

QUALIFICATIONS

Fitzgerald & Halliday, Inc. (FHI) is a full-service planning consulting firm, providing services to public and private sector clients since 1987. FHI brings experienced planning perspectives to projects of all sizes. Staff specialists include planners, engineers, environmental scientists, and cultural resource specialists with expertise in transportation and traffic, natural resources, historic resources, community planning, public involvement, GIS, and other support fields. Thorough knowledge of the planning process, value-added GIS, innovative presentation techniques, and a commitment to quality have ensured a strong track record of repeat clients. FHI is certified as a disadvantaged business enterprise (DBE) in over 25 states. The following sections document our qualifications in key discipline areas.

TRANSPORTATION SERVICES

FHI provides comprehensive transportation planning and traffic engineering services for a wide variety of public and private sector clients including state departments of transportation, regional agencies, municipalities, corporations, institutions and developers. FHI's planners and engineers have expertise and experience across a broad range of study types and modes, as described below.

Transportation Planning

- **Regional and statewide analysis:** FHI's experience encompasses a wide range of statewide transportation planning efforts, including long range multimodal transportation policy documents, statewide highway and rail system plans, bicycle and pedestrian vision plans, air conformity plans, intermodal management studies, and freight movement plans. As a firm successfully involved in the practice of teleworking, we were also selected to carry out a regional telework analysis to determine utilization and effects.



- **Corridor studies:** FHI has prepared numerous roadway, transit, and multimodal corridor planning and management studies. FHI's range of capabilities is ideally suited to the types of multifaceted planning issues that arise in corridor studies, from traffic congestion and safety to transit operations, land development issues, and the preservation or enhancement of community character. FHI has particular experience in the preparation of management plans for corridors which seek balance between traffic operations and the maintenance of community character, and is well-versed in the application of comprehensive public outreach programs for such efforts.

- **Transit studies:** FHI staff have considerable fixed guideway experience encompassing light and heavy rail and bus rapid transit (BRT) projects ranging from feasibility analyses into the design phase. Our transit work includes station area planning, involving land use, environmental, and traffic analyses, as well as planning studies for intermodal transportation centers. FHI has prepared numerous short-range transit development programs for urban bus operations and journey-to-work efforts, and has prepared and facilitated transit and



QUALIFICATIONS

paratransit coordination plans aimed at optimizing service. We have also carried out bus rider surveys, boarding surveys, user surveys at intermodal centers, and employer, employee and human service agency surveys.

- **Pedestrian and bikeway planning:** FHI has carried out pedestrian and bikeway planning studies in Virginia, Maryland, Delaware, and Connecticut. Our work has ranged from statewide bicycle and pedestrian vision planning to design-phase efforts for multi-use trail facilities. Recent work has included safe routes to school planning to develop prototypical programs for application to local schools. FHI has also conducted pedestrian and bikeway needs analyses as planning elements of larger scale transportation projects such as corridor studies and regionwide transportation strategies.



- **Demand modeling:** FHI is licensed in several demand forecasting packages, and FHI's staff is proficient in using regional and sub-area network models to develop travel demand projections. Recent work included combining traffic modelling capabilities and professional judgment to determine travel growth in transportation corridors. FHI used the software program VIPER to manage, edit, and display MINUTP and TP+ models for these efforts.
- **Access management:** FHI has a strong capability in access management techniques to promote a safe and effective relationship between the local transportation system and its abutting land uses. Our work on access management plans includes preparation of curb cut plans and signal plans based on existing and projected development patterns. One of FHI's specialties, which we have promoted at several national conferences, has been the crafting of municipal land use regulations to aid in the implementation of access management goals.
- **Freight and intermodal studies:** FHI staff have participated in a variety of specialized studies of freight movement and intermodal transfer facilities. These have included intermodal management system planning, market analysis for freight movement, railyard improvement studies, designation of freight routes, and the development of port master plans.
- **Airport studies:** FHI has carried out various planning studies for both international and regional airports, including traffic and environmental investigations for master plan updates and impact analyses for airport improvement projects. FHI is familiar with the Federal Aviation Administration's NEPA guidelines, the requirements of Advisory Circulars 5050.4A, 5070.6A, and other pertinent guidelines.



