: Dade County, Florida

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The firm acted as bond counsel for this $153,500,000 issue, of Series 1992 bonds, the purpose of which was to finance seaport improvements.

Contact: Carmen J. Lunetta,, Director, Port of Miami
The Port of Miami, 1015 North America Way Miami, Florida 33132,
Telephone: (305) 371-7678

16. Port Everglades Facilities Refunding Revenue Bonds
FMLC Contractor: Ruden, McClosky, Smith, Schuster, & Russell, P.A.
Customer: Port Everglades Authority

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The firm acted as bond counsel for this $117,454,948 issue of Series 1989A bonds, the purpose of which was to advance refund bonds issued to construct port facilities.

Contact: Mary Meynarez, Director of Finance, Port Everglades Authority
1850 Eller Drive, Florida. Lauderdale, Florida 33316
Telephone: (305) 523-3404

17. Interstate 565, East of Jordan Lane to Andrew Jackson Way, Mobile, Alabama
FMLC Contractor: David Volkert & Associates
Customer: Alabama State Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The project required the design of 4.8 miles of Interstate-565 urban roadway that included four interchanges, seven miles of interstate ramps and CD roads, and seven miles of city street improvements. Refining the alignment for the Location Study Report included establishing mainline, ramps, and crossroads alignment; and profiles with interchange location and configuration. Traffic analysis was provided to determine lanage requirements. Services included final design for roadway and bridge plans, drainage, signing, signalization, lighting, and traffic handling plans. Final plan services also included design and property surveys, title research, and right-of-way base map preparation.

Contact: Ray Bass
1409 Coliseum Boulevard, Montgomery, Alabama 361130
Telephone: (334) 242-6318

18. Cochrane Bridge Over Mobile River, Mobile, Alabama
FMLC Contractor: David Volkert & Associates
Customer: Alabama State Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The project required professional services to replace an antiquated two-lane vertical lift span with a four-lane high-rise fixed bridge, 7,300 feet in length, with approaches. The project included 2,350 feet of roadway improvements, along with utility relocations of gas, water, sewer, power, and telephone lines. The project also required the development of special design criteria for ship impact effects on bridge piers and from hurricane wind effects on roadway structures and towers. Environmental documentation included a DEIS, FEIS, Noise Report, Air Quality Impact Report, Architectural and Historical/Archaeological Reports, as well as a preliminary historic evaluation case report for the old lift bridge. Professional services provided included feasibility studies, EIS, preliminary design, design review and recommendations, final design, preparation of plans and special provisions, cost estimates and construction engineering.

Contact: Ray Bass
1409 Coliseum Boulevard, Montgomery, Alabama 361130
Telephone: (334) 242-6318

19. Interstate 59, Alabama
FMLC Contractor: David Volkert & Associates
Customer: Alabama State Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Volkert provided feasibility studies, topographic surveys, preliminary plans, final construction plans, specifications, special provisions, and cost estimates for an elevated urban interstate highway. This project consists of a continuous structure with connecting ramps to major city streets and a 90-acre route interchange joining I-59 and I-65. It was designed to continue the interstate route through Alabama's largest and busiest city with minimal disruption of existing traffic flows. This project, including the route interchange, has a total of 30 structures in its five-mile length. At the time, this was the largest single highway project ever let by the Alabama Highway Department.

Contact: Ray Bass
1409 Coliseum Boulevard, Montgomery, Alabama 361130
Telephone: (334) 242-6318

20. Naval Station, Mobile, Alabama
FMLC Contractor: David Volkert & Associates
Customer: Alabama State Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The project required design for sitework and utilities, as well as field and aerial surveys of 275 acres of land and 160 acres of submerged land. The project included site preparation, roads, parking, storm sewer, sanitary sewer, water system, electrical distribution, gas distribution, perimeter fencing, and street lighting. A loop road system was designed to connect the industrial, administrative, and residential facilities for this 210-acre Naval site. In addition, Volkert reviewed contract submittals and provided on-site consultation. Volkert received the Design of Excellence Award from the U.S. Department of the Navy, Naval Facilities Engineering Command "in recognition of exemplary performance of design services" for Site Development and Utilities. Naval Station Mobile. Selection criteria for the award require the facility design to meet the customer's needs, perform the mission requirements, and cost effectiveness.

Contact: B. L. Runberg
1255 Eagle Drive, Charleston, South Carolina 29418

21. Interstate 10, Jefferson Parish to Saint John the Baptist
FMLC Contractor: David Volkert & Associates
Customer: Louisiana State Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The project began with an urban expressway design and continued with a rural interstate through three parishes in southern Louisiana that included the design of 13.8 miles of dual elevated structures for I-10 between New Orleans and Baton Rouge. The work required topographic and right-of-way surveys, subsurface evaluation, preliminary and final roadway plans, preliminary and final plans for bridges, and a review of shop drawings.

Contact: Roddy Dillon
P.O. Box 94245, Baton Rouge, Louisiana 70804
Telephone: (504) 379-1210

22. Veterans Expressway, Section 7
FMLC Contractor: David Volkert & Associates
Customer: Authority RM 802, Hillsborough County, Florida

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The task included preliminary and final design, and preparation of construction plans and specifications for 2.3 miles of four-lane, divided, limited-access expressway involving new alignment and interchanges. Overpasses include 141-, 155- and 237-foot-long three-span bridges; a 255-foot-long two-span bridge with proprietary walls; and a 150-foot-long single span steel plate girder flyover structure.

Contact: R. Ray Speer
412 East Madison Street, Tampa, Florida 33602
Telephone: (813) 272-6740

23. HEFT Plazas, Florida's Turnpike, Dade and Broward Counties
FMLC Contractor: David Volkert & Associates
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The project required preliminary design and final design, and preparation of construction plans and specifications for renovations of two plazas, new administrative buildings at three toll plazas, subplaza buildings at three toll plazas, and resurfacing at five toll plazas. Complex Traffic Control Plans were developed to assure continuous toll operations.

Contact: Bill Heiman
1211 Governor's Square Boulevard, Suite 100, Tallahassee, Florida 32301
Telephone: (904) 488-4671

24. Ticket System Toll Plazas, Florida's Turnpike
FMLC Contractor: David Volkert & Associates
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project entailed preliminary and final design, and preparation of construction plans and specifications for new administration buildings, canopies, islands, resurfacing, and state-of-the-art systems at eight toll plazas; and roadway widening at seven of the eight plazas. Complex Traffic Control Plans were developed to assure continuous toll operations during construction, including sites where new plazas were superimposed over old plaza locations.

Contact: Bill Heiman
1211 Governor's Square Boulevard, Suite 100, Tallahassee, Florida 32301
Telephone: (904) 488-4671

25. Interstate 95 to J.T. Butler Boulevard, FDOT District 2, Duval County, Florida
FMLC Contractor: David Volkert & Associates
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project involved preliminary and final design, and preparation of construction plans and specifications for 5.8 miles of widening from four-lane to six-lane. The redesign of the State Route 115 flyover entrance ramp included bridge structure, widening of three four-span bridges, and other criteria design improvements to I-95 to meet FDOT and AASHTO standards. Services included signing and pavement markings, highway lighting, and signalization.

Contact: Dick Harrell
1901 South Martin Street, Lake City, Florida 32055
Telephone: (904) 752-7275

26. Ulmerton Road/Belcher Road Interchange, FDOT District 7, Pinellas County, Florida
FMLC Contractor: David Volkert & Associates
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project involved preliminary and final design, and preparation of construction plans and specifications for a 1.4-mile roadway improvement. The project required a roadway expansion from a four-lane to six-lane urban interchange with frontage roads that included: signalization; roadway lighting; 121-, 230- and 121-foot-span, steel box beam bridges; proprietary walls; and signing and pavement markings.

Contact: Jose Rodriguez
11201 North McKinley Drive, Tampa Florida 33612
Telephone: (813) 975-6129

27. Florida's Turnpike, Interchange State Route 50, Orange County, Florida
FMLC Contractor: David Volkert & Associates
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project involved a development and environmental (PD&E) study, preliminary and final design, and preparation of construction plans and specifications for a new interchange with ramp toll plazas with three miles of roadway, ramps, and reconstruction/resurfacing of existing roads. The project included 40- and 48-foot-wide, two-span, 134-foot-long replacement bridges over State Route 50, highway lighting, signing and pavement markings, and signalization.

Contact: Bill Heiman
1211 Governor's Square Boulevard, Suite 100, Tallahassee, Florida 32301
Telephone: (904) 488-4671

28. Master Rail Plan
FMLC Contractor: David Volkert & Associates
Customer: Tampa Port Authority, Tampa, Florida

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

A master rail plan for the Port of Tampa was developed based on an inventory of the existing system; survey of major port tenants and users of rail services; and study of the port's current and future land users. The final report presented a conceptual plan for improving the railroad transportation system, budget, and schedule for improvements.

