



Interoffice Memorandum

June 22, 2021

TO: Byron W. Brooks, County Administrator

THROUGH: Kurt N. Petersen, Manager, Office of Management and Budget

FROM: Auria Oliver, Management and Budget Advisor/ Grants Coordinator,
Office of Management and Budget

SUBJECT: FY 20-21 DEO Florida Job Growth Grant – Public Infrastructure

The Neighborhood Services Division requests to submit a grant application in response to the Florida Department of Economic Opportunity FY 2020 – 2021 Florida Job Growth Grant. The total amount of **funding requested is \$6,431,122** and will be utilized to provide gravity sewer for 173 parcels and eliminate the need for individual septic tanks in the Pine Hills community. There is a **match for this project in the amount of \$2,143,708 provided by the Orange County Utilities department.**

The Neighborhood Services Division grant proposal addresses wastewater treatment upgrades for approximately 1.9 miles along North Pine Hills Road in Orange County. With the collaboration of multiple Orange County departments, this project will have a significant economic impact for this community by incentivizing private investors interested in land acquisition within the project boundaries and creating immediate direct and indirect jobs.

ACTION REQUESTED: Authorization and execution of the FY 2020 – 2021 DEO Florida Job Growth Grant application for submittal by the Neighborhood Services Division.

If you have any questions or need additional information, please contact me at auria.oliver@ocfl.net or 407-836-7388.

AO
Attachments

c: Nanette Melo, Assistant Manager, Office of Management and Budget



2021-2022 Florida Job Growth Grant Fund Public Infrastructure Grant Proposal

Proposal Instructions: Please read this document carefully and provide the information requested below. Some questions may request that a separate narrative be completed. If additional space is needed, attach a word document with your entire answer.

Governmental Entity Information

Name of Governmental Entity: Orange County (FL) Board of County Commissioners

Government Federal Employer Identification Number: [REDACTED]

Primary Contact Name: Jason Reynolds

Title: Manager, Neighborhood Services Division

Mailing Address: 450 E. South Street, Suite 332

Orlando, FL 32801

Phone Number: (407) 836-5547

Email: jason.reynolds@ocfl.net

Secondary Contact Name: Samuel Weekley

Title: Program Manager, Pine Hills Neighborhood Improvement District

Phone Number: (407) 836-6626

Public Infrastructure Grant Eligibility

Pursuant to section 288.101, F.S., the Florida Job Growth Grant Fund was created to promote economic opportunity by improving public infrastructure and enhancing workforce training. Eligible entities that wish to access this grant fund must submit public infrastructure proposals that:

- Promote economic recovery in specific regions of the state, economic diversification or economic enhancement in a targeted industry. ([View Florida's Targeted Industries here.](#))
- Are not for the exclusive benefit of any single company, corporation or business entity.
- Are for infrastructure that is owned by the public and is for public use or predominately benefits the Public.

1. Program Requirements:

(If additional space is needed, attach a word document with your entire answer.)

Each proposal must include the following information describing how the project satisfies eligibility requirements listed on page 1.

A. Provide a detailed description of the public infrastructure improvements.

This project addresses wastewater treatment upgrades for approximately 1.9 miles of N. Pine Hills Road in Pine Hills, Florida. 173 parcels in this urbanized area are still serviced by individual septic tanks. This project will provide gravity sewer for each of these parcels and eliminate the need for individual septic tanks.

B. Provide location of public infrastructure, including physical address and county of project.

N. Pine Hills Road, in Pine Hills Florida, beginning at the intersection of Alhambra Drive and N. Pine Hills Road, and ending at the intersection of Belco Drive and N. Pine Hills Road. Approximately 1.9 miles.

C. Is this infrastructure currently owned by the public? Yes No

If no, is there a current option to purchase or right of way provided to the County?

The right of way for this project is currently owned by the public, and maintained by the Orange County BCC. N. Pine Hills Road is a County Road (CR 431) in West Orange County, FL.

D. Provide current property owner.

Public, County Road (CR 431), maintained by the Orange County BCC.

E. Is this infrastructure for public use or does it predominately benefit the public? Yes No

This project is predominantly for public use, and it benefits the property owners and businesses located within the project boundaries, as well as the entire Pine Hills Community.

F. Will the public infrastructure improvements be for the exclusive benefit of any single company, corporation, or business entity?

Yes No

No, this infrastructure will benefit the public, specifically the Pine Hills Community and the businesses on North Pine Hills Road.

G. Provide a detailed description of, and quantitative evidence demonstrating, how the proposed public infrastructure project will promote:

- Economic recovery in specific regions of the state;
- Economic diversification; or
- Economic enhancement of a Targeted Industry ([View Florida's Targeted Industries here.](#))
 - Describe how the project will promote specific job growth. Include the number of jobs that will be retained or created, and in which industry(ies) the new net jobs will be created using the North American Industry Classification System ([NAICS](#)) codes. Where applicable, you may list specific businesses that will retain or create jobs or make capital investment.
 - Provide a detailed explanation of how the public infrastructure improvements will connect to a broader economic development vision for the community and benefit additional current or future businesses.