QUALIFICATIONS

Traffic Analysis and Design

- **Traffic circulation and impact analysis:** FHI maintains a strong staff capability in the preparation of traffic circulation studies and impact analyses with respect to capacity, safety and geometrics, placing emphasis on the identification of opportunities for impact mitigation. FHI utilizes the latest capacity analysis methodologies, including Highway Capacity Software (HCS), Signal 2000, and Synchro for intersection analysis. Our projects include analysis of downtown circulation, corridor traffic operations, and transit station area access and circulation as well as development or review of traffic impact studies for private and municipal developments.

- **Traffic simulation:** For corridor study and urban circulation projects, FHI has employed its expertise in simulation to evaluate traffic operations utilizing the software program, CORSIM. FHI



has successfully used simulation to evaluate the interface between freeways and arterial networks as well as to assess the operational impacts of closely spaced intersections, particularly with regard to delay and queuing impacts. FHI has used CORSIM's simulation display capabilities to better explain detailed traffic analysis results to stakeholder groups.

- **Signalization analysis:** FHI staff have extensive experience analyzing and optimizing timing and phasing plans for traffic signals, both at isolated intersections and within coordinated systems. FHI has utilized a variety of software tools for these analyses, including Highway Capacity Software (HCS), Signal 2000, TEAPAC, Synchro, TRANSYT-7F, and PASSER.

- **Parking studies:** FHI staff's parking experience includes analyzing demand, circulation, and queuing for parking lots and decks, and providing recommendations for circulation, safety and capacity improvements. Parking issues are routinely addressed as an element of site development review, downtown circulation analyses, and urban corridor studies. FHI has also studied parking lot utilization in relation to land use and zoning, and has developed model zoning regulations to reduce adverse water quality impacts from excessive impervious surfaces.

- **Surveys and data collection:** FHI has carried out and analyzed the results of numerous types of transportation-related surveys, including license plate surveys, parking surveys, household travel surveys, vehicle occupancy counts, travel time and delay runs, and field inventories of roadway characteristics. FHI also coordinates and conducts traffic count programs, including manual turning movement counts and automatic traffic recorder (ATR) counts.



- **Traffic design:** FHI's traffic engineers have expertise in the design of signalization, signing, and pavement markings, highway and area lighting, and the development of plans for the maintenance and protection of traffic.



QUALIFICATIONS

ENVIRONMENTAL SERVICES

The environmental qualifications of FHI include environmental impact analysis and documentation, permitting and regulatory compliance, and ecological and natural resource studies. FHI has a depth of experience in environmental impact analysis and documentation, ranging in purpose from screening of project alternatives to the comprehensive documentation required by federal and state environmental policy acts. FHI also has expertise in preparing a variety of environmental permit applications required by federal, state, and local laws and reviewing projects to identify regulatory requirements. In support of project impact analysis, permit application materials, or conservation and development planning, FHI carries out specialized ecological and natural resource studies, including mitigation planning and design. These qualifications are described in more detail below.

Environmental Impact Analysis and Documentation

FHI staff are highly experienced in the preparation of environmental documents under the requirements of the National Environmental Policy Act (NEPA) and corresponding state environmental policy acts in order to identify potential project impacts to natural, cultural, social, and economic resources. Our staff have the expertise to take a project from public scoping to the Record of Decision (ROD) and guide the project development process as well as provide the required technical evaluations. Our experience includes evaluating and documenting existing conditions, potential direct and indirect impacts, and mitigation measures, as required by NEPA, for any or all portions of an Environmental Impact Statement (EIS) or Environmental Assessment (EA). We have worked under the environmental documentation regulations of numerous federal agencies, including FHWA, FTA, EPA, FRA, USPS, FAA, and the Department of the Navy. During the process, we ensure compliance with executive orders and relevant legislation. Integral to our work is strong coordination with the regulatory community and an ability to design and orchestrate public involvement programs to match the needs of the project. Resources and issues we commonly evaluate include:



