Holt Consulting Company, LLC (Holt) was formed on June 17, 2013 as a multi-discipline engineering firm providing planning, design, and management services for transportation infrastructure. The two founders, Ken Holt and Paul Holt, have 70 years of combined experience in the industry.

The Team at Holt understands the importance of balancing business operations with the need to deliver successful projects on time and within budget. Technical accuracy, superior client service, and delivering value on all projects undertaken by Holt are priorities throughout every phase of every project. The Company's relationship-based culture coupled with responsive communication and action makes them the consultant of choice for state and local governments.

PHILOSOPHY OF THE COMPANY:

Holt offers planning, design, and construction phase services for aviation and surface transportation projects. The Company's business approach was formed based upon three bedrock principals: **exceeding client expectations**, a **self-motivated workforce**, and **relationships with industry partners**.

Paul and Ken have worked together for 34 years specializing in transportation projects. They both learned the business from the ground up, from performing the work to managing projects and programs, and therefore possess a keen awareness of the attributes of highly successful projects: **attention to quality, responsiveness, timely execution of the work, and communication, with the ultimate goal being to exceed client expectations.**

Employees are considered the Company's most valuable asset. Therefore, Ken and Paul are committed to a work environment that fosters teamwork, provides opportunities and challenges for each employee to grow and reach their full potential, and recognizes and rewards them for accomplishments, contributions, and outstanding performance. This type of environment generates a naturally self-motivating atmosphere, which results in a genuine desire by each employee to give the client 110%. Relationships are the essence of life's experiences; business being one part of life. In the transportation industry, federal, state, and local officials are essential partners in the successful implementation of a project. The owners and the Team of professionals at Holt recognize the importance of relationships and the value they bring to their clientele; therefore, they have developed strong working and personal relationships with many industry partners.

CAPABILITIES:

The combined experience of professionals at Holt represents a broad mixture of both aviation and surface transportation projects providing planning, environmental, design, construction, and management services. This well-rounded background yields a "big picture" view: **understanding the various phases of a project and how each are interrelated**.

Types of projects include:

Aviation Capabilities		Surface Transportation Capabilities	
Planning Studies	**Landside Design**	**Planning Studies**	**Bridge Design**
▪ Master Plans	▪ Access Roads	▪ Complete Streets	▪ New Bridges
▪ ALP Updates	▪ Circulation Roads	▪ Corridor Studies	▪ Bridge Rehabilitations
NEPA Documentation	▪ Terminal Buildings, Hangars, ARFFs	**NEPA Documentation**	▪ Bridge Widening
▪ Categorical Exclusions	**Construction**	▪ Categorical Exclusions	**Construction**
▪ Environmental Assessments	▪ Inspection	▪ Environmental Assessments	▪ Inspection
Airfield Design	▪ Administration	▪ Environ. Impact Statements	▪ Administration
▪ New Runways	**Program Management**	**Roadway Design**	**Program Management**
▪ Runway & Taxiway Extensions	▪ Cost Estimating	▪ Roadways on New Alignment	▪ Cost Estimating
▪ Parking Aprons	▪ Schedules	▪ Roadway Widening	▪ Schedules
▪ Runway & Taxiway Rehabs	▪ Document Controls	▪ Interchanges	▪ Document Controls
▪ Taxilanes	▪ Funding Plans	▪ Intersection Improvements	▪ Funding Plans
▪ Passenger Boarding Bridges		▪ Pedestrian Facilities	▪ Budget Management

Holt Consulting Company is a proud supporter of SCAA as evidenced by our long-standing representation on the SCAA Board of Directors, active participation in SCAA events, and annual memberships – some dating back to when the Association was formed. Ken Holt served on the SCAA Board of Directors for 12 years (2 years as President, 6 years as Vice-President, and 10 years as Legislative Liaison), and although he retired from the Board earlier this year, Holt's commitment and support of SCAA remains steadfast as we are proud to announce that Ryan Hounshell, PE will be helping to fill those shoes. Ryan was elected to the Board in February 2020.