Contact: Joseph Valenti
811 Wynkoop Road, P.O. Box 2192, Tampa, Florida 33601-2192
Telephone: (813) 248-1925

29. Berth 208 Upland Site Development
FMLC Contractor: David Volkert & Associates
Customer: Tampa Port Authority, Tampa, Florida

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project was for the design and construction assistance of the upland development for a loading/unloading terminal for rail and trucks. The design provided for a warehouse facility of approximately 80,000 square feet with an attached office building. The design of the rail extension to the warehouse and truck access was also included. Apron paving for material handling from wharf to warehouse was provided along with parking facilities and security control appurtenances. All environmental permitting was included in the service.

Contact: Joseph Valenti
811 Wynkoop Road, P.O. Box 2192, Tampa, Florida 33601-2192
Telephone: (813) 248-1925

30. Pendola Point Railroad Extension
FMLC Contractor: David Volkert & Associates
Customer: Tampa Port Authority, Tampa, Florida

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project required the design and preparation of construction documents for the extension of an existing rail service to approximately 4,000 feet. The design included a rail line typical section, rail connection alternatives, and drainage. Future connections for spur tracks were included in the design.

Contact: Joseph Valenti
811 Wynkoop Road, P.O. Box 2192, Tampa, Florida 33601-2192
Telephone: (813) 248-1925

31. Intermodal Facility, Jacksonville, Florida
FMLC Contractor: David Volkert & Associates
Customer: CSX/Sea-Land Intermodal, Inc.

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project required the design and preparation of construction documents for the extension of Volkert was contracted to perform professional engineering and architectural services for the CSX/Sea-Land Terminal that involved the permitting and design of a maintenance building to double the capacity of the trailer chassis maintenance services. Services also included site work, electrical and mechanical systems, utilities, structural design of foundations and building, office space, and an upstairs warehouse.

Contact: Chris Durden
301 West Bay Street, Suit 2412, Jacksonville, Florida 32202
Telephone: (904) 366-4091

32. Smithsonian Station
FMLC Contractor: David Volkert & Associates
Customer: Washington Metropolitan Area Transit Authority

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project required the design and preparation of construction documents for the extension of The project included all architectural and engineering design and preparation of construction documents for the METRO subway stop for the Smithsonian Museums. The entire project is composed of cut-and-cover tunnel constructed of cast-in-place reinforced concrete. Total project length is 1,060 linear feet, and station platforms are 600 feet long. Ancillary facilities include subway service areas, fan shaft, vent structures, and extensive utilities including a steam system for a government building. The design also encompassed street renovation and landscaping of the mall. The subway trackage has double cross-over switching. Unique features included underpinning of the main U.S. Department of Agriculture building and north annex. Special construction techniques were specified to protect the USDA computer system, which monitors all U.S. crop production.

Contact: John Yen
605 Street NW, Washington, D.C. 20009
Telephone: (202) 962-1215

33. Intermodal Facility, New Orleans, Louisiana
FMLC Contractor: David Volkert & Associates
Customer: CSX/Land/Sea-Land Intermodal, Inc.

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project required the design and preparation of construction documents for the extension of The project involved rehabilitation of an existing maintenance facility and the expansion of the intermodal yard. Building inspection and plans and specifications for repairs and improvements included structural repairs, new pneumatic and electrical systems, new lighting, utilities, new diesel storage facilities, and new roll-up doors. The intermodal yard expansion included earthwork, drainage, site electrical, removal of existing diesel facilities, and extension design of the existing two-track yard, along with permitting from the City and State.

Contact: Chris Durden
301 West Bay Street, Suite 2412, Jacksonville, Florida 32202
Telephone: (904) 366-4091

34. Intermodal Facility, Philadelphia, Pennsylvania
FMLC Contractor: David Volkert & Associates
Customer: CSX/Sea-Land Intermodal, Inc.

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project required the design and preparation of construction documents for the extension of Volkert was responsible for the renovation and expansion of the CSX/Sea-Land Terminal that required the addition of 1193 linear feet of railroad track, the shifting of 1845 linear feet of track, the removal of 1923 linear feet of track, the design of entrance and access roads, expansion of parking areas, storm-water control, and fencing.

Contact: Chris Durden
301 West Bay Street, Suite 2412, Jacksonville, Florida 32202
Telephone: (904) 366-4091

35. McDuffie Terminals Coal Export Facility, Mobile, Alabama
FMLC Contractor: David Volkert & Associates
Customer: Alabama State Docks

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project required the design and preparation of construction documents for the extension of The facility received worldwide recognition as a state-of-the-art transloading facility. Site work included clearing, grubbing, grading, access roads, parking areas, utilities, entry buildings, a loop railroad track around the site, and storm drainage including containment levees for rainwater runoff. Volkert also provided feasibility studies and budget estimates to support a bond prospectus, preparation of preliminary plans, preparation of contract plans and specifications, bidding and contract award services, and construction management for a coal export facility capable of transloading more than 23,000,000 tons of coal per year.

Contact: Jim Hancken
P.O. Box 1588, Mobile, Alabama 36633
Telephone: (334) 441-7256

36. Ship Repair Facility, Puerto Cabello, Venezuela
FMLC Contractor: David Volkert & Associates
Customer: Diques Y Astilleros Nationales

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project required the design and preparation of construction documents for the extension of This project required the design of a ship repair facility, including a 5,000-ton-capacity synchrolift system and a marine rail-transfer system. The design also included a 300,000- deadweight-ton dry dock, repair and degassification piers with cranes and railways; electrical, mechanical and carpentry repair shops; a foundry; warehouses, and storage areas; and utility support systems including a power house, water treatment plant, and an oil-water separation treatment plant.

Contact: Diques y Astilleros Nationales
Pureto Cabello, Venezuela

37. Miami Metromover, Omni Extension, Miami, Florida
FMLC Contractor: Weidener Surveying & Mapping, P.A.
Customer: Metropolitan Dade County

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project required the design and preparation of construction documents for the extension of The Omni Extension of the Miami Metromover is a 1.5-mile elevated transit system utilizing an automated guideway. It is in a downtown urban environment. The extension began at the existing Metromover loop and required very precise coordination to limit down time on the existing system. WSM provided full design surveys including high precision horizontal and vertical control. A full route survey was provided along with topographic surveys at all stations. All proposed piers were staked out for utility surveys. During construction, WSM verified the construction layout and the construction itself. The level of surveying was mandated by the very tight tolerance of 1/16 inch for each 80-foot girder. This included verification of foundations, piers, pier caps, plinths, running pads, and guideways. The extensive quality control by WSM was instrumental to the smooth installation of the automated system.

Contact: William Anido, PE
5775 Blue Lagoon Drive, Suite 360, Miami, Florida 33126
Telephone: (305) 261-4785

38. Miami Metrorail, Miami, Florida
FMLC Contractor: Weidener Surveying & Mapping, P.A.
Customer: Metropolitan Dade County

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The Miami Metrorail System is a heavy-rail system encompassing 21 miles, almost all of which is elevated. The environment is urban. WSM provided deformation surveys on all 2,752 girders to test for settlement, which had been noted during an earlier survey. WSM established high order vertical control and took six elevations on every girder, resulting in the verification of the original construction; the previous survey showed false settlement which was, in fact, survey error.

Contact: Dr. Robert Edelstein, PE
Telephone: (305) 826-0606

39. Intermodal Facility and Metrorail Extension along N.W. 74th Street, Miami, Florida
FMLC Contractor: Weidener Surveying & Mapping, P.A.
Customer: CSX/Sea-Land Intermodal, Inc.

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The project encompassed the development and engineering design (PD&E) of the extension of the existing Metrorail system and the addition of another station. WSM provided full design surveys for the PD&E study in addition to the right-of-way control survey map and digital terrain model.

Contact: Dennis Lysniack, PE
8100 Oak Lane, Suite 301, Miami, Florida 33016
Telephone: (305) 827-6024

40. South Miami Parking Garage, Miami, Florida
FMLC Contractor: Weidener Surveying & Mapping, P.A.
Customer: CSX/Sea-Land Intermodal, Inc.

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The garage services the Miami Metrorail station at South Miami. Dade County sought to double the capacity of the garage to meet demand. WSM provided boundary and topographic surveys for design, including detailed as-built measurements on the existing structure. Thereafter, measurements were made to verify construction, and a final survey was made at completion.

