MINUTES
KEYSTONE HEIGHTS CITY COUNCIL MEETING
555 S. Lawrence Blvd., Keystone Heights, Florida
Monday, April 01, 2024 at 6:00 pm

ANYONE WISHING TO ADDRESS THE CITY COUNCIL REGARDING ANY TOPIC ON THIS EVENING'S AGENDA IS REQUESTED TO COMPLETE A CARD AND RETURN TO THE CITY CLERK. SPEAKERS ARE RESPECTFULLY REQUIRED TO LIMIT THEIR COMMENTS TO THREE (3) MINUTES.
THE CITY COUNCIL PROHIBITS THE USE OF CELL PHONES AND PAGERS WHICH EMIT AN AUDIBLE SOUND DURING ALL MEETINGS WITH THE EXCEPTION OF LAW ENFORCEMENT, FIRE AND RESCUE OR HEALTH CARE PROVIDERS ON CALL. PERSONS IN VIOLATION WILL BE REQUESTED TO LEAVE THE MEETING.

"Please turn off cell phones"

Invocation led by: Reverend Ryan Begue

Pledge of Allegiance led by: Elston "Speedy" Kussler

Call to Order: 6:01 PM

Roll Call:

Mayor Nina Rodenroth, Vice Mayor Christine Thompson, Councilman Tony Brown, Councilman Steve Hart and Councilman Dan Lewandowski

City Manager Charlie Van Zant, City Attorney Rich Komando and City Clerk Stephanie Silva

1. **Public Comments**
   - **a.** No public comments.

2. **Resolutions/Ordinances**
   - **a.** Resolution 2024-01 Jordan Cooper Memorial Scholarship Fund 5k Run Road Closure

Councilman Brown moved to adopt Resolution 2024-01 the Jordan Cooper Memorial Scholarship Fund 5k Run Road Closure. **The motion was seconded** by Councilman Hart. **The motion carried 5-0.**

   - **b.** Resolution 2024-02 Lake Region Kiwanis Club Parade Road Closure

Councilman Hart moved to adopt Resolution 2024-02 the Lake Region Kiwanis Club Parade Road Closure. **The motion was seconded** by Vice Mayor Thompson. **The motion carried 5-0.**

3. **Proclamations**
   - **a.** Water Conservation Proclamation

Mayor Rodenroth presented Doug Conkey of the St. Johns River Water Management District with a Water Conservation Proclamation in celebration of Water Conservation Month.

Doug Conkey spoke about the importance of water, water conservation and thanked the Mayor and Council for presenting him with this Proclamation in honor of Water Conservation Month.

4. **Consent Agenda**
   - **a.** Minutes
     - **i.** January 03, 2024 Special City Council Minutes
     - **ii.** January 08, 2024 City Council Minutes
     - **iii.** February 05, 2024 City Council Minutes
     - **iv.** February 20, 2024 Heritage Commission Minutes
     - **v.** February 26, 2024 Planning and Zoning Minutes

vi. February 28, 2024 City Council Workshop Minutes
vii. March 04, 2024 City Council Minutes

~~**b. Financials**~~

c. Life South Blood Drive Event Application for July 4th, 2024

d. 2023-2024 Roadway Improvements: Project Number 171759

Councilman Brown moved to approve the consent agenda items. **The motion was seconded** by Vice Mayor Thompson.

Councilman Lewandowski stated that the March 04, 2024 needed two corrections.

1. Councilman misspelled under "role call"
2. Public comments need to be in same tense

The motion carried 5-0.

5. Action Items

a. Paul Wane – 4th of July Introduction

Paul Wane, member of Duval County Line, spoke about his upcoming performance in the City of Keystone Heights for the Fourth of July Celebration. Mr. Wane shared with Council that he became a viral sensation after his performance at a Jaguars game aired on television. Mr. Wane and his wife, Lisa Wane, run a program called Guitars for Kids Rising Stars where they gift new and refurbished instruments to those that have the desire to play music. Mr. Wane feels that music is gateway for youth to express themselves in a safe manner. He thanked Council for inviting him to perform during the Fourth of July and is looking forward to showing the community his band, Duval County Line, and some of his Rising Stars as well. If anyone in the community would like to see Mr. Wane or some of his Rising Stars perform, they can be found at the Howling Wolf in Putnam Hall on Thursdays from 6 pm to 10 pm.

b. Airport Update – Manager Van Zant

Manager Van Zant stated that the airport and its lease to The Firm, a non-aeronautical tenant of the Keystone Heights' Airport, has been the main topic of discussion. The Federal Aviation Administration (FAA) requires that the Airport Authority charge fair market value. Manager Van Zant further stated that it is proper for a non-aeronautical tenant on any airport to get a fair market appraisal. Ongoing work at the airport is underway to resolve The Firm's lease.

The Snowbird Aerobatic Contest took place from March 21st to March 23rd, 2024. Tentative dates of April 5th and 6th have been set for Aviation medvac training. With the Sun and Fun event taking place in April 9th to April 14th, 2024 at Lakeland, Florida, the airport expects an increase in commuter traffic.

c. Airport Utility Feasibility Study – Bill Prange, PE

Bill Prange, airport engineer, presented the Airport Utility Feasibility Study to Council. Please see attachment for slideshow.

Councilman Lewandowski stated that he was very impressed with the work on a technical level however he was also concerned about where the money for this project would come from.

Bill Prange will provide Manager Van Zant with a list of possible fund sources however the project is in the very early stages of planning.

Councilman Lewandowski stated that on page five, the sanitary sewer system analysis has significant development beyond what is anticipated could exceed the capacity of the existing six inch force main. This is not part of the plan to build out currently and it's not because of the airport project, it's because of other things that might connect in. I feel this needs to be addressed. How would we do it, how much more money would it cost and other questions of that nature? This leads to the other two problems, one being the difference between Clay County and Keystone Heights and Bradford County, which is basically the cutting line between the St. John's River Water Management District and the Suwannee River Water Management District. Highway 100 going up to Starke is basically the line, the west side being Suwannee River Management District and the east side being St. John's River Water Management District. Optics looks like the biggest issue. It looks like we are extending these lines and the biggest benefactor is Bradford County.

Bill Prange stated the Clay County Utility Authority is not a part of Clay County government, it's a public body corporate that operates autonomously with its own budget and funding sources and they exist to operate on a net zero. He believes partnership is important and Clay County Utility Authority has expressed an interest that if the airport could demonstrate a need that they would extend or take ownership or receive ownership at some level and operate the system.

Councilman Brown asked if the treatment center behind clay electric would be used or would a new treatment center need to be developed?

Bill Prange stated that the current treatment facility in place now is expandable but there are no specific details on plans to do that. Clay County Utility Authority would best be able to answer questions based on expanding.

Councilman Brown asked about the Bradford County road and adding on to it a turn lane.

Bill Prange stated that the turn lane is still planned and there is still funding being sought for the turn lanes. Bradford County has been given permission by Department of Transportation (DOT) to connect the road and Bradford County forces will complete that work but it can't because the airport has to maintain a perimeter and new fencing needs to be constructed.

Mayor Rodenroth asked if there is a cost associated with this proposal and who paid for it.

Bill Prange stated the amount is $135,000.00; the City Council paid $110,000.00 in a previous budget year. The former City Manager and former Airport Manager had agreed through some means that as the airport submitted invoices the city would pay the first $110,000.00 and the airport would be responsible for any payments beyond that agreed upon amount.

Mayor Rodenroth asked what the expiration date on the proposal is because if the city is to seek out a grant would this document you are presenting still be valid.

Bill Prange stated that the presented document has a three to five year life and most studies of this type have similar lifespans. There are two things that would change the validity of the numbers in this study; if on airport development changed significantly, if the development plan changed or if development along the corridor changed up or down this study would need to be re-evaluated.

Councilman Lewandowski asked that if possible he would like to hear what Bradford County has to say about this proposal.

Bill Prange stated he will reach out to the Airport Manager and ask that he speak with Bradford County.

d. Airport Seats 1 and 3

Mayor Rodenroth spoke about the open seat available on the Airport Authority Board.

Councilman Lewandowski asked that if any of the candidates are present that they come and speak to the Council.

i. Current Board Members
ii. Seat 1 – Term Expires 05/2025
1. James Eifert, David Welch and Terri Hall

Terri Hall addressed Council and spoke about her credentials why she would be an asset to the Airport Authority Board.

David Welch addressed Council and spoke about his credentials and why he would be an asset to the Airport Authority Board.

James Eifert was not present to make comments.

Manager Van Zant stated that Mr. Eifert had communicated with him via phone and email with questions about the process.

Vice Mayor Thompson moved to nominate Terri Hall for Seat 1 on the Airport Authority Board. **The motion was seconded** by Councilman Brown.

Councilman Lewandowski stated that he feels the airport needs an "airport" person before selecting someone with other qualifications outside of that skill set.

Councilman Hart stated that a lot of what the airport does is based on relationships that are built over a period of time and looking and General Eifert's resume, it appears based on his forty one years in the military and his relationships that he has with both State and Federal elected officials which could be of use to the Keystone Heights Airport Authority.

Councilman Lewandowski stated that he agrees with Councilman Hart and that General Eifert would be a huge resource to the Airport Authority Board. He also stated that if the measure passes to change the City Charter the airport will lose the voting member on Camp Blanding, as requested by Camp Blanding, and add a new voting member that will come from the civilian populace. This process will most likely be repeated in the near future and encourages any applicant not selected today to reapply in the future.

Councilman Brown stated that he seconded the motion on the table because he has known Mrs. Hall for several years and has seen her in action. Several years ago we lost our Forester, Mr. Harris, and unfortunately we've had two other people that have stepped in to do it. Ever since I have been on Council trees have been important and I feel we do need a Forester on the Airport Authority Board.

Councilman Lewandowski stated that he had previously spoken to the Board of Directors, Mr. Kirkland, and asked what kind of individuals would you want on the Board? The first answer received was that aviators were needed, individuals that could speak "airport". Councilman Lewandowski stated it is important to him that he know this information.

The motion carried 3-2 with Councilman Hart and Councilman Lewandowski in dissent.

iii. Seat 3 – Term Expires 05/2027

Mayor Rodenroth spoke about the open seat available on the Airport Authority Board.

1. Robert Ludwig (current member), James Eifert and David Welch

Robert Ludwig addressed Council and spoke about his credentials why he would be an asset to the Airport Authority Board.

Vice Mayor Thompson moved to nominate Robert Ludwig to Seat 3 of the Airport Authority Board. **The motion was seconded** by Councilman Hart.

Councilman Brown stated that he believes Robert Ludwig has does a fine job this past year.

The motion carried 4-1 with Councilman Lewandowski in dissent.

e. Keystone Heights Heritage Commission Seat 5 – Term Expires 04/2024
i. Renewal Application – Kerry Collins

Councilman Brown moved to approve Kerry Collins renewal application for the Heritage Commission. **The motion was seconded** by Councilman Hart.

The motion carried 4-1 with Vice Mayor Thompson in dissent.

Manager Van Zant stated that Mrs. Collins emailed him and asked that he pass on her regrets that she was not able to attend and express that she has enjoyed her tenure on the Heritage Commission and would like to continue.

f. Donate $25k from lakes fund for fishing pier to Save our Lakes Organization – Manager Van Zant

Manager Van Zant stated that he received a request from Save Our Lake Organization (SOLO) for $25,000.00 to move forward with their conceptual design of a fishing pier that would be located at Keystone Beach's Lake Geneva. SOLO has a rough budget of $200,000.00 and are asking that the City Council donate $25,000.00 out of the lakes fund which has a current balance of $41,000.00 that is designated to use on anything that involves lakes. The city has the funding to grant this request if Council wishes. Two gentleman are in the audience who would be able to speak to this, one is representing SOLO and the other builds piers, if Council should have any questions.

Councilman Lewandowski moved to give $25,000.00 to the Save Our Lakes Organization (SOLO) for use towards the construction of a fishing pier. **Councilman Hart seconded** the motion.

Councilman Brown asked Attorney Komando the following: "If the city gives $25,000.00 to SOLO and they control the building of the pier, does SOLO have to go out for bid to complete this project?"

Attorney Komando answered: "Yes, because SOLO is essentially using tax dollars and they still have to follow the city's procurement policy. The city is not donating; there is already money set aside based upon a prior request to SOLO. The money set aside in the account just needs to be authorized for use by Council for part of the purchase and construction of the fishing pier. As part of that process, SOLO is using tax dollars to construct, design and build, so they have go through a bid request process."

Councilman Hart stated that the fishing pier would be a permanent fixture so basically the city is working with SOLO.

Councilman Brown stated he believes the fishing pier would be a great asset to the city. There are several people at the Keystone Beach area daily fishing and he thinks this would be a great opportunity to add to the beach.

Vice Mayor Thompson asked Scott Slater the following question: "When the pier is build and the water comes up, will the pier float?"

Scott Slater stated that yes, the pier will float. The tentative design for the pier is one hundred and fifty feet of fixed pier, which is stationary mounted to stationary piles, a gangway which pivots from the stationary pier down to a floating structure that is eight foot wide and fifty foot long. That floating structure will go up and down with the water levels.

The motion carried 5-0.

g. Lake Level /Flow Predictions – Councilman Lewandowski

Councilman Lewandowski presented the Lake Level/Flow Predictions presentation to Council. Please see attachment for slideshow.

Councilman Hart asked how long does it take for the testing, how long does it take the water to get from Black Creek down to the test fields?

Attorney Komando stated he believes that testing is how long the water has to sit in the retention pond to allow the sediment to drop so it comes off the top.

Councilman Brown stated that City Staff and the County Commissioner have went out to view the culverts and conveyance systems in the city to discuss how they could be cleaned up to prepare for the water flow. There was a follow up meeting about two weeks ago with St. John's River Water Management present and went to view the creeks. Some of these creeks are not city property and are owned by citizens and these property owners would be responsible for the cleanup. There is currently water in the creek on the Brooklyn side going back towards State Road 100.

Councilman Hart stated that the King Street boat ramp is already in use and busy as of last week.

Mayor Rodenroth stated that based on Councilman Brown's statements, the residents are responsible for cleanup of the water way on their property because they have ownership and perhaps some of these citizens are unaware of this responsibility.

Manager Van Zant states that the Florida Department of Environmental Protection will have a say and they will have to issue permits, Fish and Wildlife have a part in this and St. John's River Water Management District

will be doing some investigation. Doug Conkey shared a document with Beau Wright to further educate us on this subject matter.

Councilman Hart stated the jurisdiction is really in the State if its navigable waterway the State owns the bed. The Etonia Chain was flowing right through town has most likely had been declared a navigable waterway and there is most likely a trust set up in Tallahassee to manage this. The State will probably have overview of the whole project. This will have to be addressed and perhaps the Water Management District is already working on this.

Councilman Lewandowski thanked Scott Kornegay and Doug Conkey for attending. He stated that he would be willing to support some kind of financial assistance to residents who might need it to clean up the lake.

Councilman Brown stated that from Highway 100 South, the majority of that creek is in Clay Electric's property and we have already had discussion with them. There is a lot of growth and trees but the base of the creek is still as sandy as it once was.

6. Discussion Only

a. Agenda – Councilman Brown

Councilman Brown asked for an explanation on how the agenda is to be processed and if there will continue to be late add on items in the future. He asked that all Council begin to follow the timelines set by the City Manager and City Clerk and only amend the agenda if it is an emergency.

Manager Van Zant stated that Councilman Brown's request to follow the timelines is greatly appreciated and what was added to this meeting as a late addition was the HIPP Construction Contract so the process can begin. A new agenda template is on its way and should help with these issues.

b. July 4th – Councilman Brown

Councilman Brown stated that the previous City Manager was heavily involved in the planning of the Fourth of July event the past several years and Councilman Brown has offered to be the liaison. Staff has now taken this and Councilman Brown has met with Mr. Wane; Councilman Brown believes Staff has this even under control and it can be removed from future agendas.

Councilman Lewandowski asked if there were any development, like, the exact time of the 5K run and can the specifics please be added to the city calendar.

c. Schedule Parks Master Plan Workshop – Mayor Rodenroth and Councilman Lewandowski

Mayor Rodenroth stated that there a workshop scheduled for April 10, 2024. The parks master plan is massive and for the city to be able to entertain the idea, there needs to be someone available to write and/or complete grant applications. It is her opinion that to move forward on this project without a Grant Writer would be a waste of time because this is a two to eight million dollar project that the City cannot afford on its own.

Councilman Lewandowski stated he believes the Council has discussed a phased approach to this project so it is not necessarily a two to eight million dollar project when broken into parts.

d. City Hall Meeting Room – Councilman Lewandowski and Mayor Rodenroth

Manager Van Zant stated he received direction from Council in a previous meeting, February 28, 2024 Workshop, such as freshen the paint, fix lighting and sound issues, seating, etc.

Councilman Lewandowski stated that he supports this idea and asks that the City Manager move forward in refurbishing the City Hall Meeting Room.

e. Strategic Plan – Councilman Lewandowski
  i. Potential Workshop on April 10, 2024

This item will be further discussed in Part 9 – City Manager Report. Councilman Lewandowski requested an earlier date.

f. Christmas Workshop – Councilman Lewandowski
  i. Potential Workshop on August 14, 2024

This item will be further discussed in Part 9 – City Manager Report.

g. Performance Reports – Councilman Lewandowski

Councilman Lewandowski discussed the importance of developing a performance report for the City Manager, City Clerk and City Staff.

Councilman Brown stated that this is a good idea and staff deserves to know how they are performing.

Action Item: *Councilman Lewandowski directed the City Manager to go to the International City/Council Management Association (ICMA) and request their generic performance evaluation reporting system.*

h. City Discounts for Tax Paying Residents – Councilman Lewandowski

Councilman Lewandowski stated that he visited the Clay County Outdoor Adventure Park and received a discount for being a resident and would like to see a discounted program for our local residents to rent the Historic Pavilion and perhaps the Fourth of July Event as well.

Manager Van Zant stated he gave direction to Staff last week to reduce the rate and lower the deposit amount for city residents and to produce a fee schedule to bring back to Council at an upcoming meeting.

Councilman Hart stated he believes the Council approved a fee schedule a few years ago for the Historic Pavilion.

Councilman Brown discussed the idea of using the money made from the Historic Pavilion rentals to fund the fireworks for Fourth of July as we do not currently have a source of funding to pay for them and this year.

i. Child of Moon Tree – Councilman Lewandowski

Councilman Lewandowski stated Keystone Heights is one of the few cities in the country that has a “moon” tree and he would like to have it propagated so when the original “moon” tree dies, there is a direct replacement.

j. Update on 125 Walker Drive Purchase – Manager Van Zant

Manager Van Zant stated that a closing is being scheduled and discussion is taking place with the Transportation Planning Authority (TPO), which is an offshoot of the Florida Department of Transportation (FDOT). The District Two Manager, TPO Head and Manager Van Zant will be having further discussions as to how this fits in their plan. The TPO is aware of the safety improvements that the Council wants to see with the right turn lane. The next step after closing will be developing a Request for Proposal (RFP) to get a demolition company involved.

k. Chautauqua – Councilman Lewandowski

Councilman Lewandowski discussed the Chautauqua that occurred in the 1900's when there was not radio or television available to spread news and provide a source of entertainment to the public. He supports the Heritage Commission in their endeavor to revive this area which is located next to the Women's Club.

Councilman Hart stated that the Chautauqua was developed in the 1800's as a religious organization. For a few years the City of Keystone Heights was ground zero for the Chautauqua movement in Florida and if old photos of the water tower are seen, you will notice a reference to Chautauqua City. The Chautauqua circle is not in our city limits, so there may be limitations as to what Council can help with.

l. KHHC 4th Grader Field Trip: April 19th, 2024 – Mayor Rodenroth

Mayor Rodenroth discussed the Keystone Heights Heritage Commission's 4th Grader Field Trip. There will be approximately one hundred students and fifteen to twenty parents in attendance and there will be groups of twenty five that rotate between stations; Historic Beach Pavilion, City Hall, Moon Tree and Nature Park and Fort 11. Each rotation is around thirty minutes long and there has been a role play created for Council. Council will be going through the process of purchasing the China Chef and at the end of the event each student will receive a proclamation and key to the City.

m. Special Magistrate – Councilman Hart

Councilman Hart suggested beefing up the role of the Special Magistrate to get involved with the question of damage to city property. He believes the ordinances could be augmented and made more specific. This would be a way to keep these decisions local, allow us to levy fines and have instant justice rather than relying on outside Courts and parties to help.

n. Summer Concerts – Councilman Lewandowski

Councilman Lewandowski discussed summer concerts and potential having a concert once a month throughout the summer.

Councilman Hart stated the community band has four concerts scheduled during this year at the Historic Pavilion and it is advertised on the City's community calendar and will also be advertised on Facebook.

7. Committee Reports/Recommendations

President of the Heritage Commission Christine Arnold gave updates on their Facebook page and hopes to have it completely updated by Christmas. She thanked Council for appointing Kerry Collins renewal to the Commission.

8. Council Comments

Councilman Brown stated that a Budget and Finance meeting would be advisable for May because there are a lot of projects being discussed but we are not sure as to what we truly have available in the budget.

Manager Van Zant stated he is meeting with each Council member individually first and after he will schedule a meeting for the month of May that the public may also attend.

Councilman Brown stated he is concerned because there has not been a Budget and Finance committee meeting since October of 2023.

Councilman Hart stated he visited Penney Farms for their Farm day and it was a very nice event and also met the Mayor. He mentioned that the Council and Staff may want to have a workshop addressing Form 6 in the future.

Vice Mayor Thompson discussed behavior issues within Commissions and that bullying or abuse of City Hall Staff will not be tolerated and will be addressed if it is brought to her attention in the future.

Councilman Lewandowski thanked Councilman Hart for his service on Council. He stated that he will not be available on April 19, 2024 or June 3, 2024.

Councilman Brown spoke about the Sunrise Service that occurred at Keystone Beach and how wonderful the event was and how awesome it was to see water in the lake during that service. He further thanked Councilman Hart for all his help.

Mayor Rodenroth spoke about the Vietnam Veteran celebration that was held at Keystone Heights High School and stated that she has attended many luncheons that allow her to make new connections. In April, Pack 187 of the Cub Scouts, will come visit City Hall to learn about civic education. Mayor Rodenroth also extended her gratitude to Councilman Hart for his service on the City Council.

The City Council presented Councilman Hart with a plaque to honor his many years of service on the City Council.

The plaques stated:

On behalf of the City of Keystone Heights, we wanted to present to Steve Hart, for your years of dedicated service to the City of Keystone Heights, your principal leadership has made a huge impact, City Councilman from March 2014 to April 2024.

9. City Manager Report – Charlie Van Zant

Manager Van Zant discussed the many projects that the Council has asked him to look into from the cleanup of waterways to the purchase of the China Chef. He stated he will be presenting Council with an organizational chart, job descriptions, salary schedules and other items that have been created or updated. Manager Van Zant provided Council with a packet containing potential Council Meeting dates and proposed we move the July meeting date or cancel the meeting entirely and resuming it on August 05, 2024. Manager Van Zant discussed the importance of developing a Strategic Plan and a workshop will occur on April 10, 2024 beginning at 10:00 am. Potential Workshop dates have been provided. Council is requested to look at those dates and decide what should be discussed on which dates. Council has also been provided with a flow chart as to which

responsibilities fall under the City Manager and the City Clerk. Manager Van Zant discussed the lengthy agenda and stated that the City is looking at Agenda Plus as a tool that may be a great help to reducing the lengths of these meetings.

Councilman Lewandowski stated that he would like a form developed so he can track action items.

10. City Attorney Report – Rich Komando

Attorney Komando stated that it has been a pleasure to work with Councilman Hart and appreciated his dedication to public service.

Clerk Silva asked if Attorney Komando could clarify Elston Kussler's options for his swearing in to Council.

Attorney Komando stated that Mr. Kussler could pick the date he would like his official swear in ceremony to be. It was stated that he could be sworn in privately and then again publicly so Mr. Kussler's family and friends could be present for the event.

Mayor Rodenroth adjourned the meeting at 9:02 PM.

Water and Sewer Utility Feasibility Study

DRAFT

Prepared for:

Keystone Heights Airport Authority
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Prepared by:

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March 2024

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Executive Summary

To support planned development at the Keystone Heights Airport (the Airport), AECOM prepared this study to evaluate providing potable water, sanitary sewer, and fire protection systems at the Airport along with offsite improvements required to connect to the local utility, Clay County Utility Authority (CCUA), located in Keystone Heights. Fire protection will remain a separate private onsite system. Refer to **Figure 2-2, Existing Airport Layout Plan,** on **Page 11** of this Study.

The planned development includes new hangars and offices in the existing aviation services area on the Eastside, a new multi-structure facility on the Westside for the current tenant MHD Rockland, and a new commercial and light-industrial development on the Westside (the Westside Development). Potential local development was also evaluated for impact on the CCUA utility treatment and conveyance capacity. Refer to **Figure 3-1, Planned Airport Development**, on **Page 13** of this Study.

Potable Water

The existing CCUA potable water system treatment plants have sufficient capacity for the future Airport needs (117 gpm peak future potable water demand) along with projected local development demands. The existing 12-inch CCUA water main that terminates at the Keystone Heights RV Resort, approximately 1.9 miles south of the Airport, will be extended approximately 12,000 lf along SR 100 to serve the Airport and potential future development along the route. Refer to **Figure 4-4, Proposed Potable Water and Wastewater Piping from Keystone Heights to KHA Layout**, on **Page 24** of this Study.

The existing potable water system of individual wells at most buildings will be replaced by an internal potable water distribution system with two 6-inch potable water mains, one serving the Eastside and one serving the Westside, each connected to the extended offsite CCUA 12-inch water main. An onsite 4-inch water main will connect the Eastside and Westside 6-inch water mains. The system will consist of approximately 14,800 lf of 6-inch and 4-inch water mains. Refer to **Figure 4-5, Conceptual Potable Water Layout** on **Page 25** of this Study.

The results of a preliminary hydraulic analysis indicate that adequate system pressures will be maintained in the 12-inch CCUA water main extension and the Airport water mains for periods of peak Airport demands and during a fire flow condition of 1,000 gpm along the 12-inch CCUA main extension. However, due to highly varying elevations across Parcels E and F in the Westside, in-line booster pumps stations may be required depending on the future development plans.

Sanitary Sewer

While the existing CCUA Keystone Heights Wastewater Treatment Plant (WWTP) has adequate capacity for the future peak Airport wastewater generation of 100 gpd, the additional local development will exceed the WWTP capacity. Anticipating this increase, CCUA engineering staff is proposing funding for the analysis and design of an expansion of the WWTP in the 2023/2024 Fiscal Year. The existing 6-inch CCUA force main that terminates at the Keystone Heights RV Resort will be extended to serve the Airport and potential future development along the route. Significant development beyond what is anticipated could exceed the capacity of the existing 6-inch Force main.