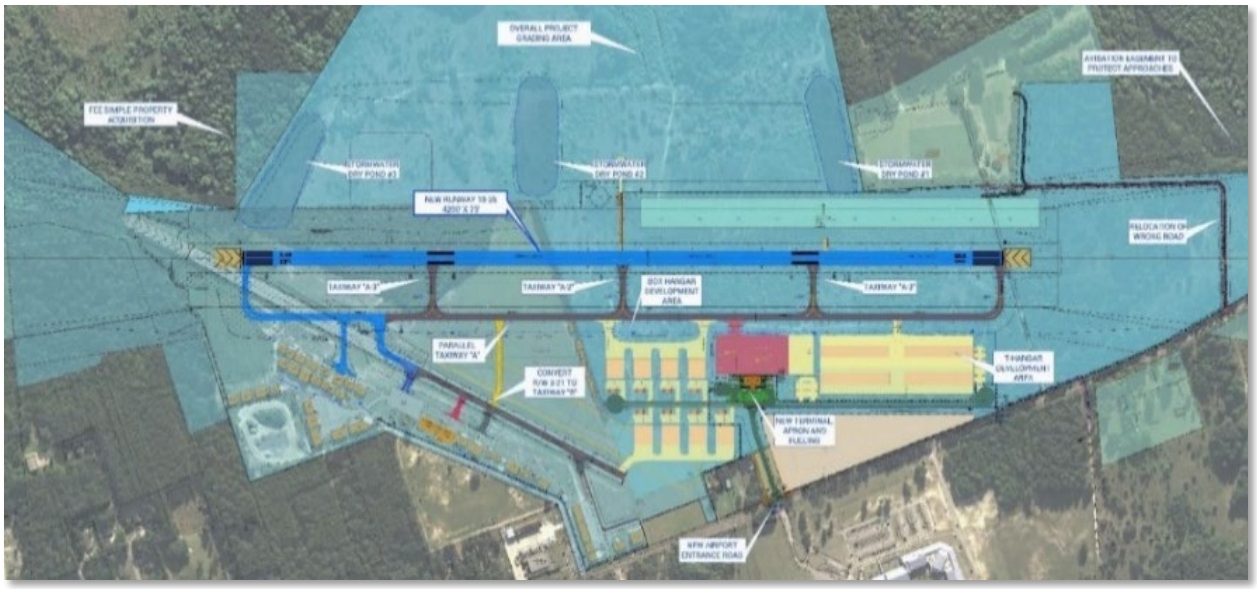
As Operations Manager of Holt's South Carolina Aviation Practice, Ryan has 13 years of experience in multiple facets of airport engineering. He earned his BS in Civil Engineering from The Citadel, is a registered Professional Engineer in SC, GA, and FL, and has his Private Pilot's License with Instrument Rating.

OFFICE LOCATIONS: Holt Consulting Company currently has 32 employees in our 5 office locations: Columbia, SC (Corporate Headquarters); Duluth, GA (Metro-Atlanta); Mt. Pleasant, SC (Charleston-Area); Knoxville, TN; and Greenville, SC.

SOUTH CAROLINA PROJECT HIGHLIGHTS:

Ridgeland-Claude Dean Airport (3J1) – Jasper County, SC

New Runway Program – The South Carolina State System Plan identified the need for a longer runway at Ridgeland-Claude Dean Airport (3J1). During an update of the ALP, a runway length analysis was undertaken, resulting in a length determination of 4,200'. After examining the possibility of extending the existing runway, it was concluded that an extension was not feasible.



Therefore, new runway alignments were evaluated during the Environmental Assessment (EA) with a north-south orientation determined most feasible considering wind persistency, environmental impacts, and costs. Holt was hired as the Program Manager because of their comprehensive understanding of the planning and environmental process, which was imperative as these two efforts, normally conducted in succession, were performed concurrently to expedite the schedule. Also performed concurrent with the planning and environmental work were property and avigation easement acquisition efforts.

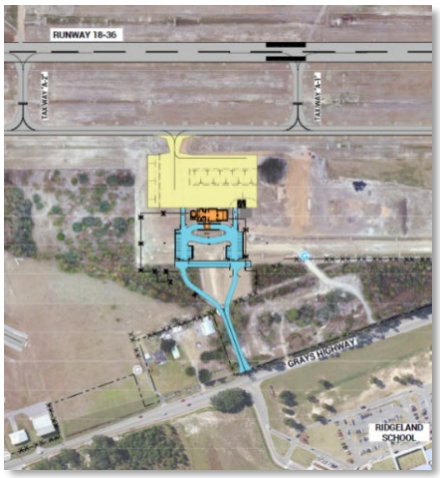
Runway Clearing, Grading, and Drainage – This project involved the development of preliminary design documents to serve as a guide for the overall build-out of the new runway program. The major components of the program included a 4,200-foot long by 75-foot wide runway, a full length 35-foot wide parallel taxiway, connector taxiways, pavement connections to the existing airfield infrastructure, lighting systems, navigational aids, obstruction clearing, and a new terminal area including parking apron, connector

taxiway, access road, and graded sites for future terminal building and hangar facilities. Funding for the construction of these components came from the FAA, SCAC, and Jasper County over several fiscal years in multiple grants, as the total cost of the project was estimated to be approximately $20 million. The project also included production of the first construction package involving clearing, grading, and drainage for the new runway, taxiways, and apron area. Construction cost for this package was $5.5 million.