N. Pine Hills Road is currently zoned for professional office (PO) with an Office future land use. Each property, and its existing structure is being serviced by an individual septic tank, many of which were constructed in the 1950's. The majority of the properties and existing structures are ranch style homes from the 1950's, now operating as small businesses. Many of these structures have fallen into decline and are dilapidated. The economic development vision for N. Pine Hills Road is a true parkway that leads into a town-center. This project will accomplish multiple goals that contribute to the economic development vision for N. Pine Hills Road: it will increase the property value for the properties adjacent to N. Pine Hills Road, incentivize private investors interested in land acquisition within the project boundaries and create immediate direct and indirect jobs within the Pine Hills Community.

2. Additional Information:

(If additional space is needed, attach a word document with your entire answer.)

A. Provide the proposed commencement date and number of days required to complete construction of the public infrastructure project.

Commencement date contingent upon award. The project will take approximately 69 months to complete. This will entail: RPP process - 14 months; Preliminary Design - 12 months; Final Design - 12 months; Bidding - 7 months; Construction - 24 months.

B. What permits are necessary for the public infrastructure project?

FDEP wastewater permit, Orange County building permit

- C. Detail whether required permits have been secured, and if not, detail the timeline for securing these permits. Additionally, if any required permits are local permits, will these permits be prioritized?

All permits will be secured prior to construction, and will be managed by the Orange County Utilities Department.

- D. What is the future land use and zoning designation on the proposed site of the infrastructure improvements, and will the improvements conform to those uses?

The future land use classification for all of the properties within the project boundary "Office," and the zoning classification is "PO" or Professional Office.

- E. Will an amendment to the local comprehensive plan or a development order be required on the site of the proposed project or on adjacent property to accommodate the infrastructure and potential current or future job creation opportunities? If yes, please detail the timeline.

Yes No

A comprehensive plan amendment will not be required to accommodate the infrastructure for this project.

- F. Is the project ready to commence upon grant fund approval and contract execution? If no, please explain.

Yes No

Should this project receive the requested award, an RFP would immediately be advertised to pre-approved Orange County vendors.

- G. Does this project have a local match amount? Yes No

If yes, please describe the entity providing the match and the amount.

Orange County Utilities will provide a 25% should this project be awarded.

- H. Provide any additional information or attachments to be considered for this proposal. Maps and other supporting documents are encouraged.

Attached to this application is a report that was prepared to demonstrate the need for the project, as well as explain the economic development vision, and describe the economic impact that would be generated by the project for the Pine Hills Community.

3. Program Budget

(If additional space is needed, attach a word document with your entire answer.)

Estimated Costs and Sources of Funding: Include all applicable public infrastructure costs and other funding sources available to support the proposal.

1.) **Total Amount Requested** \$ 6,431,122.00
 Florida Job Growth Grant Fund

A. Other Public Infrastructure Project Funding Sources:

City/County \$ 2,143,708.00

Private Sources \$

Other (grants, etc.) \$

Please Specify: _____

Total Other Funding \$ 2,143,708.00

B. Public Infrastructure Project Costs:

Construction \$ 6,880,395.00

Reconstruction \$

Design & Engineering \$ 1,694,435.00

Land Acquisition \$

Land Improvement \$

Other \$

Please Specify: _____

Total Project Costs \$ 8,574,830.00

Note: The total amount requested must be calculated by subtracting the total other public infrastructure project funding sources in A. from the total public infrastructure project costs in B.

- C. Provide a detailed budget narrative, including the timing and steps necessary to obtain the funding and any other pertinent budget-related information.

A detailed project time-line estimate was developed using several similar wastewater projects that were undertaken recently by Orange County's Utilities Department. This project however is much larger in size and scope than the projects in comparison and will require more time and resources to complete, from the start of the project to its completion. The anticipated time-line obligates 14 months to the request for proposal (RFP) process, 12 months to preliminary design, 12 months for final design, 7 months to bidding for a construction contractor, and 24 months to the construction of the wastewater treatment extension. This time-line also includes the necessary permitting that would be acquired from FDEP, and Orange County's Building Division.

4. Approvals and Authority

(If additional space is needed, attach a word document with your entire answer.)

- A. If the governmental entity is awarded grant funds based on this proposal, what approvals must be obtained before it can execute a grant agreement with the Florida Department of Economic Opportunity (e.g., approval of a board, commission or council)?

Approval must be provided by Orange County Mayor Jerry L. Demings and the Orange County BCC before fully executing a grant agreement with the Florida DEO. This would require a public hearing in the form of a regularly scheduled BCC meeting.

If board authorization is not required, who is authorized to sign?

Authorization from Orange County Mayor Jerry L. Demings and the Orange County BCC will be required to fully execute this grant.

- B. If approval of a board, commission, council or other group is needed prior to execution of an agreement between the governmental entity and the Florida Department of Economic Opportunity:

- i. Provide the schedule of upcoming meetings for the group for a period of at least six months.
- ii. State whether entity is willing and able to hold special meetings, and if so, upon how many days' notice.