The existing Airport septic systems will be abandoned and decommissioned, replaced by a sanitary collection system that will discharge to the CCUA 6-inch force main at the Airport entrances. On the Eastside, the onsite system will include approximately 4,500 lf of gravity main, for collection from the existing and proposed buildings, that will discharge into a new Airport Master Pump Station (MPS) #1 from which approximately 3,900 lf of 4-inch force main will discharge to the existing 6-inch CCUA force main at the main Airport entrance from SR 100. On the Westside, the FIRM, MHD Rockland Facility, and Parcels E and F will utilize private lift stations that will discharge to a 4-inch force main that runs approximately 3,800 lf from the FIRM to the new Airport MPS #2. Wastewater from Parcels A, B, C and D will be routed via approximately 1,000 lf of gravity sewer main to Airport MPS #2. Approximately 800 lf of 4-inch force main will convey the Westside wastewater flows from the new Airport MPS #2 to the existing 6-inch CCUA force main at the Westside Airport entrance from SR 100. The Airport will own and maintain the new sanitary system with the possible exception of the private lift stations. Refer to **Figure 4-8, Conceptual Wastewater Layout** on **Page 35** of this Study.

Fire Protection

The proposed fire protection system will provide required protection to existing and future development at the Airport. Based on talks with CCUA and the low potable water demands (117 gpm peak future demands) compared to high fire protection requirements (up to 6,000 gpm and 109 psi) typical of an industrial area, the fire protection system will remain separate from the potable water system, supplied by private onsite wells, and operated by the Airport.

Two fire protection systems are proposed, one for the Eastside and one for the Westside. Refer to **Figure 4-9, Conceptual Fire Protection Layout** on **Page 48** of this Study. An optional interconnect between the two systems can be provided, consisting of 2,240 lf of 12-inch fire main, 1,004 lf of which would be a horizonal directional drill (HDD) under the proposed Runway 5/23 extension.

1. Eastside. A lower pressure system is proposed for the Eastside since there are no structures requiring interior fire suppression systems. The system will provide fire flows of 2,250 gpm at 20 psi to the existing and proposed development, and consists of the following components:

    a. A new upsized 8-inch well with a new 6-inch, minimum 562-gpm submersible pump

    b. Total storage volume of 270,000 gal by combining the existing 185,000-gal tank with an additional 85,000-gal tank (assuming the existing tank is in reusable condition)

    c. A new pumping system with 2 new diesel fire pumps (2,250 gpm at 40 psi), an electric jockey pump, and a prefabricated metal building enclosure.

    d. Replacement of the existing 8-inch fire piping system with approximately 4,400 lf of 12-inch piping with hydrants and stub outs for possible future connections to the Hunt Club and Camp Crystal Lake.

2. Westside. A separate system that provides fire flows and interior fire suppression requirements for the MHD Rockland facility and the adjacent Westside Development consisting of the following components. The MHD Rockland facility will require an independent fire protection system and is anticipated to be constructed before the Westside Development, therefore, it is proposed that this system be shared or transferred to the Airport to also serve the adjacent Westside Development

    a. A new 8-inch well with a new 6-inch, minimum 625-gpm submersible pump

b. A new 300,000-gal storage tank.

c. A new pumping system with 3 new diesel fire pumps (capable of providing up to 6,000 gpm at 109 psi), an electric jockey pump, and an enclosure.

d. Approximately 5,000 lf of 12-inch fire mains with hydrants

The fire protection analysis was based on assumptions about the proposed building uses for empty parcels on the Eastside and Westside. The proposed Westside system will be capable of serving a variety of tenants with moderate to high-flow and high-pressure needs, while the Eastside will remain an independent lower pressure system. Potential future tenants can be informed of the maximum capacity of the system they will use and options to meet higher requirements (i.e., in-line booster pumps, dedicated storage tanks, etc.)

Utility Alignment

Sanitary sewer and fire protection mains will be located on the same side of each Airport roadway since the fire protection water is untreated well water while the potable water mains will be located on the opposite side. On the Eastside, to maintain fire protection during utility construction, the new 12-inch fire main will be installed on the north side of Airport Road prior to the existing 8-inch fire main being removed from the south side for installation of the new 6-inch water main.

Preliminary Construction Cost Estimate

A preliminary construction cost estimate of $17,313,500 was developed. Given the conceptual nature of the design, a 25% contingency factor was included. An engineering design and permitting fee of approximately 15% was added. The construction cost estimate should be considered as a Class 3 estimate with an expected accuracy level (-)10% to (+)30%, or $15,600,000 to $22,500,000. Refer to **Table 5-1, Preliminary Construction Cost Estimate** on **Page 51** of this Study.

Construction Schedule

A total of 3 years should be allotted for design, permitting, and construction of the potable water, wastewater, and fire protections systems.

1.0 Introduction

The Keystone Heights Airport (the Airport) is planning on expanding by developing portions of their property for new aviation services, as well as new commercial and light-industrial tenants. The Airport currently utilizes onsite wells and septic systems for potable water, sanitary sewer service, and fire protection.

To support this planned growth, the Keystone Heights Airport Authority (KHAA) enlisted the services of AECOM Technical Services, Inc. (AECOM) to provide a conceptual plan, associated costs, and a construction schedule for providing potable water, sanitary sewer, and fire protection to the Airport to serve existing and future development.

The overall goal will be to connect the proposed onsite potable water distribution and sanitary sewer collection systems to the Clay County Utility Authority (CCUA) systems in the City of Keystone Heights (Keystone Heights). Consequently, offsite utility improvements will be needed. In evaluating the offsite utility improvements needed to serve the Airport, consideration was given to potential private development that could occur when the CCUA systems are expanded to serve the Airport. Consequently, this Study will provide recommendations for the construction of a centralized utility system to provide potable water, sanitary sewer, and fire protection at the Airport as well as potable water and sanitary sewer service to potential private developments along SR 100 from Keystone Heights to the Airport.

Since this Study will address offsite utility needs, in addition to Airport needs, CCUA, Keystone Heights, and Bradford County have been involved in reviewing a series of technical memorandums developed through the course of this project, as well as this Feasibility Study. Consequently, this Study can be considered a regional utility study with the goal of providing utility service to the Airport as well as various municipalities surrounding the Airport. It should be noted that fire protection recommendations are also provided but only within the Airport site.

The following resources were used in developing this Feasibility Study:

1. Keystone Airpark Fire Main Extension Phase 2 Record Drawings by URS dated January 2014
2. Airport Master Plan Update by URS Corporation dated January 2016
3. Fire Protection Well - Consumptive Use Permit No. 109130 from St. Johns Water Management District dated January 3, 2007
4. Fire Protection Water Well - Construction Permit from St. Johns Water Management District dated January 10, 2007
5. Clay County Utility Authority Standard Water and Sewer System Specifications and Drawings dated 2017
6. Keystone Heights RV Resort Design Plans by Design Services dated March 19, 2020
7. Technical Memos for Facility Planning for MHD Rockland at the Airport by AECOM dated May 2020
8. Airport Layout Plan (ALP) with interim changes to FAA by AECOM dated December 2021
9. KHA (Westside) Access Road, 100 Percent Plans by CHW dated April 2023

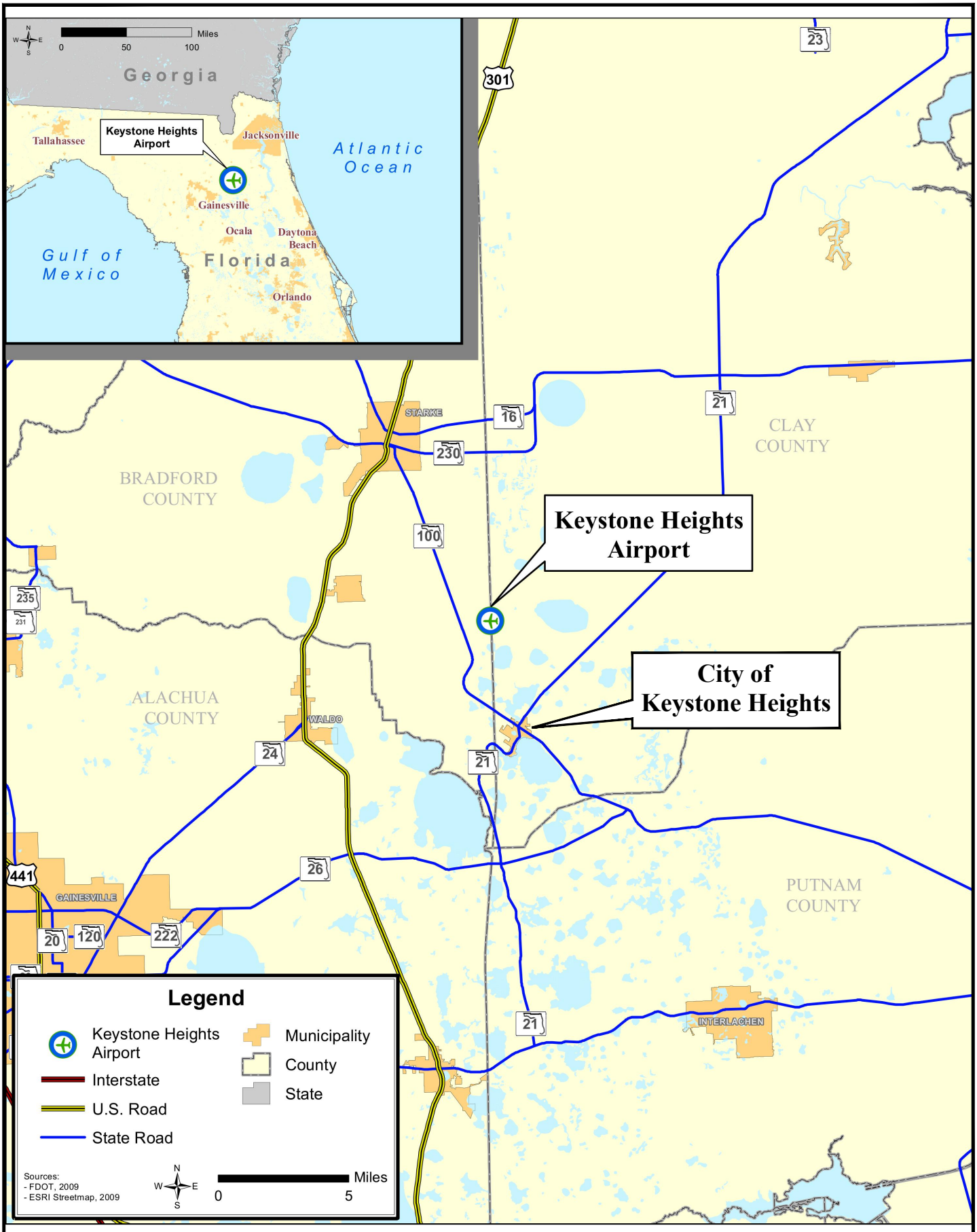
2.0 Airport Background

The Keystone Heights Airport is located in southern Clay and Bradford Counties, on the county line, approximately 4 miles north of Keystone Heights with access from SR 100. The Airport was constructed in 1942 and was a United States Air Forces airfield until 1947 when it was granted to the City of Keystone Heights. Sharing the north and east border of the Airport is the Florida National Guard's Camp Blanding. The land use around the Airport is primarily agricultural, with limited residential and some conservation. An overview of the Airport location and surrounding areas is presented in **Figure 2-1, Location Map**.

In 1991, the KHAA was created to manage and oversee the Airport. Administration of funding grants is also managed by the KHAA which is comprised of seven members who serve for three-year terms. The Keystone Heights City Council chooses the members of the Authority, upon nomination, by a majority vote. The KHAA staff operates the Airport as the Fixed Base Operator (FBO) that provides commercial services such as fuel sales, fuel distribution, aircraft parking and storage at the Airport, and the day-to-day interaction with its tenants and users.

The current Airport operations include FBO, commercial aviation maintenance, repair and support services, fueling services, aircraft storage, Airport maintenance, and Airport administration. The Airport has two runways (11/29 and 5/23) and three taxiways (A, B, and C). Landside facilities are on the southeast side of Runway 5/23 and include the FBO Office, T-hangars, corporate hangars with offices, maintenance hangars, warehouse, fuel farm, and vehicular parking areas. Support structures include two electrical vaults, a shed, maintenance building, water tank for fire protection, and fire pump building. All of these aviation facilities are located on the southeast side of the Airport which is called the Eastside. The Airport layout and structures are presented in **Figure 2-2, Existing Airport Layout Plan**.

There are several non-aviation facilities at the Airport. East of the aviation activities, the Keystone Heights Sportsmen's Club has a land lease where they offer an outdoor shooting range that is open to the public. South of the aviation area is Camp Crystal Lake whose access road is on Airport property, but the Camp's land is owned by the Alachua County School Board. The Camp provides day camps during the school year and sleep away camps during the summer. Located in the northwest quadrant of the Airport property, the Florida International Rally & Motorsports Park (FIRM) is a European-style rally school and sports facility offering rally and road racing, driver training, and security and military tactical driver training.



KEYSTONE AIRPORT 42J HEIGHTS EST. 1942

Water and Sewer Utility Feasibility Study AECOM

LOCATION MAP

FIGURE 2-1

PLOTTED March 4, 2024 4:15 PM PLOTTED BY: SONNENBERG, TERENCE
C:\PWWORKING\USFL\DMS19056\FIG 2-1.DWG

BRADFORD COUNTY
CLAY COUNTY
COUNTY LINE
NORTHSIDE
FORESTED
ABANDONED TAXIWAY
RUNWAY 11/29
TAXIWAY C
TW C
TAXIWAY B
MIDFIELD
90' FLORIDA GAS TRANSMISSION CO. EASEMENT
FLORIDA INTERNATIONAL RALLY & MOTORSPORTS PARK
1
FORESTED
170' FLORIDA POWER & LIGHT CO. EASEMENT
ABANDONED RUNWAY
FIRM ACCESS ROAD
WESTSIDE
RC FLIERS CLUB
S.E. STATE RD. 100
WESTSIDE ACCESS ROAD
S.E. 81ST ST.
RUNWAY PROTECTION ZONE (TYP)
FORESTED
RUNWAY 5/23
TW B
APRON
TAXIWAY A
SELF SERVE FUEL
FUEL TANKS
8" FIRE MAIN
BEACON
EASTSIDE
8" FIRE MAIN CAMP CRYSTAL RD.
HUNT CLUB
MOSQUITO LAKE
FORESTED
8" FIRE MAIN
FORESTED
S.E. 82ND ST. (AIRPORT RD.)
END OF 8" FIRE MAIN
LAKE
CAMP CRYSTAL LAKE

EXISTING BUILDINGS INDEX

NO.	DESCRIPTION	AREA (SF)
EASTSIDE		
2	Warehouse	11,000
3	Hangar	4,826
4	Hangar	5,625
5	Elec Vault	90
6	Corp Hangar/Office	17,500
7	Corp Hangar/Office	19,800
8	Shed	172
9	T-Hangar A	11,130
10	T-Hangar B	11,130
11	T-Hangar C	12,936
12	Fire Equip Enclosure	336
13	Fire Water Tank	185,000 gal
14	T-Hangar E	9,890
15	Corp Hangar	14,400
16	Elec Vault	221
17	Maintenance Building	2,500
18	Bulk Hangar	3,600
19	FBO Office	4,516
20	Bulk Hangar	6,400
WESTSIDE		
1	FIRM Motorsports	Unknown

LEGEND
- AIRPORT PROPERTY LINE
- AIRFIELD PAVEMENT
- BUILDINGS/STRUCTURES
- FENCE LINE
- TREE LINE
- FIRE MAIN

N

800 0 800

GRAPHIC SCALE IN FEET

C:\pwworking\usfl\dms19056\FIG 2-2.dwg 03/04/2024 16:28

AIRPORT 42J KEYSTONE HEIGHTS

Water and Sewer Utility Feasibility Study

AECOM

EXISTING AIRPORT LAYOUT PLAN

FIGURE 2-2

3.0 Planned Airport Development

The Airport has plans to increase aviation services, aviation-related industrial and commercial activities, and non-aviation commercial and industrial activities in the existing developed Eastside and the to-be-developed Westside. The runways will be extended and modified, and new taxiways are also proposed. A map of the Airport showing the planned development is presented in **Figure 3-1, Planned Airport Development**.

3.1 Eastside

Development plans for the Eastside include two new 10-unit T-hangars and five new corporate hangars, all of which will front Taxiway A. The existing fuel farm with one 10,000-gallon Avgas tank and one 12,000-gallon Jet-A tank is to be expanded by adding another 12,000-gallon Jet-A tank. It is anticipated that development of Parcels G and H will include a total of four office buildings at 12,000 sf each.

There are plans to construct a new realigned Airport entrance and internal access road from the existing Airport entrance at SR 100 to the Eastside building area. On the south end, this new route will remove the roadway from the future expanded runway protection zone (RPZ). On the north end, the existing road will continue to be operable for accessing existing and new Airport buildings on the airside while the new road will provide access to Parcels G and H.

The Camp Blanding Joint Training Center (CBJTC) has an Airfield Strategic Initiative that includes future activities at the property they lease at the Airport (northeast of the t-hangars). Previously, there were plans to expand training on the site leased from the Airport and to add additional facilities, however, this expansion is no longer planned and is not included in this analysis.

3.2 Westside

Planned development on the west side of the Airport includes a new aviation facility for the current tenant, MHD Rockland, and a commercial development referred to as the Westside Development. Bradford County recently completed construction of a new entrance and Westside Access Road directly from SR 100, through the proposed Westside Development area, that will allow access to the MHD Rockland and the new development without entering the Airport operations area (AOA).

3.2.1 MHD Rockland

MHD Rockland is a current tenant utilizing a warehouse and hangar with an office on the Eastside. They provide flight and maintenance training along with parts sales for P-3 aircraft for allied foreign countries with P-3 fleets. They have plans to expand their operations at the Airport, constructing a new complex of structures on the Westside. While the planned development for MHD Rockland is on the Westside of the Airport, it is not considered part of the Westside Development.

BRADFORD COUNTY
CLAY COUNTY
NORTHSIDE
FORESTED
COUNTY LINE
ABANDONED TAXIWAY
ULTIMATE TAXIWAY D
RUNWAY 11/29
TAXIWAY C
TW C
TAXIWAY B
FUTURE ACCESS ROAD
FLORIDA INTERNATIONAL RALLY & MOTORSPORTS PARK
1
FORESTED
MIDFIELD
RELOCATED RC FLIERS CLUB
FUTURE ACCESS ROAD
ABANDONED RUNWAY
FIRM ACCESS ROAD
170' FLORIDA POWER & LIGHT CO. EASEMENT
300' FLORIDA GAS TRANSMISSION CO. EASEMENT
26
25
PROPOSED MHD ROCKLAND FACILITY
ULTIMATE TAXIWAY E
RUNWAY 5/23
TW B
SELF SERVE FUEL
BEACON
APRON
FUEL TANKS
TAXIWAY A
WESTSIDE
EASTSIDE
PROPOSED WESTSIDE DEVELOPMENT (PARCELS A–F)
E 17 AC
H 3.3 AC
G 8.5 AC
A 8 AC
F 15 AC
S.E. STATE RD. 100
S.E. 81ST ST.
WESTSIDE ACCESS ROAD
C 2 AC
B 2 AC
D 3 AC
FUTURE RUNWAY PROTECTION ZONE (TYP)
FUTURE AIRPORT ROAD
S.E. 82ND ST. (AIRPORT RD.)
FUTURE RELOCATED FP&L EASEMENT
HUNT CLUB
MOSQUITO LAKE
CAMP CRYSTAL RD.
CAMP CRYSTAL LAKE
LAKE

LEGEND
- AIRPORT PROPERTY LINE
- AIRFIELD PAVEMENT
- EXISTING BUILDINGS/STRUCTURES
- PROPOSED BUILDINGS/STRUCTURES
- PROPOSED PROPERTY DEVELOPMENT
- FENCE LINE
- TREE LINE

N

800 0 800

GRAPHIC SCALE IN FEET

BUILDING INDEX

NO.	DESCRIPTION	AREA (SF)
EASTSIDE		
EXISTING		
2	Warehouse	11,000
3	Hangar	4,826
4	Hangar	5,625
5	Elec Vault	90
6	Corp Hangar/Office	17,500
7	Corp Hangar/Office	19,800
8	Shed	172
9	T–Hangar A	11,130
10	T–Hangar B	11,130
11	T–Hangar C	12,936
12	Fire Equip Enclosure	336
13	Fire Water Tank	185,000 gal
14	T–Hangar E	9,890
15	Corp Hangar	14,400
16	Elec Vault	221
17	Maintenance Building	2,500
18	Bulk Hangar	3,600
19	FBO Office	4,516
20	Bulk Hangar	6,400
FUTURE		
21	Future T–Hangar	12,000
22	Future T–Hangar	12,000
23	Future Corp Hangar	6,400
24	Future Corp Hangar	6,400
31	Future Corp Hangar	6,400
32	Future Corp Hangar	6,400
33	Future Corp Hangar	6,400
G	Future 3 Office Bldgs	3@12,000
H	Future Office Bldgs	12,000
WESTSIDE		
EXISTING		
1	FIRM Motorsports	Unknown
FUTURE		
MHD ROCKLAND		
25	Future Hangar	54,000
26	Future Warehouse	90,000
27	Future Flight Simulator	9,500
28	Future Office Bldg	12,800
29	Future Fire Suppr Bldg	500
30	Future Wash Control Bldg	720
WESTSIDE DEVELOPMENT		
A	Future Hotel	50,000
B	Future Gas Station	2,500
C	Future Gas Station	5,900
D	Future Strip Mall	39,000
E	Future Warehouses	222,000
F	Future Warehouses	196,000

AIRPORT KEYSTONE HEIGHTS 42J

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Water and Sewer Utility Feasibility Study

PLANNED AIRPORT DEVELOPMENT

FIGURE 3-1

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Preliminary planning for the new MHD Rockland facilities was performed by AECOM in 2020 and included:

1. Office building with multiple offices, conference rooms, lounge, breakroom, and restrooms, suitable for 50 employees.

2. Simulator building, attached to office building, with one full-motion and one static simulator as well as classrooms, instructor offices, briefing rooms, and restrooms.

3. Aircraft hangar with space for five P-3 aircraft.

4. Warehouse (expandable from 30,000 sf to 90,000 sf in the future) for storing aircraft parts inventory for the retail side of their operations.

5. Aircraft wash facility to house 'BirdBath' equipment for drive through clear water rinse system for aircraft.

6. Fire suppression system including well with submersible pump, water storage tank, and structure containing fire pumps. This system was previously intended for only the MHD Rockland development. Decisions made based on this feasibility study could result in changes.

3.2.2 Westside Development

The Airport plans to develop parcels on the Westside for commercial and light-industrial use, however, not necessarily aviation related. Below is a listing of the parcels for development included in the current Airport Layout Plan (ALP) submitted to FAA by AECOM in December 2021, as well as a description of their anticipated uses:

1. Parcel A: 8-acre parcel, hotel (3-star, 3-story, 50,000 sf, similar to a Holiday Inn Express or Hilton Hampton Inn)

2. Parcel B: 2-acre parcel, gas station / convenience store

3. Parcel C: 2-acre parcel, gas station / convenience store

4. Parcel D: 3-acre parcel, strip mall / retail

5. Parcel E: 17-acre parcel, warehouse / light industrial

6. Parcel F: 15-acre parcel, warehouse / light industrial

4.0 Potable Water, Wastewater & Fire Protection Systems Design

The Airport is located in a rural area that does not have currently access to public potable water and sanitary sewer utilities. Consequently, the site is served by onsite potable water wells, septic systems, and a fire protection system. The buildings at the Airport that have restrooms that utilize their own individual potable well and septic systems resulting in a large number of these small onsite systems. A few clusters of buildings share systems. The Airport previously provided an inventory of these systems as shown in **Figure 4-1, Historic Well and Septic System Locations**. The existing fire protection system serves the buildings on the Eastside and consists of a well with submersible pump, storage tank, fire pumps, and fire main with hydrants as previously shown above in **Figure 2-2, Existing Airport Layout Plan** on **Page 11**.

The nearest municipal potable water supply and wastewater treatment facilities are located approximately 4 miles south of the Airport in Keystone Heights. This system is owned and operated by CCUA, an independent special district with no financial ties to Clay County. The closest access to the CCUA potable water distribution and sanitary sewer collection systems is approximately 1.9 miles south, along SR 100, where CCUA has extended a 12-inch potable water main and a 6-inch force main to serve the Keystone Heights RV Resort. To provide service to the Airport, it will be necessary to extend these mains along SR 100 to the Airport entrance road in addition to constructing internal piping systems within the Airport property to service existing and projected development. Based on talks with CCUA and the low potable water demands versus high fire protection requirements typical of an industrial area, the fire protection system will remain separate from the potable water system and will be supplied by private onsite wells and operated by the Airport. A map of the existing CCUA system in relation to the Airport is presented in **Figure 4-2, Available CCUA Utility Connection Points**

In this section, projected future flow rates for potable water, wastewater, and fire protection will be presented along with conceptual designs. Subsequent sections will evaluate construction costs and scheduling.

4.1 Potable Water and Wastewater Design Flow Rates

To determine the capacity required from CCUA and conceptual designs for the potable water and wastewater systems, projected potable water demands and wastewater flows for the Airport were determined based on existing and future conditions. In addition, potential development was identified along SR 100 that could be connected to the potable water and wastewater pipelines that currently exist and will be extended to serve the Airport, as well as potential large customers in the service area.