- **Wetlands, water, coastal and natural resources:** FHI staff have expertise in the inventory and assessment of inland and tidal wetlands, surface and groundwater, floodplains, aquatic habitats, coastal resources, plant and animal communities, threatened and endangered species, and important farmlands. Technical analyses include descriptions, classifications, functional assessments using various methodologies, and quantitative and qualitative impact assessments. Our capabilities include Section 7 coordination and Biological Assessments under the Endangered Species Act and various field surveys of plants, animals, and habitat quality.



QUALIFICATIONS

- **Land use, socio-economics, and community/neighborhoods:** FHI analyzes impacts to local communities involving land use, zoning, demographics, neighborhood cohesiveness, socio-economics, property acquisitions, public safety, and consistency of the proposed action with other state, regional and local plans. We stay current with evolving methodologies for Environmental Justice determinations, including the public outreach aspects.
- **Traffic, parking, and pedestrian/bicycle considerations:** For project impact documentation, FHI evaluates traffic, parking, pedestrian and bicycle facilities, conditions, and safety, often involving evaluations of existing and future levels of service (LOS) at key intersections.
- **Air quality and noise:** In conjunction with the preparation of environmental impact analyses, FHI has the expertise to carry out microscale and mesoscale air quality modeling and noise impact analyses for proposed transportation projects, using state-of-the-art software including CAL3QHC and Mobile 5B and 6 for mobile source air quality analysis and STAMINA 2.0 or TNM for noise impact analysis.
- **Visual quality:** FHI undertakes a variety of visual quality assessments, including FHWA's visual impact assessment methodology based on characterizing landscape quality, viewsheds and viewer groups. FHI capabilities include field observation, three-dimensional (3D) GIS analysis, and photo-simulations to prepare descriptive and illustrative results for visual quality impact evaluations.
- **Historic and archaeological resources:** FHI performs documentary surveys of resources to assess historic resources for eligibility on the National Register of Historic Places, oversees archaeological investigations, carries out impact analysis, and navigates the historic coordination process from initial negotiation through Memorandum of Agreement (MOA). FHI staff have expertise in undertaking agency coordination and resource documentation in conformance with NEPA, with Section 106 of the National Historic Preservation Act, and with Section 4(f) of the Department of Transportation Act.
- **Section 4(f) and Section 6(f) resources:** FHI has substantial experience evaluating impacts to Section 4(f) resources, including publicly owned recreational lands, wildlife refuges, and historic resources on or eligible for the National Register of Historic Places, as well as to Section 6(f) resources, properties purchased with Land and Water Conservation Act funds. FHI has prepared numerous Section 4(f) Evaluations, each leading to a Memorandum of Agreement (MOA) that enables the project to go forward with certain mitigation commitments.
- **Secondary, cumulative, and construction impacts:** FHI staff are trained and experienced in conducting secondary and cumulative impact analyses in order to anticipate potential future effects such as induced growth and water quality degradation. We are also experienced at identifying and documenting reasonable, cost-effective measures to avoid, minimize, and/or mitigate adverse impacts from the construction, operation, and maintenance of proposed projects.
- **Public utilities, services, and energy use:** FHI evaluates the availability of existing municipal infrastructure, and power, and other utilities and public services in relation to project needs and impacts. Using several methods, we also estimate energy consumption related to a project's construction and ultimate operation.



QUALIFICATIONS

- **Hazardous materials:** FHI performs corridor land use evaluations and site specific database analyses to determine potential risks of encountering hazardous materials during project construction. FHI staff are familiar with federal programs such as the Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response Compensation and Liability Act (CERCLA), and Superfund as well as many state programs dealing with contaminated and hazardous materials handling and mitigation.