Contact: Nasir Alam, PE
641 Southwest 87th Avenue, Suite 111, Miami, Florida 33173
Telephone: (305) 279-7939

41. Martin Luther King Parking Garage, Miami, Florida
FMLC Contractor: Weidener Surveying & Mapping, P.A.
Customer: Metropolitan Dade County

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The garage at this location on the Miami Metrorail station had a problem with structural integrity, requiring a retrofit for stability. A liability situation arose between Dade County and the contractor. WSM provided structural and deformation measurements relating to an analysis of the underlying cause of the problem.

Contact: Surrinder Sahota, PE
Telephone: (305) 375-4505

42. Automated Skyway Express, Jacksonville, Florida
FMLC Contractor: Weidener Surveying & Mapping, P.A.
Customer: Jacksonville Transportation Authority

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The Automated Skyway Express system consists of 1.9 miles of elevated guideway and 0.3 mile of guideway directly on the deck of the Acosta Bridge over the St. Johns River. At this time, 0.7 mile is in operation; the remainder of the system is under construction. A new monorail system is to be installed.

Contact: Elmer Ozolin, PE
33301 9th Avenue South, Suite 300, Federal Way, Washington 98003
Telephone: (206) 431-2300

43. FEC Railroad Acquisition, Miami, Florida
FMLC Contractor: Weidener Surveying & Mapping, P.A.
Customer: CSX/Sea-Land Intermodal, Inc.

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The existing FEC Railroad right-of-way in South Dade County was acquired by FDOT. WSM provided surveying and right-of-way monumentation of the 23-mile route for acquisition and to note encroachments.

Contact: Robert Hughen, PLS
1000 Northwest 111 Avenue, Miami, Florida 33172
Telephone: (305) 470-5190

44. South Florida Rail Corridor, Track and Signal Improvements, Phase II, Dade and Broward Counties
FMLC Contractor: Weidener Surveying & Mapping, P.A.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The Tri-Rail system is scheduled for double tracking. Phase II is 11.5 miles long. WSM provided alignment and a full design survey using automated data collection in the field and CAiCE processing in the office. A digital terrain model was provided.

Contact: William Wadsworth, PE
5100 West Kennedy Boulevard, Suite 300, Tampa, Florida 33609
Telephone: (813) 282-2300

45. South Florida Rail Corridor, Phase I Double Tracking, Broward County
FMLC Contractor: Weidener Surveying & Mapping, P.A.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Phase I of the Tri-Rail system (8 miles) is under construction at this time. WSM provided CE & I services to verify the layout of the contractor over part of the system. Over the remaining portion of the system, which is being constructed by the railroad itself, WSM provided direct layout of improvements.

Contact: John Moore, PE
20803 Biscayne Boulevard, Suite 303, North Miami Beach, Florida 33180
Telephone: (305) 682-3802

46. Main Pier Foundations, Sunshine Skyway Bridge, Tampa, Florida
FMLC Contractor: The Hardaway Company
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project occurred as a result of the May 9, 1980 accident in which a Liberian phosphate freighter rammed one of the main piers of the Sunshine Skyway Bridge. These twin-span north and south bound bridges, spanning the entrance to the nation's seventh largest port, were originally constructed by The Hardaway Company in 1951 through 1954 and 1967 through 1971.

The main pier foundations for the new 1,200-foot, cable-stayed Skyway Bridge consisted of two concrete slabs, each 70 feet in diameter, protruding 8 feet above mean low water - deceptive testimony to what is beneath the surface.

The substructure extends as deep as 115 feet within the 76-foot diameter cofferdams. Forty-four 60-inch reinforced-concrete drilled shafts were constructed for each foundation. Thousands of tons of sand, marl, and clay were removed in search of the Florida limestone formation considered desirable for supporting the structures, before 1,200 cubic yards of tremie seal could provide an 8-foot-thick slab extending from 31 to 23 feet below mean low water. Circular no. 18 reinforcing steel placed at eight different radii (from 38 to 22 feet) stacked 11 deep dominated the work area.

All 14,000 cubic yards of concrete were produced by our new Hardaway custom-designed, computerized, floating concrete batch plant. This concrete was produced under the most rigorous specifications ever used by the Florida Department of Transportation.

Contact: Mike Irwin (FDOT District 7)
Telephone: (813) 871-7220

47. Eastern Beltway, Bee Line Expressway, Orlando, Florida
FMLC Contractor: The Hardaway Company
Customer: Orlando-Orange County Expressway Authority

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The project included 9.6 miles of roadway construction, 2-million cubic yards of embankment, three concrete bridges with prestressed concrete girders, one concrete bridge with steel girders, one timber bridge, 240 concrete piles, 14,000 linear feet of drainage pipe, six reinforced earth walls, 4,600 cubic yards of concrete, 27 retention ponds, one wetland mitigation area, two box culverts, and one bridge demolition.

Contact: Joe Gilleland
P.O. Box 522730, Longwood, Florida 32752-2730
Telephone: (407) 331-1551

48. Replace Movable Span Bridge over Miami River, Miami, Florida
FMLC Contractor: The Hardaway Company
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Construction consisted of replacing an existing four-lane double-leaf bascule bridge over the Miami River and a concrete arch bridge over the North Fork River with twin three-lane, independent, double-leaf Bascules; also, the effort included the full replacement of a100-foot, six-lane concrete girder bridge over the North Fork River along with associated intersection and roadway work.

The new bascule bridge features an advanced bridge design with hydraulic cubic-yard slinders used to raise and lower the leaves of the bridge for the steady flow of shipping traffic. The leaves were erected in the open position for river traffic to have access to the channel during construction, Tolerances as close as 1/64 inch were required in the placement and alignment of the trunnions and trunnion bearings. Work consisted of four major cofferdams, 32,000 linear feet of 18-inch pipe piles, 13,000 linear feet of 14- and 18-inch prestressed concrete piles, 34,000 linear feet of concrete sheet piles, 15,000 cubic yards of structural concrete, 5,700 linear feet of concrete beams, 750 tons of double-leaf Bascule steel including machinery and hydraulic systems, a four story control building fender system and the demolition of existing bridges.

Foundation changes have required piling in lengths exceeding 300 linear feet instead of the original plan lengths of 67 linear feet. In addition, changes to the movable bridge design, maintenance of traffic, and roadway changes due to hazardous materials, and other minor conflicts requiring numerous supplemental agreements have accounted for the shown increase in revenues.

Contact: Joe Gomez, Director of Operations
1000 Northwest 11th Avenue. Room 6207, Miami, Florida 33172
Telephone: (305) 470-5466

49. Veteran's Expressway No. 1 and 2, Tampa Bridge, Tampa, Florida
FMLC Contractor: The Hardaway Company
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project consisted of two sections, four miles long with 13 new bridges, for a new 15-mile limited access toll road paralleling an existing roadway. The work was done in six phases to allow the flow of traffic on the existing roadway. The work included: 1.1 million cubic yards of embankment, 210,000 square feet of reinforced earth panels, 15 retention ponds, 7,000 cubic yards of concrete, pipe, base, asphalt paving and striping. Included was the construction of one 210-foot-span steel girder bridge and 12 concrete beam bridges. Ten bridges had concrete piling and the other three had steel piling.

Contact: Jim Moulton
2525 Dranefield Road, Suite 8, Lakeland, Florida 33811
Telephone: (941) 647-5671

50. Orlando-Orange County Expressway, 401/402A, Florida
FMLC Contractor: The Hardaway Company
Customer: Orlando-Orange County Expressway Authority

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The project consisted of a four-lane divided highway tying into the Florida Turnpike southeast of Orlando. There were four bridges founded on prestressed piles with footers, columns, and caps. One bridge was structural steel and the remaining three had prestressed girders. In addition, there were 2,011,000 cubic yards of embankment, 590 linear feet of box culvert, storm drainage, retained earth walls, limerock base, and asphalt paving.

Contact: Jim Gilliland
P.O. Box 522730, Longwood, Florida 32752-2730
Telephone: (407) 331-1551

51. Clearwater Pass Bridge Replacement, Pinellas County, Florida
FMLC Contractor: The Hardaway Company
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The task , now in progress, comprises the construction of a replacement bridge over Clearwater Pass between Sand Key Island and Clearwater Beach and the demolition of the existing bridge. This two-lane, high level bridge (74 feet of vertical clearance) features 72-inch-diameter drilled shaft foundations in lieu of conventional prestressed concrete piling. A total of 20 piers will receive two drilled shafts per pier. Additionally, five 36-inch-diameter shafts are required under each bent. Our Tampa Prestress Yard will produce the 120-foot-long Florida Bulb Tee girders, which will be delivered by barge to the site for placement. Also, included on this project is the creation of a new ship channel, which requires 72,000 cubic yards of sand to be hydraulically dredged during incoming tides only. The resultant concrete rubble from the bridge demolition will be barged to designated sites in the Gulf to create artificial reefs for marine life.

