

BUS TRANSIT SERVICES

Planning

Engineering

Procurement

Operations and Maintenance

Project Oversight

Lea  *Elliott*



NABI low-floor CNG bus - Gwinnett County, Georgia

For over 30 years, Lea+Elliott has been at the forefront of assisting public and private sector clients plan, specify, procure, and oversee the manufacturing and commissioning of new and emerging transit technologies, as well as overhaul and refurbish outdated technologies. Lea+Elliott, Inc. is an employee-owned transportation consulting firm offering these professional services for bus and bus rapid transit, rail, and automated guideway transit systems. Lea+Elliott ensures that new and refurbished vehicles are designed and manufactured to both enable the agency to provide reliable transportation and be compatible with existing facilities and resources.



EIDorado National propane-powered bus

Lea+Elliott's leadership in bus technology and application is evidenced by our wide-ranging list of clients. We have worked with large agencies, including the New York Metropolitan Transportation Authority (MTA), and the Chicago Transit Authority (CTA), as well as smaller clients, such as the government of the U.S. Virgin Islands. Our services begin at the conceptual level with the assessment of bus technologies, route and station placement, and environmental analysis, then lead into the development of technical specifications and procurement documents; cost estimation; technical design reviews; acceptance testing and inspection; and analysis of operations and maintenance activities.



Orion-BAE Systems hybrid-electric bus - NY MTA



Our expertise and talent extend far beyond conventional buses. From the advanced-design buses of the 1980s to the latest hybrid-electric buses, Lea+Elliott has the background and skills necessary to fully support transit providers in successfully deploying new technologies. We provide leadership in bus technologies, including articulated, trackless trolley, dual-propulsion, and guided buses. Our engineers are at the forefront of efforts to develop and apply alternating current (AC) propulsion drive systems. We have design staff who have experience working in various capacities within major transit authorities. We bring forth our unique experiences that have resulted in a sensitivity and appreciation for the needs and expectations of our clients.

BUS/BRT SERVICES

Planning

For planning new-start systems and extensions, from bus rapid transit (BRT) system planning to vehicle propulsion assessment, Lea+Elliott has a long history in leading successful system planning activities.

Planning services include:

- ◆ Feasibility studies
- ◆ Corridor alternative analysis
- ◆ Demand forecasting
- ◆ Vehicle performance simulations
- ◆ Capital and operating cost analysis
- ◆ Operational strategy
- ◆ Maintenance requirements and activities
- ◆ Environmental analysis

Engineering

With safety as their primary focus, our engineers work closely with our clients to make sound recommendations that are both technically and economically feasible.

Engineering services include:

- ◆ Performance characteristics and operational data evaluation
- ◆ Life cycle cost analysis
- ◆ Supplier and equipment evaluation
- ◆ Conformance to industry standards and regulations
- ◆ Technology assessments
- ◆ Design verification / review
- ◆ Testing and inspection

Procurement

Lea+Elliott is recognized in the transit industry for well-written, performance-based technical specifications and for in-depth evaluation of supplier proposals.

Procurement services include:

- ◆ Development of procurement strategy
- ◆ Technical specifications and contract documents
- ◆ Supplier proposal evaluation

Government and Public Relations

Lea+Elliott is experienced at coordinating with government agencies, community groups and environmental organizations to accomplish project objectives. Our professional staff are accustomed to participating in public meetings and workshops where good presentation and communication skills are invaluable.