Permitting and Regulatory Compliance

Our staff is intimately familiar with laws, regulations, and approval processes that can affect the feasibility and implementation schedule of development projects. FHI has expertise in preparing environmental permit applications, carrying out agency coordination, reviewing projects for regulatory issues, opportunities, and constraints, and providing associated expert testimony.

- **Water resource related permit applications:** The array of water resource-related permit applications our staff have prepared includes Army Corps of Engineers Section 404 and Section 10 wetlands and waterways, U.S. Coast Guard bridge permit, state and local inland wetlands and waterways, water diversion, tidal wetlands, marine structures/dredging, stormwater discharge, floodplain management certification, Section 401 water quality certification, and coastal zone consistency. Associated work products have included wetland functional analyses, environmental impact reports, stormwater pollution prevention control plans, and wetland mitigation planning.



- **Agency coordination:** Agency coordination is an integral part of our regulatory and permitting qualifications to ensure that projects are grounded in the realities of implementation. In addition to coordinating verification of wetland boundaries and pre-application meetings, FHI has expertise in Section 7 coordination under the Endangered Species Act and Section 106 coordination under the National Historic Preservation Act, as required for federal permitting.
- **Regulatory review of projects and opportunity and constraint analysis:** FHI draws upon solid knowledge of federal, state and local regulatory frameworks to provide early identification of regulatory and permitting issues during project planning. While this is often the “constraint” side of a project, we also identify site opportunities such as best locations for facility placement, transportation access, wetland mitigation, or land conservation utilizing GIS analysis, professional judgment, and inputs from agency coordination.
- **Expert testimony:** FHI provides expert testimony regarding potential environmental impacts from proposed projects and provides technical support in defense of permit applications.

Ecological and Natural Resource Studies

FHI’s qualifications encompass a variety of ecological and natural resource studies in support of master planning, project impact analysis, and environmental permitting. Key services include wetland functional assessments, habitat surveys and impact assessments, plans of conservation and development, and mitigation planning and design.

- **Wetland functional assessment and oversight of wetland delineation:** FHI has a thorough understanding of inland and tidal wetland ecology and solid experience in assessing wetland functions and values per federal Army Corps of Engineers guidelines. We have expertise in tidal wetland delineation and oversight of inland wetland delineation, as well as integrating the NEPA and Section 404 review processes for environmental streamlining.



QUALIFICATIONS

- **Habitat surveys and impact assessments:** Our expertise in habitat surveys includes field surveys of threatened plant and animal species, habitat assessments for aquatic and terrestrial species, and characterization of vegetative communities and associated wildlife. We have applied these capabilities to assessments of Essential Fish Habitat, Biological Assessments pursuant to Section 7 of the Endangered Species Act, forest fragmentation impact studies, and wildlife crossing mitigation evaluations.
- **Plans of conservation and development:** FHI's strong planning and technical skills in transportation, natural and cultural resources, land use and zoning qualify us to prepare municipal Plans of Conservation and Development. Our experience in traffic studies and access management is directly relevant to growth management and quality of life, as is our expertise in field studies, assessments, and regulatory compliance for environmental resources. Our technical work has kept us abreast of current smart growth initiatives, stormwater issues/regulations, best management practices (BMPs), and other contemporary measures for enhancing, maintaining, and restoring environmental quality of life.
- **Wetland and upland habitat mitigation planning and design:** FHI's qualifications include wetland and upland mitigation planning and design in both tidal and freshwater environments. Our experience ranges from identifying and screening potential mitigation sites in order to maximize the success of wetland mitigation to designing grading plans, planting plans, and erosion/sedimentation control plans for specific wetland and upland habitat creation and/or restoration projects.