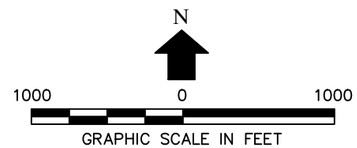
4.1.1 Airport Potable Water and Wastewater Flow Projections

For the Airport potable water and wastewater flow projections, wastewater flow rates were established using Florida Administrative Code (FAC) 64E-6.0008, System Size Determinations. Potable water flow rates were then calculated as wastewater flow rates plus 10 percent. The proposed hangars on the Eastside, the proposed MHD Rockland Facility, and the proposed Westside Development (Parcels A through F) were classified as near-term development occurring in 1-3 years while developing Parcels G and H on the Eastside were considered future activities occurring in greater than 4 years. A summary of the flow rates is presented in **Table 4-1** below. The detailed analysis is available in **Appendix A, Airport Potable Water Demand and Wastewater Generation Flow Calculations.**

ID	General Location	Well	Septic Tank	Size / Casing Mat'l.	Lat/Lon Degrees	Status	Easting	Northing
1	Hangar A	X		4" PVC	29 deg. 50' 26.26" N / 82 deg. 02' 27.14" W	Active	2748102.969	314120.233
2	Hangar A		X		29 deg. 50' 27.16" N / 82 deg. 02' 26.63" W	Active	2748145.913	314212.097
3	Hangar C	X		4" PVC	29 deg. 50' 29.20" N / 82 deg. 02' 31.65" W	Active	2747699.468	314408.595
4	Main Fire Protection Tank for Airport Hydrants	X		8" PVC	29 deg. 50' 30.11" N / 82 deg. 02' 26.83" W	Active	2748121.876	314509.653
5	Hangar E & Corporate		X		29 deg. 50' 36.78" N / 82 deg. 02' 29.30" W	Active	2747889.871	315178.599
6	Hangar H6	X		4" PVC	29 deg. 50' 13.53" N / 82 deg. 02' 53.40" W	Active	2745818.463	312784.762
7	Hangar H6		X		29 deg. 50' 13.76" N / 82 deg. 02' 52.25" W	Active	2745919.177	312810.379
8	Express Air Lease		X		29 deg. 50' 07.79" N / 82 deg. 03' 00.58" W	Active	2745198.708	312191.457
9	The Firm	X		4" PVC	29 deg. 50' 37.32" N / 82 deg. 03' 26.11" W	Active	2742886.799	315125.610
10	The Firm		X		29 deg. 50' 37.31" N / 82 deg. 03' 24.84" W	Active	2742998.640	315126.996
11	Bulk Hangar 1 County Line Aviation	X		2" Steel	29 deg. 50' 23.61" N / 82 deg. 02' 40.10" W	Inactive	2746967.624	313827.999
12	Bulk Hangar 1 County Line Aviation		X		29 deg. 50' 24.29" N / 82 deg. 02' 40.68" W	Active	2746915.076	313895.575
13	Bulk Hangar 2 MHD Rockland	X		4" Steel	29 deg. 50' 20.71" N / 82 deg. 02' 40.10" W	Active	2746973.933	313535.113
14	Bulk Hangar 2 MHD Rockland		X		29 deg. 50' 20.75" N / 82 deg. 02' 42.55" W	Active	2746758.123	313534.506
15	Recreational Vehicle Pad	X		2" Steel	29 deg. 50' 20.98" N / 82 deg. 02' 37.44" W	Active	2747207.558	313567.427
16	Recreational Vehicle Pad		X		29 deg. 50' 21.07" N / 82 deg. 02' 38.33" W	Active	2747128.998	313574.828
17	Crystal Lake Mobile Home Pad / Down Powerline Easement	X		2" Steel	29 deg. 49' 55.90" N / 82 deg. 02' 54.90" W	Inactive	2745724.674	311001.377
18	Camp Crystal Rd. & Airport Rd. Mobile Home Pad	X		4" PVC	29 deg. 50' 12.94" N / 82 deg. 02' 47.29" W	Inactive	2746357.742	312736.750
19	Old Boy Scout Campsite area on Crystal Lake	?				Inactive		
20	Airport Road. Warehouse	X		2" Iron	29 deg. 50' 04.52" N / 82 deg. 02' 59.03" W	Active	2745342.289	311864.136
21	Airport Road. Warehouse		X		29 deg. 50' 03.64" N / 82 deg. 02' 59.46" W	Active	2745306.336	311774.447
22	Keystone Sportsmen's Club Lease	X		2" Steel	29 deg. 50' 12.73" N / 82 deg. 02' 20.92" W	Active	2748680.129	312765.589
23	Keystone Sportsmen's Club Lease		X		29 deg. 50' 12.02" N / 82 deg. 02' 20.18" W	Active	2748746.836	312695.289
24	Keystone Army Airfield Well on Sportsmen's Club Loop Rd.	X		8" Steel	29 deg. 50' 11.31" N / 82 deg. 02' 39.63" W	Inactive	2747035.766	312586.650
25	Keystone FBO		X	10" PVC	29 deg. 50' 18.79" N / 82 deg. 02' 39.63" W	Inactive	2746566.324	313332.628
26	Keystone FBO	X			29 deg. 50' 18.23" N / 82 deg. 02' 46.38" W	Inactive	2746426.422	313272.332

NOTES:

1. THESE HISTORIC WELL AND SEPTIC TANK LOCATIONS WERE PROVIDED BY THE AIRPORT.
2. CURRENT CONDITIONS AND OPERATION STATUS ARE UNKNOWN.
3. PER A PERMIT FROM THE CLAY COUNTY DEPARTMENT OF HEALTH DATED OCTOBER 2021, WELL #13 WAS ABANDONED BECAUSE IT WAS IN THE WAY OF CONSTRUCTION.



KEYSTONE AIRPORT 42J HEIGHTS

Water and Sewer Utility Feasibility Study

AECOM

HISTORIC WELL AND SEPTIC SYSTEM LOCATIONS

FIGURE 4-1

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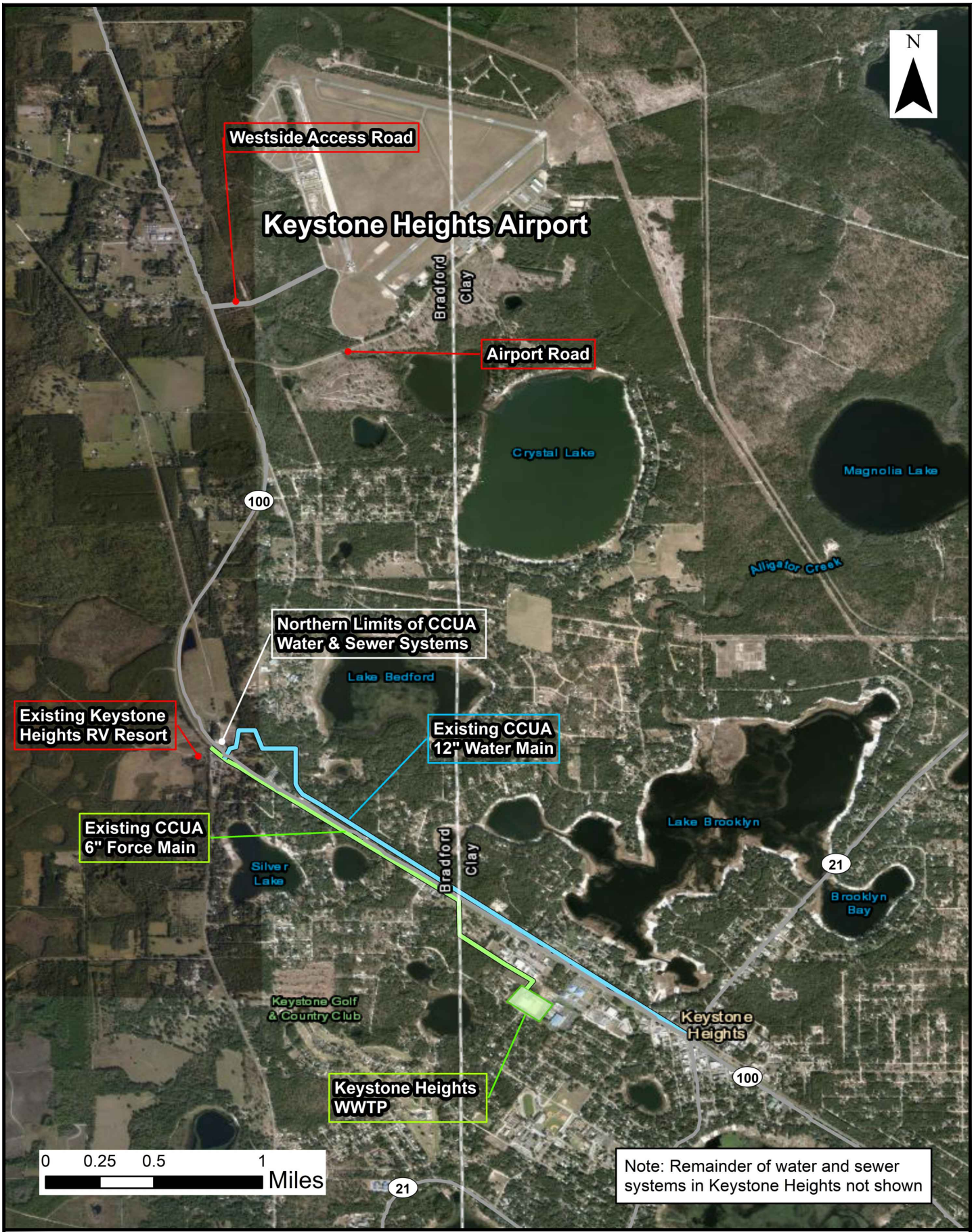


AIRPORT KEYSTONE 42J HEIGHTS EST. 1942

Water and Sewer Utility Feasibility Study AECOM

AVAILABLE CCUA UTILITY CONNECTION POINTS

FIGURE 4-2

PLOTTED March 4, 2024 4:16 PM PLOTTED BY: SONNENBERG, TERENCE
C:\PWWORKING\USFL\DMS19056\FIG 4-2.DWG

Table 4-1 Keystone Heights Airport Potable Water Demand and Wastewater Generation Projected Flow Rates		
Building Type	**Potable Water Demand (gpd)**	**Wastewater Generation (gpd)**
Existing Buildings & Property Uses	14,185	12,895
Proposed Buildings (near term, 1-3 years)	26,086	21,260
Subtotal Average Flow for Near Term	**40,271**	**34,155**
Future Buildings (greater than 4 years)	1,980	1,800
Total Future Average Flow	**42,251**	**35,955**
Total Future Average Flow	*29 gpm*	*25 gpm*
Peaking Factor	4	4
Total Future Peak Flow	**169,002**	**143,820**
Total Future Peak Flow	***117 gpm***	***100 gpm***

Note: Refer to **Appendix A** for Airport Potable Water Demand and Wastewater Generation Flow Calculations

4.1.2 Local Potential Development Activity Potable Water and Wastewater Flow Projections

In identifying potential new customers along the pipeline route and potential large customers in the service area, discussions were held with the following:

1. Clay County Utility Authority (CCUA):
   a. Darrell Damrow, Sr. Service Availability Engineer

2. Keystone Heights RV Resort:
   a. Vince Esson, Owner's Representative
   b. Ken Lloyd, Resort Manager
   c. Ralph Henson, Engineer

3. Bradford County:
   a. Patricia Evans, Development Authority Chair
   b. Scott Kornegay, Lake Region Development Corporation, Executive Director
   c. Joe Wiggins, Commercial Circle Development

4. Clay County:
   a. Cherese Stewart, Clay County Economic & Development Services
   b. Laura Pavlus, Clay County Economic Development Commission

The existing Keystone Heights RV Resort currently has 400 spaces but is planning to expand to a total of 700 spaces in the near term (1 to 3 years), including adding an adjacent gas station/convenience store. An additional 300 spaces, for a total of 1,000 spaces, are planned in the future (greater than 4 years). The RV Resort connected to the existing 12-inch potable water main that terminates nearby and funded the extension of the 6-inch force main from Keystone Heights to the RV Resort.

Two residential developments are planned in Keystone Heights: Country Meadows subdivision and Commercial Circle condominiums, which are classified as near term and future, respectively. While no development is

currently planned along SR 100 between the RV Resort and the Airport, a subdivision and gas station/convenience store were added as potential future developments since there is a large residential parcel along the route that could be a prime development location. A map of these developments is presented in **Figure 4-3, Potential Development Activity**.

Potable water and wastewater flow rates were calculated for the anticipated development using a combination of historical data and standard system sizing guidelines. For single and multi-family homes, CCUA provided historical potable water demand rates from August 2021 to July 2022 of 208 gpd and 112 gpd, respectively. Wastewater flow rates were then calculated as 91% of the historical potable water rates resulting in 190 gpd for single family homes and 100 gpd for multi-family homes. For the RV Resort and gas stations, wastewater flow rates were obtained from the Florida Administrative Code (FAC) 64E-6.0008, System Size Determinations, and potable water flow rates were then calculated as wastewater flow rates plus 10 percent. The project flow rates are presented below in **Table 4-2**.

Table 4-2
Potential Development
Potable Water Demand and Wastewater Generation Projected Flow Rates

Development	Unit	Rate Water or WW (gpd/unit)	Near Term (1-3 years)			Future (>4 years)[5]		
			Total # Units	Water (gpd)	WW (gpd)	Total # Units	Water (gpd)	WW (gpd)
Keystone Heights RV Resort[1,3]	RV Space	WW 75	700	57,750	52,500	1,000	82,500	75,000
Gas Station/ Convenience Store[1]	Restroom	WW 250	2	550	500	2	550	500
Country Meadows Subdivision[2]	Single Family	Water 208	52	10,868	9,880	52	10,868	9,880
Commercial Circle Condominiums[2]	Condo	Water 112	-	-	-	469	51,590	46,900
Anticipated Subdivision[2,4]	Single Family	Water 208	-	-	-	80	16,720	15,200
Anticipated Gas Station/ Convenience Store[1,4]	Restroom	WW 75	-			2	550	500
Total Average Flow:				**69,168**	**62,880**		**162,778**	**147,980**

(1) Wastewater flow rate is for average day and is from Florida Administrative Code (FAC) 64E-6.0008, System Size Determinations. Potable water demand is average day based on wastewater generation plus 10%
(2) Potable water demand is based on historical data from CCUA. Wastewater flow rate is calculated as 91% of potable water demand
(3) The Keystone Heights RV Resort currently has 400 spaces. Plans are in place to expand to a total of 700 and 1,000 spaces in the near-term and future, respectively
(4) There are no current plans for these projects, however, they are being included to account for potential future development
(5) Future values are cumulative and include Near Term rates

AIRPORT KEYSTONE 42J HEIGHTS EST. 1942

Water and Sewer Utility Feasibility Study AECOM

POTENTIAL DEVELOPMENT ACTIVITY

FIGURE 4-3

PLOTTED March 4, 2024 4:16 PM PLOTTED BY: SONNENBERG, TERENCE
C:\PWWORKING\USFL\DMS19056\FIG 4-3.DWG

4.2 Potable Water System Design

4.2.1 Existing Potable Water System

Due to the rural nature of the area, many homes and business utilize private wells for their potable water. In Keystone Heights, there is a potable water system serving the downtown business district and along SR 100 as well as residential customers. The potable water system grid includes multiple small water treatment plants (WTPs) utilizing wells located around the City. The current Consumptive Use Permit for the service area, issued by the Florida Department of Environmental Protection (FDEP), allows 0.667 MGD to be withdrawn from the Lower Floridian Aquifer and 0.17 MGD from the Upper Floridian Aquifer, for a total allowable withdrawal of 0.837 mgd.

Below is a summary of the CCUA WTPs serving Keystone Heights. Two of the WTPs are not in use or are slated to be taken out of use as CCUA consolidates their resources.

1. Postmaster Village WTP (Wells #1 and #2) – Meets approximately 90 percent of the community demand. Two of the four wells are in use. Located southeast of the City.

2. Peach Street WTP (Well #3) - Helps meet peak system demands.

3. Geneva Lake Estates WTP - Helps meet peak system demands. Located southeast of the City.

4. Keystone Club Estates WTP – Will be shut down in approximately 4 years. Located downtown.

5. Keystone Heights WTP – Currently not pumping. Located downtown.

Table 4-3 lists some examples of the WTP delivery rates for the Keystone Heights potable water system.

Table 4-3
Keystone Heights Potable Water Grid WTP Production

Treatment Facility	Average Flow Rate (mgd)	
	August 2021	April 2022
Postmaster Village WTP	0.458	0.444
Peach Street WTP	0.004	0.006
Geneva Lake Estates WTP	0.037	0.040
Keystone Club Estates WTP	0	0
Keystone Heights WTP	0	0
Total	**0.499**	**0.490**

In **Table 4-4**, the capacity of the Keystone Heights potable water system is evaluated for near term and future conditions considering the projected demands from the Airport and potential development. In evaluating the available potable water system capacity, the demands for the Keystone Heights RV Resort were broken out of the existing potable water demand so that their expansion plans could be considered as part of the potential development rates. In August 2021, the Keystone Heights RV Resort had 192 spaces. Assuming that only half the spaces were occupied, since August is off-season, results in a potable water demand of 7,920 gpd at the RV Resort with the remaining 491,080 gpd of potable water being used by other commercial and residential

customers. In considering future potable water demand, this rate for other existing commercial and residential customers is increased by 10% to 540,188 gpd to account for possible growth. (The demand for the total RV spaces for near term and future were accounted for above in **Table 4-2**.)

Table 4-4
Keystone Heights Potable Water System Capacity

Potable Water Customer	Near Term (1-3 yrs) Water Demand (gpd)	Future (>4 yrs)[4] Water Demand (gpd)
Existing Commercial & Residential Customers[1]	491,080	540,188
Keystone Heights Airport[2]	40,271	42,251
Potential Development[3]	69,168	162,778
Total Average Potable Water Demand	**600,519**	**745,217**
Remaining Potable Water System Capacity	**236,481**	**91,783**
Remaining Potable Water System Capacity	***28%***	***11%***

(1) Existing commercial and residential customers excludes the Keystone Heights RV Resort which is included in Potential Development due to various expansion plans. Demand is increased by 10% for future conditions
(2) Refer to **Table 4-1** for Airport projected demands
(3) Refer to **Table 4-2** for potential development projected demands
(4) Future values are cumulative and include Near Term rates

The existing potable water wells for Keystone Heights are permitted for withdrawals up to 837,000 gpd. For near term and future conditions, the remaining well capacity after serving existing customers is 345,920 gpd and 296,812 gpd, respectively, which is more than adequate to meet the projected Airport demands of 40,271 gpd and 42,251 gpd, respectively. Based on the information provided by the stakeholders discussed previously and the assumed future subdivision development on SR 100, the additional potential developments in the area would reduce the reserve capacity to approximately 91,783 gpd, or 11% of the permitted rate. It appears that there is adequate capacity in the system for these future projects, however, if additional development were to occur, CCUA may want to consider expanding their system.

The closest connection for the Airport to the Keystone Heights potable water system is a 12-inch water main that runs northwest on SR 100, terminating at SE CR 21b (also called SE 8th Avenue), approximately 1.9 miles south of the Airport. The water main serves the Keystone Heights RV Resort located at the termination point. The existing 12-inch water main location was previously presented in **Figure 4-2, Available CCUA Utility Connection Points** on **Page 17**.

4.2.2 Proposed Potable Water System

4.2.2.1 Proposed Offsite Potable Water Main

With a projected peak hourly flow rate at the Airport of 117 gpm, a 6-inch potable water line extension from Keystone Heights RV Resort would be adequate to meet the projected peak future potable water demands. However, it would leave little capacity for future growth along the pipeline. Therefore, AECOM assumes that CCUA would prefer to extend the 12-inch water main approximately 1.9 miles to the Airport. Two 6-inch connection points to the Airport are proposed; one at each access road to the site. A stub out is provided for possible future extension of the water main along SR 100, north of the Airport. The proposed offsite water main

location along with major potential developments located along the route is presented in **Figure 4-4, Proposed Potable Water and Wastewater Piping from Keystone Heights to KHA**.

4.2.2.2 Proposed Onsite Potable Water System

The proposed onsite potable water system is presented in **Figure 4-5, Conceptual Potable Water Layout**, and includes two 6-inch water distribution mains supplying the Eastside and Westside at the Airport, each connecting to the proposed 12-inch main extension on SR 100 from the CCUA system. A 4-inch connection line between the mains on Airport Road and the recently constructed Westside Access Road is provided to interconnect the Eastside and Westside potable water systems and serve Parcel D. The onsite potable water system will consist of approximately 14,800 lf of 6-inch and 4-inch water mains. A blow off is located at the end of the Eastside and Westside piping systems for system maintenance.

When this study began, CCUA indicated that they prefer individual parcel meters. However, based on their comments in December 2023, master meters are now provided at both 6-inch water mains fed from the CCUA 12-inch main on SR 100. The Airport can choose to meter all, some, or none of their tenants on a case-by-case basis. Also, when this study began, it was anticipated that the piping systems located in the major roadways within the Airport would become CCUA assets while proposed piping located in developed parcels would be maintained by the Airport. However, December 2023 comments from CCUA indicate a preference for the Airport to own and maintain the new onsite systems. As this decision does not impact the preliminary design or construction costs, it can be further discussed and finalized when design occurs.

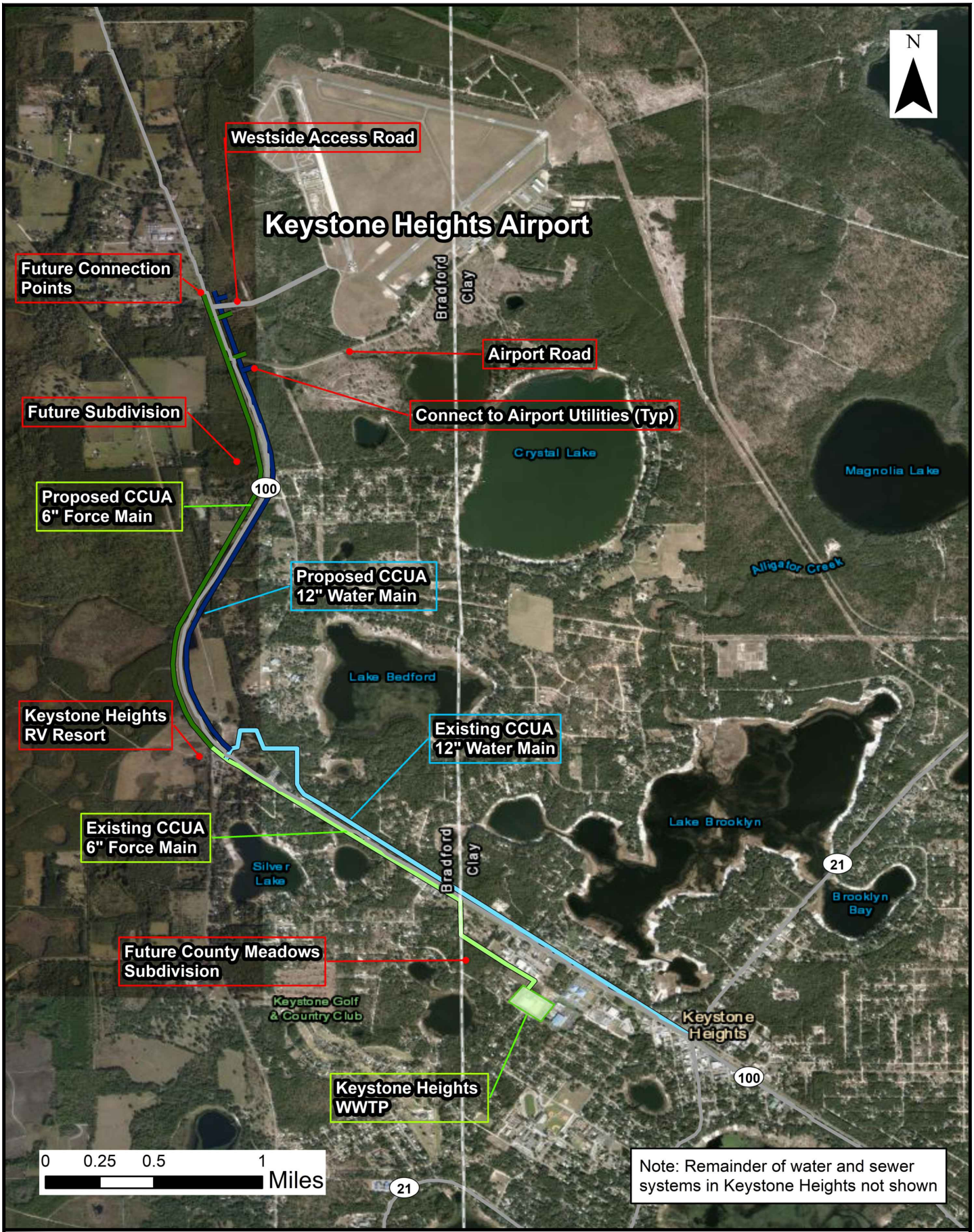
On the Eastside, in addition to serving existing buildings with water fixtures and future buildings, connections will be provided for future development of Parcels G and H and stub outs for future possible connections for the Hunt Club and Camp Crystal Lake.

On the Westside, connections will be provided for future development of Parcels A through F and potable water will be supplied to the proposed MHD Rockland Facility and the existing FIRM. The proposed water main size is reduced from 6-inch to 4-inch to serve the FIRM.

The existing potable water wells that will no longer be in use can remain, possibly for a future non-potable use such as irrigation. Any of the wells in the way of construction can be abandoned per Clay County Department of Health guidelines and pursuant to obtaining a permit.

4.2.2.3 Proposed Potable Water System Conceptual Hydraulics

Potable water supplied to the project site will be provided by CCUA via a 12-inch water main that will be extended 1.9 miles along SR 100 from the Keystone Heights RV Resort to the main Airport entrance and Westside entrance. The proposed development within the Airport will be served by two 6-inch water lines; one along Airport Road for the Eastside and the other along the Westside Access Road (which reduces to 4-inches on the FIRM Access Road). Since onsite fire protection will be provided by a separate system, system pressures within the Airport will only be impacted by line losses associated with projected demands and elevation changes plus a 1,000 gpm fire demand in the 12-inch CCUA main on SR 100. To assist in this evaluation, CCUA performed a hydrant pressure test at the nearest existing hydrant to the Airport which is located adjacent to the Keystone Heights RV Resort (FH #3550). Static pressure was found to be 76 psi, while system pressure under a simulated 1,000 gpm fire demand was found to be 58 psi (refer to **Appendix B, CCUA Fire Hydrant Flow Test Summary dated 6/9/2022**).