Operations

Various Lea+Elliott staff members have several years of experience working for transit agencies, and this knowledge is applied to many areas of transit operations. Operation services include:

- ◆ Terminal and on-street procedure analysis
- ◆ Fare collection and revenue handling
- ◆ Service analysis and scheduling

Maintenance

Our transit professionals have managed maintenance facilities and activities at some of the largest public transit authorities in the United States. Maintenance services include:

- ◆ Fleet operation
- ◆ Maintenance facility locations
- ◆ Fuel and lubricant specification
- ◆ Work flow and layout

Application of New Technologies

Lea+Elliott specializes in the application of cutting-edge transit technology - often times, new transit vehicles, systems and subsystems that have never before been deployed. Our staff includes professional transit managers who have successfully developed and deployed new technologies. These innovations have been used for:

- ◆ Natural gas buses
- ◆ Hybrid-electric buses
- ◆ Clean diesel buses
- ◆ Diesel particulate filters
- ◆ Fuel cell buses
- ◆ Bus rapid transit systems

Project Oversight

Lea+Elliott's history of hands-on successes in system implementation underscore the expertise needed for effective project management oversight. Such expertise is essential for avoiding cost overruns and schedule delays.

Quality Assurance

Lea+Elliott developed a set of sophisticated quality assurance procedures and tools that are ideal for the wide range of projects we undertake. These include: planning and feasibility studies, procurement, vehicle/system design, fabrication and assembly, and system implementation.



Cobus 3000 apron bus

Operational Analysis: A Vital Tool

LEGENDS[®], the proprietary family of computer models developed by Lea+Elliott, are recognized throughout the industry as leading-edge analytical tools. Using the detailed data generated by the event-based simulation component of LEGENDS[®], Lea+Elliott professionals can assess critical components of a bus transit system's operation. It can also help us to analyze horizontal and vertical passenger flows at the stations and validate station design criteria.

Recent applications of LEGENDS[®] for bus transit systems have included high demand apron bus operations at major airports in Atlanta, Cincinnati and Washington, D.C. (Dulles). For these clients, LEGENDS[®] assisted our transportation planners in confirming the fleet size, trip time, optimal route and operational configuration, expected delays, and constraining factors. At the bus transit stations, LEGENDS[®] has verified the correct sizing of the passenger wait area, location of doors and other important station design criteria. For client and stakeholder meetings, LEGENDS[®] provides an excellent visual presentation of the data generated by the simulation so that decisions can be made quickly and with confidence.

OFFICE LOCATIONS

With regional offices in Texas, Virginia, California, and Florida, and satellite offices throughout the United States, Lea+Elliott is positioned to provide a broad range of engineering and consultation services to public transit authorities and private sector clients nationwide.

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New Flyer/Ballard - Chicago Transit Authority

Hands on Professionals

The Lea+Elliott team includes planning, engineering and management experts who have worked for both suppliers and operators of bus and rail transit equipment. Our first-hand knowledge of the ins and outs of transit operations and maintenance, as well as equipment manufacturing and overhaul, gives us a unique perspective that is an important added value for our clients. We've been there. We know what it takes to do the job.

Lea+Elliott professionals deliver what's promised in terms of people, schedules, costs, and results. Working quickly and efficiently in streamlined, flexible teams, we listen, ask the right questions, and work with clients to create customer-tailored solutions that are creative, on-target and cost-effective.

Representative Clients

Transit Authorities / Federal Agencies / Universities / Institutes

Broward County Florida
Capital District Transportation Authority
Case Western Reserve University
Champaign-Urbana Mass Transit District
Chicago Transit Authority
City and County of Honolulu DOT
Electric Power Research Institute
Federal Transit Administration
Florida DOT
Gwinnett County DOT
Harvard University
Los Angeles County Metropolitan Transportation Authority
Massachusetts Bay Transportation Authority
Miami Valley Regional Transit Authority
National Park Service
New York MTA
Port Authority of Allegheny County
Regional Transportation Commission of Southern Nevada

San Francisco Municipal Railway
Seattle Metro
Southeastern Pennsylvania Transportation Authority
Tennessee DOT
U.S. Department of Justice
U.S. Virgin Islands Department of Public Works

Airports / Airlines

Delta Airlines / ASA
Delta Airlines / Comair
George Bush Intercontinental Airport Houston
Honolulu International Airport
Los Angeles International Airport
Metropolitan Washington Airports Authority
Phoenix Sky Harbor International Airport
Sea-Tac International Airport

Lea+Elliott
an equal opportunity employer