Contact: Allen Adderly
3204 Gulf-to-Bay Boulevard, Clearwater, Florida 34619
Telephone: (813) 725-7950

52. Linton Boulevard, High Occupancy Vehicle Lanes, Palm Beach County, Florida
FMLC Contractor: The Hardaway Company
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The contract involved the widening of 3.85 miles of roadway and bridges on I-95 to facilitate new high occupancy vehicle lanes. Three existing bridges were widened, and four new bridges were constructed. Two of these bridges were "fly-over" bridges, which spanned I-95 and the CSX railroad. A partial list of items included 17,000 cubic yards. of concrete with 760 tons of reinforcing steel, 134,000 square feet of retained earth walls and 600,000 cubic yards. of fill. All construction was completed under traffic except for setting the prestressed concrete beams over I-95, which was accomplished by constructing a temporary detour.

Contact: Patrick McCann
3400 West Commercial Boulevard, Ft. Lauderdale, Florida 33309
Telephone: (305) 777-4130

53. Southern Connector Extension, Osceola County near Kissimmee, Florida
FMLC Contractor: The Hardaway Company
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The Southern Connector is part of a new highway system to connect major tourist attractions in central and east Central Florida from U.S. 192 to West Osceola Parkway.

This area is federally protected wetlands, so much consideration was given prevent any unnecessary disturbance of natural streams and wildlife. The work consists of a 1,200-foot dual bridge over State Route 192 and one mile of expressway, and the main road into Disney's new Celebration City. Test piles range from 60 to 150 feet. Crews will set a total of 1,500,000 pounds of steel in the bridge, and 1,000,000 cubic yards. of embankment will be moved, two thirds of which will be trucked in.

Contact: Tom Terpening
5998 A West Irlo Bronson Highway, Kissimmee, Florida 34747
Telephone: (407) 939-0847

54. Vienna/Nanticoke River Bridge, Wicomico County, Maryland
FMLC Contractor: The Hardaway Company
Customer: Maryland State Highway Administration

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The main structure of this project is a bridge just over 5,200 feet long and 78 feet wide. The 34 approach piers are constructed on 122,000 linear feet of 24-inch-diameter pipe pile 90 to 160 feet long. The piles are capped by a low-water, cast-in-place concrete masonry footer, and the piers are of cast-in-place masonry construction. Footings for the four main channel piers were constructed in deep-water cofferdams well below the river bottom. The deepest excavation was 60 feet below the surface. Massive tremie concrete pours were required for cofferdam dewatering purposes, allowing placement of 20,000 cubic yards of substructure concrete. The pier construction is similar to the approach piers. Main channel piers are protected by a fender system of 24-inch concrete-filled pipe pile and timbers. The superstructure is a continuous-span, concrete slab deck consisting of six 900-foot sections requiring the placement of 16,000 cubic yards of concrete. The 34 125- to 130-foot approach spans are supported by Type VI AASHTO prestressed concrete girders 129 feet long and weighing 85 tons each. These girders were erected using a company-owned Manitowac 4100 barge-mounted crawler crane with a ringer attachment. The five center spans of 1,505 tons of structural steel plate girders average 212 feet in length. Slipform concrete parapets and a median barrier complete the superstructure.

The project also included a two-span highway bridge over a state road and five miles of highway construction which required 900,000 cubic yards of borrow and nearly 151,000 tons of asphalt paving. This work was also constructed by The Hardaway Company personnel.

Contact: Donny Drewer
Telephone: (301) 543-6715

55. Land-Level Ship Construction Facility, Newport News, Virginia
FMLC Contractor: The Hardaway Company
Customer: Newport News Shipbuilding & Dry Dock Company

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

A 300-million dollar project for building Navy attack submarines simultaneously at ground level and, upon completion, moving them to the James River into a floating dry dock. The Hardaway Company was awarded four separate projects.

1. Land Level Slabs: A $11,000,000 project of 3- to 5 feet of reinforced concrete slab (40,000 cubic yards) supported on 7,500 each 14-inch prestressed concrete piles. Included were three electrical vaults 25 feet below grade requiring cofferdam construction.

2. Outboard Weighs: A $7,500,000 project extended the land level slab over the sloping river bank. Twenty thousand (20,000) cubic yards of CIP concrete was placed on piles driven by others.

3. Electrical Vault: A $2,300,000 electrical vault in addition to the previous three built by The Hardaway Company. Construction required a pile support vault built below grade in a deep cofferdam adjacent to the James River.

4. Water Front: A $25,000,000 project to take the land level out into the river. It also entailed constructing a 600- by 40-foot outfitting pier on one side and a pier and dolphin facility on the other for mooring the dry dock.

The slabs were supported on 1,490 20- and 24-inch prestressed piles. The mooring facility utilized 185 each 36-inch-diameter pipe piles. In all, 32,000 cubic yards of reinforced concrete was used, much of it placed below the existing water level. The low-water construction took place in a unique self-supported concrete capped sheet pile cofferdam wall, which allowed the lowering of the water level in the river landward.

All milestone dates associated with these projects were met despite two major setbacks. At the beginning of pile-driving operations, an underwater sheet pile wall was discovered, costing four months of production. Second, a major storm caused conditions that collapsed the sheet pile cofferdam, destroying 50 concrete piles and setting the project back an additional three months.

The responsibility and supervision of this project was under the direction of J. A. Gendell, Vice President of The Hardaway Company.

Contact: Keith Meeks
Telephone: (804) 380-7508

56. Roadway Construction, Interstate I-97 County, Maryland
FMLC Contractor: The Hardaway Company
Customer: Maryland State Highway Administration

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The construction of 2.5 miles of highway on Interstate 97. This involved the conversion of an existing dual highway to an Interstate standard, also the construction of parallel frontage roads on each side. Partial construction of sections of the project required many traffic switches and strict maintenance of traffic control. The work included: three bridges, three retaining walls, 1,500,000 cubic yards. of excavation, 180,000 tons of stone base, 170,000 square yards of concrete pavement and 19,000 linear feet of pipe.

Contact: Charlie Watkins
138 Defense Highway, Annapolis, Maryland 21401-7023
Telephone: (410) 841-5450

57. Roadway Construction, Smyrna-Dover Bypass, Kent and Newcastle Counties, Delaware
FMLC Contractor: The Hardaway Company
Customer: State of Delaware Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project involved the construction of 5 miles of dual highway and required the relocation of US Route 13 in Delaware Two of the dual bridges were over small rivers and involved the construction of cofferdams and the use of floating equipment. The work included: three dual bridges, one single bridge, 2,325,000 cubic yards of stone base, 252,000 square yards of soil cement, 180,000 square yards of concrete pavement, 70,000 tons of asphalt paving, 13,900 linear feet of pipe, and 50,000 linear feet of piling.

Contact: Tom Clements
2233A North Dupont Highway, Dover, Delaware 19901
Telephone: (302) 734-9533

58. Roadway Construction, Interstate 270, Montgomery County, Maryland
FMLC Contractor: The Hardaway Company
Customer: Maryland Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project was the construction widening and rehabilitation of 4.1 miles of Interstate 270 from 6 to 12 lanes. One of the bridges over I-270 was a unique-design "urban diamond interchange." The work was done in stages involving the maintaining of traffic for 160,000 vehicles per day. Much nighttime work was performed for this reason. The work consisted of: two bridges over I-270 and two bridges on I-270.

Contact: Larry Guillrad, PE
8201 River Road, Bethesda, Maryland
Telephone: (301) 365-4521

59. Battery Creek Bridge, Beaufort County, South Carolina
FMLC Contractor: The Hardaway Company
Customer: South Carolina Department of Highway and Public Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Construction consisted of replacing an existing swivel span bridge with a 3,164 linear feet of concrete and steel plate girder bridge, along with a 120-linear-foot relief bridge, and 3. miles of associated roadway work. The job consisted of 12 major cofferdams, 78,100 linear feet of timber, 20- and 24-inch concrete piles, 36,300 linear feet of Type III and Type IV prestressed girders, 460 tons of structural steel beams and 29,000 cubic yards. of bridge concrete. Also, a new fender system was installed and existing bridge was demolished. The project consists of a six-lane highway, which will make the new cable-stayed crossing of the C&D Canal functional. The 4.8 miles of highway contains eleven bridges at seven separate locations.

Contact: Charles Matthews
P.O. Box 191, Columbia, South Carolina 29202
Telephone: (803) 737-1490

60. State Route 1 Relief Route, Newcastle County, Delaware
FMLC Contractor: The Hardaway Company
Customer: State of Delaware Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The project consists of a 6-lane highway, which will make the new cable-stayed crossing of the C&D Canal functional. The 4.8 miles of highway contains eleven bridges at seven separate locations.