KEYSTONE AIRPORT 42J HEIGHTS EST. 1942

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PROPOSED POTABLE WATER AND WASTEWATER PIPING FROM KEYSTONE HEIGHTS TO KHA

FIGURE 4-4

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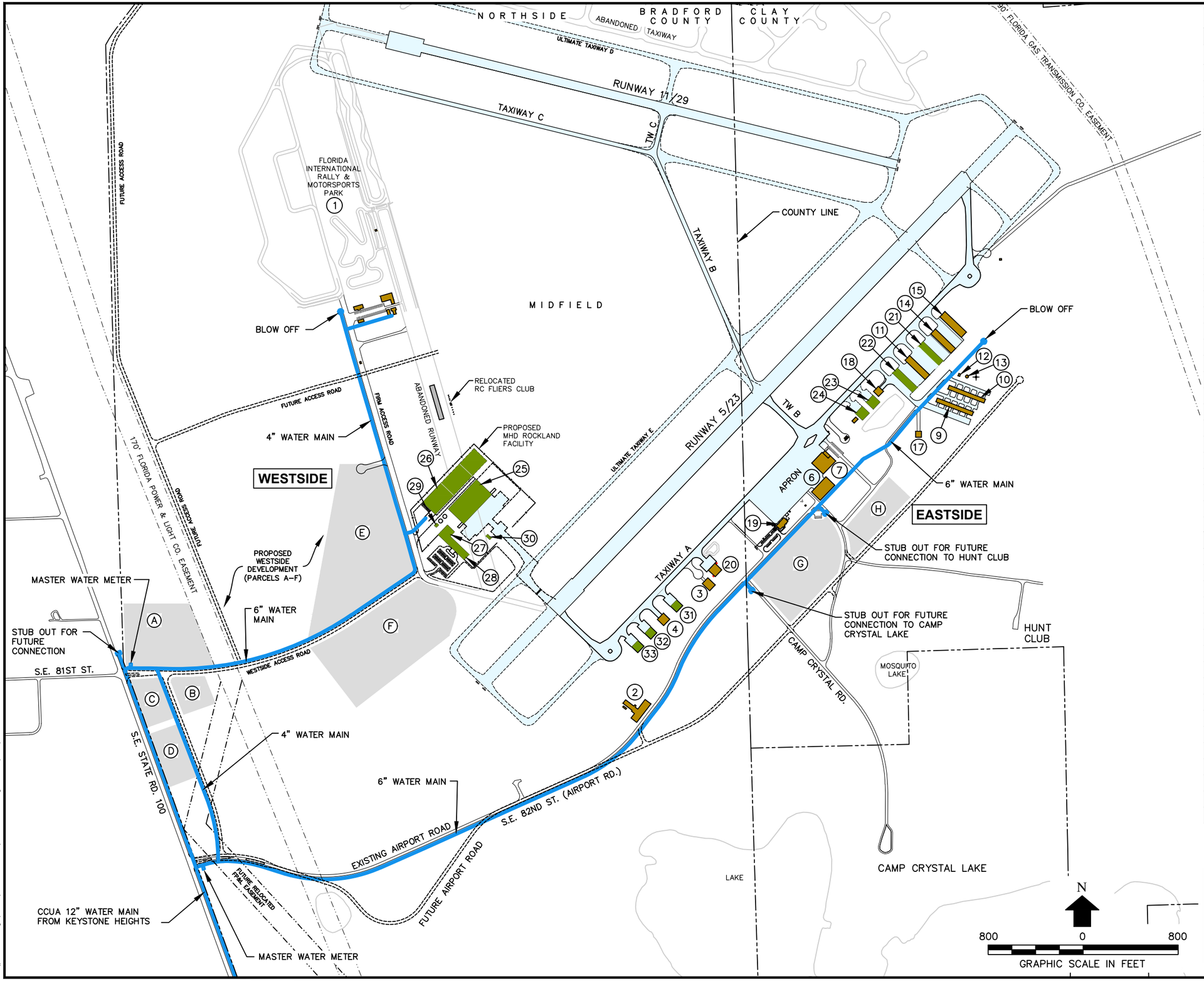
C:\PWWORKING\USFL\DMS19056\FIG 4-4.DWG



POTABLE WATER DEMANDS

NO.	DESCRIPTION	WATER PHF[1] (gpd)
EASTSIDE		
2	Warehouse[2]	0
3	Hangar	66
4	Hangar	396
6	Corp Hangar/Office	1,100
7	Corp Hangar/Office	1,320
9	T–Hangar A	1,320
10	T–Hangar B[2]	0
11	T–Hangar C	660
12	Fire Equip Enclosure[2]	0
13	Fire Water Tank[2]	0
14	T–Hangar E	660
15	Corp Hangar	660
17	Maintenance Building[2]	0
18	Bulk Hangar[2]	0
19	FBO Office	440
20	Bulk Hangar	66
21	Future T–Hangar	660
22	Future T–Hangar	660
23	Future Corp Hangar	132
24	Future Corp Hangar	132
31	Future Corp Hangar	132
32	Future Corp Hangar	132
33	Future Corp Hangar	132
G	Future 3 Office Bldgs	5,940
H	Future Office Bldg	1,980
	Camp Crystal Lake	30,800
	Hunt Club	16,500
EASTSIDE TOTAL WATER PHF (gpd)		63,888
EASTSIDE TOTAL WATER ADF (gpd)		15,972
WESTSIDE		
1	FIRM Motorsports	2,750
MHD ROCKLAND		
25	Future Hangar	132
26	Future Warehouse	132
27	Future Flight Simulator	990
28	Future Office Bldg	5,500
29	Future Fire Suppr Bldg[2]	0
30	Future Wash Control Bldg	24,000
WESTSIDE DEVELOPMENT		
A	Future Hotel	44,000
B	Future Gas Station	2,200
C	Future Gas Station	2,200
D	Future Strip Mall	17,600
E	Future Warehouses	2,970
F	Future Warehouses	2,640
WESTSIDE TOTAL WATER PHF (gpd)		105,114
WESTSIDE TOTAL WATER ADF (gpd)		26,279

TABLE NOTES:
(1) Peak hour flow factor of 4
(2) Structure has no fixtures

LEGEND
- NEW POTABLE WATER MAIN
- AIRPORT PROPERTY LINE
- FUTURE AIRFIELD PAVEMENT
- EXISTING BUILDINGS/STRUCTURES
- PROPOSED BUILDINGS/STRUCTURES
- PROPOSED PROPERTY DEVELOPMENT

AIRPORT 42J KEYSTONE HEIGHTS

Water and Sewer Utility Feasibility Study

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CONCEPTUAL POTABLE WATER LAYOUT

FIGURE 4-5

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System Demand Losses

Pressure losses due to system demand (i.e., pipeline friction losses) along the proposed 12-inch water main will be based on the projected peak flow rates from the Airport (117 gpm) and from anticipated development along the new pipeline (48 gpm). This results in a total projected peak flow rate through the new 12-inch main of 165 gpm and a total headloss of 0.3 psi. Peak flow rates along the Eastside and Westside access roads are estimated to be 44 gpm and 73 respectively. As presented below in **Table 4-5**, the pressure loss associated with these demands in the respective 6-inch water lines are 1.0 psi and 0.4 psi respectively. Consequently, the anticipated line losses due to system demand are negligible.

Table 4-5
Potable Water System
Pressure Losses for Projected Peak Airport Demands
in Selected Water Main Segments

New Water Main Section (South to North)	**Diameter (in)**	**Length (miles)**	**Peak Flow (gpm)**	**Velocity (fps)**	**Headloss (ft)**	**Headloss (psi)**
FH #3550 near Keystone Heights RV Resort to "Future Subdivision"	12	1.4	165	0.05	0.6	0.26
"Future Subdivision" to Airport Eastside Entrance	12	0.5	117	0.3	0.1	0.05
Subtotal Headloss to Airport					**0.7**	**0.31**
Airport Eastside Entrance to Eastside Terminus at Hangar #15	6	1.6	44	0.5	1.7	0.7
Total Headloss at Eastside Terminus					**2.4**	**1.0**
Airport Eastside Entrance to Westside Entrance	12	0.3	73	0.8	0.03	0.01
Airport Westside Entrance to Parcels E&F	6	0.4	27	0.3	0.18	0.08
Parcels E&F to MHD Rockland	6	0.2	23	.26	0.05	0.02
MHD Rockland to FIRM (Westside Terminus)	4	0.4	2	0.05	0.01	0.004
Westside Subtotal Headloss					0.27	0.12
Total Headloss at Westside Terminus					**0.97**	**0.42**

Note: Calculations are based on a peaking factor of 4 and C900 PVC DR18 pipe.

Pressure Loss within Airport Facility

Since fire protection within the Airport facility is provided by a separate system and the potable demands are very low, resulting in negligible friction losses, system pressures within the Airport will be most impacted by changes in elevation. The ground elevation at FH #3550 near the Keystone Heights RV Resort is approximately 156 ft. The ground elevation in the developed areas along Airport Road (for Eastside access) varies from 172 ft at the entrance to 196 ft at the new water line terminus at Hangar #15. Consequently, system pressure losses due to elevation changes along the Airport Road will vary from 6.9 to 17.3 psi. For the Westside Access Road, the elevations vary from 170 ft at the entrance development to 180 ft at MHD Rockland to 187 ft at the FIRM. Undeveloped Parcels E and F have highly varying ground elevations of 177 ft to 244 ft and 175 ft to 210 ft, respectively. **Table 4-6** below summarizes the estimated pressure losses due to elevation changes.

Table 4-6 Potable Water System Pressure Losses Due to Elevation Changes			
Location (South to North)	**Elevation[1]** **(ft)**	**Elevation Difference** **(ft)**	**Pressure Change** **(psi)**
FH #3550 near Keystone Heights RV Resort	156	---	---
Airport Eastside Entrance	172	16	-6.9
Eastside			
Eastside Terminus at Hangar #15	196	40	-17.3
Westside			
Airport Westside Entrance	170	14	-6.1
Parcel E	177 to 244	21 to 88	-9.1 to -38.0
Parcel F	175 to 210	19 to 54	-8.2 to -23.4
Proposed MHD Rockland	180	24	-10.4
Westside Terminus at the FIRM	187	31	-13.4

(1) Elevations are from Google Earth

Impact of Off-Site Fire Flows on System Pressures

Utilizing the pressures provided by CCUA for FH #3550, the proposed system demands, and the estimated elevations at various locations within the Airport, the following tables were developed to illustrate anticipated system pressures with peak Airport demands and a 1,000-gpm fire demand located either at FH #3550 or at a new hydrant on the 12-inch main near the Airport entrance.

Table 4-7 Potable Water System System Pressures for Projected Airport Demands (with No Fire Flow) at Select Locations		
Location (South to North)	**Flow at Peak Conditions** **(gpm)**	**Available Pressure** **(psi)**
FH #3550 near Keystone Heights RV Resort	165[1]	76[2]
Airport Eastside Entrance	117	68
Eastside		
Eastside Terminus at Hangar #15	44	58
Westside		
Airport Westside Entrance	73	69
Parcel E (Interior)	27	66 to 37
Parcel F (Interior)	27	67 to 52
Proposed MHD Rockland Connection	23	65
Westside Terminus at the FIRM	2	62

(1) Flow consists of Airport peak demand of 117 gpm plus peak demand of 48 gpm for future development along SR 100 (north of RV Resort)

(2) Available pressure at FH #3550 is from CCUA Fire Hydrant Flow Test Summary dated 6/9/2022 in **Appendix B**

Table 4-8 Potable Water System System Pressures for Fire Flow at MH #3550 at Select Locations		
Location (South to North)	**Flow at Peak Conditions (gpm)**	**Available Pressure (psi)**
FH #3550 near Keystone Heights RV Resort	1,165(1)	58(2)
Airport Eastside Entrance	117	51
Eastside		
Eastside Terminus at Hangar #15	44	40
Westside		
Airport Westside Entrance	73	52
Parcel E (Interior)	27	49 to **20**
Parcel F (Interior)	27	49 to 34
Proposed MHD Rockland Connection	23	47
Westside Terminus at the FIRM	2	44

(1) Flow consists of 1,000 gpm fire flow at FH #3550, Airport peak demand of 117 gpm, and peak demand of 48 gpm for future development along SR 100 (north of RV Resort)
(2) Available pressure at FH #3550 is from CCUA Fire Hydrant Flow Test Summary dated 6/9/2022 in **Appendix B**

Table 4-9 Potable Water System System Pressures for Fire Flow Near Airport Entrance at Select Locations		
Location (South to North)	**Flow at Peak Conditions (gpm)**	**Available Pressure (psi)**
FH #3550 near Keystone Heights RV Resort	1,165(1)	58(3)
Airport Eastside Entrance	1,117(2)	38
Eastside		
Eastside Terminus at Hangar #15	44	27
Westside		
Airport Westside Entrance	73	39
Parcel E (Interior)	27	36 to **7**
Parcel F (Interior)	27	37 to 22
Proposed MHD Rockland Connection	23	35
Westside Terminus at the FIRM	2	32

(1) Flow consists of 1,000 gpm fire flow near Airport, Airport peak demand of 117 gpm, and peak demand of 48 gpm for future development along SR 100 (north of RV Resort)
(2) Flow consists of 1,000 gpm fire flow near Airport entrance and Airport peak demand of 117 gpm
(3) Available pressure at FH #3550 is from CCUA Fire Hydrant Flow Test Summary dated 6/9/2022 in **Appendix B**

Potable Water Hydraulics Discussion

A reasonable goal for this analysis would be to maintain a minimum system pressure of 40 psi under peak flow conditions. Under fire flow conditions a minimum system pressure at any given location along the system should not be less than 20 psi. Pressures under normal peak flow conditions at the Airport without fire flow, as shown in **Table 4-7**, are acceptable with a minimum predicted pressure of 58 psi. Pressures along the Airport's primary access roads for peak flow conditions plus 1,000 gpm fire flows in the 12-inch main are acceptable but somewhat

low (i.e., less than 40 psi), as presented in **Tables 4-8 and 4-9**. However, due to current elevation differences in Parcel E, projected pressures in the higher elevation portions of the site are unacceptable and will require a booster pump to maintain minimum pressure requirements under fire flow conditions. As this is a conceptual analysis, the borderline pressure of 22 psi in the higher elevations of Parcel F for a fire flow near the Airport entrance as presented in **Table 4-9** could be an issue and may also require an inline booster pump.

Potable Water Hydraulics Recommendations

The potable water system can be constructed to serve known development by extending the 12-inch main to the Airport and installing the 4-inch and 6-inch onsite water mains as outlined in this Study. Based on the preliminary hydraulic analysis performed on the system, normal condition system pressures are predicted to be between 40 psi and 58 psi. However, due to the elevations across Parcels E and F, the recommended system pressure under fire flow conditions cannot be achieved. In-line booster pump stations may be needed for Parcels E and F. The need for these booster pump stations can be determined once the site plans have been developed for each parcel since the finished grade will likely be modified as part of the site development.

4.3 Wastewater System Design

4.3.1 Existing Wastewater System

The Keystone Heights wastewater collection and treatment system is less extensive than the potable water supply system, serving primarily commercial customers with limited residential users. Most of the residences in the Keystone Heights area use private, onsite septic systems for treatment. The Keystone Heights Wastewater Treatment Plant (WWTP) is located in the downtown area on Nightingale Street and is rated by FDEP to treat up to 74,000 gpd. CCUA has stated that engineering staff is proposing funding for the analysis and design of an expansion of the WWTP in the 2023/2024 Fiscal Year.

Some examples of the WWTP treatment rates for Keystone Heights are presented in **Table 4-10** below.

Table 4-10
Keystone Heights Wastewater Treatment Rates

Treatment Facility	Average Flow Rate (gpd)	
	August 2021	April 2022
Keystone Heights WWTP	19,000	23,000

In **Table 4-11** the capacity of the existing wastewater treatment system is evaluated for near term and future conditions considering the projected wastewater generation rates for the Airport and local potential development. As was the case in the potable water system evaluation, the rates for the Keystone Heights RV Resort were broken out of the existing wastewater generation so that their expansion plans could be considered as part of the potential development rates. In August 2021, the Keystone Heights RV Resort had 192 spaces. Assuming that only half the spaces were occupied, since August is off-season, this results in a wastewater generation rate of 7,200 gpd at the RV Resort with the remaining 11,800 gpd of wastewater being generated by other commercial and residential customers. In considering future wastewater generation, this rate for other existing commercial and residential customers is increased by 10% to 12,980 gpd to account for possible growth. (The generation rate for the total RV spaces for near term and future were accounted for previously in **Table 4-2**.)

Table 4-11 Keystone Heights Wastewater System Capacity		
Wastewater Customer	**Near Term (1-3 yrs) WW Generation (gpd)**	**Future (>4 yrs)[4] WW Generation (gpd)**
Existing Commercial & Residential Customers[1]	11,800	12,980
Keystone Heights Airport[2]	34,155	35,955
Potential Development[3]	62,880	147,980
Total Average Wastewater Generation	**108,835**	**196,915**
Remaining Wastewater System Capacity	**-34,835**	**-122,915**
Remaining Wastewater System Capacity	***-47%***	***-166%***

(1) Existing commercial and residential customers excludes the Keystone Heights RV Resort which is included in Potential Development due to various expansion plans. Wastewater generation is increased by 10% for future conditions
(2) Refer to **Table 4-1** for Airport projected wastewater generation rates
(3) Refer to **Table 4-2** for potential development projected wastewater generation rates
(4) Future values are cumulative and include Near Term rates

The existing Keystone Heights WWTP is rated for 74,000 gpd. Based on the April 2022 WWTP flows of 23,000 gpd, the current remaining available capacity of 51,000 gpd is adequate to meet near term and future Airport flows of 34,155 gpd and 35,955 gpd, respectively. However, the additional development that is planned for the area results in a total flowrate that exceeds the current facility capacity by approximately 123,000 gpd. In particular, expansion of the Keystone Heights RV Resort and planned condominiums at Commercial Circle will generate significant wastewater flows (refer to **Table 4-2** above). CCUA is aware of the need to expand the Keystone Heights WWTP in order to meet the service area needs and will begin analysis and design in the 2023/2024 Fiscal Year.

In 2020, The Keystone Heights RV Resort was constructed and installed a new 6-inch force main along SR 100 from the Resort to the WWTP. This is the closest sanitary sewer collection system to the Airport as presented previously in **Figure 4-2, Available CCUA Utility Connection Points** on **Page 17**.

4.3.2 Proposed Wastewater System

4.3.2.1 Proposed Offsite Sanitary Sewer Force Main

The proposed offsite sanitary sewer force main location, as well as significant potential development along the route, was previously presented in **Figure 4-4, Proposed Potable Water and Wastewater Piping from Keystone Heights to KHA,** on **Page 24**. Using the future wastewater generation rates from **Table 4-2**, **Table 4-12** below was developed showing each section of the proposed and existing force main, future peak flows, and resulting velocities and headloss.

Table 4-12 Wastewater System Pressure Losses for Projected Peak Flows In Proposed & Existing CCUA 6-Inch Force Main					
Force Main Section (North to South)	**Status**	**Length (miles)**	**Peak Flow (gpm)**	**Velocity (fps)**	**Headloss (ft)**
Airport to "Future Subdivision"	New	0.5	100	1.1	2.0
"Future Subdivision" to Keystone Heights RV Resort	New	1.4	142	1.6	10.9
Keystone Heights RV Resort to Proposed Country Meadows Subdivision	Existing	1.6	350	3.9	67.5
Proposed Country Meadows Subdivision to Existing Keystone Heights WWTP	Existing	0.2	378	4.1	8.8
				Total:	**89.2**

Note: Calculations are based on a peaking factor of 4 and 6-inch C900 PVC DR18 pipe.

A 6-inch force main extension to the Airport, in conjunction with the existing 6-inch force main from the existing Keystone Heights RV Resort to the WWTP, should be sufficiently sized to handle both the existing and projected flow rates without resulting in excessive velocities or system pressures. Projected velocities range from 1.1 to 1.6 fps for the proposed 6-inch force main to 4.1 fps in the existing 6-inch force main. While these are a relatively average velocities, the long distance results in an accumulation of 89 feet of headloss in the piping system. Since a cumulative headloss of 100 feet or less for the total 6-inch force main is acceptable, the existing force main is adequate for these conditions. However, if development beyond what is contemplated for this study occurs, upsizing the force main or providing a re-pumping facility should be considered. There is minimal elevation difference between the Airport entrance and the WWTP headworks, thus, elevation changes do not significantly impact the hydraulics as in the potable water analysis and consequently were not included in the preliminary hydraulic analysis of the force main system.

Two connections points for the Airport, one at each access road, is recommended. Again, a stub out is provided to the north for possible future extension of the force main along SR 100.

4.3.2.2 Proposed Onsite Wastewater Collection and Transmission System

The proposed onsite wastewater system design consists of two separate systems; the Eastside system located along Airport Road and the Westside system located along the recently constructed Westside Access Road and the existing FIRM Access Road. Each system will consist of a combination of gravity mains, force mains, and pump stations. Collected wastewater will be conveyed to the proposed CCUA 6-inch force main extension along SR 100 via two proposed Airport master pump stations (MPS's), one each for the Eastside and Westside. The locations proposed for these two master pump stations is based on the elevation, grade, and site conditions.

When this study began, it was anticipated that the two proposed Airport MPSs and piping systems in the major Airport roadways would become CCUA assets while the parcel/tenant pump stations and internal piping systems in the major parcels would be maintained by the Airport. However, CCUA indicated in their December 2023 comments that they prefer that the entire onsite wastewater collection and transmission system be owned and maintained by the Airport. For the tenant/parcel pump stations on the Westside, the Airport can decide on a case-by-case basis if the tenant or the Airport will own the pump stations. For the large Parcels E and F, if a single

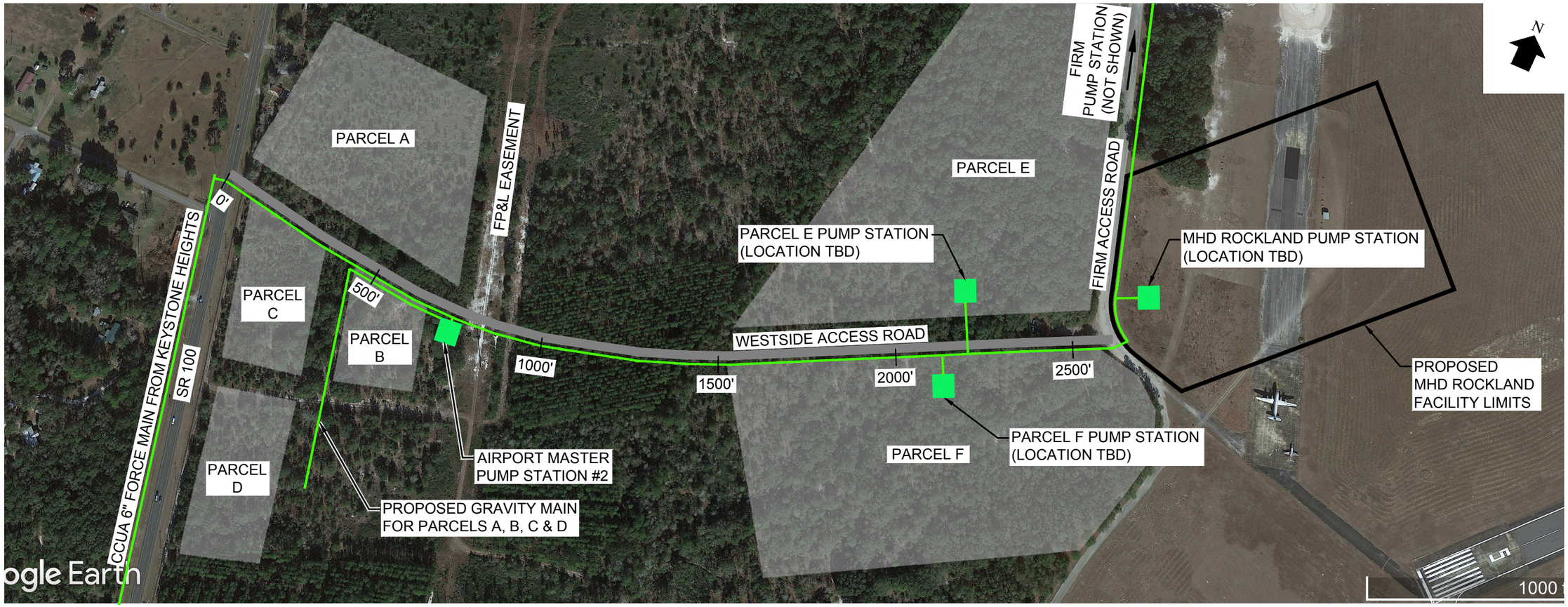
tenant develops the parcel then they could be responsible for the pump station. However, if multiple tenants lease the parcel, then the Airport would need to have ownership of the pump stations.

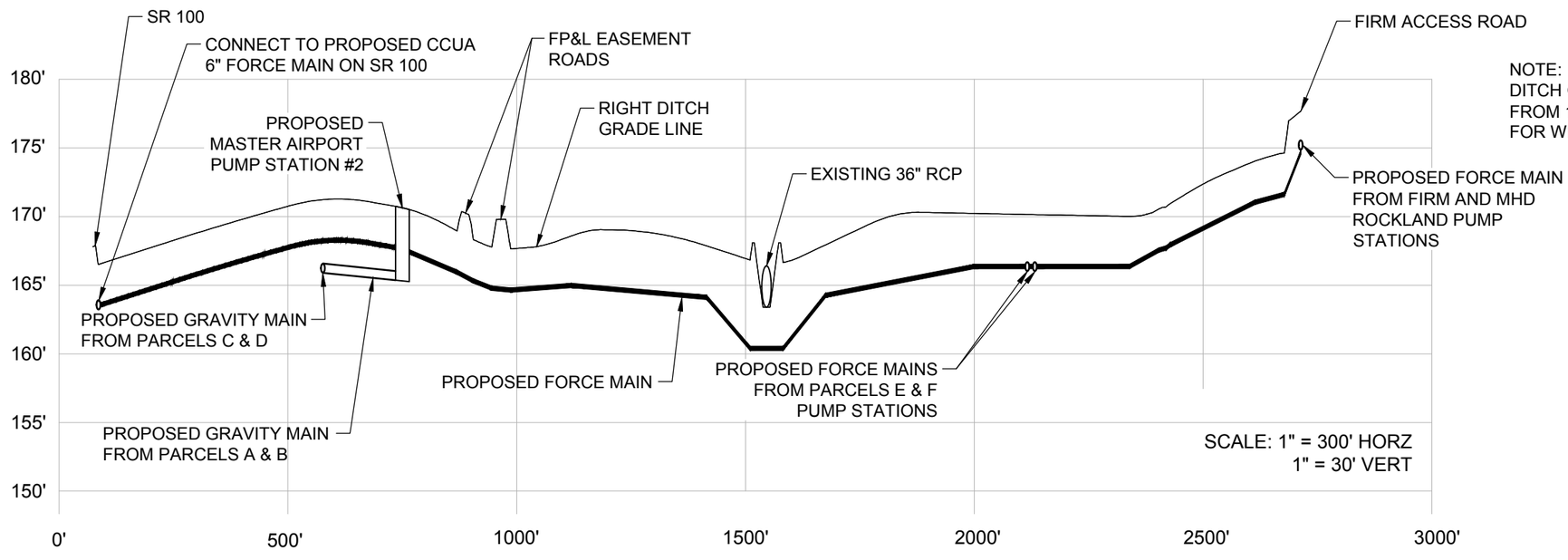
For the Westside system, approximately 3,800 lf of 4-inch force main system is proposed starting at the FIRM traveling south along the FIRM Access Road to the intersection with the Westside Access Road where it heads west discharging into proposed Airport MPS #2 located approximately 750 feet east of SR 100. A force main is proposed since the distance to the proposed Airport MPS #2 would result in a deep gravity main that would increase construction costs and would likely disturb the newly constructed Westside Access Road. Also, gravity mains are most appropriate for locations with many service connections. Development along this run of force main will need to have individual pump stations to convey wastewater to the force main. It is anticipated that the FIRM, MHD Rockland, and Parcels E and F will need to be served by individual pump stations. Development west of proposed Airport MPS #2 will be served by approximately 1,000 lf of 8-inch gravity piping system that will deliver wastewater to Airport MPS #2. From Airport MPS #2, a second 4-inch force main of approximately 800 lf will deliver wastewater to the proposed 6-inch force main along SR 100. The use of a force main collection piping system was selected based on elevations obtained from Google Earth for the proposed development parcels and from construction plans for the Westside Access Road. The Airport MPS #2 site was located so that the development along the western edge of the property site could be served by gravity collection piping. A conceptual profile view of the Westside wastewater piping system is presented in **Figure 4-6, Wastewater Design for Westside**.

For the Eastside system, the design was developed utilizing gravity piping to the fullest extent possible due to the numerous existing and proposed buildings as opposed to the Westside system which mainly serves large parcels. The existing grade is conducive to a gravity system, with the grade decreasing from the east side to about half a mile west of the Warehouse. The wastewater design includes installing approximately 4,500 lf of 8-inch gravity piping from the hangers, located to the northeast, to the warehouse located to the southwest. Since no further development is anticipated beyond the warehouse, Airport MPS #1 is proposed immediately southwest of the warehouse. A proposed 4-inch force main would convey wastewater approximately 3,900 lf from Airport MPS #1 to the proposed 6-inch force main located along SR 100. The existing grade from Google Earth and conceptual profile are presented in **Figure 4-7, Wastewater Design for Eastside**.