Runway 18-36 and Taxiway System Paving and Lighting – This project involved two phases: the first included paving and lighting for 3,200' of the runway and the corresponding portion of the parallel taxiway. Construction of this phase enabled the County to close the existing runway. Since the two runways would eventually overlap, this phased approach reduced the total

airfield closure from 5 months to 1 month. The next phase was completion of the paving and lighting for the remaining 1,000' of runway and taxiway, achieved in fall of 2019. The cost to construct both phases was $6.1 million.

Terminal Area Improvements – Development of the new runway at Ridgeland-Claude Dean Airport has resulted in greater capacity for terminal area developments such as parking aprons, T-hangars, bulk hangars, fueling facilities, and FBO facilities. The need for terminal area facilities was also driven by the desire to have aircraft storage and services located in closer proximity to the new runway relative to the existing hangars.



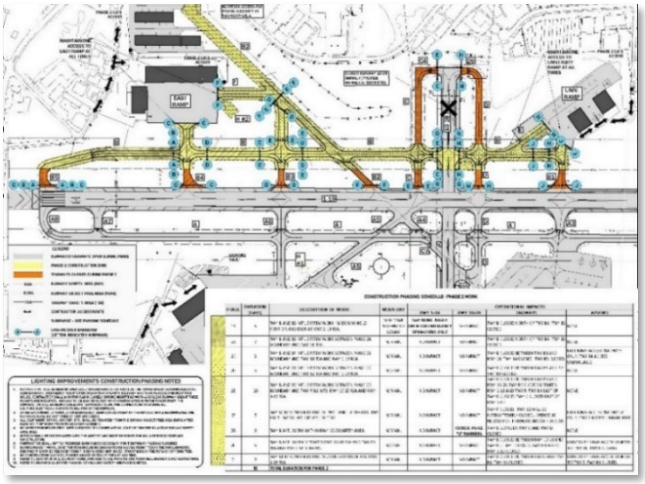
The new terminal area facilities are centered around the construction of a new 7,000 square-foot, two-story terminal building. Since this building is located on a previously greenfield site, the project includes construction of an aircraft parking apron, a new entrance road connecting directly to US Highway 278 (Gray's Highway), and new utility connections to the site. Other planned facilities in the terminal area are the construction of new aircraft fuel farm, additional apron space, and T-hangars and bulk hangars to the north and south, respectively, of the new terminal building.

"In my opinion, we could not have been happier with any other consulting company. We were kept informed by every detail, big or small. I feel like Holt made this easy for the County because of their knowledge. I would recommend them to anyone."

~ Mr. Henry Etheridge | Chairman
Jasper County Council

Greenville Downtown Airport (GMU) – Greenville, SC

Airfield Lighting Rehabilitation: Design, Bidding, and Construction – Greenville Downtown Airport is the busiest general aviation airport in South Carolina and the only airport in South Carolina designated as a national general aviation airport by the FAA national system plan. The airport has two runways, approximately 174 based aircraft, and over 44,000 annual operations. An electrical system inspection was performed both in May 2014 and in September 2016 to determine the condition of existing airfield lighting systems. The recommendation of the inspection teams was to replace the entire power circuit systems along with existing lights and regulators to prevent failure of the runway lighting system. Therefore, new LED lights were included for longer life and lower power consumption and old oil-filled regulators were replaced with new ferroresonant air-cooled regulators.



The existing airfield lighting equipment was located in a room within the maintenance building that has high voltage circuits inside. Thus, a new 12'x20' lighting vault with exterior step-down transformers, nearer to the airfield systems for better safety, reliability, and ease of access, was included in the design. Also, the design provided for the rehabilitation of the existing MALSF system on Runway 1.