Contact: Jim Lating
4221 Wranglehill Road, Bear, Delaware 19701
Telephone: (302) 834-0687

61. Design and Build Berth 201 Wharf, Tampa, Florida
FMLC Contractor: The Hardaway Company
Customer: Tampa Port Authority

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The project consisted of the partial demolition of an existing 300-ft dock with the removal of 36 battered 20-in concrete pile, then construction of a new 900-ft dock. Value Engineering was utilized with ABAM's waterfront engineers to redesign the facility. The wharf integrated four existing breasting dolphins and a roll-on/roll-off ramp to provide a continuous deck with provisions for future expansion on both ends. A reinforced concrete surfaced superstructure was supported on prestressed composite concrete piles, with a 10-ft wide concrete transition. The superstructure, designed by ABAM, contained more than 8,000 yards of concrete that included 800 precast deck slabs. The deck had 1,000 tons of ballast materials.

Contact: Allen M. Schroeder TPA
811 Wynkoop Road, Tampa, Florida 33605
Telephone: (813) 289-5300

62. Edison Bridge, Lee County, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Two twin 6000-ft bridges were constructed over the Caloosahatchee River in Fort Myers, Florida. The bridges were founded on 30-square-inch-piling, low water footings with precast columns and caps. Beams were 143-foot bulb tees weighing approximately 70 tons each. The deck was cast-in-place at 56-in wide. Other work included the demolition of an existing bridge, dredging a new channel, and constructing a new fender system. The Job was finished six months ahead of schedule.

Contact: Chris Reseigh (Carson Brinkerhoff)
1408 North West Shore Boulevard, Suite 300, Tampa, Florida 33607
Telephone: (813) 289-5300

63. San Jose Lagoon Bridge, San Juan and Carolina, Puerto Rico
FMLC Contractor: Misener Construction Company, Inc.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The substructure of a 1.5-mile bridge over the San Jose Lagoon. Structure consists of 42-in-diameter steel piles, poured-in-place cast, precast beams and deck panels.

Contact: Jose A. Estrada Fernandez
Telephone: (809) 781-5066

64. Mobile Mining Railroad Bridge
FMLC Contractor: Misener Construction Company, Inc.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The project involved a 3,055-foot bridge and trestle over the Peace River. MIsener Construction furnished and installed four each 20- and 24- inch prestressed concrete test piles; 490 each 20- and 21-inch prestressed concrete production piles (all battered); 238 each prestressed concrete railroad slabs, and 8 each Type V girders. Approximately 1,500 cubic yards of reinforced concrete were placed.

Contact: Jim Cullan, PE
Telephone: (813) 874-4888

65. Bridges to Palm and Hibiscus Islands, Miami, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project involved the construction of two two-lane bridges over water. The bridges were 591- and 612-feet long, respectively. They were constructed on an 18-in-pile in-situ deck.

Contact: Robert Buser
Telephone: (904) 758-0500

66. Ochlockonee Bay Bridge, Panacea, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Misener designed and constructed a 5,854-foot bridge and approaches. The bridge replaced an existing two-lane bridge constructed in the early 1930's. The new bridge provides one each travel and emergency lane in each direction with a deck width of 47 feet, 9 inches. The deck rests on modified ASSHJTO Type IV girders with a span length of 78 feet. Substructure consists of concrete caps and five pile bents of 24-square-inch concrete piling. The bridge has a vertical clearance of 35 feet and horizontal dimension of 60 feet.

Contact: Bill Deyo or Steve Benak
Telephone: (904) 623-0250

67. Lansing Island Bridge, Indian Harbor Beach, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: Lansing Island Development Corporation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This is a single-leaf bascule bridge set in place and designed with hydraulic counterweight-assist activation. It is set on a 24-in prestressed pile, Type 3 in-situ deck.

Contact: Dave McWilliams
1790 Highway A-1A, Suite 209, Satellite Beach, Florida 32937
Telephone: (407) 777-5054

68. Skyway Bridge Structure A, Pinellas County, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The project called for demolishing two bridges, each 1,200 ft long. Construction consisted of driving 452 each 30- by 30-inch solid prestressed concrete piling and pouring 32 large concrete pile caps (approximately 215 cubic yards each).

Contact: J. B. Moulton
Telephone: (904) 487-1935

69. East Lake Road Interchange and Approaches
FMLC Contractor: Misener Construction Company, Inc.
Customer: Pinellas County Board of Commissioners

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project consisted of the construction of six bridges and four miles of road. The six bridges were placed over a bypass canal. Four miles of roadway, and a large-diameter municipal waterline completed the project.

Contact: Rudy Garcia and Jim Lewis
Telephone: (813) 462-3311

70. Skyway Bridge Structure B, Manatee County, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project consisted of widening one bridge and replacing another bridge. A new bridge was then constructed ; it was approximately 1,800 feet long and on 24-in-diameter piling; it had Type IV girders, and poured-in-place deck. Also included were demolition and construction of new fender system.

Contact: George Anderson
Telephone: (813) 726-1131

71. New Smyrna Beach, Lytle Avenue Bridge
FMLC Contractor: Misener Construction Company, Inc.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project was the construction of a new bridge over the Indian River. It had a 65-foot vertical clearance with spans ranging from 88 feet to 130 feet (all with Type IV beams). Typical construction was concrete caps, square concrete columns, and concrete footers supported by either 18-inch or 24-inch square concrete piles. Also constructed was a relief bridge over Callalisa Creek; it had simple 47-foot spans (Type II beams) supported by 18-inch-square concrete piles with a concrete cap. Demolition of a bascule bridge was included.

Contact: Bill Downs
Telephone: (904) 736-9115

72. Dodge Island Bridge, Miami, Dade County, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The contract called for driving 226 each 30- by 30-inch solid prestressed concrete piling (approximately 27,000-pound lift), pouring seven large pile caps (approximately 400 cubic yards, each), and building a new fender system (approximately 350 linear feet).

Contact: Mark Siegenthaler, Florida Department of Transportation
1000 Northwest 111, Miami, Florida 33172
Telephone: (305) 470-5445

73. Suwannee River Bridge, Branford, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This contract was for a bridge replacement for the Suwannee River Crossing. Misener constructed an 867-foot bridge founded on 20-square-inch precast piling, cast-in-place caps, Type IV girders, and cast-in-place deck. Also included was the demolition of an existing bridge. Due to vast fluctuations in the river elevation and strong currents, a temporary trestle was first constructed across the river. All pile driving, girder setting, and concreting operations were done from trestle.

Contact: R. Phil Bishop, District Materials Office
PO Box 1089, Lake City, Florida 32056-1089
Telephone: (904) 758-0500

74. I-664 Bridges over Hampton Roads, Norfolk, Virginia
FMLC Contractor: Misener Construction Company, Inc.
Customer: Virginia Department of Highways and Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project entailed the construction of twin bridges for the I-664 extension at Hampton Roads, Norfolk, Virginia. Each bridge was 3.15 miles long and was founded on 54-inch-diameter cylinder piles with individual lengths up to 172 feet. The substructure was pile caps with 73-foot Type III AASHTO girders. The superstructure consisted of precast deck slabs with a cast-in-place deck. The piling program included load tests to 750 tons. The project was completed three months ahead of schedule.

Contact: J. K. Morrison
Telephone: (804) 599-7473

75. Apalachicola River Bridge, Franklin County, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Misener constructed a 3,788-foot high-level intracoastal waterway crossing over the Apalachicola River. The bridge had a super-elevated deck on an 89-foot modified Type IV girder approach spans with a 728-foot steel-plate-girder center span. The substructure was founded on 24- and 30-square inch prestressed piling with low-water footings, columns, and caps.

Contact: Robert D. Buser
Telephone: (904) 487-1935

76. WICO Cruise Dock Extension, St. Thomas, Virgin Islands
FMLC Contractor: Misener Construction Company, Inc.
Customer: The West Indian Company, Ltd.

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This contract was for a cruise ship docking facility and general cargo facility. The cruise docking facility consisted of a Type IV 24- by 3/4-inch pile, in situ deck and a 42- by 1-inch pile with Seibu unit type fender. The general cargo facility consisted of a 54-in cylinder pile with inverted prestressed-concrete double T's filled with weight prior to a cast-in-place deck.

Contact: Hans F. Jahn
Telephone: (809) 774-1780

77. Harbour Island People Mover, Harbour Island, Tampa, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: Harbour Island, Inc.

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This contract was for a structural guideway for the Otis Elevator People Mover. Misener designed and constructed the 3,000-linear-foot using 70-inch drilled shafts and box girder construction.

Contact: John S. Karpinski, PE
5440 West Tyson Avenue, Tampa, Florida 33611
Telephone: (813) 839-8441

78. Container Terminal, Georgia Ports
FMLC Contractor: Misener Construction Company, Inc.
Customer: Georgia Port Authority

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project was for the rehabilitation of 850 feet of container berth at the Garden City Terminal.