Figure 4-8, Conceptual Wastewater Layout, provides a conceptual illustration for the horizontal alignment of the proposed piping systems, incorporating the Westside and Eastside designs discussed above. Connection points for the Hunt Club and Camp Crystal Lake will be provided. Due to elevation differences, both will require pump stations to convey their respective wastewater to the Airport system.

The ten existing Airport septic systems will require abandonment per FDEP rules (refer to previously presented **Figure 4-1, Historic Well and Septic System Locations** on **Page 16**). Since providing utility service to the Hunt Club is not in the scope for this project, their septic system will remain. A local licensed plumber or septic tank contractor can permit and decommission the systems. To abandon the septic system, FDEP requires that the septic tank be pumped out, collapsed, and backfilled. The drain field can be abandoned in place. If the drain field is removed, the spoils require disposal at a landfill that accepts sewage contaminated soil.





AIRPORT 42J KEYSTONE HEIGHTS

Water and Sewer Utility Feasibility Study

AECOM

WASTEWATER DESIGN FOR WESTSIDE

FIGURE 4-6

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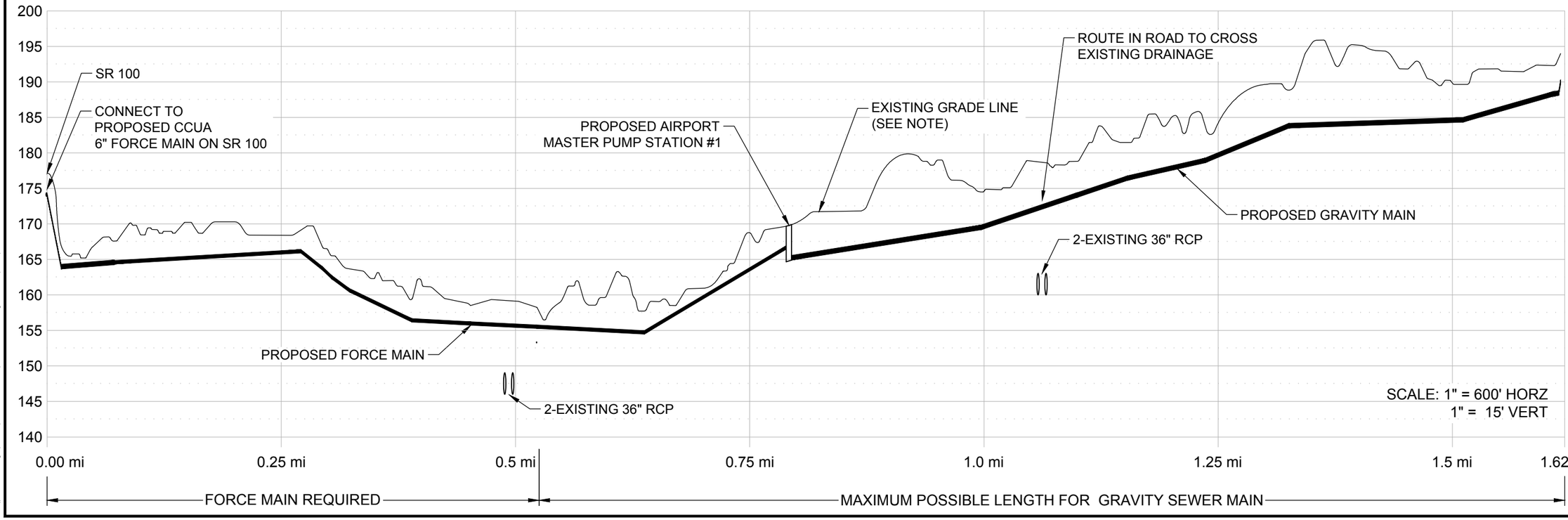
NOTE:
EXISTING GRADE FROM GOOGLE EARTH.



C:\pwworking\usfl\dms19056\FIG 4-7.dwg 03/04/2024 16:32

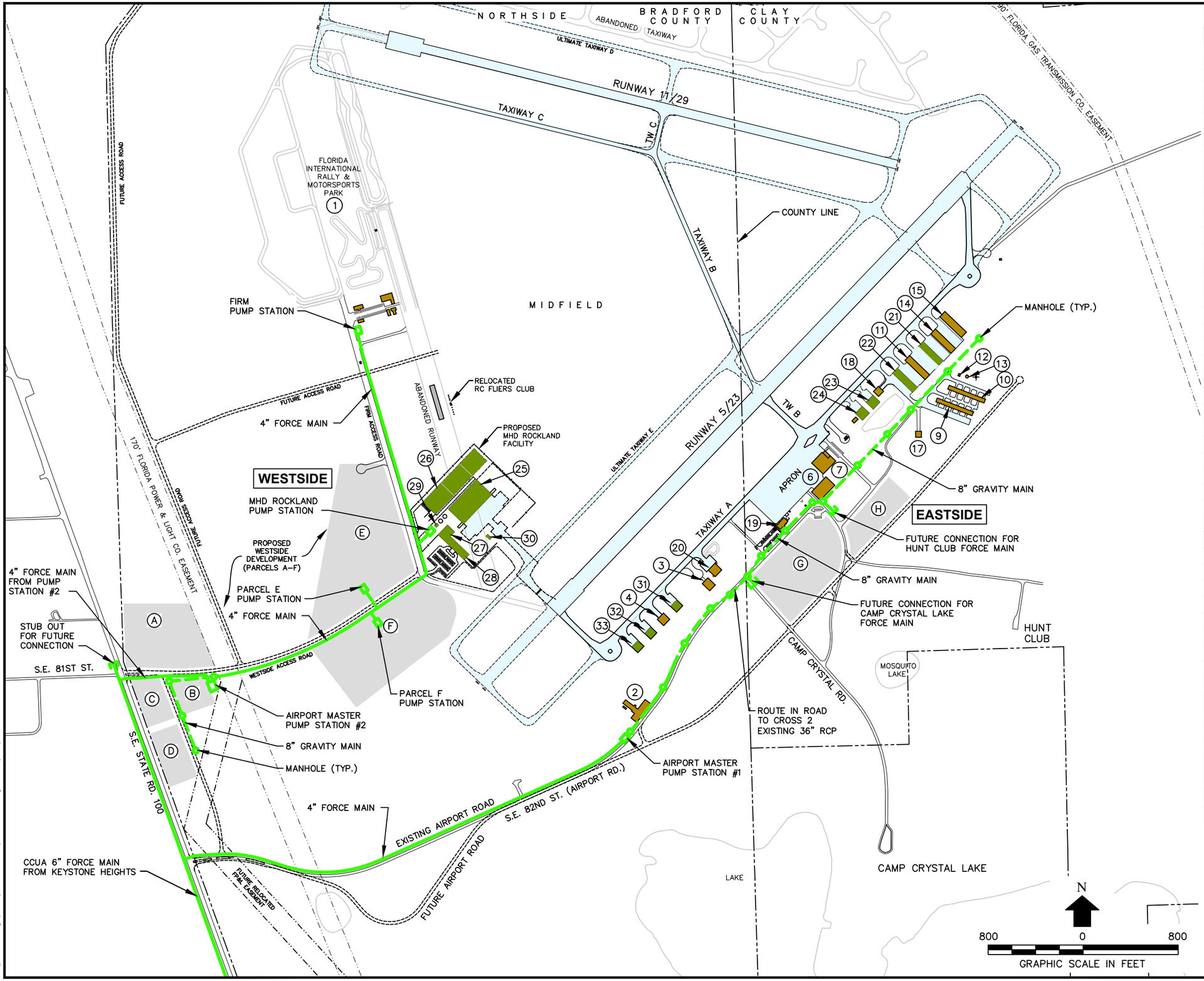
KEYSTONE AIRPORT 42J HEIGHTS

Water and Sewer Utility Feasibility Study

AECOM

WASTEWATER DESIGN FOR EASTSIDE

FIGURE 4-7



WASTEWATER GENERATION

NO.	DESCRIPTION	WW PHF[1] (gpd)
EASTSIDE		
2	Warehouse[2]	0
3	Hangar	60
4	Hangar	360
6	Corp Hangar/Office	1,000
7	Corp Hangar/Office	1,200
9	T–Hangar A	1,200
10	T–Hangar B[2]	0
11	T–Hangar C	600
12	Fire Equip Enclosure[2]	0
13	Fire Water Tank[2]	0
14	T–Hangar E	600
15	Corp Hangar	600
17	Maintenance Building[2]	0
18	Bulk Hangar[2]	0
19	FBO Office	400
20	Bulk Hangar	60
21	Future T–Hangar	600
22	Future T–Hangar	600
23	Future Corp Hangar	120
24	Future Corp Hangar	120
31	Future Corp Hangar	120
32	Future Corp Hangar	120
33	Future Corp Hangar	120
G	Future 3 Office Bldgs	5,400
H	Future Office Bldg	1,800
	Camp Crystal Lake	28,000
	Hunt Club	15,000
EASTSIDE TOTAL WW PHF (gpd)		58,080
EASTSIDE TOTAL WW ADF (gpd)		14,520
WESTSIDE		
1	FIRM Motorsports	2,500
MHD ROCKLAND		
25	Future Hangar	120
26	Future Warehouse	120
27	Future Flight Simulator	900
28	Future Office Bldg	5,000
29	Future Fire Suppr Bldg[2]	0
30	Future Wash Control Bldg	12,000
WESTSIDE DEVELOPMENT		
A	Future Hotel	40,000
B	Future Gas Station	2,000
C	Future Gas Station	2,000
D	Future Strip Mall	16,000
E	Future Warehouses	2,700
F	Future Warehouses	2,400
WESTSIDE TOTAL WW PHF (gpd)		85,740
WESTSIDE TOTAL WW ADF (gpd)		21,435

NOTES: (1) Peak hour flow factor of 4
(2) Structure has no fixtures

LEGEND
- NEW WASTEWATER MAIN FORCE MAIN
- NEW WASTEWATER GRAVITY MAIN
- NEW WASTEWATER MANHOLE
- NEW WASTEWATER PUMP STATION
- AIRPORT PROPERTY LINE
- FUTURE AIRFIELD PAVEMENT
- EXISTING BUILDINGS/STRUCTURES
- PROPOSED BUILDINGS/STRUCTURES
- PROPOSED PROPERTY DEVELOPMENT

AIRPORT 42J KEYSTONE HEIGHTS

Water and Sewer Utility Feasibility Study

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CONCEPTUAL WASTEWATER LAYOUT

FIGURE 4-8

C:\pwworking\usfl\dms19056\FIG 4-8.dwg 03/04/2024 16:32

4.4 Onsite Fire Protection System Design

The proposed fire protection system will provide required protection to existing and future development at the Airport. In industrial areas, such as the Airport, it is typical for there to be low potable water demands and high fire protection demands, which can result in oversized lines and stagnant water when the systems are combined. Thus, it is typical for the potable water and fire protection distribution systems to be separate. In addition, due to the high flowrates and pressure required for fire protection (discussed later in this section), it is recommended that the system be independent from the CCUA potable water system. The Airport and CCUA are in agreement with this approach.

In this section, the anticipated fire protection requirements for each proposed building at the Airport were determined and used to evaluate how to meet the existing and proposed needs in the three main areas at the Airport (Eastside, proposed MHD Rockland facility, and the Westside Development) in terms of required water storage, fire pumps, piping systems, and source water. As part of this evaluation, use of the existing fire protection system was considered.

4.4.1 Existing Onsite Fire Protection System

Fire Protection is currently provided at the Airport by a dedicated onsite system consisting of:

1. A 500 ft deep 6-inch well with a 6-inch, 40 hp submersible pump that discharges into the adjacent tank. The well was installed in 2007 and appears to be undersized for the pump; typically, an 8-inch well would have been used for this size pump. The well driller, Bronco Drilling, confirmed that it may not be possible to remove the existing pump if repair or replacement were ever required. The well permit is presented in **Appendix C, Fire Protection Well - Consumptive Use Permit from St. Johns Water Management District dated January 3, 2007** and allows for the withdraw of up to 864,000 gallons per year for fire protection use, expiring in 2027.

2. A 185,000-gallon bolted-steel water storage tank that supplies the fire pumps. The age and condition of the storage tank are unknown.

3. A 21 ft by 16 ft concrete block building (#12, fire suppression equipment enclosure, on **Figure 2-2**) that houses one diesel fire pump (1,750 gpm at 60 psi) and an electric jockey pump (to maintain pressure in the fire main under non-fire conditions). The fire pump appears to have been installed in 2006.

4. An 8-inch fire main with hydrants that runs along the southside of the existing buildings fronting Airport Road to within approximately 1,500 feet of SR 100. The 8-inch fire main was installed in two phases, the first in 2006 and the second in 2014.

The existing fire system protects the existing buildings on the Eastside of the Airport including the Fixed Base Operator Building, hangars, warehouse, and maintenance shed. The FIRM, located on the northwest portion of the property, and the Hunt Club on the far the east side currently have no fire protection. Camp Crystal Lake is on private property to the southeast that is owned by Alachua County School Board but is accessed via Airport Road. We reached out to Camp Crystal Lake but have been unable to determine if they have their own onsite fire protection system. The existing buildings and fire protection system were previously presented in **Figure 2-2, Existing Airport Layout Plan** on **Page 11**.

Currently, no buildings at the Airport have internal fire suppression systems (i.e., sprinklers or sprinklers and foam system). Based on discussions with the current Bradford County Fire Marshal, Chris Cooksey, the required fire flow for the existing buildings is 1,500 gpm at 20 psi over 2 hours and was determined under the previous Fire Marshall (and possibly previous regulations). The existing 185,000-gal tank meets the storage requirement of

180,000 gallons (1,500 gpm x 2 hrs x 60 min/hr). The existing fire pump can deliver 1,500 gpm. While this rate results in substantial pressure losses in the 8-inch fire main, the minimum pressure requirement of 20 psi can be maintained. Required fire protection for the existing buildings is established and does not require evaluation in this Study. The proposed system will provide the required flows to continue to protect the existing structures.

4.4.2 Fire Protection Codes and Requirements

The Florida Building Code and Florida Fire Prevention Code contain fire protection requirements while the National Fire Protection Association (NFPA) provides design standards. Some of the many variables considered when determining fire protection for a building are use, construction type/materials, building size, contiguous fire areas within the building, if fire suppression systems will be provided, types of commodities being stored, hazard classification type, etc. With so many variables, assumptions were made in evaluating the fire protection required for each building and the required storage, flows, and pressures. These assumptions are discussed briefly below and in more detail in the analysis for each building.

A blanket assumption was made that all new buildings will be Type II B construction (as defined by the Florida Building Code) which is noncombustible and includes metal buildings, structural metal frame buildings, concrete block construction, etc. but excludes wood frame. The new FBO building at the Airport is an example of Type II B construction. In some instances, the square footage was kept under a specific threshold to avoid increasing required fire flows or triggering the requirement for a fire suppression system. It was assumed that no hazardous operations (e.g., doping, hot work, fuel transfer, spray finishing, or all aircraft within the sprinklered single fire area having more than 1,600 gallons fuel capacity) will be performed in the proposed hangars and light-industrial buildings, except for the proposed MHD Rockland hangar.

When designing a fire protection system, the flowrate and pressure for sizing the pump(s), storage for sizing the tanks, and flowrate for sizing piping are determined. It should be noted that there are two types of fire protection:

1. Fire Flow. The required hydrant flow rate that must be met with a minimum of 20 psi at the main. The required flow rate and duration determine the required water storage. When a building has a fire suppression system, the fire flow rate can be reduced by 75 percent.

2. Sprinkler and Hose Stream Demand. A building with an interior fire suppression system may require just sprinklers or sprinklers and a foam system. The required water flow rate will be some combination of sprinkler water demand, foam water demand, and exterior hydrant demand (this is separate from fire flow). A combination of variables are then used to determine required duration and water storage. A required end head pressure along with pressure losses from the main to the sprinkler head are used to calculate the required pressure at the main. For this analysis, the loses from the main to the head were estimated based on losses due to elevation and piping/fittings. These pressures are higher than the 20 psi required for fire flow.

For this analysis, fire suppression systems were only included on proposed buildings where required by code. The fire protection system for a sprinklered building must meet sprinkler and fire flow requirements. The system must be able to meet both the fire flow and sprinkler/hose demand flow and pressure rates, but not at the same time. The pumping/piping system must be adequate for both maximum flowrate and maximum pressure.

If the fire protection flows can be met by the supplying well or potable water system, a storage tank is not needed. However, for larger fire protection flows, a storage tank is typically used to eliminate the need for oversized wells or potable water supply lines. Water storage requirements calculated for both fire flow and sprinklered conditions must both be met; thus, the storage requirement is the larger of the two. When a tank is used, the water supply must be able to refill the storage tank within an 8-hour period, reducing the demand on the well or potable water supply system. While a storage requirement will be calculated for each proposed

building, only the largest storage requirement for a system is used to size the storage tank (i.e., the storage volumes are not cumulative).

The fire protection system must be able to meet the requirements for each building, however, only one at a time. Thus, the largest flow, pressure, and storage requirements will drive the system sizing and design. Typically, these maximum values are for the same building, but they could be for different buildings.

4.4.3 Fire Protection Requirements for Proposed Buildings

In preparing this document, we engaged AECOM's senior Fire Protection Engineer, Charles Davis PE, to assist in determining the required fire protection for the proposed buildings. The proposed development at the Airport will include additional hangars and offices on the Eastside, the new facility for MHD Rockland, and an industrial/commercial park on the Westside with retail and light-industrial uses. The proposed buildings were previously presented in **Figure 3-1, Planned Airport Development** on **Page 13**. The fire protection requirements were determined separately for each of the three main areas of the Airport in the analyses below. In a subsequent section, options for combining the systems are discussed.

4.4.3.1 Eastside

Apart from the FIRM, Hunt Club, and Camp Crystal Lake, the rest of the existing development is located on the Eastside fronting Taxiway A and is served by the existing fire protection system. **Table 4-13** below presents the fire protection requirements for the proposed buildings on the Eastside. For each building, the required flowrate, minimum pressure at the main, and storage volume were determined. A fire protection system for this area would only need to meet the largest flow, pressure, and storage requirement (which are shown in bold).

Table 4-13
Fire Protection Requirements
Eastside Proposed Buildings

Bldg or Parcel No.	Building [1]	Size (sf)	Hydrant Only	Hydrant & Sprinklers	Hydrant, Sprinklers & Foam	Total Required Flowrate (gpm)	Required Pressure at the Main (psi)	Required Storage[5] (gal)
21	Future T-Hangar [2]	12,000	X			**2,250**	**20**	**270,000**
22	Future T-Hangar [2]	12,000	x			**2,250**	**20**	**270,000**
23	Future Corp Hangar [3]	6,400	X			1,750	20	210,000
24	Future Corp Hangar [3]	6,400	X			1,750	20	210,000
31	Future Corp Hangar [3]	6,400	X			1,750	20	210,000
32	Future Corp Hangar [3]	6,400	X			1,750	20	210,000
33	Future Corp Hangar [3]	6,400	X			1,750	20	210,000
G	Future Office Bldgs [4] 3@12,000 sf each	12,000	X			**2,250**	**20**	**270,000**
H	Future Office Bldg [4]	12,000	X			**2,250**	**20**	**270,000**

(1) All buildings are assumed to be Construction Type II B.
(2) Greater than 12,000 sf single fire area or hazardous operations requires hydrant, sprinklers, and foam. Hazardous operations include doping, hot work, fuel transfer, spray finishing, or all aircraft within the sprinklered single fire area having more than 1,600 gallons fuel capacity.
(3) Hazardous operations requires hydrant, sprinklers and foam. Hazardous operations include doping, hot work, fuel transfer, spray finishing, or all aircraft within the sprinklered single fire area having more than 1,600 gallons fuel capacity.
(4) Maximum 12,000 sf per office building for fire flow of 2,250 gpm.
(5) The required storage is not cumulative; only the largest value must be provided.

Based on the building uses, Type II B construction, and sizes, none of the buildings require sprinklers or foam. The table notes discuss thresholds that impact required fire protection levels. Exceeding 12,000 sf for the hangars or housing hazardous operations would trigger a requirement for a sprinkler and foam system, impacting the pumping requirements. Exceeding 12,000 sf for an office building would increase the fire flow to 2,500 gpm and the required storage to 300,000 gpm. The largest storage requirement is 270,000 gallons and the largest flowrate required is 2,250 gpm while maintaining a minimum of 20 psi at the main. These maximum values (bolded in **Table 4-13**) are the drivers for designing the fire protection system for the Eastside.

Based on this analysis, a fire protection system dedicated to the Eastside would need to be able to provide a flowrate of 2,250 gpm for a 2-hour time period while maintaining a minimum system pressure of 20 psi at the main. In order to utilize the existing system to the fullest extent possible, it is recommended that the total storage volume be increased to 270,000 gallons (2,250 gpm for 120 minutes) with the addition of a second storage tank with a volume of 85,000 gallons. This assumes that the existing 185,000-gallon storage tank is in good condition. We recommend that the tank be drained and inspected. If it is in reasonable condition, it can be reused but may require cleaning and recoating. If the existing tank is deteriorated, we recommend providing a new tank with the full required storage volume of 270,000 gal. In accordance with NFPA, the onsite fire well would need to be able to fill the storage tank(s) within an 8-hour period, which equates to a flowrate of 562 gpm. While the current well and pump are capable of providing this required flowrate, as discussed previously, there are concerns about being able to remove the existing submersible pump from the well if repair or replacement are ever required. Thus, to ensure reliability of the fire protection system, we recommend installation of a new 8-inch well with a 6-inch submersible pump. As the existing Consumptive Use Permit (refer to **Appendix C**) for the fire protection well expires in 2027, it will require renewal. The existing diesel fire pump may be able to meet the flow and pressure requirements, however, we recommend that it be replaced due to its advanced age with two new diesel pumps, one primary and one backup, as well as a replacing the existing electric jockey pump. The existing pump enclosure building is too small for two new diesel pumps and requires replacement. The existing 8-inch fire line could be reused in combination with an additional 8-inch line to carry the increased flows or it could be replaced by a new 12-inch line. However, based on the limited available space for utilities, we recommend replacing the 8-Inch line with a 12-inch main. Stub outs can be provided for the Hunt Club and Camp Crystal Lake if they require fire protection.

4.4.3.2 MHD Rockland

MHD Rockland has plans to lease land from the Airport and construct a new complex of buildings to expand their operations. This expansion will likely occur before the Airport connects to the CCUA utility services and before the Westside Development is constructed. Thus, it is anticipated that MHD Rockland will construct their own fire protection system which could be integrated into the Airport's future system. The fire protection requirements for the proposed MHD Rockland expansion are presented below in **Table 4-14**.

Table 4-14
Fire Protection Requirements
MHD Rockland Proposed Buildings

Bldg or Parcel No.	Building [1]	Size (sf)	Hydrant Only	Hydrant & Sprinklers	Hydrant, Sprinklers & Foam	Total Required Flowrate[2] (gpm)	Required Pressure at the Main[2] (psi)	Required Storage[5] (gal)
25	Hangar [3]	54,000			X	**6,000**	**109**	**300,000**
						1,250	20	
26	Warehouse [4]	90,000		X		2,640	88	246,000
						1,563	20	
27	Flight Simulator Building	9,500	X			2,000	20	240,000
28	Office Building	12,800	X			2,500	20	**300,000**
29	Fire Suppression Building (with Electric Pump)	500	X			1,500	20	180,000
30	Wash Control Building	720	X			1,500	20	180,000

(1) All buildings are assumed to be Construction Type II B.
(2) For sprinklered buildings, both sets of flow and pressure conditions must be met. The first set is for the sprinklered condition (higher pressure at the main). The second set is for the fire flow condition (20 psi minimum at the main).
(3) Requirements are based on using high expansion foam which requires less water and has reduced environmental concerns.
(4) The fire protection required for a warehouse depends on many factors, see discussion for assumptions made.
(5) The required storage is not cumulative; only the largest value must be provided.

The size and use of the proposed hangar necessitate a fire suppression system utilizing sprinklers, a foam system, interior hose connection, and exterior hydrants. While multiple types of foam systems can be used, a high expansion foam system was selected because it uses less water and has less environmental concerns than the other foam systems. The hangar has the largest flow, pressure, and storage required; thus, it is the driver for the system design.

The warehouse will initially be 30,000 sf and expanded to 90,000 sf. Fire protection requirements are not impacted by the building area unless the square footage is very small. Thus, both warehouse sizes require the same fire protection system, both in size and type (sprinklers and exterior hydrants). The factors that determine the required fire protection for a warehouse include building type, commodity class, storage height, aisle width, whether the commodity is encapsulated, celling height, and if sprinklers are located in the racks. The commodity class is primarily impacted by the percentage of plastic in the item being stored, as well as its packaging. While aircraft parts will unlikely have a large percentage of plastic, their packaging may contain plastics. Commodity Class IV was selected for this analysis because it includes items with the highest percentage of plastics as an ancillary component. Storage heights of 20 to 35 feet were considered along with an additional 5 or 10 feet to the ceiling. Aisle widths of 4 and 8 feet were considered. Since the warehouse parameters are unknown, a wide variety of combinations were evaluated, and the largest values, presented below, were included in **Table 4-14**.

1. Warehouse conditions for maximum water storage: Class IV Commodity, 20 feet storage height, 4 feet wide aisles, not encapsulated, ceiling height not relevant, no in-rack sprinklers.

   2,050 gpm, minimum of 56 psi required at the main, and 246,000 gallons of storage.

2. Warehouse conditions for maximum water flow and pressure: Class IV Commodity, 35 feet storage height, aisle width not relevant, encapsulation not relevant, 45 feet ceiling height, no in-rack sprinklers.

   2,640 gpm, minimum of 88 psi required at the main, and 158,400 gallons of storage.

The remainder of the buildings will not require sprinklers and will be protected by fire flow from hydrants.

To meet the fire protection requirements for the proposed MHD Rockland buildings, the system must be able to meet the largest flow, pressure, and storage requirements, presented in bold in **Table 4-14**. Thus, the hangar is the driver and the MHD Rockland facility will require a well with a submersible pump, 300,000-gallon water storage tank, fire pumps, piping system with hydrants, and fire suppression systems in the hangar and warehouse. The well and pump must be capable of filling the tank within an 8-hour period (625 gpm). Due to the almost 6,000 gpm flowrate required for the hangar, the short length of the piping system carrying that flow will need to be at least 20-inches in diameter. The fire piping system will include hydrants located as required. Since the fire pumps will need to meet both the fire flows for hydrants (2,500 gpm) and the suppression system requirements (6,000 gpm and 2,640 gpm), multiple pumps will likely be needed. One possible pump combination is three 3,000 gpm pumps where the first pump would meet fire flows or warehouse suppression system needs, operating two pumps would meet the hangar requirements, and the third pump would be for redundancy. A jockey pump would also be required to keep the fire mains pressurized during non-fire conditions.