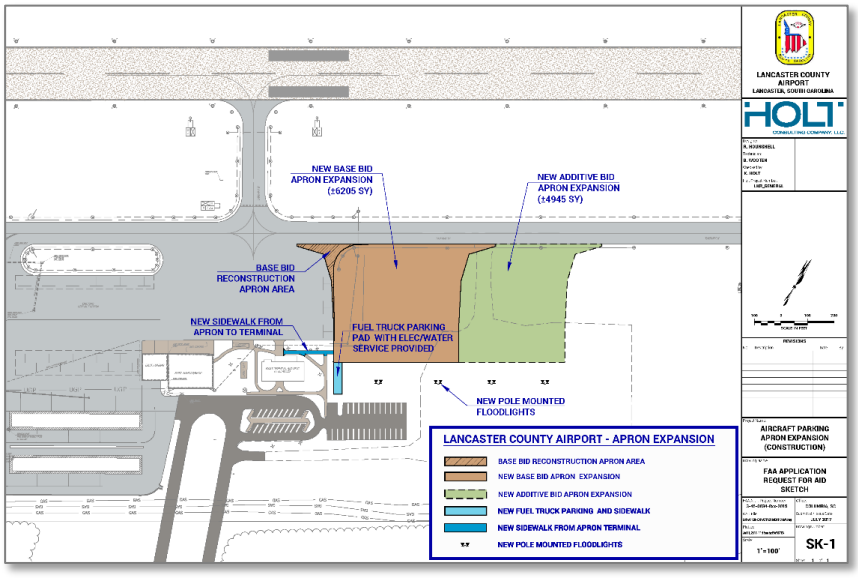
Since the existing equipment was old and subject to failure, the design called for all light fixtures and transformers, control cabinets, cable systems, equipment in the power and control stations and rusted conduits to be removed and replaced with new FAA approved materials. A new radio control system was included so the control tower can control the MALSF during the day and for pilots to activate at night. In addition, the Taxiway Alpha and Bravo lighting systems were in the same condition as the runway and subject to failure. A complete replacement of old fixtures, cables and conduit was included in this design project. In that new LED lights are being proposed; a new regulator was placed in the proposed new electrical vault building. Through close coordination with airport staff and control tower staff, comprehensive phasing of the project was developed, to ensure runway and apron access at all times. Construction was completed in August 2019.

"I could not be happier with the services provided by Holt Consulting Company. From project conception to project completion, their performance is second to none! Kevin Morris is a joy to work with and the entire Holt Team bends over backwards to make projects at GMU a breeze to complete."

~ Mr. Joe Frasher | Airport Director
Greenville Downtown Airport

Lancaster County Airport (LKR) – Lancaster, SC

Aircraft Parking Apron Expansion – This project generally consisted of a new asphalt aircraft parking apron that can support heavier general aviation aircraft such as the Falcon 50, Falcon 900, Falcon 2000, Citation X, and Challenger CL-604. In 2012, through a statewide pavement study conducted by the SC Aeronautics Commission (SCAC), it was determined that the pavement strength and condition of the airfield pavement was not sufficient for supporting the heavier aircraft that regularly use the airport. A concrete overlay was completed a few years ago to rehabilitate the Runway 6-24 pavement, and a rehabilitation project for the parallel Taxiway A was completed in 2017. The existing aircraft apron is comprised of two main pavement sections, both with a low Pavement Condition Number (PCN) that would limit the usage by larger aircraft. Strengthening the entire apron would be costly, would require pavement



reconstruction due to grade restraints at the hangar doors and tie in locations, and ultimately would not increase apron parking area. Therefore, a new apron expansion located just north of the aircraft terminal will accommodate heavier general aviation aircraft parking.

The existing apron is still able to be utilized by lighter aircraft with lower Aircraft Classification Numbers (ACN) that will not damage the pavement. The geometry and pavement design for the new apron is designed to accommodate Airplane Design Group II (ADG-II) and fillets designed for Taxiway Design Group 2 (TDG-2) aircraft. The apron expansion is approximately 220' wide x 240' long (Base Bid) and 220' wide x 400' long (Base Bid and Additive Bid) to allow parking and maneuvering of several large aircraft simultaneously. In addition to the apron expansion, the project included a new concrete sidewalk, fuel truck parking with water and electrical hook-ups, and apron flood lighting.

"As the consultant hired to manage our Airport Improvement Program, the Holt Team has gone far beyond the call of duty to ensure our satisfaction. Holt handles our program's daily needs while anticipating and resolving potential obstacles to keep project progress moving forward. Their staff is always available if we need them, and I highly recommend their services!"