Contact: James E. Bradshaw
P.O. Box 2406, Savannah, Georgia 31402
Telephone: (912) 964-3914

79. Wando River Wharf Extension, Mount Pleasant, South Carolina
FMLC Contractor: Misener Construction Company, Inc.
Customer: South Carolina State Ports Authority

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Work was performed on the berth 4 container terminal. It involved construction of a 143-foot-wide by 1,373-foot-long reinforcing concrete wharf extension and a 40-acre concrete-paved container marshalling area, which includes expansion of utilities. The wharf extension is founded on prestressed concrete piles, has flat-plate concrete construction, three crane rails, ship's water, and electrical/communications facilities. Also included were excavating, backfilling, grading, compaction, portland cement concrete paving, and dredging of new berth.

Contact: Randolph Bowers
P.O. Box 817, Charleston, South Carolina 29402
Telephone: (803) 723-8651

80. U.S. Navy Fuel Mooring Facility, County, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: Department of the Navy

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The final facility consisted of over 3,000 linear feet of concrete pier supported on 24-square-inch prestressed concrete and 30-inch-diameter steel piling. It had type III concrete girders and a cast-in-place concrete deck. It included four mooring dolphins, four breasting dolphins and three fuel pipelines.

Contact: Lt. Cdr. Rick Marrs CEC, USN
Telephone: (809) 865-2050

81. Dinner Key Redevelopment Pier, Miami, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: City of Miami Public Works

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project called for the demolition of the existing marina and construction of a new 579-slip marina that included new piers and new utilities.

Contact: Alan Poms
275 Northwest 2nd Street, Miami, Florida 33128
Telephone: (305) 579-6865

82. Navigation Improvements, Jonesport Harbor, Maine
FMLC Contractor: Misener Construction Company, Inc.
Customer: U.S. Corps of Engineers, New England District

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This effort was the construction of a sheet-pile-cell breakwater, dredging, and a rock jetty.

Contact: Frank Vilkas
Telephone: (617) 647-8691

83. Port of Miami Container Berth No. 4, Miami, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This effort consisted of dredging and construction of a ship berth and container crane facility, including foundation, rails, and paving.

Contact: Claude Bullock
1015 North America Way, Suite 210, Miami, Florida 33132
Telephone: (305) 347-4891

84. Berth for Passenger Terminals 12, 13, and 14, Port of Miami
FMLC Contractor: Misener Construction Company, Inc.
Customer: Metropolitan Dade County Seaport Department

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*
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This project called for dredging a channel and turning basin, removing approximately 800,000 cubic yards. Then, Misener constructed new 1,700-foot passenger ship berths and a heavy steel bulkhead.

Contact: Claude Bullock
1015 North America Way, Suite 210, Miami, Florida 33132
Telephone: (305) 371-7678

85. Jacksonville Naval Air Station, Jacksonville, Florida
FMLC Contractor: Misener Construction Company, Inc.
Customer: U.S. Navy

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project involved replacement of 3,600 linear feet of bulkhead with new precast concrete bulkhead; this included concrete pavement and miscellaneous mechanical work.

Contact: Mike Cone
6735 South Lois Avenue, Tampa, Florida 33616
Telephone: (813) 837-2991

86. Port of Miami Berth No. 2
FMLC Contractor: Misener Construction Company, Inc.
Customer: Port of Miami, Dade County Seaport Department

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This work involved the Installation of berth no. 2 and crane rails. Installed were 840 linear feet of pile-supported crane rails with dredging, backfill, and paving.

Contact: Carmen Lunetta
1015 North America Way, Miami, Florida 33132
Telephone: (305) 371-7678

87. Port of Miami Berth No. 3
FMLC Contractor: Misener Construction Company, Inc.
Customer: Port of Miami, Dade County Seaport Department

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This work involved the construction of a dock and dredging for Berth No. 3 at Lummus island.

Contact: Carmen Lunetta
1015 North America Way, Miami, Florida 33132
Telephone: (305) 371-7678

88. Port of Haina, Dominican Republic
FMLC Contractor: Misener Construction Company, Inc.
Customer: Government of the Dominican Republic, Secretary for Public Works and Communications, Department of Ports and Piers

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Constructed was a 2600-linear-feet concrete wharf for containerized cargo. It consisted of 1554 prestressed concrete piles 20 inches square by 130 feet long, with concrete caps and a concrete deck over prestressed concrete slabs. Over 1,000,000 cubic yards of material were excavated by dredging and over 500,000 cubic yards of rock and 260,000 cubic yards of fill installed as bank stabilization.

Contact: Felipe Medina
Telephone: (809) 567-8251, ext. 34

89. Pittsburg International Airport, Midfield Terminal Complex
FMLC Contractor: Michael Baker, Jr., Inc.
Customer: Allegheny County Department of Aviation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Baker managed the final design services for site grading and drainage, access roadways, terminal bridges, public parking, aprons, taxiways, and service roads for the construction of a new two-million-square-foot air terminal facility. The entire project was constructed between the primary operating runways and taxiways of the nation's ninth busiest passenger airport and was accomplished without disruption of airline schedules. Major obstacles overcome included relocation of a landfill, on-site bioremediation of hazardous materials, and replacement of 22 acres of wetlands. The new airport was opened on schedule, October 1, 1992. The new construction consisted of two-million square feet of buildings, 1.1 million square yards of new apron and taxiways paving for bridges, and a complete people-mover system.

Contact: Herbert C. Higginbotham, III, Department of Aviation
County of Allegheny, Pittsburgh, Pennsylvania 15236
Telephone: (412) 472-3510

90. Mon Fayette Transportation Project
FMLC Contractor: Michael Baker, Jr., Inc.
Customer: Pennsylvania Turnpike Commission

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Baker is providing design management, technical review, and environmental consulting for the 65-mile Mon Fayette project, an intermodal transportation improvement program that involves a series of four independent projects; the I-68 to PA Route 43 project, the Uniontown to "Brownsville project, the I-70 to Pennsylvania Route 51 project, and the Pennsylvania Route 51 to I-376 project. Specifically, Baker's role in the development and success of the fast-tracked Mon Fayette project includes technical review and coordination of engineering plans and studies, transportation needs studies, traffic forecasts, and environmental impact statements. The Mon Fayette project addresses a broad range of improvement alternatives, including toll highway projects on new alignment, park-n-ride facilities, TSM and network upgrades, and potential transit options. As well, Congestion Management System (CMS) and Major investment Studies (MIS) analyses are being performed. Located within the Pittsburgh transportation Management Area, the Pennsylvania Route 51 to I-376 project includes preparation of an interim CMS analysis and MIS in compliance with the joint FHWA/FTA Metropolitan Planning Regulations 23 CFR 450.318 and 23 CFR 450.318 and 23 CFR 450.336.

Baker is also serving in a key role on the Mon Fayette Project EIS Management Team, which is charged with directing the Mon Fayette project through the integrated transportation development process, ensuring that its fast-track status is maintained, and that all milestones are strictly met.

Contact: John Sokil, Jr., PE
P.O. Box 8531, Harrisburg, Pennsylvania 17105
Telephone: (717) 939-9551

91. Pittsburgh Stage II Light Rail Transit (LRT) Corridor
FMLC Contractor: Michael Baker, Jr., Inc.
Customer: Port Authority of Allegheny County

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Providing innovative transportation services to meet citizens' changing mobility needs continues to be one of Baker's priorities. Baker is providing subconsultant services for the Port Authority of Allegheny County's Light Rail Transit Corridor Study, which is an alternatives analysis for upgrading an existing 12-mile trolley system through Pittsburgh's South Hills area. This study is also part of a planning analysis/draft EA being conducted for the Authority by L.S. Transit Systems, Inc. Baker's services include preparing preliminary alternative physical designs, structural and geotechnical analysis, capital cost estimates, and an assessment of environmental impact.

The multimodal alternatives being studied for the project include conversion of the trolley lines to light rail, conversion of the trolley lines to light rail, conversion to busway, and various combinations of the two modes.

Contact: Allen Biehler
2235 Beaver Avenue, Pittsburgh, Pennsylvania 15233
Telephone: (412) 237-7327

92. Vine Expressway, Philadelphia (Center City), Pennsylvania
FMLC Contractor: Michael Baker, Jr., Inc.
Customer: Pennsylvania Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Baker provided management of a multi-firm team for final design and construction engineering services for the 10-lane, 1.75-mile Vine Expressway through Center City, Philadelphia. The western half of the expressway, which ties into the Schuykill Expressway, is depressed by 25 feet to eliminate seven intersections. Although complex, the project's utility requirements were maintained at all times. The Chief Engineer for the City of Philadelphia's Department of Streets calls the project "...the most impactive urban public works project carried out in the center of this city in this century."