4.4.3.3 Westside Development

The Airport plans to develop land on the west side of the property, between SR 100 and the proposed MHD Rockland facility. As part of the latest Master Plan, six parcels were identified for development, ranging from 2 to 17 acres as previously presented in **Figure 3-1, Planned Airport Development** on **Page 13**. Based on input from the Airport, potential tenants were assumed. The fire protection requirements for these proposed uses are presented below in **Table 4-10**.

Table 4-15
Fire Protection Requirements
Westside Development Proposed Buildings

Bldg Or Parcel No.	Building[1]	Size (sf)	Hydrant Only	Hydrant & Sprinklers	Hydrant, Sprinklers & Foam	Total Required Flowrate[2] (gpm)	Required Pressure at the Main[2] (psi)	Required Storage[5] (gal)
A	3 Star Hotel[3] (3 floors)	50,000		X		600	60	72,000
						1,200	20	
B	Gas Station/ Convenience Store	2,500	X			1,500	20	180,000
C	Gas Station/ Convenience Store	5,900	X			1,500	20	180,000
D	Strip Mall / Retail	39,000		X		625	52	127,500
						1,063	20	
E	Warehouse / Light Industrial [4]	222,000		X		**2,640**	**88**	**246,000**
						2,000	20	
F	Warehouse / Light Industrial [4]	196,000		X		**2,640**	**88**	**246,000**
						2,000	20	

(1) All buildings are assumed to be Construction Type II B.
(2) For sprinklered buildings, both sets of flow and pressure conditions must be met. The first set is for the sprinklered condition (higher pressure at the main). The second set is for the fire flow condition (20 psi minimum at the main).
(3) Greater than 50,000 sf increases the fire flow requirement.
(4) Square footage is not a driver for fire protection requirements. This is maximum building size based on full development of the site acreage. A smaller warehouse would require the same flows/protection. The fire protection required for a warehouse depends on many factors, see discussion for assumptions made.
(5) The required storage is not cumulative; only the largest value must be provided.

Based on the assumed uses, all the new buildings will require fire suppression sprinkler systems except the gas station/convenience stores. Two sizes of gas station/convenience stores were considered to assess possible differences in required fire protection, however, there were none.

Several options for Parcel A (8 acres) were considered to determine if one would be a driver for fire protection in the Westside development area. All three options considered would require sprinkler protection. If a 37,900-sf storage unit facility were built on the site, it would require 1,000 gpm at 20 psi fire flow, 625 gpm at 52 psi sprinkler and hose demand, and 120,000 gal of storage. A more intensive industrial use such as manufacturing mobile homes or office furniture would require 2,000 gpm at 20 psi fire flow, 2,000 gpm at 88 psi sprinkler and hose demand, and 240,000 gal of storage. A 3-star hotel such as a Holiday Inn Express or Hampton Inn with 3 floors and a total area of 50,000 sf would require 1,200 gpm at 20 psi fire flow, 600 gpm at 60 psi sprinkler and hose demand, and 72,000 gal of storage. Since none of these options exceed the requirements for the warehouses, the warehouses on Parcels E and F would continue to be the basis for the fire protection system design for the Westside Development. The hotel option was selected because it was a driver for potable water and wastewater utilities.

The warehouse/light-industrial uses for the two largest parcels (Parcel E at 17 acres and Parcel F at 15 acres) were calculated similarly to the warehouse for MHD Rockland and resulted in the same values. The warehouse calculations are not dependent on the building area and it is assumed that any industrial work would not include hazardous operations. While the size of the parcels can support development of warehouse structures as large as 222,000 and 196,000 sf, there is not likely a demand for such large spaces in the near future. However, the fire protection requirements are not driven by the building area and reducing the size will not change them.

Based on the assumed uses and analysis, the largest flow, pressure, and storage are for the warehouses, resulting in a fire protection system for the Westside Development with a 246,000-gallon water tank, fire pumps, and a piping system. Two fire pumps will be required, each capable of providing 2,640 gpm with the second one for redundancy, plus a jockey pump. The fire distribution piping will be 12-inch diameter to handle the largest flow of 2,640 gpm with 8-inch and 10-inch branches for the buildings with lower flow requirements. Hydrants will be required as necessary. It is assumed that the fire protection water supply would be provided by the MHD Rockland system, refer to configuration options and water supply source discussion below.

4.4.4 Onsite Fire Protection System Configuration Options

The three main areas of future development at the Airport have different required flow rates, pressures, and storage requirements for fire protection. While each area was considered independently above, there are several options available for configuring the fire protection system:

1. MHD Rockland and Westside Development combined. Eastside separate. (Preferred)
2. Eastside and Westside Development combined. MHD Rockland separate.
3. All three areas combined.
4. Three separate systems (with emergency interconnections).

The following provides discussion of these options. The fire protection water supply source is discussed in a subsequent section.

4.4.4.1 Option 1 - MHD Rockland and Westside Development Combined. Eastside Separate (Preferred)

In this option, the adjacent MHD Rockland and Westside fire protection systems would be combined while the Eastside remains independent. This would only be possible if the Airport owns and operates the MHD Rockland

system or develops a binding shared use agreement for the system with Rockland. **Table 4-16** below lists the required pumping and storage requirements that will drive the systems' sizing.

Table 4-16
Fire Protection Design Criteria for
Option 1 – MHD Rockland & Westside Development Combined, Eastside Separate

Area	Pumping (1)	Water Storage (gal)
Eastside	2,250 gpm @ 20 psi	270,000(2)
MHD Rockland & Westside Development	6,000 gpm @ 109 psi	300,000

(1) Pumping pressures are minimum required pressure at the main for the building in question.
(2) If existing tank is reusable, 185,000-gallon existing tank plus new 85,000-gallon tank.

The primary advantage of this system is combining the adjacent high-pressure systems while the lower pressure Eastside remains independent. Also, since MHD Rockland will be built before the Westside Development, water storage and pumping would be in place, only requiring extension of the piping system to serve the Westside Development. The number of tanks and pumps would be reduced by combining two of the areas.

AECOM, in consultation with the Airport, recommends this option since it works with the geographic areas, utilizes a portion of the existing Eastside fire protection system and the soon to be constructed MHD Rockland system, and keeps the low pressure and high-pressure systems separate.

4.4.4.2 Option 2 - Eastside and Westside Development Combined. MHD Rockland Separate

Option 2 includes the Eastside and Westside Development systems combined into one system operated and maintained by the Airport and an independent MHD Rockland system. The systems are summarized in **Table 4-17** below.

Table 4-17
Fire Protection Design Criteria for
Option 2 – Eastside & Westside Development Combined, MHD Rockland Separate

Area	Pumping (1)	Water Storage (gal)
Eastside & Westside Development	2,640 gpm @ 88 psi	270,000(2)
MHD Rockland	6,000 gpm @ 109 psi	300,000

(1) Pumping pressures are minimum required pressure at the main for the building in question.
(2) If existing tank is reusable, 185,000-gallon existing tank plus new 85,000-gallon tank.

MHD Rockland would maintain their independent system while the Airport would be responsible for the combined Eastside and Westside Development system. The major advantage to this arrangement would be reducing the number of tanks and pumping systems. However, the entire Eastside and Westside Development system would need to maintain the higher pressure of 88 psi required for the Westside Development. Alternately, a moderate system pressure of 60 psi could be maintained and the warehouses that require higher pressure could have booster pumps for their interior fire suppression systems.

4.4.4.3 Option 3 - All Three Areas Combined

Combining all three areas would create one comprehensive fire protection system for the Airport property. Either the existing fire protection system can be rehabilitated and expanded or the new MHD Rockland system could be used. This option would require the Airport to own and operate the MHD Rockland system or develop a

binding shared use agreement for the system with Rockland. The required design parameters are presented in **Table 4-18**.

Table 4-18
Fire Protection Design Criteria for
Option 3 – All Three Areas Combined

Area	Pumping [1]	Water Storage (gal)
Eastside, MHD Rockland & Westside Development	6,000 gpm @ 109 psi	300,000[2]

(1) Pumping pressures are minimum required pressure at the main for the building in question.
(2) If existing tank is reusable, 185,000-gallon existing tank plus new 115,000-gallon tank.

The primary advantage of a combined system is reducing the number of pumps and tanks required. However, the entire system would need to meet the driving pressure of 109 psi for the MHD Rockland hangar. Alternately, a moderate system pressure of 60 psi could be maintained and the hangar and warehouses that require higher pressures could have booster pumps for their sprinkler systems.

4.4.4.4 Option 4 - Three Separate Systems

Under this option, each system would be provided fire protection from a dedicated individual system (storage tanks, fire pumps, and piping systems) designed to meet their specific requirements as described previously. While the systems would operate independently, emergency interconnects could be provided. **Table 4-19** below summarizes the systems.

Table 4-19
Fire Protection Design Criteria for
Option 4 – Three Separate Systems

Area	Pumping [1]	Water Storage (gal)
Eastside	2,250 gpm @ 20 psi	270,000[2]
MHD Rockland	6,000 gpm @ 109 psi	300,000
Westside Development	2,640 gpm @ 88 psi	246,000

(1) Pumping pressures are minimum required pressure at the main for the building in question.
(2) If existing tank is reusable, 185,000-gallon existing tank plus new 85,000-gallon tank.

The Airport authority would be responsible for the Eastside and Westside Development systems while MHD Rockland would maintain their own system. The major advantage to this arrangement would be that the varying flow rates and pressures could be provided to each system. For example, the Eastside system could be designed as a low-pressure system since the minimum required pressure at the main is 20 psi as opposed to the MHD Rockland and Westside Development systems that have much higher pressure requirements of 109 psi and 88 psi, respectively. The disadvantage would be the redundancy in storage tanks and pumping systems between the three systems.

4.4.5 Potable Water and Fire Protection Water Distribution Systems

Currently, the fire and potable water systems at the Airport are separate. However, they could be combined into one new piping system. The required fire protection flows of 625 to 6,000 gpm are 10 to 60 times greater than the peak potable water demands (117 gpm) at the Airport. Combining the systems would result in oversized water lines to meet the fire protection flows that rarely or never occur, along with stagnation in the water lines and possible water quality and maintenance issues. Thus, we recommend separate potable water and fire

protection water piping systems. This is common at industrial sites where potable demands are small compared to the large, required fire protection flows. The Airport and CCUA are in agreement with this approach.

4.4.6 Proposed Fire Protection Water Supply

Water for fire protection could be provided by the future connection to the CCUA potable water supply or onsite dedicated fire wells. Given the high instantaneous fire protection demand rates, direct supply from a well is not feasible and fire supply storage tanks would be used. For any well and tank combination, in accordance with NFPA, the well must be capable of filling the required storage volume in an 8-hour period. To continue using onsite wells, the existing undersized 6-inch well and submersible pump on the Eastside would require replacement with a new 8-inch well and 6-inch submersible pump, as discussed previously. Depending on the fire system configuration selected, new well(s) and submersible pump(s) would need to be constructed to fill any new storage tanks. For preferred Option 1, MHD Rockland and Westside Development Combined with Eastside Separate, a new well and submersible pump would be required at the MHD Rockland site with a minimum discharge capacity of 625 gpm to fill the 300,000-gal storage tank in the required 8-hour period. New wells will require construction and consumptive use permits from the St Johns River Water Management District.

There are two options for utilizing the future municipal potable water supply. The potable water source will be the CCUA 12-inch potable water main approximately 1.9 miles south of the Airport at the Keystone Heights RV Resort. CCUA stated that they could provide 1,000 gpm of water for fire protection. While they indicated that larger fire flows could be provided if they did not adversely impact their system pressures, the large fire flows required for some of the proposed industrial buildings coupled with the long distance would result in high pressure losses and could not be met directly by CCUA.

As an alternative to using the CCUA potable water supply to meet the fire protection water supply requirements directly, potable water could be used to fill the fire supply storage tanks from which the fire pumps would supply the required fire flows and pressures. Per code, the required 300,000-gallon tank(s) would have to be filled within an 8-hour period resulting in a flow of 625 gpm from CCUA. While this is 6 times greater than the peak Airport water demands (117 gpm), CCUA could provide it and the potable water lines would only be slightly oversized.

AECOM, in consultation with the Airport and CCUA, recommends using onsite dedicated wells to supply the fire protection systems since this would utilize the soon to be constructed MHD Rockland system.

4.4.7 Changes in Building Uses

This analysis is based on assumptions about the proposed building uses for empty parcels on the Eastside and in the Westside Development. A conservative approach was taken allowing the proposed fire protection systems to meet the needs of varying future tenants. The Westside system (whether independent or combined with MHD Rockland) is capable of serving a variety of tenants with moderate to high flow and high pressure needs. The system configuration selected will impact the flexibility in serving tenants on the Eastside. If the Eastside remains an independent lower pressure system and a future tenant requires higher fire flows or a fire suppression system (with higher pressures), it could be supplemented with their own system, or the Airport system could possibly be modified. Potential future tenants can be informed of the maximum capacity of the system they will use and options to meet higher requirements (i.e., in-line booster pumps, dedicated storage tanks, etc.)

4.4.8 Proposed Onsite Fire Protection System Design

4.4.2.1 Summary of Recommendations for Onsite Fire Protection System Design

To provide fire protection for the proposed expansion at the Airport Eastside, the proposed MHD Rockland facility, and the proposed Westside Development, AECOM recommends the following:

1. Separate systems for fire protection and potable water.

2. Utilizing onsite wells to provide the water supply to the fire protection system(s); an upsized well on the Eastside and the proposed fire system well for the MHD Rockland facility.

3. Two fire protection systems:

    a. Eastside. A lower pressure system to provide fire flows (2,250 gpm at 20 psi) to the existing and proposed development consisting of the following components. The lower pressure requirements are due to no Eastside structures requiring interior fire suppression systems.

        i. A new upsized 8-inch well with a new 6-inch, minimum 562-gpm submersible pump.

        ii. Total storage volume of 270,000 gal by combining the existing 185,000-gal tank with an additional 85,000-gal steel tank (assuming the existing tank is in reusable condition) or a new 270,000-gal steel tank. As a conservative approach to the preliminary construction cost estimate in **Section 5.0**, the cost for a new 270,000-gal tank was included.)

        iii. A new pumping system with 2 new diesel fire pumps (2,250 gpm at 40 psi), an electric jockey pump, and a prefabricated metal building enclosure.

        iv. Replacement of the existing 8-inch fire piping system with approximately 4,400 lf of 12-inch piping with hydrants and stub outs for possible future connections to the Hunt Club and Camp Crystal Lake.

    b. Westside. A separate system that provides fire flows and interior fire suppression requirements for the MHD Rockland facility and the adjacent Westside Development consisting of the following components:

        i. A new 8-inch well with a new 6-inch, minimum 625-gpm submersible pump.

        ii. A new 300,000-gal storage tank.

        iii. A new pumping system with 3 new diesel fire pumps (capable of providing up to 6,000 gpm at 109 psi), an electric jockey pump, and an enclosure.

        iv. Approximately 5,000 lf of 12-inch fire mains with hydrants.

    As the MHD Rockland facility is anticipated to be constructed before the Westside Development and will require a fire protection system, it is proposed that this system be shared or transferred to the Airport to also serve the adjacent Westside Development.

4.4.2.2 Onsite Fire Protection System Conceptual Layout

The proposed fire protection system is presented in **Figure 4-9, Conceptual Fire Protection Layout**.

On the Eastside, the existing well, tank, and fire pumps will be replaced or modified for the increased flow requirements. The existing 8-inch fire main, which is undersized for the new fire protection flows, should be replaced by a 12-inch fire main with fire hydrants to protect the structures and provide for stub outs for possible future connections to the Hunt Club and Camp Crystal Lake. No fire suppression systems are anticipated for new buildings on the Eastside; thus, this system has lower pressure requirements than the Westside.

On the Westside, it is anticipated that construction of the proposed MHD Rockland facility will include a new fire supply system with a well, tank, and fire pumps. A 12-inch fire main from the fire supply system will serve Parcels A through F and the existing FIRM facility. Since multiple buildings on the Westside require fire suppression systems, higher pressures are required (up to 109 psi at the main).

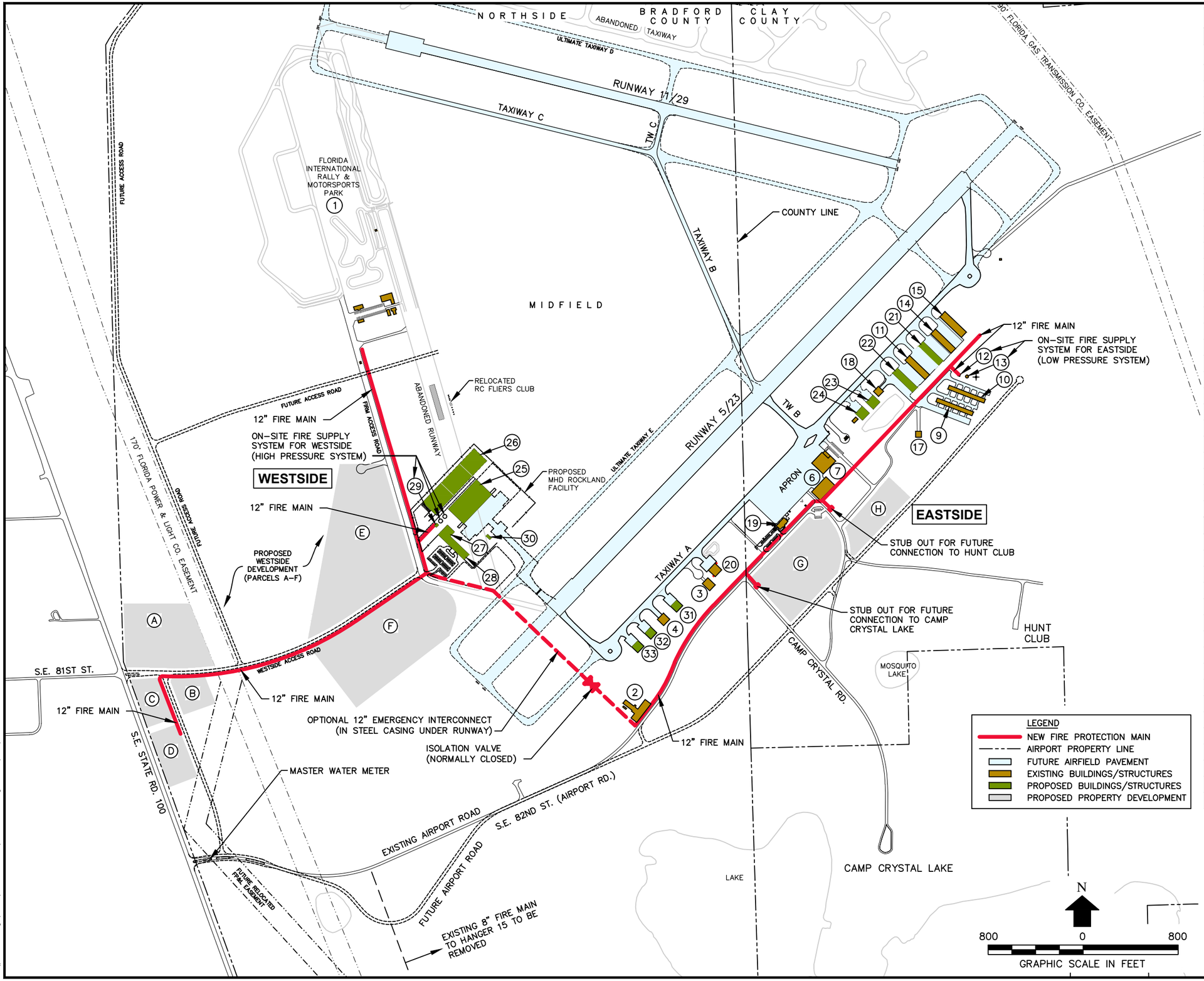
An optional 2,240 lf 12-inch emergency interconnect, with a normally closed valve, between the Eastside and Westside is proposed in the event that one of the supply/pumping systems is inoperable. Approximately 1,040 lf of the 12-inch line would be installed as a horizontal directional drill (HDD) under the proposed Runway 5/23 extension so that installation does not impact Airport operations.

4.5 Utility Alignments

To maintain separation of potable water from wastewater and fire protection water (untreated well water), it is proposed to install wastewater and fire lines on one side of the roads and potable water on the opposite side.

Currently, the Eastside has an 8-inch fire main on the south side of Airport Road from the hangars to within 1,200 feet of SR 100. To maintain fire service while this main is replaced, it is proposed to install the new 12-inch fire main on the north side of Airport Road along with the wastewater mains. Once the new fire main is in service, the existing 8-inch fire main can be removed to install the new 6-inch potable water main on the south side of the road. The typical existing and proposed utility alignments are presented in **Figure 4-10, Typical Sections for Airport Road**.

The Westside Access Road on the Westside includes a 5-foot Public Utility Easement (PUE) dedicated for two 4-inch fiber optic cable conduits on the north side of the roadway as shown in **Figure 4-11, Typical Section for Westside Access Road**. The proposed 6-inch potable water line will also be located on the north side of the road. The 12-inch fire main and wastewater mains will be located on the south side of the roadway. The 4-inch force mains will be located along the entire route while the 8-inch gravity main will also be present for approximately 500 feet.



REQUIRED FIRE PROTECTION FLOWS

NO.	DESCRIPTION	REQ'D FLOW (gpm)
EASTSIDE		
2	Warehouse	---(1)
3	Hangar	---(1)
4	Hangar	---(1)
6	Corp Hangar/Office	---(1)
7	Corp Hangar/Office	---(1)
9	T-Hangar A	---(1)
10	T-Hangar B	---(1)
11	T-Hangar C	---(1)
12	Fire Equip Enclosure	---(1)
13	Fire Water Tank	---(1)
14	T-Hangar E	---(1)
15	Corp Hangar	---(1)
17	Maintenance Building	---(1)
18	Bulk Hangar	---(1)
19	FBO Office	---(1)
20	Bulk Hangar	---(1)
21	Future T-Hangar	2,250
22	Future T-Hangar	2,250
23	Future Corp Hangar	1,750
24	Future Corp Hangar	1,750
31	Future Corp Hangar	1,750
32	Future Corp Hangar	1,750
33	Future Corp Hangar	1,750
G	Future 3 Office Bldgs	2,250
H	Future Office Bldg	2,250
	Camp Crystal Lake	---(2)
	Hunt Club	---(2)
EASTSIDE MAX FIRE FLOW (gpm)		2,250
WESTSIDE(3)		
1	FIRM Motorsports	---(1)
MHD ROCKLAND		
25	Future Hangar	6,000
26	Future Warehouse	2,640
27	Future Flight Simulator	2,000
28	Future Office Bldg	2,500
29	Future Fire Suppr Bldg	1,500
30	Future Wash Control Bldg	1,500
WESTSIDE DEVELOPMENT		
A	Future Hotel	1,200
B	Future Gas Station	1,500
C	Future Gas Station	1,500
D	Future Strip Mall	1,063
E	Future Warehouses	2,640
F	Future Warehouses	2,640
MHD ROCKLAND MAX FLOW (gpm)		6,000
REMAINING WESTSIDE MAX FLOW (gpm)		2,640

TABLE NOTES:
(1) Previously, the Fire Marshall determined that the maximum fire flow for any one existing structure is 1,500 gpm.
(2) Fire protection requirements unknown.
(3) Fire protection flows for the proposed structures on the Westside are a mix of fire flow and sprinkler & hose demands.

NOTE:
1. FIRE PROTECTION WATER TO BE SUPPLIED BY PRIVATE ON-SITE SYSTEM.

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CONCEPTUAL FIRE PROTECTION LAYOUT

FIGURE 4-9

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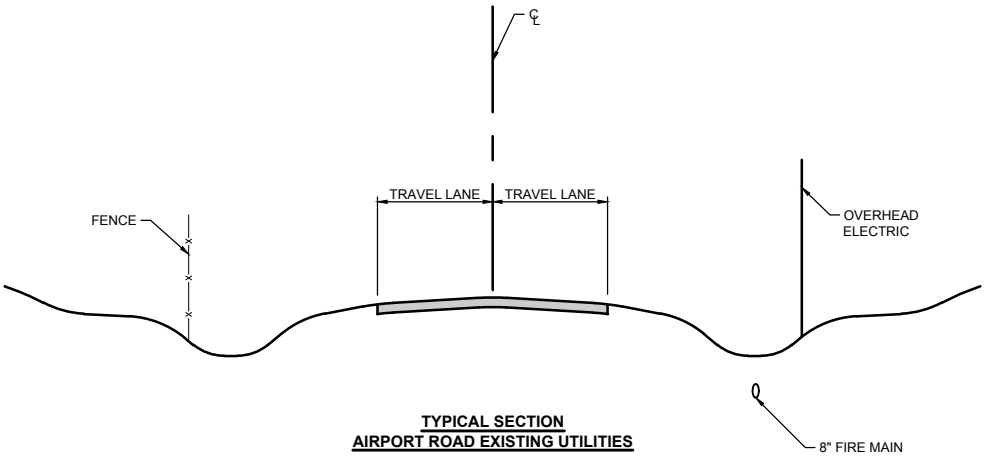
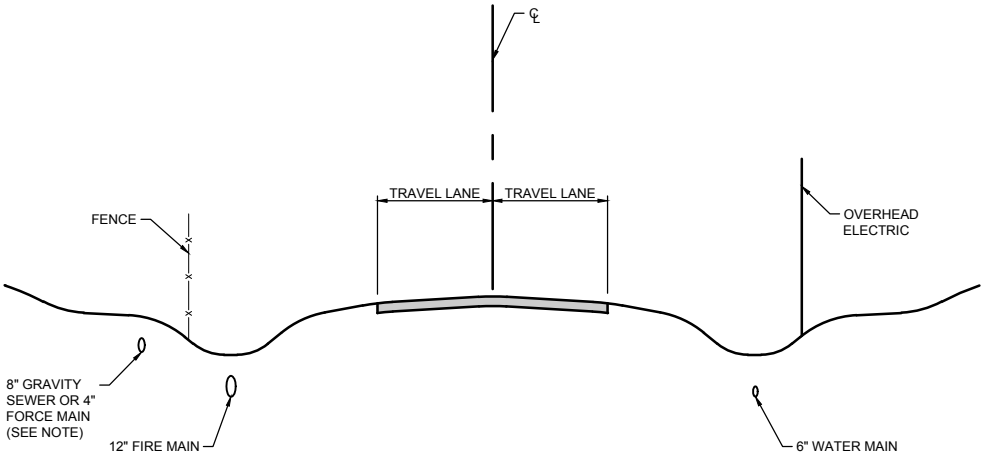


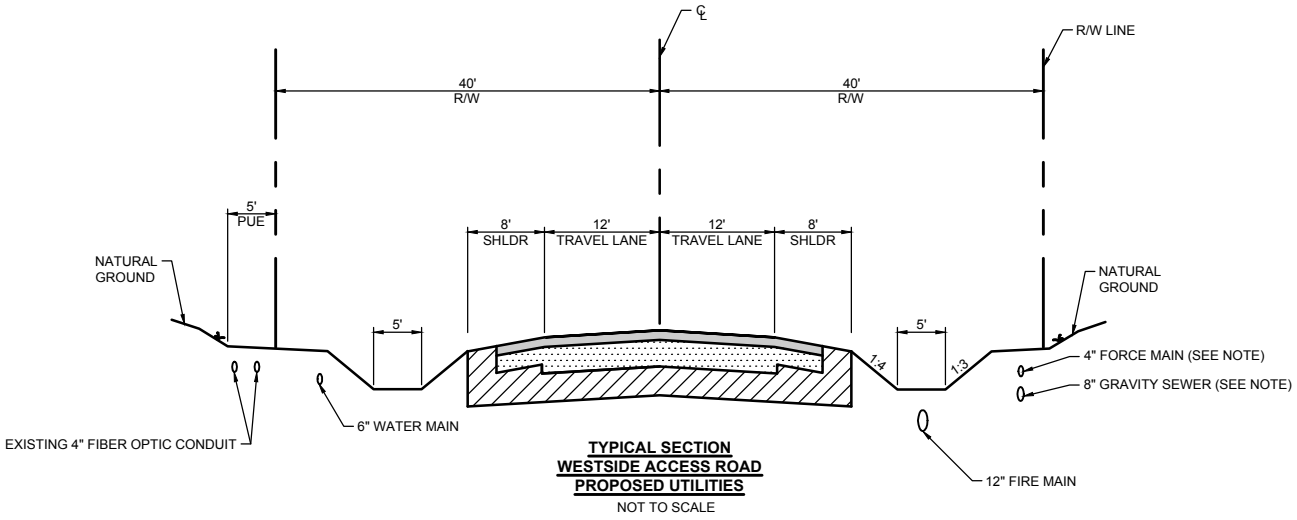
TYPICAL SECTION
AIRPORT ROAD EXISTING UTILITIES
NOT TO SCALE



TYPICAL SECTION
AIRPORT ROAD PROPOSED UTILITIES
NOT TO SCALE

NOTE:

THE GRAVITY SEWER WILL BE LOCATED UNDER PAVEMENT TO CROSS THE (2)-36" RCPs AT APPROXIMATELY MILE 1.1.