CULTURAL RESOURCE SERVICES

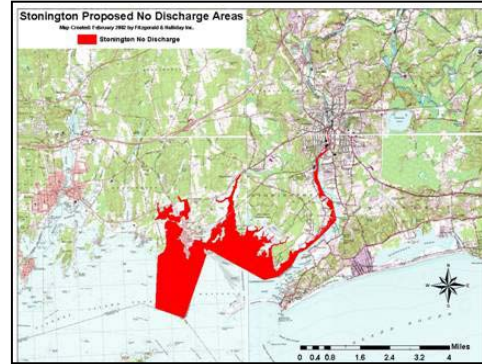
FHI's staff includes architectural historians with expertise in a diversity of cultural resource investigations, encompassing inventories and surveys, regulatory coordination and compliance, mitigation documentation, preservation/restoration studies, and expert testimony.

- **Historic inventories and surveys:** FHI undertakes inventories of cultural resources involving identification and mapping of known and potential historic and archaeological sites. We have undertaken comprehensive town- and city-wide historic building surveys, as well as project-area inventories, to document or update the status of National Register eligible properties. FHI has the expertise to document the context and significance of cultural resources in of the relevant format, which may call for brief memoranda, detailed reports, National Environmental Policy Act (NEPA) documents, state photo-documentation, state and federal Historic Resource Inventory forms, or comprehensive databases, with or without GIS links.
- **Regulatory coordination and compliance:** FHI staff are adept with agency coordination and resource documentation in conformance with Section 106 of the National Historic Preservation Act, Section 4(f) of the Department of Transportation Act and with the National Environmental



QUALIFICATIONS

Policy Act (NEPA). For these studies, FHI has the capability to assess historic resources for eligibility of listing on the National Register of Historic Places, to carry out impact analysis, and to navigate the agency coordination process from initial negotiation through the final Memorandum of Agreement (MOA). FHI has provided project management and quality assurance oversight for a wide variety of archaeological reconnaissance and intensive archaeological surveys, providing an integrated approach to cultural resource management.



- **Mitigation documents:** Mitigation documents of many forms are prepared by FHI staff pursuant to Section 106 Memoranda of Agreement (MOAs), including Historic American Buildings Survey (HABS) and Historical American Engineering Record (HAER) recordation, photo-documentation of buildings and building relocations, journal articles, and “popular” historical reports for public enjoyment. Such projects have involved historic and archival research, layout, and publication, oriented toward either professional or public audiences. FHI has the additional ability to prepare these documents for posting on the worldwide web.
- **Preservation/restoration studies:** FHI has undertaken preservation planning in a diversity of venues, including scenic corridor management, building salvage, historic landscape restoration, and visual quality assessment for historic settings. FHI brings a variety of skills and knowledge in such areas as recordation, resource assessment, contextual evaluation, construction techniques, and material reuse on projects at both site and landscape scales.
- **Expert testimony:** Our staff have been called upon to provide expert testimony regarding the context and significance of historic properties, trends in the evolution of architectural styles, and precedents for zoning approvals. We also have expertise in GIS visual analysis applications and photographic simulation techniques to identify impacts to the scenic context of historic properties and districts.



COMMUNITY AND SITE PLANNING SERVICES

The community and site planning capabilities of FHI are derived from a wide range of interdisciplinary skills. FHI expertise includes master planning, municipal plans of conservation and development, numerous types of land use analyses, and expert testimony on planning and zoning issues.

- **Master planning and plans of conservation and development:** FHI has comprehensive knowledge of the master planning process and master planning experience encompassing airports, outdoor theatre development, statewide bicycle and pedestrian facilities, greenways, natural preserve management areas, and state parks. We also have solid experience with preparing municipal plans of conservation and development, drawing on our skills in transportation, natural and cultural resources, land use, and zoning. Our staff have prepared elements of municipal plans, including transportation, aquifer protection, coastal resource management, and wetlands, and have provided presentation-quality GIS-based mapping for inclusion in these plans.