Contact: Vito A. Genua, Pennsylvania Department of Transportation
Engineering District 6-0, 200 Radnor-Chester Road, St. Davids, Pennsylvania 19087
Telephone: (215) 964-6532

93. Pennsylvania Turnpike System Expansion
FMLC Contractor: Michael Baker, Jr., Inc.
Customer: Pennsylvania Turnpike Commission

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Baker has served as Consulting Engineer on an ongoing basis for the Pennsylvania Turnpike Commission since 1957. Since that time, Baker has provided annual inspections and reports of all facilities and recommendations for their maintenance and repair as required by the trust indenture securing the Revenue Bonds. Baker has also designed substantial portions of Pennsylvania's turnpike system and managed the contracts of other design consultants retained for specific projects. Currently, Baker is providing management/technical overview services for the design of two extensions to the present system in corridors of 30 miles and 65 miles. This $2-billion expansion project is part of a $4-billion program that will extend the 470-mile turnpike system, which serves approximately 100-million vehicles and generates $300 million in toll revenues per year.

Contact: John Sokil, Jr., PE
P.O. Box 8531, Harrisburg, Pennsylvania 17105
Telephone: (717) 939-9551

94. Maglev Demonstration Design Development Plan
FMLC Contractor: Michael Baker, Jr., Inc.
Customer: Maglev, Inc.

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

This project was a preliminary engineering study of four alternative alignments for a high speed magnetic-levitation (maglev) demonstration system. The 20-mile demonstration project will connect downtown Pittsburgh with the Pittsburgh International Airport. Baker's role included development of 200-scale plans and profiles, cost estimates, an environmental overview, and management of a ridership estimate that utilized MINUTP transportation planning software. The 20-mile system will be the first link in an envisioned 1300-mile regional system connecting the midwest to the east coast, with Pittsburgh as its hub.

Contact: John Kapala, Maglev, Inc.,
4400 Fifth Avenue, Pittsburgh, Pennsylvania 15213-2683
Telephone: (412) 268-6586

95. Appalachian Corridor H
FMLC Contractor: Michael Baker, Jr., Inc.
Customer: West Virginia Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Appalachian Corridor H is a proposed four-lane highway intended to encourage economic development by providing access to the rugged, mountainous terrain of West Virginia'a Appalachian Highlands Region. This project would provide the final 120-mile link of Corridor H from Elkins, West Virginia, to Interstate 81 in Virginia. Michael Baker Jr., Inc. is responsible for preparing the tiered Supplemental DEIS study, consisting of a corridor-level evaluation (Corridor Selections DEIS) of the environmental and engineering constraints existing along 24 potential alternative corridors, representing more than 380 miles of corridor. The second phase, currently underway, consists of 200-scale engineering alignment studies within the selected corridor. A detailed evaluation of sensitive environmental and social resources within each alternative will be included in the Alignment Selections DEIS. The project area encompasses two states, eight counties, and approximately 5,000 miles.

Within the study area are numerous sensitive resources, including Canaan Valley, the largest wetland complex in West Virginia, two national forests, and numerous Cultural resources.

Contact: Ben Hark, West Virginia Department of Transportation, Division of Highways
1900 Kanawha Boulevard, East Charleston, West Virginia 25305-0440
Telephone: (304) 588-0444

96. Dallas Light Rail Transit System, Dallas, Texas
FMLC Contractor: Sverdrup Corporation
Customer: Dallas Area Rapid Transit District

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*
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Sverdrup is part of the Principal Section Designer Group for the Light Rail Starter System of the Dallas Area Rapid Transit (DART) authority, an $833-million project. The Starter System consists of approximately 20 miles of radially oriented rail connecting the Dallas Central Business District with the north and south activity areas. Sverdrup's responsibilities encompass: Project management and design criteria development for civil, track, and architectural components; standard specifications; line section definition plans and design report; line section final design (for one line section); final trackwork design; track material procurement; tunnel (including ventilation) final design; design review (of other line section final design); final environmental impact statement; design support and agency coordination; right-of-way identification; value engineering support; construction support and agency coordination; art consultant coordination, railroad interface coordination.

Contact: Richard Brown, Dallas Light Rail Transit Authority
601 Pacific Avenue, Dallas, Texas 75202
Telephone: (214) 658-6266

97. Old Colony Railroad Rehabilitation
FMLC Contractor: Sverdrup Corporation
Customer: Massachusetts Bay Authority District

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Sverdrup is providing final design for the Old Colony Railroad Rehabilitation. Earlier, we performed a detailed feasibility study and complete condition assessment, traffic and transportation planning, Environmental Impact Studies (including extensive wetlands delineation), preliminary through final design and operations planning to restore commuter rail over more than 80 miles track last used in 1959. Sverdrup also coordinated an extensive community involvement campaign involving the development of a Citizens Advisory Committee comprising representatives of each of the involved communities, environmentalists, and local legislators and officials.

The line involves renovation or new design of 21 stations, each with parking facilities – the largest of which accommodates 1,000 cars. Right-of-way modifications and track relocations and restoration were required along several stretches of the line. This included: reconstruction of abandoned trackwork in Quincy, Massachusetts; reconstruction of 51 railroad bridges; modifications to sites where tracks cross roads; relocation of red Line tracks and signals; and utilities and drainage modifications.

Contact: John Powers, Massachusetts Bay Transportation Authority
10 Park Plaza, Boston, Massachusetts 02115
Telephone: (617) 722-3420

98. Northeast Corridor Improvement Project
FMLC Contractor: Sverdrup Corporation
Customer: National Railway Passenger Corporation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*
■	■		

Sverdrup's program management and design services for the Northeast Corridor Improvement Project, a $2.5-billion effort, were instrumental in providing high speed passenger rail service between Washington D.C. and Boston, Massachusetts. Sverdrup was selected for its expertise in systems planning and engineering, project management, railroad, bridge and tunnel design, and construction inspection. In the program's 11 major subsystems for engineering design, Sverdrup supplied task management and lead design in track structures, service facilities and electrification, and provided general engineering support to the other subsystems.

Contact: National Railway Passenger Corporation (AMTRAK)
400 North Capital Street, N.W., Washington, D.C. 20001

99. U.S. Embassy Upgrade Program
FMLC Contractor: Sverdrup Corporation
Customer: U.S. Department of State

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

Sverdrup provided program management services to support the U. S. State Department's $2.9-billion program to upgrade the security of the nation's embassies throughout the world. It is the largest and most comprehensive building program in the history of the United States Department of State and one of the most comprehensive program management contracts ever accomplished in support of Federal government activities.

Sverdrup's services involve total program support at 40 embassy sites worldwide including 23 new embassies and consulates. At the program's inception, Sverdrup quickly mobilized a task force of 225 people to accommodate critical schedule requirements. As well as calling for operations and maintenance services, the scope of Sverdrup's contract also comprises: overall program management; site assessments, analyses, and feasibility studies; development of project requirements and specialized design criteria.

Contact: Jerome Tolson
Office of Foreign Building Operations (FBO), Washington, D.C. 20520
Telephone: (703) 875-6361

100. Christa McAuliffe Bridge over the Canaveral Bridge Barge Canal
FMLC Contractor: LoBuono, Armstrong & Associates
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

LoBuono, Armstrong & Associates (LAA) is preparing a complete set of contract plans and specifications for the construction of a new twin-leaf bascule bridge on Merritt Island, Florida. The new bascule bridge parallels an existing bascule structure and carries vehicles over the Canaveral Barge Canal onto Merritt Island and northward toward Kennedy Space Center. the structure has been named in honor of the late Christa McAuliffe.

The design of the new structure features a twin-leaf-trunnion bascule span approximately 140-feet long. Steel bascule girders, floor beams, stringers, and open deck are designed to carry anticipated loads. The bascule drive system features hydraulic cylinders and a hydraulic brake and center-span lock system. A bridge tender's facility is being designed, complete with new controls and instrumentation, to operate both the new and existing bascule spans simultaneously. A system is being developed and employed at the new bascule structure to monitor its dynamic components for degradation and periodic maintenance requirements (i.e., bearings, wear plates, switches, voltages, fluid flows, pressures, and temperatures). The approach spans to the bascule are prestressed concrete beams. The bascule counterweight and all substructure elements are of reinforced concrete design.

LAA has been designated as the Prime Consultant on this project. In addition to the new bascule design and rehabilitation, LAA will be responsible for the coordination of the roadway design (approximately 0.6 mile), drainage design, traffic signals, signing and pavement markings, utility adjustments, preliminary and final right-of-way map preparation, maintenance of traffic (both vehicular and boat traffic), and all environmental permitting efforts.