TYPICAL SECTION
WESTSIDE ACCESS ROAD
PROPOSED UTILITIES
NOT TO SCALE

NOTE:

THE 4" FORCE MAINS WILL RUN THE ENTIRE LENGTH OF THE ROAD. THE 8" GRAVITY SEWER WILL ALSO BE PRESENT FOR 500 LF.

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TYPICAL SECTION FOR WESTSIDE ACCESS ROAD

FIGURE 4-11

5.0 Preliminary Construction Cost Estimates

Preliminary construction costs estimates were developed for the potable water, wastewater, and fire flow systems and are presented in **Table 5-1**. The construction costs include materials, installation, and contractor overhead and profit. The linear foot pricing for piping also includes fittings, service connections, fire hydrants (where applicable), and restoration. These costs are based on January 2024 Construction Cost index from Engineering News Record. The cost for the MHD Rockland fire water supply and pumping system was not included since it is assumed that Rockland would be responsible for its construction. Given the conceptual nature of the design, a 25% contingency factor was included. An engineering design and permitting fee of approximately 15% was added. The preliminary construction costs estimate including design, permitting and construction is $17,313,500. The construction cost estimates should be considered as a Class 3 estimate with an expected accuracy level of (-) 10% to (+) 30%, or $15,600,000 to $22,500,000.

Table 5-1
Preliminary Construction Cost Estimate

Item	Unit	Quantity	Unit Price	Total Price
Potable Water System				
12-inch PVC Water Main - SR 100	LF	12,000	$150	$1,800,000
6-inch PVC Water Main - Airport	LF	11,200	$80	$896,000
4-inch PVC Water Main - Airport	LF	3,600	$60	$216,000
Master Water Meter	EA	2	$30,000	$60,000
12" Jack & Bore - Along SR 100 (6 crossings)	LF	570	$850	$484,500
4" Jack & Bore at Airport (2 crossings)	LF	120	$325	$39,000
			Potable Water System Subtotal	**$3,495,500**
Wastewater System				
6-inch PVC Force Main - SR 100	LF	12,000	$70	$841,200
4-inch PVC Force Main - Airport	LF	8,500	$55	$470,050
8-inch Gravity Sewer - Airport	LF	5,500	$200	$1,100,000
Gravity Sewer Laterals (17 total)	LF	4,320	$50	$216,000
Manholes	EA	19	$6,000	$114,000
Small Private Pump Stations	EA	3	$75,000	$225,000
Large Private Pump Station	EA	1	$250,000	$250,000
Airport Master Pump Stations	EA	2	$350,000	$700,000
6-inch Jack & Bore - Along SR 100 (3 crossings)	LF	250	$375	$93,750
4-inch Jack & Bore - Across SR 100 (2 crossings)	LF	160	$325	$52,000
Abandon Existing Septic Systems	EA	10	$2,500	$25,000
			Wastewater System Subtotal	**$4,087,000**
Fire Protection System				
12-inch PVC Fire Main - Airport	LF	9,400	$150	$1,410,000
Eastside - Fire Supply Well & Submersible Pump	LS	1	$125,000	$125,000
Eastside - Fire Tank (270,000-gal)	LS	1	$250,000	$250,000
Eastside - Fire Pump System w/ Enclosure	LS	1	$650,000	$650,000
Optional 12" PVC Fire Main Interconnect	LF	2,240	$125	$280,000
Optional 12" HDD for Optional 12" Fire Main	LF	1,040	$400	$416,000
			Fire Protection System Subtotal	**$3,131,000**
			SUBTOTAL	**$10,713,500**
Mobilization (5%)	LS	1	$500,000	$500,000
General Conditions (10%)	LS	1	$1,100,000	$1,100,000
Contingency (25%)	LS	1	$2,700,000	$2,700,000
			SUBTOTAL	**$15,013,500**
Engineering & Permitting (15%)	LS	1	$2,300,000	$2,300,000
			TOTAL	**$17,313,500**
	Range of Costs (-10% to +30%)		**$15,600,000 to $22,500,000**	

6.0 Construction Schedule & Permitting

A total of 3 years should be allotted for design, permitting, and construction of the potable water, wastewater and fire protections systems. Engineering design and regulatory permitting should take approximately 1 year. Due to current global supply chain issues for construction materials and equipment, 2 years is anticipated for construction of these improvements.

This project will require permitting through a variety of state and local agencies. During the design phase, the following permits will be required:

1. FDOT right of way permit for utility construction along SR 100
2. FDEP construction permit for water mains
3. FDEP construction permit for wastewater collection/transmission system
4. CCUA Review and Approval of water and sewer
5. St Johns Water Management District construction and consumptive use permit for new fire protection well
6. FDEP permits to abandon existing septic systems

Appendix A

Airport Potable Water Demand and Wastewater Generation Flow Calculations

Keystone Heights Airport - Water and Sewer Utility Feasibility Study
Potable Water Demand and Wastewater Generation Flow Calculations

Wastewater Generation flow calculations are attached (and color coded for each category)
Potable Water Use is wastewater generation plus 10%

LEGEND
These values are assumed

ALP No.	Name	Use	Bathrooms	Showers	Offices	Normal Occupants	Surge Occupants	Wastewater Generation Rate (gpd/pp)	Wastewater Generation (gpd)	Potable Water Demand (gpd)	Notes
	EXISTING BUILDINGS										
1	Florida International Rally & Motorsports Park	Training and events	4	2	4	10	25	25	625	688	For 3-4 events a year with 4,000-5,000 attendees, port-a-johns are used
2	Warehouse (11,000 sf)	Currently MHD Rockland parts storage	2	-	1	0	0	15	0	0	
3	Hangar (4,828 sf)	Currently MHD Rockland parts storage	0	0	1	1	1	15	15	17	
4	Hangar (5,625 sf)	College of Missionary Aviation	1	-	1	3	6	15	90	99	
5	Electrical Vault (90 sf)		-	-	-	0	0	15	0	0	
6	Corporate Hangar/Office (17,500 sf)	Currently MHD Rockland hangar and office	2	1	1	10	10	25	250	275	
7	Corporate Hangar/Office (19,600 sf)	Currently MHD Rockland storage and office	3	2	1	12	12	25	300	330	
8	Shed (172 sf)	Airport site maintenance equipment	-	-	-	0	0	15	0	0	
9	T-Hangar A (11,130 sf)	Holds 10 aircraft. Space rented to individuals.	1	-	-	0	10	15	300	330	Includes occupants from No. 10, T-Hangar B
10	T-Hangar B (11,130 sf)	Holds 10 aircraft. Space rented to individuals.	-	-	-	0	10	15	0	0	Occupants use restroom in No. 9, T-Hangar A
11	T-Hangar C (12,936 sf)	Holds 10 aircraft. Space rented to individuals.	1	-	-	0	10	15	150	165	
12	Fire Suppression Equipment Enclosure (336 sf)	Fire pumps to distribute fire flow from No. 13, Water Tank	-	-	-	-	-	-	0	0	
13	Water Tank (185,000 gal)	For fire suppression	-	-	-	-	-	-	0	0	
14	T-Hangar E (9,890 sf)	Holds 10 aircraft. Space rented to individuals.	1	-	-	0	10	15	150	165	
15	Corporate Hangar (14,400 sf)	Currently no office or restroom, but plumbed for future	4	1	4	4	6	25	150	165	Using future projections
16	Electrical Vault (221 sf)		-	-	-	-	-	-	0	0	
17	Maintenance Building (2,500 sf)	Airport site maintenance equipment	-	-	-	0	0	15	0	0	
18	Bulk Hangar (3,600 sf)		-	-	-	0	0	15	0	0	
19	FBO Office (4,516 sf)		3	1	1	3	4	25	100	110	
20	Bulk Hangar (6,400 sf)	Currently no office or restroom, but plumbed for future	1	-	1	1	1	15	15	17	Using future projections
	OTHER EXISTING PROPERTY USES										
	Camp Crystal Summer Camp	Alachua County Schools	-	-	-	-	200	35	7,000	7,700	Max Occupancy - Summer Camp 200 total campers & counselors
	Hunt Club	Private Keystone Sportsmen Club	2	2	0	25	150	25	3,750	4,125	Assume surge for events is accommodated by port-a-johns
								Subtotal Existing Building & Property Uses, Average Flow (gpd):	**12,895**	**14,185**	
	PROPOSED BUILDINGS (Near Term, 1-3 years)										
21	Future Hangar (Approx. 13,000 sf)	T-hangar will hold 10 aircraft	1	-	-	0	10	15	150	165	
22	Future Hangar (Approx. 13,000 sf)	T-hangar will hold 10 aircraft	1	-	-	0	10	15	150	165	
23	Future Hangar (80' x 80') (6,400 sf)	Corporate hangar	1	-	1	1	2	15	30	33	
24	Future Hangar (80' x 80') (6,400 sf)	Corporate hangar	1	-	1	1	2	15	30	33	
25	Hangar (54,000 sf)	Future MHD Rockland	1	-	-	1	2	15	30	33	
26	Warehouse (30,000 sf)	Future MHD Rockland	1	-	-	1	2	15	30	33	Possible alternate 60,000 sf warehouse across street from No. 2, Warehouse
27	Flight Simulator Building (9,500 sf)	Future MHD Rockland; classroom	4	1	-	15	15	15	225	248	
28	Office Building (12,800 sf)	Future MHD Rockland	6	4	-	50	50	25	1,250	1,375	
29	Fire Suppression Building (500 sf)	Future MHD Rockland; adjacent to 2 tanks holding fire flow	-	-	-	-	-	-	0	0	
30	Wash Control Building (720 sf)	Future MHD Rockland; Riveer RainBird aircraft rinse system	-	-	-	-	-	-	3,000	6,000	See attached calculations
31	Future Hangar (80' x 80') (6,400 sf)	Corporate hangar; Taxiway A frontage, north of No. 4	1	-	1	1	2	15	30	33	
32	Future Hangar (80' x 80') (6,400 sf)	Corporate hangar; Taxiway A frontage, south of No. 4	1	-	1	1	2	15	30	33	
33	Future Hangar (80' x 80') (6,400 sf)	Corporate hangar; Taxiway A frontage, south of No. 4	1	-	1	1	2	15	30	33	
	PROPOSED BUILDINGS - WEST SIDE DEVELOPMENT (Near Term, 1-3 years)										
A	Future Industrial/Comm. Development (8 ac)	West Side Development; Hotel (3-star, 3-story, 50,000 sf)	-	-	-	-	-	-	10,000	11,000	See attached calculations
B	Future Industrial/Comm. Development (2 ac)	West Side Development; Gas Station/ Convenience Store	-	-	-	-	-	-	500	550	See attached calculations
C	Future Industrial/Comm. Development (2 ac)	West Side Development; Gas Station/ Convenience Store	-	-	-	-	-	-	500	550	See attached calculations
D	Future Industrial/Comm. Development (3 ac)	West Side Development; Strip Mall/Retail	-	-	-	-	-	-	4,000	4,400	See attached calculations
E	Future Industrial/Comm. Development (17 ac)	West Side Development; Warehouse/ Light Industrial	-	-	-	45	45	15	675	743	See attached calculations
F	Future Industrial/Comm. Development (15 ac)	West Side Development; Warehouse/ Light Industrial	-	-	-	40	40	15	600	660	See attached calculations
								Subtotal Proposed (Near Term), Average Flow (gpd):	**21,260**	**26,086**	
								Subtotal Existing & Near Term, Average Flow (gpd):	**34,155**	**40,271**	
	FUTURE BUILDINGS (Greater than 4 years)										
G	Future Development Site (8.5 ac)	3 Office Buildings				90	90	15	1,350	1,485	By Taxiway A. Assume Fire Station. See attached calculations. Actually 12 ac
H	Future Development Site (3.3 ac)	Office Building				30	30	15	450	495	By Taxiway A. See attached calculations.
								Subtotal Future Average Flow (gpd):	**1,800**	**1,980**	
	DISTANT FUTURE PROPERTY USES (No current time frame)										
	Future Development Site (12.8 ac)	South Side of Taxiway A	-	-	-	-	-	-	-	-	Not Included in Study. Assume cannot be developed due to deep ditch through site.
	Future Development Site (48 ac)	Northeast of Taxiway A. CBJTC Airfield Strategic Initiative	-	-	-	-	-	-	-	-	Not Included in Study
	Future Midfield Aviation Development (190 ac)	Midfield	-	-	-	-	-	-	-	-	Not Included in Study
	Future Aviation Development (53 ac)	North Side of Taxiway D	-	-	-	-	-	-	-	-	Not Included in Study
	Future Industrial Development (116 ac)	North Side of Taxiway D	-	-	-	-	-	-	-	-	Not Included in Study

Total Average Flow (gpd):	**35,955**	**42,251**
Total Average Flow (gpm):	25.0	29.3
Peaking Factor:	4	4
Peak Flow (gpd):	143,820	169,002
Peak Flow (gpm):	**99.88**	**117.36**

Keystone Heights Airport Utility Master Plan

EXISTING BUILDINGS

Wastewater Flow Calculations

Primary Source of **wastewater flowrates** is Florida Administrative Code (FAC) 64E-6.0008, System Size Determinations
Other assumptions are noted.

Commercial & Industrial Establishments

15 gpd per employee per 8-hour shift
25 gpd when showers are provided

OTHER EXISTING PROPERTY USES

Camp Crystal Summer Camp - Alachua County Schools

During the school year, day camps and limited overnight camps (Wednesday through Friday)
During June and July, there's a total of 200 campers, counselors and employees

Per FAC 64E-6.008: There is no listing for overnight camps. The following were considered:
RV Park without water and sewer hookup (shared clean-up sinks, restrooms & showers) - 50 gpd per space
Public Park with bathhouse, showers, and toilets - 10 gpd per person
School - day type with showers and cafeteria - 18 gpd per student and 15 gpd per worker
School, Boarding type - 75 gpd per student
Work/Construction Camp, semi-permanent - 50 per worker

Assume:
35 gpd per camper, counselor and employee

Hunt Club - Private Keystone Sportsmen Club

Assume special event with surge participants are accommodated by porta johns
Normal operations - for members, use same as employee on 8-hour shift.
25 gpd when showers are provided

Keystone Heights Airport Utility Master Plan

PROPOSED BUILDINGS

Wastewater Flow (& Water Use) Calculations

Primary Source of **wastewater flowrates** is Florida Administrative Code (FAC) 64E-6.0008, System Size Determinations
Other assumptions are noted.

Commercial & Industrial Establishments

15 gpd per employee per 8-hour shift
25 gpd if showers are provided.

MHD Rockland - Riveer BirdBath - Clear Water Rinse System for Aircraft

Normal MHD Rockland operation is 3 planes, but new hangar will be able to hold 5.
Assume wash all 5 planes once a day.
System will use 3,000 gallons per plane.
Rinse water is collected, filtered and recycled.
Once the filtered water does not meet reequipments, it's sent to wastewater drain.
Assume one full wash is sent to wastewater drain per day = **3000 gpd**

Water use - 20 gpm to pretreatment system, intermittently, to top off rinse water storage tank.
The pretreated water replaces filtered rinse water sent to drain and rinse water lost to environment during wash.
Replace one full wash sent to waste (3000 gal)
and the 25% lost to the environment for the other 4 washes (3000 gal = 4*(0.25 *3000))
Total water use = **6000 gpd**

Keystone Heights Airport Utility Master Plan

PROPOSED BUILDINGS - WEST SIDE DEVELOPMENT

Wastewater Flow Calculations

Rule of thumb for commercial/industrial development is to use a Floor Area Ratio (FAR) of 30%
Meaning that the maximum building square footage would be 30% of the site area.
(The remaining 70% of the site area would be for access, parking, stormwater, green space, etc.)

A - Future Industrial/Comm. Development (8 ac)	West Side Development; Hotel
30% FAR * 8 ac = 2.4 ac 2.4 ac * 43,560 sf/ac = 104,544 sf max building area Per Fire Flow Calcs and for conservative W/WW analysis, assume hotel similar to Hilton Hampton Inn or Holiday Inn Express: 3 star, 3 story, 50,000sf total, 16,700sf ground floor	Per FAC 64E-6.008: Hotels & Motel, 100 gpd per room 100 rooms at 100 gpd = **10,000 gpd**

B - Future Industrial/Comm. Development (2 ac)	West Side Development; Gas Station/ Convenience Store
Per FAC 64E-6.008: Service Station Open 16 hr/day or less, 250 gpd per water closet	250 gpd * 2 restrooms = **500 gpd**

C - Future Industrial/Comm. Development (2 ac)	West Side Development; Gas Station/ Convenience Store
Per FAC 64E-6.008: Service Station Open 16 hr/day or less, 250 gpd per water closet	250 gpd * 2 restrooms = **500 gpd**

D - Future Industrial/Comm. Development (3 ac)	West Side Development; Strip Mall/Retail
450' frontage on SR 100 30% FAR * 3 ac = 0.9 ac 0.9 ac * 43,560 sf/ac = 39,204 sf max building area	Per FAC 64E-6.008: 0.1 gpd per sf of shopping center floor space Or 200 gpd/store restroom 39, 204 sf * 0.1 = **4,000 gpd**

E - Future Industrial/Comm. Development (17 ac)	West Side Development; Warehouse/ Light Industrial
30% FAR * 17 ac = 5.1 ac 5.1 ac * 43,560 sf/ac = 222,156 sf max building area Assuming 1 employee per 5,000 sf of warehouse. 222,146 sf / 5,000 = 44. 4 employees	Per FAC 64E-6.008: 15 gpd per employee / 8 hr shift 45 employees at 15 gpd = **675 gpd**

F - Future Industrial/Comm. Development (15 ac)	West Side Development; Warehouse/ Light Industrial
30% FAR * 15 ac = 4.5 ac 4.5 ac * 43,560 sf/ac = 196,020 sf max building area 196,020 sf / 5,000 = 39.2 employees	Per FAC 64E-6.008: 15 gpd per employee / 8 hr shift 40 employees at 15 gpd = **600 gpd**

Keystone Heights Airport Utility Master Plan

FUTURE PROPERTY USES

Wastewater Flow Calculations

G -Future Development Site (8.5 ac)	Offices

Site is labeled on ALP as 8.5 ac, but is actually 12 ac

30% FAR * 12 ac = 3.6 ac
3.6 ac * 43,560 sf/ac = 156,816 sf max building area

Per Fire Flow Calcs, set building area at 3 separate/phased office buildings at 12,000 sf each for 36,000 sf total

Assuming 1 employee per 400 sf of office
36,000 sf / 400 sf = 90

Per FAC 64E-6.008: 15 gpd per employee per 8 hr shift
90 employees * 15 gpd = **1,350 gpd**

H - Future Development Site (3.3 ac)	Offices

Rule of thumb for commercial/industrial development is to use a Floor Area Ratio (FAR) of 30%
Meaning that the actual building square footage would be 30% of the site area.
(The remaining 70% of the site area would be for access, parking, stormwater, green space, etc.)

30% FAR * 3.3 ac = 1 ac
1 ac * 43,560 sf/ac = 43,560 sf max building area

Set building area at 12,000 sf per Fire Flow Calcs

Assuming 1 employee per 400 sf of office
12,000 sf / 400 sf = 30

Per FAC 64E-6.008: 15 gpd per employee per 8 hr shift
30 employees * 15 gpd = **450 gpd**

Future Development Site (12.8 ac) shown on ALP	Development Not Considered for This Analysis

Assume site cannot be developed due to deep ditch.
No wastewater generation or water use included.

Appendix B

CCUA Fire Hydrant Flow Test Summary
Dated 6/9/2022

Clay County Utility Authority
Fire Hydrant Flow Test Summary

Task ID	Activity	Prepared By	Date Prepared	Date Completed
570616	Flow Test	AMACDONALD	6/23/2022	6/29/2022

Flowing Hydrant Info

Date Installed:	1/1/2013
Hydrant Number:	3550
As-built Number:	MO-2
Hydrant Location:	1316 SE State Road 100
Brand Name:	Waterous
Model or Other ID:	WB-67-250
Water Main Size:	12"
Hydrant Outlet Size	2-1/2"
Valve Opening Size:	5-1/4"

Residual Hydrant Info

Hydrant Number:	3549
As-built Number:	MO-2
Hydrant Location:	

Flow Test Results

Hydrant Static Pressure:	76	Pressure Per Square Inch
Hydrant Pitot Pressure:	35	Pressure Per Square Inch
Residual Hydrant Pressure:	58	Pressure Per Square Inch
Flow Duration:	3	Minutes
***Water Flowed:**	1,000	Gallons Per Minute
Estimated Gallons Flushed:	3,000	Gallons

Was there a backflow preventer between the hydrant flowed and the residual reading location?

No

If yes, list type of backflow device and show calculations of adjusted residual pressure.

*Note: CCUA only provides 1,000 GPM at 20 PSI regardless of test data.

Flow Test Completed By:

Marvin Short

Jerry Sleezer

Appendix C

Existing Fire Protection Well -
Consumptive Use Permit from St. Johns Water Management District
Dated January 3, 2007

St. Johns River
Water Management District
Kirby B. Green III, Executive Director • David W. Fisk, Assistant Executive Director

4049 Reid Street • P.O. Box 1429 • Palatka, FL 32178-1429 • (386) 329-4500
On the Internet at *www.sjrwmd.com.*

January 3, 2007

Keystone Airpark Authority
7100 Airport Rd
Starke, FL 32091

SUBJECT: Consumptive Use Permit Number 109130
Keystone Airpark Authority

Dear Sir/Madam:

Enclosed is your permit as authorized by the St. Johns River Water Management District on January 03, 2007.

Please be advised that the period of time within which a third party may request an administrative hearing on this permit may not have expired by the date of issuance. A potential petitioner has twenty-six (26) days from the date on which the actual notice is deposited in the mail, or twenty-one (21) days from publication of this notice when actual notice is not provided, within which to file a petition for an administrative hearing pursuant to Sections 120.569 and 120.57, Florida Statutes. Receipt of such a petition by the District may result in this permit becoming null and void.

Permit issuance does not relieve you from the responsibility of obtaining permits from any federal, state and/or local agencies asserting concurrent jurisdiction over this work.

The enclosed permit is a legal document and should be kept with your other important records. Please read the permit and conditions carefully since the referenced conditions may require submittal of additional information. All information submitted as compliance with permit conditions must be submitted to the nearest District Service Center and should include the above referenced permit number.

Sincerely,

Gloria Lewis, Director
Permit Data Services Division

Enclosures: Permit, Conditions for Issuance, Compliance Forms, Map, Well Tags

cc: District Permit File

PERMIT NO. 109130 **DATE ISSUED:** January 3, 2007
PROJECT NAME: Keystone Airpark Authority

A PERMIT AUTHORIZING:

The District authorizes, as limited by the attached conditions, the use of .864 million gallons per year (mgd) maximum of groundwater from the Floridan aquifer exclusively for fire protection use (essential use) for 20-years.

LOCATION:

Site: Keystone Airpark Authority
Clay County

Section(s): 31 Township(s): 7S Range(s): 23E

ISSUED TO:

Keystone Airpark Authority
7100 Airport Rd
Starke, FL 32091

Permittee agrees to hold and save the St. Johns River Water Management District and its successors harmless from any and all damages, claims, or liabilities which may arise from permit issuance. Said application, including all maps and specifications attached thereto, is by reference made a part hereof.

This permit does not convey to permittee any property rights nor any rights of privileges other than those specified herein, nor relieve the permittee from complying with any law, regulation or requirement affecting the rights of other bodies or agencies. All structures and works installed by permittee hereunder shall remain the property of the permittee.

This permit may be revoked, modified or transferred at any time pursuant to the appropriate provisions of Chapter 373, Florida Statutes and 40C-1, Florida Administrative Code.

PERMIT IS CONDITIONED UPON:

See conditions on attached "Exhibit A", dated January 3, 2007

AUTHORIZED BY: St. Johns River Water Management District
Department of Resource Management

By: _____
Dwight Jenkins
Division Director

"EXHIBIT A"
CONDITIONS FOR ISSUANCE OF PERMIT NUMBER 109130
KEYSTONE AIRPARK AUTHORITY
DATED JANUARY 3, 2007

1. District Authorized staff, upon proper identification, will have permission to enter, inspect and observe permitted and related facilities in order to determine compliance with the approved plans, specifications and conditions of this permit.

2. Nothing in this permit should be construed to limit the authority of the St. Johns River Water Management District to declare a water shortage and issue orders pursuant to Section 373.175, Florida Statutes, or to formulate a plan for implementation during periods of water shortage, pursuant to Section 373.246, Florida Statutes. In the event a water shortage, is declared by the District Governing Board, the permittee must adhere to the water shortage restriction as specified by the District, even though the specified water shortage restrictions may be inconsistent with the terms and conditions of this permit.

3. Prior to the construction, modification, or abandonment of a well, the permittee must obtain a Water Well Construction Permit from the St. Johns River Water Management District, or the appropriate local government pursuant to Chapter 40C-3, Florida Administrative Code. Construction, modification, or abandonment of a well will require modification of the consumptive use permit when such construction, modification or abandonment is other than that specified and described on the consumptive use permit application form.