~ Mr. Paul T. Moses, Sr. | Airport Manager
Lancaster County Airport

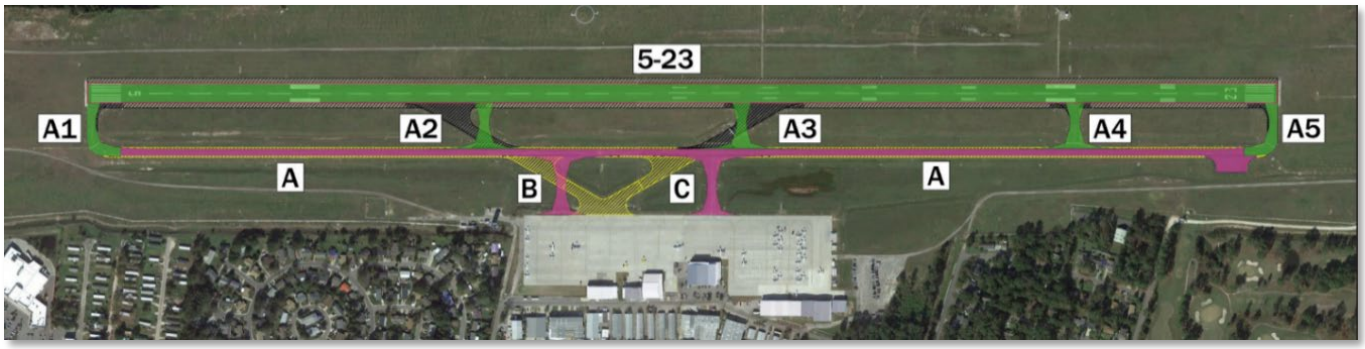
Grand Strand Airport (CRE) – Myrtle Beach, SC

Runway 05-23 Pavement Rehabilitation & Airfield Improvements – The Horry County Department of Airports (HCDA) desired a rehabilitation of the runway to combat on-going maintenance issues and safety concerns over the existing aged pavement. Through the initial site visit and coordination with Horry County, it was determined the taxiway system was also in need of rehabilitation, along with a recommended geometric reconfiguration of two non-standard taxiways.

The Holt Team worked closely with HCDA to determine an optimal phasing scenario through a planning/programming phase that analyzed several potential options. Variables included alternate paving materials (asphalt and concrete), as well as phasing alternatives up to and including converting the parallel taxiway to a temporary runway.

An evaluation matrix was generated that assigned value and ranked several factors for the Owner to consider such as schedule time, cost, operations impact(s), and safety. Once the preferred option was identified, the design team presented the findings to the FAA and State for approval.

The end design, that included the temporary conversion of parallel Taxiway A to a temporary runway, captured the most cost-effective solution delivering the quality and longevity desired, while providing HCDA a construction implementation allowing the based and transient flyers near full access of the facility. The runway was overlaid with 7.5 inches of Portland cement concrete, while the connecting taxiways, including new Taxiways A2 and A3, were constructed with asphalt. Related work included lighting system relocation, drainage improvements, shoulder demolition, and pavement marking(s). The Holt Team provided construction services to the County for the base bid (in green), as the additive bid funding for the majority of the taxiway work (pink/yellow) was bid separately in spring 2019 and construction was completed in the spring of 2020.



"The Horry County Department of Airports was proud to work with the Holt Consulting team on the recent Runway 05-23 and Taxiway Rehabilitation projects at the Grand Strand Airport (CRE). The Holt Team delivered quality pre-design & engineering services, construction administration resources, and project management services throughout. Holt Consulting's dedication and passion to aviation in South Carolina is truly commending. It was a pleasure to work with their entire team!"

~ Mr. Breck Dunne | Director of Airport Development
Horry County Department of Airports

As Engineer of Record on the project, Holt Consulting Company was the proud recipient of a **National Award for Excellence** from the **American Concrete Pavement Association (ACPA)** for the Runway 05-23 Pavement Rehabilitation & Airfield Improvements project in 2018 and the project was featured in ACPA magazine in Quarter 2, 2019.

***The Award-Winning Project Team consisted of Design Engineer: Holt Consulting Company**, Contractor: Hi-Way Paving, and the Horry County Department of Airports.*

"THE GRAND STRAND RUNWAY IS ONE OF THE OLDEST RUNWAYS in the state and was built in the 1940's as the Wampee Flight Strip, used as an auxiliary landing airfield for Myrtle Beach Army Airfield," says Breck Dunne, Director of Airport Development for Horry County Department of Airports, which operates four airports.

Feedback from Grand Strand clients has been positive, says Dunne. "They comment on the smoothness of the runway, but they also like the brightness of the new, white concrete," he says. "Pilots can see it from a long way."

"We are noticing the use of concrete overlays in general aviation more regularly in recent years," says ***Jeff Pike, PE, Operations Manager at Holt Consulting Company***, the design engineer for the Grand Strand project. "The main difference in design formulation from a road/highway project is the design software itself." FAA software known as FAARFIELD was used to design the runway pavement section. "As the acronym suggests, it is an 'iterative elastic layered design' computation platform set up specifically for wheel patterns and tire pressures of aircraft," he adds.

Jackson, Sheryl S. "The Sky's the Limit – Concrete Extends Life of Airport Runway." *Concrete Pavement Progress* ACPA Quarter 2, 2019: 6-9. Print.