QUALIFICATIONS

- **Site planning:** FHI provides a variety of planning and analysis services for the site planning and site development process, including traffic impact analysis (including peer review of traffic studies prepared by others); GIS mapping and analysis of development opportunities and constraints; development/land use trends analysis; zoning regulation review; subdivision ordinance analysis; site plan application review for land use, traffic, and environmental impacts; environmental and traffic-related permitting; and expert testimony.
- **Land use analyses:** FHI's strong understanding of land use and zoning issues is applied to numerous types of land use projects. Particular capabilities include access management plans for transportation facilities based on land use and zoning characteristics, maximum community growth ("build-out") scenarios, land use inventories; land suitability analysis; model zoning language for lessening the impacts of various land uses and promoting smart growth, growth management/land use trends analysis; zoning regulation review; and zoning model development. FHI applies a variety of GIS tools to enhance these analyses.
- **Expert testimony:** FHI provides expert analysis of environmental impacts and zoning/land use regulations for development proposal public hearings. Proposals reviewed have included residential development, gravel mining, large-scale distribution centers, retail outlets, power line upgrades, and convention centers, among other uses. Issues addressed have included open space preservation, conservation subdivisions, multi-use zoning, traffic, noise and air quality impacts, visual impacts, wetland impacts, traffic impacts, and development compatibility with existing zoning and subdivision regulations.

PUBLIC INVOLVEMENT SERVICES

FHI provides comprehensive public involvement services to build consensus and obtain input from various constituencies. Key services include program design, publications, websites, media relations, and meeting facilitation.

- **Program design:** At the outset of every public involvement project, FHI proposes a comprehensive strategy, using a variety of tools to meet client needs and project objectives. FHI understands that an effective outreach program has three elements: (1) understanding the needs of the client and project; (2) knowledge of how to produce the maximum results with the budget available; and (3) choosing the right communication tools.



- **Publications, websites and publicity:** In support of public involvement efforts, FHI is skilled in developing media contacts, press releases, newsletters, mailings and e-mailings, multimedia displays, project websites, and GIS mapping and graphics. Our highly acclaimed websites are designed to not only disseminate project information but to receive comments and questions from the public through use of on-line surveys, response databases and interactive features.
- **Meeting facilitation:** FHI uses a wide range of tools to structure successful meetings. We organize and/or facilitate public meetings, partnering sessions, workshops, charrettes, and focus groups, working with our clients to tailor the format to the particular needs of the project. We have developed and maintained active involvement from advisory committees throughout the course of projects, managing these outreach efforts from the bottom up.



QUALIFICATIONS

TECHNICAL SERVICES

FHI utilizes technology to support and enhance our project work. Our staff have expertise in the key areas of geographic information systems, website design, computer aided design, and database development. We also use state-of-the-art software to produce innovative and comprehensible graphics and to prepare multimedia presentations.

- **Geographic information systems:** FHI's GIS capabilities range from map generation to detailed spatial analysis for environmental and transportation projects. FHI is equipped to synthesize large, complex datasets into integrated composite maps to identify high priority resource areas or key locations for program objectives. FHI has used GIS applications to identify origin-destination distributions, to assess the geographic relationship of transportation services to land use and population, to portray locations of sensitive resources, and to analyze environmental impacts, including 3D visual impact assessments. FHI has the expertise to develop specialized applications such as integrating website and database design with GIS application.
- **Website design:** We have expertise in designing and establishing informational and interactive websites for both small and large projects. Our capabilities include creating and maintaining project websites to communicate project information, conduct on-line surveys with links to project databases, and request comments and input from stakeholders. For a number of projects, we have prepared final deliverables in web-compatible formats.
- **Database development:** FHI staff create and adapt databases for a variety of purposes, such as to collect and analyze survey results, catalogue public involvement comments, inventory historic resources with links to GIS software, track project commitments, and develop contact lists for public outreach programs.