4. Leaking or inoperative well casings, valves, or controls must be repaired or replaced as required to eliminate the leak or make the system fully operational.

5. Off-site land uses existing at the time of permit application may not be significantly adversely impacted as a result of the consumptive use. If unanticipated significant adverse impacts occur, the District shall revoke the permit in whole or in part to curtail or abate the adverse impacts, unless the impacts can be mitigated by the permittee.

6. The District must be notified, in writing, within 30 days of any sale, conveyance, or other transfer of a well or facility from which the permitted consumptive use is made or within 30 days of any transfer of ownership or control of the real property at which the permitted consumptive use is located. All transfers of ownership or transfers of permits are subject to the provisions of section 40C-1.612, Florida Administrative Code.

7. A District-issued identification tag shall be prominently displayed at each withdrawal site by permanently affixing such tag to the pump, headgate, valve or other withdrawal facility as provided by Section 40C-2.401, Florida Administrative Code. Permittee shall notify the District in the event that a replacement tag is needed.

8. For the purposes of the following permit conditions, the St. Johns River Water Management District shall be referred to as "the District" and the holder of this permit shall be referred to as "the permittee".

9. All submittals made to demonstrate compliance with this permit must include the CUP number 22-019-109130-1 plainly labeled.

10. This permit will expire December 31, 2026.

11. Legal uses of water existing at the time of the permit application may not be significantly impacted as a result of the consumptive use. If significant impacts occur (including interference with other existing legal users), the District may revoke the permit in whole or in part to abate the adverse impact unless otherwise mitigated by the permittee. In those cases, where other permit holders are identified by the District as also contributing to the adverse impact, the permittee may choose to mitigate in a cooperative effort with these other permittees. The permittee must submit a mitigation plan to the District for approval prior to implementing such mitigation.

12. Maximum daily groundwater withdrawals from the Floridan aquifer, solely for fire protection (essential use), must not exceed 0.864 million gallons.

13. Groundwater well "Fire Well" (GRS ID 104803), as listed on the application, is authorized solely for fire protection use only. This permit must be modified prior to any change in type use.

14. A District-issued identification tag shall be prominently displayed on well "Fire Well" (GRS ID 104803), as listed on the application, by permanently affixing such tag to the pump, headgate, valve, or other withdrawal facility as provided by Section 40C-2.401, Florida Administrative Code. Permittee shall notify the District in the event that a replacement tag is needed.

Notice Of Rights

1. A person whose substantial interests are or may be affected has the right to request an administrative hearing by filing a written petition with the St. Johns River Water Management District (District). Pursuant to Chapter 28-106 and Rule 40C-1.1007, Florida Administrative Code, the petition must be filed (received) either by delivery at the office of the District Clerk at District Headquarters, P. O. Box 1429, Palatka Florida 32178-1429 (4049 Reid St., Palatka, FL 32177) or by e-mail with the District Clerk at Clerk@sjrwmd.com, within twenty-six (26) days of the District depositing notice of District decision in the mail (for those persons to whom the District mails actual notice), within twenty-one (21) days of the District emailing notice of District decision (for those persons to whom the District emails actual notice), or within twenty-one (21) days of newspaper publication of the notice of District decision (for those persons to whom the District does not mail or email actual notice). A petition must comply with Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes, and Chapter 28-106, Florida Administrative Code. The District will not accept a petition sent by facsimile (fax), as explained in paragraph no. 5 below. Mediation pursuant to Section 120.573, Florida Statutes, is not available.

2. If the Governing Board takes action that substantially differs from the notice of District decision, a person whose substantial interests are or may be affected has the right to request an administrative hearing by filing a written petition with the District, but this request for administrative hearing shall only address the substantial deviation. Pursuant to Chapter 28-106 and Rule 40C-1.1007, Florida Administrative Code, the petition must be filed (received) at the office of the District Clerk at the mail/street address or email address described in paragraph no. 1 above, within twenty-six (26) days of the District depositing notice of final District decision in the mail (for those persons to whom the District mails actual notice), within twenty-one (21) days of the District emailing the notice of final District decision (for those persons to whom the District emails actual notice), or within twenty-one (21) days of newspaper publication of the notice of final District decision (for those persons to whom the District does not mail or email actual notice). A petition must comply with Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes, and Chapter 28-106, Florida Administrative Code. Mediation pursuant to Section 120.573, Florida Statutes, is not available.

3. A person whose substantial interests are or may be affected has the right to a formal administrative hearing pursuant to Sections 120.569 and 120.57(1), Florida Statutes, where there is a dispute between the District and the party regarding an issue of material fact. A petition for formal hearing must also comply with the requirements set forth in Rule 28-106.201, Florida Administrative Code.

4. A person whose substantial interests are or may be affected has the right to an informal administrative hearing pursuant to Sections 120.569 and 120.57(2), Florida Statutes, where no material facts are in dispute. A petition for an informal hearing must also comply with the requirements set forth in Rule 28-106.301, Florida Administrative Code.

Notice Of Rights

5. A petition for an administrative hearing is deemed filed upon receipt of the complete petition by the District Clerk at the District Headquarters in Palatka, Florida. Petitions received by the District Clerk after 5:00 p.m., or on a Saturday, Sunday, or legal holiday, shall be deemed filed as of 8:00 a.m. on the next regular District business day. The District's acceptance of petitions filed by e-mail is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation (issued pursuant to Rule 28-101.001, Florida Administrative Code), which is available for viewing at www.sjrwmd.com. These conditions include, but are not limited to, the petition being in the form of a PDF file and being capable of being stored and printed by the District. Further, pursuant to the District's Statement of Agency Organization and Operation, attempting to file a petition by facsimile is prohibited and shall not constitute filing.

6. Failure to file a petition for an administrative hearing within the requisite time frame shall constitute a waiver of the right to an administrative hearing. (Rule 28-106.111, Florida Administrative Code).

7. The right to an administrative hearing and the relevant procedures to be followed are governed by Chapter 120, Florida Statutes, Chapter 28-106, Florida Administrative Code, and Rule 40C-1.1007, Florida Administrative Code. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means the District's final action may be different from the position taken by it in this notice. A person whose substantial interests are or may be affected by the District's final action has the right to become a party to the proceeding, in accordance with the requirements set forth above.

8. A person with a legal or equitable interest in real property who believes that a District permitting action is unreasonable or will unfairly burden the use of their property, has the right to, within 30 days of receipt of the notice of District decision regarding a permit application, apply for a special magistrate proceeding under Section 70.51, Florida Statutes, by filing a written request for relief at the Office of the District Clerk located at District Headquarters, P. O. Box 1429, Palatka, FL 32178-1429 (4049 Reid St., Palatka, FL 32177). A request for relief must contain the information listed in Subsection 70.51(6), Florida Statutes. Requests for relief received by the District Clerk after 5:00 p.m., or on a Saturday, Sunday, or legal holiday, shall be deemed filed as of 8:00 a.m. on the next regular District business day.

9. A timely filed request for relief under Section 70.51, Florida Statutes, tolls the time to request an administrative hearing under paragraph nos. 1 or 2 above. (Paragraph 70.51(10)(b), Florida Statutes). However, the filing of a request for an administrative hearing under paragraph nos. 1 or 2 above waives the right to a special magistrate proceeding. (Subsection 70.51(10)(b), Florida Statutes).

10. Failure to file a request for relief within the requisite time frame shall constitute a waiver of the right to a special magistrate proceeding. (Subsection 70.51(3), Florida Statutes).

Notice Of Rights

11. Any person whose substantial interests are or may be affected who claims that final action of the District constitutes an unconstitutional taking of property without just compensation may seek review of the action in circuit court pursuant to Section 373.617, Florida Statutes, and the Florida Rules of Civil Procedures, by filing an action in circuit court within 90 days of rendering of the final District action, (Section 373.617, Florida Statutes).

12. Pursuant to Section 120.68, Florida Statutes, a party to the proceeding before the District who is adversely affected by final District action may seek review of the action in the District Court of Appeal by filing a notice of appeal pursuant to Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, within 30 days of the rendering of the final District action.

13. A party to the proceeding before the District who claims that a District order is inconsistent with the provisions and purposes of Chapter 373, Florida Statutes, may seek review of the order pursuant to Section 373.114, Florida Statutes, by the Florida Land and Water Adjudicatory Commission, by filing a request for review with the Commission and serving a copy on the Florida Department of Environmental Protection and any person named in the order within 20 days of the rendering of the District order.

14. A District action is considered rendered, as referred to in paragraph nos. 11, 12, and 13 above, after it is signed on behalf of the District, and is filed by the District Clerk.

15. Failure to observe the relevant time frames for filing a petition for judicial review as described in paragraph nos. 11 and 12 above, or for Commission review as described in paragraph no. 13 above, will result in waiver of that right to review.

Notice Of Rights

Certificate of Service

I HEREBY CERTIFY that a copy of the foregoing Notice of Rights has been sent by U.S. Mail to:

Keystone Airpark Authority
7100 Airport Rd
Starke, FL 32091

At 4:00 p.m. this 3rd day of January, 2007.

Gloria Lewis

Division of Permit Data Services
Gloria Lewis, Director

St. Johns River Water Management District
Post Office Box 1429
Palatka, FL 32178-1429
(386) 329-4152
Permit Number: 109130

CONSUMPTIVE USE TECHNICAL STAFF REPORT
ESSENTIAL USE (FIRE PROTECTION)
December 29, 2006
22-019-109130-1

APPLICANT: Keystone Airport Authority
7100 Airport Road
Starke, FL 32091
(352) 473-0031

PROJECT NAME: Keystone Airport Fire Department

LOCATION: Clay County

WATER USE:
Recommended Use: .864 million gallons per day (mgd) maximum of groundwater from the Floridan aquifer for fire protection use (essential use) for 20-years.

Recommended Permit Duration and Compliance Reporting: 20 year permit without compliance reporting pursuant to section 373.236(3), Florida Statutes. Permittee is required to comply with, and submit all information and data required by, the limiting conditions set forth in this technical staff report.

OBJECTORS: None

USE STATUS:
This is an application for a new use.

AUTHORIZATION:
The District authorizes, as limited by the attached conditions, the use of .864 million gallons per year (mgd) maximum of groundwater from the Floridan aquifer exclusively for fire protection use (essential use) for 20-years.

TIMEFRAMES:

Date application received:	December 26, 2006
Date application deemed complete:	December 26, 2006
90th day:	March 26, 2007

PROJECT DESCRIPTION:
Project Location
The Keystone Airport Authority is located in the southwestern portion of Clay County.

Background
The Keystone Airport Authority is requesting to construct a 6-inch diameter Floridan aquifer well to be used exclusively for fire protection on airport property. This application is for a new use.

Water Supply System and Use Description

The applicant has requested the use of .864 million gallons per day (mgd) to supply a dedicated fire protection system at the Keystone Heights Airpark. There are no other wells listed on the application.

PERMIT APPLICATION REVIEW:
Section 373.223, Florida Statutes, and Section 40C-22.001, Florida Administrative Code, state that the District has determined that certain minor consumptive uses, either singly or cumulatively, have a minimal adverse impact on the water resources of the District. Further, pursuant to Section 40C-22.020, F.A.C., the Governing Board grants a general permit to allow the withdrawal of ground or surface water anywhere within the District when the use is solely for fire protection purposes.

PERMIT DURATION:
The applicant has requested a 20-year duration permit. Chapter 40C-22.020, F.A.C., states that all general permits exclusively for fire protection purposes shall have a duration of 20-years from the date of notice to the District. Staff, therefore, is recommending issuance of a 20-year permit.

RECOMMENDATION:
Staff have concluded that the proposed use, as limited by the attached permit conditions, is reasonable-beneficial, will not cause or contribute to interference with existing legal uses, and is consistent with the public interest. Staff, therefore, recommends approval of this application.

GENERAL CONDITIONS: 1-4, 6-8

OTHER CONDITIONS:

1. For the purposes of the following permit conditions, the St. Johns River Water Management District shall be referred to as “the District” and the holder of this permit shall be referred to as “the permittee”.

2. All submittals made to demonstrate compliance with this permit must include the CUP number 22-019-109130-1 plainly labeled.

3. This permit will expire December 31, 2026.

4. Legal uses of water existing at the time of the permit application may not be significantly impacted as a result of the consumptive use. If significant impacts occur (including interference with other existing legal users), the District may revoke the permit in whole or in part to abate the adverse impact unless otherwise mitigated by the permittee. In those cases, where other permit holders are identified by the District as also contributing to the adverse impact, the permittee may choose to mitigate in a cooperative effort with these other permittees. The permittee must submit a mitigation plan to the District for approval prior to implementing such mitigation.

5. Maximum daily groundwater withdrawals from the Floridan aquifer, solely for fire protection (essential use), must not exceed 0.864 million gallons.

6. Groundwater well “Fire Well” (GRS ID 104803), as listed on the application, is authorized solely for fire protection use only. This permit must be modified prior to any change in type use.

7. A District-issued identification tag shall be prominently displayed on well “Fire Well” (GRS ID 104803), as listed on the application, by permanently affixing such tag to the pump, headgate, valve, or other withdrawal facility as provided by Section 40C-2.401, Florida Administrative Code. Permittee shall notify the District in the event that a replacement tag is needed.

REVIEWERS: J. Lawrence

ATTACHMENT “A”

WELL INFORMATION: (PS=Public Supply, IRR=Irrigation, ESS=Essential)

PUMP NAME	GRS I.D.	Casing Diameter (Inches)	SOURCE	PUMP RATE (gpm)	Type Use
FP #1	104803	6	Floridan aquifer	600	ESS

ST JOHNS RIVER WATER MANAGEMENT DISTRICT
NOTICE OF INTENT TO USE NOTICED GENERAL PERMIT FOR A FIRE FLOW WELL

The Permittee hereby gives notice to the District of its intent to commence use of a well for the sole use of fire protection. pursuant to 40C-22, F.A.C..

Please type or print in ink. Complete all necessary data sheets attached.
Submit 2 copies of all forms and attachments.

Project Name. Fire Protection Wells Project Acreage: 14 acre

Amount Requested: ~~856,800~~ Mgd Daily County parcel No. 31-07-23-000742-000-0

County: Clay Sec/Twn/Rng: _____

PERMITTEE

NAME Keystone Airpark Authority
LAST FIRST

ADDRESS 7100 Airport Rd.

CITY Starke

STATE FL ZIP CODE 32091

BUS. TELEPHONE NO. 352 473 8031

HOME TELEPHONE NO. same

Please mail to the nearest District Service Center: St. Johns River Water Management District

District Headquarters:	Jacksonville Service Center:	Altamaonte Springs Service Center:	Palm Bay Service Center:
4049 Reid Street Palatka, Florida 32177 FAX: 386-329-4490	7775 Baymeadows Way Suite 102 Jacksonville, Florida 32256 FAX: 904-730-6267	975 Keller Road Altamonte Springs, Florida 32714 FAX: 407-659-4805	525 Community College Parkway Palm Bay, Florida 32909 FAX: 321-722-5357

PART II: SUPPLEMENTAL INFORMATION

Provide the following information:

I. PROPERTY CONTROL

1. Property Ownership - Provide a copy of the excuted deed indicating the current owner of the property which is the subject of this application.

2. Leased Property - Provide a copy of the current lease, or a letter signed by the property owner describing the lease arrangement and the duration of the lease.

II. LOCATION MAPS

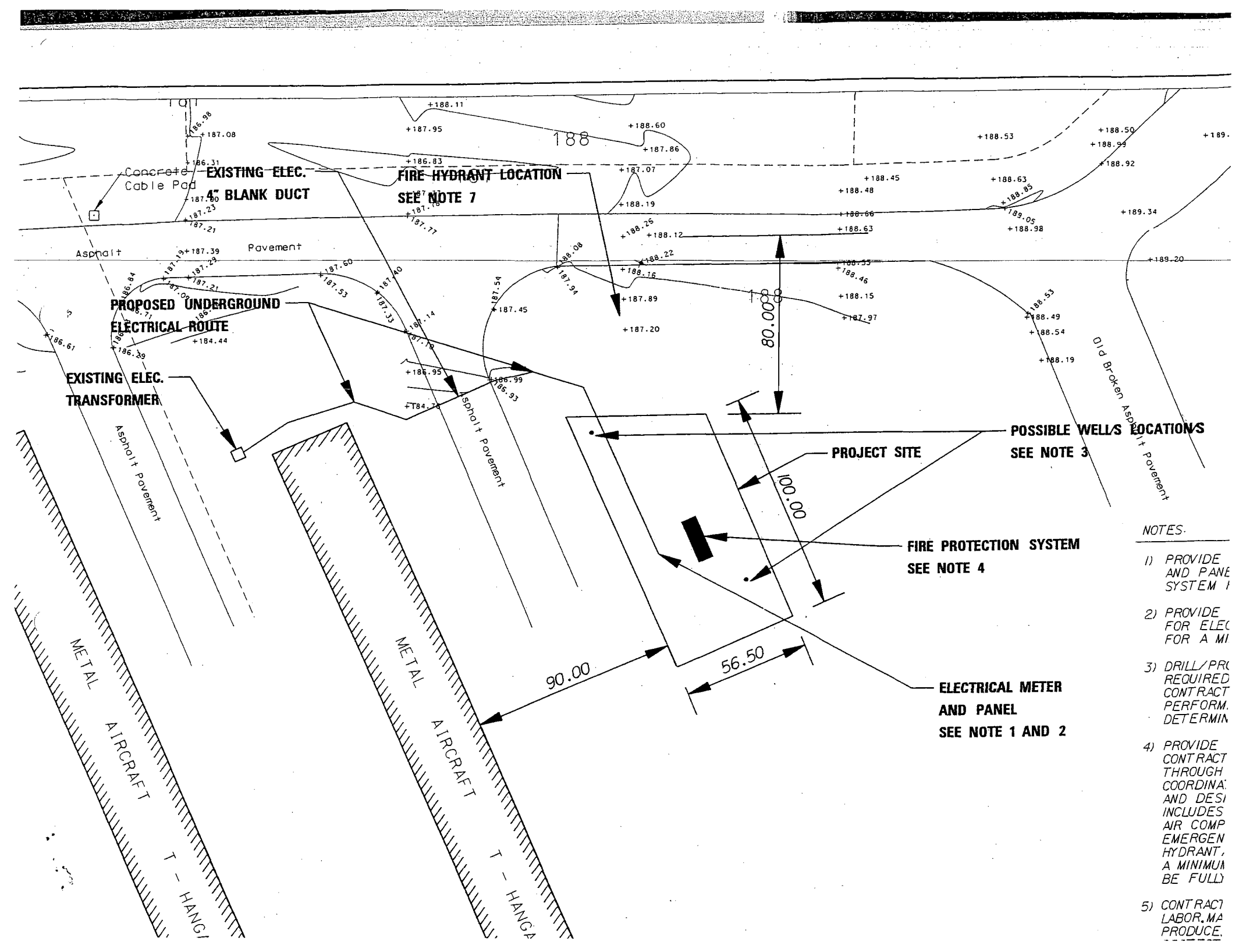
1. Provide a recent map (preferably a USGS topographic quadrangle, a map from a county plat directory, or survey map) indicating the following:

   (a) property boundaries (include approximate lengths of boundaries in feet);
   (b) All existing and proposed withdrawal point locations. Indicate well number and casing size for ground water withdrawals, and pump number and maximum pump capacity for surface water withdrawals;
   (c) a north arrow;
   (d) a scale designation - all maps should have a minimum scale of 1" = 2,000'; and
   (e) labeled landmarks such as roads and political boundaries.

2. Complete Table 1 for all wells/pumps to be used for fire flow use only.

Table 1
Well/Pump Description

Well or Pump Number	Casing Dia. (in)	Casing Depth (ft)	Total Depth (ft)	Pump Capacity (in gpm)	Date Drilled	Existing or proposed (date)
FP#1	6"	300'	500'	600		Jan 07



NOTES:

1) PROVIDE AND PANE SYSTEM I

2) PROVIDE FOR ELEC FOR A MI

3) DRILL/PRO REQUIRED CONTRACT PERFORM. DETERMIN

4) PROVIDE CONTRACT THROUGH COORDINA AND DESI INCLUDES AIR COMP EMERGEN HYDRANT, A MINIMUM BE FULL

5) CONTRACT LABOR. MA PRODUCE.

37501

DATE 12/24/2006

P 024324

RECEIVED OF Keystone Airpark Authority

ADDRESS #4559

DOLLARS $ 170.00

ACCT. NO.

☐ CASH ☑ CHECK

☐ MONEY ORDER ☐ DRAFT

FOR Permit

803

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
P.O. Box 1429
Palatka, Florida 32178-1429

by D. Hartley

Thank You

Application Submittal

Fee Receipt

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
P. O. Box 1429
Palatka, FL 32178-1429

Date: Dec. 26, 2006

RECEIPT #: 37501
By: Janet Stein

RECEIVED FROM: Keystone Air Park Authority

THE SUM OF: $170.00

FOR: Application Fee

FEE DETAIL INFORMATION

F/A Receipt	P024324	$170.00

$50.00 fire flow
120.00 Water well construction

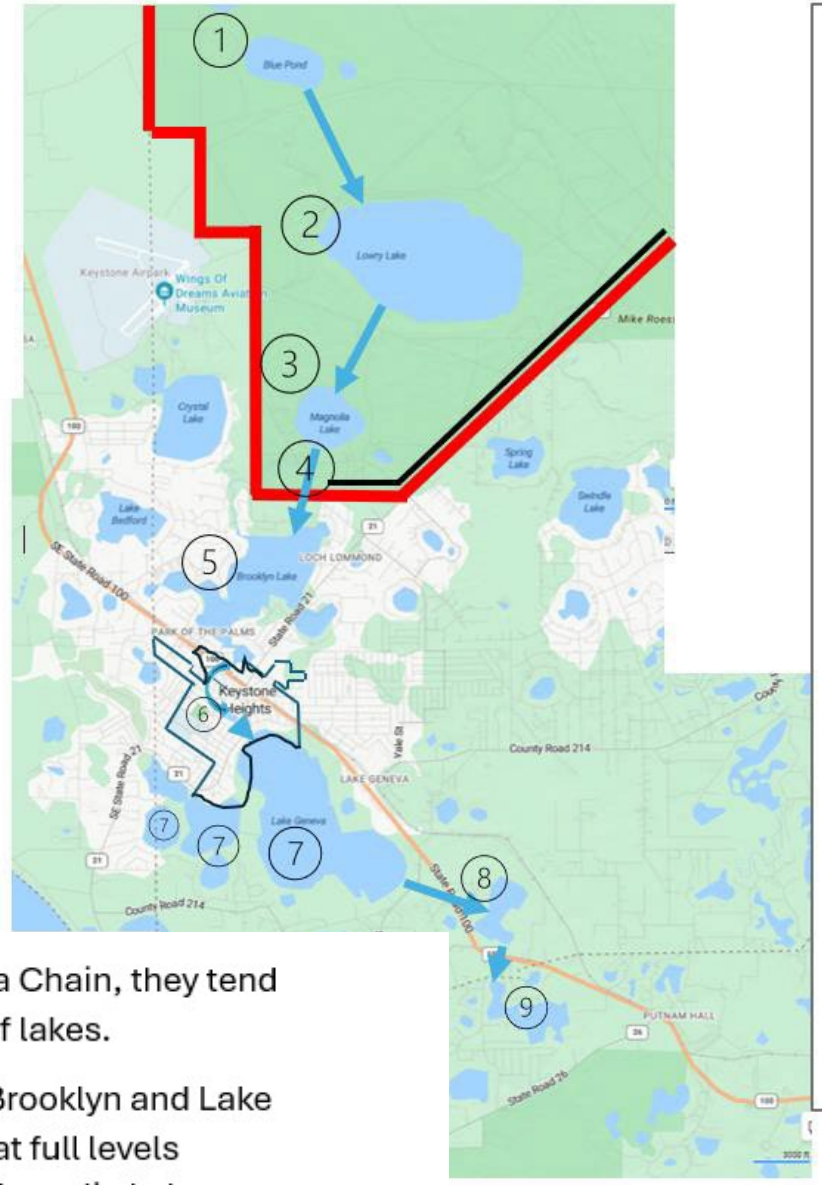
THE WATER TIMELINE AND TASKS

(COUNCILMAN LEWANDOWSKI'S ESTIMATE)

APRIL 2024 COUNCIL MEETING

BACKGROUND

THE ETONIA CHAIN



The Etonia Chain of Lakes

1. Blue Pond – On Camp Blanding
2. Lowry Lake – On Camp Blanding
3. Magnolia Lake – On Camp Blanding
4. Filtration Fields – On the far southern edge of Camp Blanding
5. Lake Brooklyn
6. Little Lake Keystone – So small you can barely see it (It is inside the City)
7. Lake Geneva – When full, all the locations are connected to each other
8. Oldfield Pond
9. Halfmoon Lake

Boundary of Camp Blanding

Boundary of Keystone Heights

Direction of Water Flow

Black Creek Pipeline

Note 1: Although surrounding lakes are not part of the Etonia Chain, they tend to rise up or be drained down in sync with the Etonia Chain of lakes.

Note 2: The lakes with the most variation in depth are Lake Brooklyn and Lake Geneva. The three lakes on Camp Blanding are maintained at full levels nearly all the time. Camp Blanding stops water flow out of Magnolia Lake when its level would drop below a level that the military needs.

Note 3: All identified boundaries, limits, locations, etc. are approximate.

THE BLACK CREEK WATER RESOURCE PROJECT

(BEST ESTIMATE OF WHAT TO EXPECT AND WHEN)

Construction is on Target

• Water will start flowing through the pipes	**Between Sep & Dec '24**
• Filtration fields in Camp Blanding are tested	**2-3 months** **Finishing Jan/Feb/Mar '25**
• Water starts to flow down Alligator Creek into Lake Brooklyn. Average 7.5M gallons per day	**Jan/Feb/Mar '25**
• Little Lake Keystone starts to receive water This starts when Lake Brooklyn hits 115 ft (currently at 109 ft)	**Between Sep & Dec '25**
• Lake Geneva starts to receive water from Little Lake Keystone	**Earliest – Nov '25** **Latest – Mar '26**

TASKS NEEDED TO MEET ALL WATER MILESTONES

TASKS	Responsible Org	Status	City action needed?
Complete Black Creek Project	SJRWMD	Green	No
Alligator Creek Cleanup	Multiple	Red	Yes
Amend Black Creek Project Permit	SJRWMD	Green	No
The Geneva Project	FL DEP + Others	Yellow	Maybe
Boat Ramp Access/Readiness	FL Fish/Wildlife? Clay County?	Yellow	Maybe

Green = Plan exists and is on schedule

Yellow = Plan is being worked schedule is unknown

Red = No plan yet or no schedule

MY CONCERN AND RECOMMENDATION

Concern:

No single government organization is looking at the total picture. Each government agency is focusing on its piece.

The Save Our Lakes Organization (SOLO) (not a govt organization) is looking at the big picture

Recommendation:

The City of Keystone Heights help SOLO.

We are the people who care the most.

We are the businesses most impacted by the changes coming.