Contact: Mr. Wayne Waters, Florida Department of Transportation, District 4
101A North Woodland Boulevard, Deland, Florida 32724
Telephone: (904) 736-5182

101. Acosta Bridge Replacement
FMLC Contractor: LoBuono, Armstrong & Associates
Customer: Florida Department of Transportation

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

LAA acted as a subconsultant for the design and plans preparation of the steel approach spans for this crossing of the St. John's River. This $47-million approach interchange project features 17 continuous units that are composed of a total of 84 spans. Seventy percent of the approaches consist of steel plate girders; the remaining spans are curved steel box girders. The radius of curvature of the spans is as small as 350 feet. The superstructure design was enhanced by the use of three-dimensional finite element analyses. For the plate girder spans, the analyses indicated that reduced live load distribution factors are valid. The design of the curved box girders was aided by the use of BSDI's 3-D system. this rational-analysis method allowed LAA to use wider girder spacings and make more accurate determinations of primary and secondary stresses, yielding a highly optimized design.

In addition to the approach span work, LAA designed the river crossing substructures for the steel alternative. The hammerhead piers sit on foundations composed of 60-inch diameter drilled shafts. The river crossing substructure is designed for a ship collision load of 3,500 kops.

Contact: Clark Williams, PE
Florida Department of Transportation Central Office
605 Suwannee Street, Tallahassee, Florida 32399
Telephone: (904) 488-65351

102. Los Angeles River Bridge
FMLC Contractor: LoBuono, Armstrong & Associates
Customer: Los Angeles County Metropolitan Transportation Authority

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

LAA is prime consultant for the design of the signature structure on the Rail Construction Corporation's (RCC) new Metro Pasadena Line Project. The structure allows rail traffic to pass over Metrolink commuter rail tracks and the Los Angeles River en route between Union Station and Pasadena. The Los Angeles River bridge will be one of the longest-span segmental bridges in California.

The aerial structure is a dual-track guideway and is divided into two units. Unit 1 carries the Pasadena line over Metrolink's facilities and comprises a seven-foot-deep, cast-in-place, post-tensioned box girder superstructure erected on scaffolding on eight-foot-diameter, drilled-shaft columns. Unit 2 contains a 450-foot span over the Los Angeles River, and the variable-depth superstructure uses cast-in-place, segmental concrete construction techniques. The piers for the main span unit are 15-foot-round columns, each supported on six 8-foot-diameter drilled shafts.

Since this bridge is the most important structure on the Pasadena Line, the design incorporated input from the local art community. Extensive architectural treatments have been included in both the superstructure and substructure construction.

Contact: Rober Ball, Los Angeles County Metropolitan Transportation Authority
818 West Seventh Street, Los Angeles, California
Telephone: (213) 244-7130

103. Suspended Light Rail Transit, Oakland International Connector Project
FMLC Contractor: AAI Corporation
Customer: Oakland International Airport

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The Oakland International Airport Connector Project is a turnkey project estimated at $140 million. AAI Corporation is responsible for the overall program management, which involves:

- Planning
- Financing
- Engineering/design
- Environmental studies
- Construction
- Utility Coordination
- Testing
- Operation/maintenance
- Community Relations and marketing.

AAI was selected because of its heavy hands-on experience with the design and construction of rail cars and rail car and track components for the defense and commercial industries since its formation in 1952. During recent years, AAI has performed on nine major rail-related projects ranging from the Electric Trolley Bus Program for the Transportation Authority in Dayton, Ohio, to light-rail carshells for the Los Angeles Green Line.

Contact: Michelle Jacobsen
800 Madison Street, P.O. Box 12688, Oakland California 94604-2688
Telephone: (510) 464-6248

104. Cincinnati/Northern Kentucky International Airport
FMLC Contractor: Otis Transit Systems
Customer: Delta Airlines

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The automated Delta Airlines shuttle at the Cincinnati/Northern Kentucky International Airport moves up to 6,000 passengers per hour at speeds up to 25 miles per hour. The two independent trains on parallels guideways travel in a tunnel beneath the aircraft apron. There are six 100-passenger vehicles that provide efficient, dependable transportation between a landside terminal and two airside concourses.

105. Narita Airport, Tokyo, Japan
FMLC Contractor: Otis Transit Systems
Customer: Narita Airport Authority

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The Otis shuttle system in the new Tokyo International Airport provides for high-capacity transportation between an airside terminal and a landside terminal. To parallel single-lane elevated guideways, each with a dual-lane bypass section, connect the terminal buildings. Two vehicles operate on each guideway. All shuttle vehicles are propelled independently by cable-drive systems. One vehicle from each guideway is removed from service during off-peak operation. All operations are automatic.

106. Environmental Technical, Analytic and Management Support
FMLC Contractor: Coleman Research Corporation
Customer: U.S. Department of Energy, Office of Environmental Management's Office of Planning and Resource Management

Large Capital and Transportation Infrastructure	*Rail Projects*	*Passenger Transportation*	*Public/Private Partnerships*

The project consisted of planning related to land restoration and environmental cleanup of nuclear weapon manufacturing sites. These included industrial nuclear waste, water pollution, and all other elements associated with restoration of the polluted areas. Coleman coordinated with all three key Department of Energy (DOE) offices: the Office of Planning, the Office of Financial Management, and the Office of Administrative Management. Included the development of the DOE Environmental Restoration and Waste Management Five-Year Plan, the Health and Safety Five Year Plan, and related outreach and training. Coleman coordinated with several other Federal and State government agencies and private environmental groups to execute the extensive planning required by the contract.

Contact: Ronald Loggerwell, U.S. Department of Energy
Office of Placement and Administration
1000 Independence Avenue, S.E. Washington, D.C.
Telephone: (202) 586-8279

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GLOSSARY

Glossary

at-grade – when a railway roadbed is at the same level as the surrounding terrain or surface roadways

banking – tilt of the track and or the vehicle to *lean into the turn,* avoiding lateral loads due to centrifugal force

bogie – the vehicle undercarriage assembly which includes the permanent magnets, the brush assemblies, the secondary suspension and tilt systems, the landing wheels and disk brakes and the structure that integrates all of these components with the vehicle and interfaces with the guiderails

box girders – a very stiff and attractive type of pre-formed concrete construction girder whose cross section resembles a box

camber – built-in curvature

chassis – the main structural backbone of the vehicle; the chassis is supported by the bogies and, in turn, supports the cabin

commutate – to turn electric power on and off in a controlled manner as when the brushes on the vehicle pass over successive conductive strips on the tops of the guiderails, thereby completing the circuit

critical damping – the minimum amount of energy dissipation that, in a spring-mass-damper systems, allows the mass to return to its undisturbed position from an initial displacement, without vibration

dap – to cut a corner from a beam to ensure that it fit down flush on the cap without sticking up above it

diaphragm – transverse member on a beam that transfers loads between beams

dynamic braking – a method of braking the vehicle by using the coils in the guiderails and the magnets in the vehicle to act as a linear generator, with a resistive load on the circuit

EM actuator – an electromechanical actuator, such as a motor with or without a gear train

electromotive force (EMF) – a difference in electrical potential

Ethernet – a fast, local interconnect system for computers

fenestration – ventilation; windows

flanges – protrusions used as attachment points

gantry – a moveable structure used to support elevated construction material, equipment, and personnel

guiderail – a pair of vertical concrete rails which have coils of wire embedded in them; upon which the vehicle is supported in the vertical direction and "guided" in the horizontal direction by magnetic fields, and which has no physical contact with the vehicle other than by sets of electric brushes on a cummutator strip

guideway – an elevated structure that consist of vertical supports approximately every 100 feet and a continuous high precision horizontal surface, that includes two sets of guiderails and electric power rails

headway – time between station departures; the time elapsed between passage of two vehicle over the same spot

induced demand – the major influence of changes on total travel demand in the geographic region due to changes in the level of service provided by modes of transportation with the service area

load profile – the variation in usage level relative to capacity

maglev – shorthand for various types of magnetic levitation, which means to support and object in space without physical contact by using a combination of magnets and a means to vary the magnetic forces

riparian – relating to, or living or located on the bank of a natural watercourse

rolling stock – the vehicles

sidings – a local segment of guideway used when vehicles are removed from the main route

sintered – material shapes, usually metals, formed by heating and fusing powdered material onto a solid

substructure - the lower parts of the elevated guideway including the foundation and the vertical supports or columns

superstructure – the upper portion of the elevated guideway including the girders or horizontal beams

tee – a lower cost type of pre-formed concrete construction girder whose cross section resembles a "T"

tensile – in a direction to induce stresses that tend to pull and object apart

weldment – a structural assembly composed of welded substructures or components