OFFICE LOCATIONS

With regional offices in Virginia, Florida, Texas and California and satellite offices throughout the United States, Lea+Elliott is positioned to provide a broad range of engineering and consultation services to Class I, Class II and regional railroads.

Washington, D.C.
Lea+Elliott, Inc.
14325 Willard Road, Suite 200
Chantilly, Virginia 20151-2110
(703) 968-7883 Phone
(703) 968-7888 Fax

Miami
Lea+Elliott, Inc.
7205 Corporate Center Drive, Suite 411
Miami, Florida 33126
(305) 500-9390 Phone
(305) 500-9391 Fax

Dallas/Fort Worth
Lea+Elliott, Inc.
1009 W. Randol Mill Road
Arlington, Texas 76012
(817) 261-1446 Phone
(817) 861-3296 Fax

San Francisco
Lea+Elliott, Inc.
785 Market Street, 12th Floor
San Francisco, California 94103
(415) 908-6450 Phone
(415) 908-6451 Fax

www.LeaElliott.com

The Lea+Elliott Team: Hands-On Professionals

Lea+Elliott is an employee-owned firm. We provide an exceptional work environment that enables us to attract and retain nationally recognized specialists with skills that are directly applicable to solving challenges faced by today's railroads.

Our team includes experts who have worked for both suppliers and railroads. Their first-hand knowledge of the ins and outs of railroad operations and maintenance, as well as of equipment manufacturing—experience that is applicable to both freight and passenger rail—gives them a unique perspective that is an important added value for our clients.

At all times, Lea+Elliott professionals focus on client satisfaction. Working quickly and efficiently, each takes a hands-on role in developing solutions that are creative, on target and cost effective. Lea+Elliott's corporate philosophy of not working for suppliers or overhaulers ensures that our clients receive objective recommendations.

Experience

Lea+Elliott's corporate experience and the experience of our professional staff includes projects such as locomotive procurement and overhaul, railway electrification, train yard traffic modeling and simulation, network simulation modeling, quality assurance audits of car builders and component suppliers, project management oversight, and the design and manufacture of specialty cars and work cars.

We have worked with diverse clients on railroad planning and locomotive projects in the United States and Canada. These include The Burlington Northern & Santa Fe Railway, Kansas City Southern, Amtrak, Canadian National, the City of Long Beach, the Port of Long Beach, the Panama Canal Commission, New York State Department of Transportation, NJ Transit, Long Island Rail Road, the Port Authority Trans-Hudson, VIA Rail, GO Transit and multiple equipment leasing companies.

Lea+Elliott

an equal opportunity employer

RAILROAD SERVICES

Planning
Engineering
Procurement
Project Management Oversight
Maintenance Practices
Application of New Technology
Locomotive Overhaul
Operational Analysis

Lea+Elliott

To compete successfully in the 21st century, railroads must meet customer demands for fast, reliable and cost competitive service. That means your rail system must operate at a maximum level of efficiency, benefiting both your customers and your bottom line. And that requires making the right choices—in planning, operations and maintenance, and procurement.

How can you step up performance, streamline operations and expand capacity of your existing systems? How can you bring down the high cost of maintenance? During a consolidation, how can you integrate networks; rationalize locomotive and car fleets and facilities; reschedule equipment cycles; reroute traffic; or plan new investments to maximize value?

The answer: with an experienced engineering consulting firm who has the capability and objectivity to analyze operations, identify areas for improvement, and make specific, targeted recommendations for upgrades and enhancements—and who is committed to partnering with you, for the long term. Lea+Elliott is this kind of consulting firm. Specializing in the planning, procurement and overhaul of transportation systems, Lea+Elliott helps clients around North America make smart decisions—regarding such issues as line capacity modeling, maintenance cost reductions, positive train separation, computerized maintenance information systems, locomotive procurement and overhauling, and intermodal facilities—that ensure measurable results for their railroads.

Our success in introducing new ideas and technologies that meet clients' needs has earned us a reputation as an imaginative, innovative and responsive firm, and has positioned us as a leader in the transportation industry.

Lea+Elliott

COMPREHENSIVE SERVICES

Lea+Elliott provides a broad spectrum of services to help railroads optimize operations, improve efficiency, reduce costs and better serve their customers.

Railroad planning, engineering and feasibility studies

- **Planning and analyses.** Using proprietary, in-house computer models, we provide multimodal transportation planning for a variety of public and private clients. Services include analyses of railroad corridor alternatives, trip times, train performance simulation, operational strategy, optimization of traffic through congested lines and interlockings, quantification of additional service impact on existing operations, and schedule adherence.

- **Technology and equipment studies.** We perform studies of railroad technologies and equipment to determine the most effective and efficient systems to satisfy each client's specific requirements. These studies evaluate:
  - performance characteristics and operational data
  - cost and maintenance considerations and life cycle costs
  - suppliers' capabilities
  - equipment suitability

In addition, we develop and direct equipment tests, analyze research, and assist in the design of special-purpose equipment.

- **Assessment and valuation.** Lea+Elliott offers a variety of technical services—including research and analysis—for the legal, financial and business communities to assist in the assessment and valuation of railroad technologies and systems, and to provide solid information for making informed financial and investment decisions.

Railroad operations and maintenance

Streamlining operations and sharpening maintenance practices is critical to the bottom line. We assist clients in developing and implementing plans and procedures for operating and maintaining rail systems and equipment. We assist in the procurement of services and then carefully monitor activities to ensure conformance with contract requirements. We also analyze operational procedures and make recommendations to optimize labor, improve efficiency and reduce expenses.

Locomotive overhaul

Lea+Elliott can manage the refurbishment of diesel, gas turbine and electric locomotives. Our technical specifications, procurement assistance, design reviews, project management, and equipment commissioning services provide clients with cost-effective technical support.

We have the expertise to assess technology enhancements such as the conversion of propulsion systems from DC to AC and conformance with EPA standards for older SD and GP locomotive fleets.

Procurement and contract management

Lea+Elliott pioneered the use of turnkey and DBOM (design-build-operate-maintain) procurements in the transit industry over 25 years ago, and we continue to refine this procurement approach. Our services include developing procurement strategy, writing technical specifications and contract documents, evaluating supplier proposals, recommending contract award recipients, and monitoring contract activities through project implementation.

Project management oversight (PMO)

Our long history of hands-on experience in system implementation gives us the expertise to provide efficient and effective project management oversight, which is essential in avoiding cost overruns and schedule delays. Our oversight services also extend to specialized activities such as equipment engineering, testing and implementation.

Operational Analysis: A Vital Tool

LEGENDS©, the sophisticated, proprietary family of computer models developed by Lea+Elliott, is recognized throughout the industry as a leading-edge analytic tool. Using the detailed data it generates, Lea+Elliott professionals can assess critical components of a railroad system, pinpoint possible trouble spots, analyze costs and make recommendations for improvements.

Simulating train performance, network operations and line capacities, **LEGENDS**© determines travel times, delay times and locations, system capacity, travel schedules, energy consumption, facility requirements and capital and operating costs.

For example, we performed simulations of varied rail density scenarios for the Port of Long Beach Rail Master Plan Study, and identified comprehensive short- and long-term improvements to maintain or increase freight shipment traffic. In support of a recent merger of two Class I Railroads, we quantified the impact of increased traffic through key interlockings.

The use of **LEGENDS**© has been enhanced with new software that provides an excellent visual presentation of the data generated by the simulation. This output can be displayed in the form of string charts, summary tables or graphs and is ideal for presentation to groups of any size.