Dates for 6 months of Orange County BCC meetings: 6/22/2021, 7/13/2021, 7/27/2021, 8/3/2021, 8/10/2021, 8/17/2021, 8/24/2021, 9/14/2021, 9/28/2021, 10/12/2021, 10/26/2021, 11/9/2021, 11/16/2021, 11/30/2021, 12/14/2021. We are able to hold special meetings, and will need at least 2 weeks notice prior to the meeting to in an effort to properly advertise the meeting.

- C. Attach evidence that the undersigned has all necessary authority to execute this proposal on behalf of the governmental entity. This evidence may take a variety of forms, including but not limited to: a delegation of authority, citation to relevant laws or codes, policy documents, etc.

Please see attached.

I, the undersigned, do hereby certify that I have express authority to sign this proposal on behalf of the above-described entity and to the best of my knowledge, that all data and information submitted in proposal is truthful and accurate and no material fact has been omitted.

Name of Governmental Entity: Orange County Board of County Commissioners

Name and Title of Authorized Representative: Bryon W. Brooks, County Administrator

Representative Signature: *Bryon W. Brooks*

Signature Date: 23 June 2021

Wastewater Treatment System Improvements

Purpose & Need Report



Report Prepared By

The Pine Hills Neighborhood Improvement District
Mayor Demings & The Orange County BCC

June 10, 2021

Orange County BCC
201 S. Rosalind Avenue, Orlando, FL 32801

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Executive Summary

Redevelopment and revitalization are core tenants of economic development strategies designed to resuscitate communities that have declined, and are unable to support the initiatives that would be necessary to reenergize its local economy. Redevelopment and revitalization as economic development concepts, consist of similar, fundamental principles, such as retaining and expanding existing local businesses by providing an economic environment conducive for their continued growth and investment in the community; identifying and targeting specific industries for business recruitment that can facilitate the existing local businesses in their efforts to expand, as well as create new jobs within the community; strengthening the existing infrastructure to ensure that there is little to no demand for added capacity; and perhaps most important, increasing access to basic human needs such as potable water and wastewater treatment. Individually, each of these principles cannot produce the desired outcome, but acting as a network possess the ability to catalyze any economic development strategy. In 2011, the Orange County

Board of County Commissioners established the Pine Hills Neighborhood Improvement District (PHNID) as a mechanism to aid in the redevelopment and revitalization of the oldest community in Orange County, FL – Pine Hills.

Since its inception in the early 1950's Pine Hills has been a bustling urban, bedroom community on the periphery of the City of Orlando. In recent decades however, Pine Hills has struggled to maintain an identity and has been the unwilling recipient of blight that is a

consequence of poor land use planning and development practices, initiated in the late 1970s and early 1980s as a result of a strong economy. The housing stock that made Pine Hills a destination for employees working at companies like Martin Marietta and Coca Cola, was replaced with planned suburbs consisting of one-half acre or greater lots that were further in distance from these companies, but still accessible using a personal vehicle. This left Pine Hills with older, and in many cases dilapidated, vacant homesteads with smaller sized lots, ultimately driving down the property values and making it more difficult to attract potential homeowners seeking to build equity and make an investment in their community. Today, Pine Hills is still a bustling urban community, with nearly 75,000 residents, but the infrastructure that continues to serve this expanding community is substandard and needs to be enhanced, and in many places replaced entirely.

The PHNID has established wastewater treatment, specifically the individual onsite sewage treatment and disposal systems (OSTDS) servicing the properties adjacent to North Pine Hills Road, as a priority that must be addressed in advance of further redevelopment efforts. To accomplish this goal the PHNID identified the Florida Jobs Growth Grant, managed by Florida's Department of Economic Opportunity, to fund these necessary upgrades for the Pine Hills Community. This report attempts to describe the existing conditions, and demonstrates the need for a project that will connect 173 parcels within an urbanized area of Metro Orlando to a centralized wastewater treatment system, and eliminate the need for OSTDS. The assertion explained in this report follows a sequence that first introduces the reader to the critical need for infrastructure upgrades nationwide, and using that context presents the need for wastewater treatment enhancements in the Pine Hills Community as a microcosm of the national needs for infrastructure improvements. We hope that this report adequately presents our



Figure 1: The existing built environment on North Pine Hills Road consists of 1950s and 60s ranch style homes that have been repurposed for professional office use. Many are in decline and dilapidated.

position that there is a critical need for a comprehensive wastewater treatment system upgrade for North Pine Hills Road.

The Critical State of Our Infrastructure

Infrastructure. An adequate combination of interconnected roads and utilities are equivalent to the veins and arteries within the human circulatory system. Without veins, blood cannot reach the heart where oxidation occurs. Without arteries, oxidized blood would never make it to the cells where waste and nutrients are separated. The resulting nutrients then become the fuel that sustains the immune system, and are the primary resource used by the body to prevent serious diseases from breaking down and attacking the body. Similarly, without utilities and roads, the functional capability of global, national, regional, and local economies would be unable to produce, trade, and buy the goods



Figure 2: Preliminary design of the I-4 Ultimate Project, retrieved from www.I4ultimate.com

and resources that are critical to a community's aggregated capabilities for sustaining its expected quality of life. Power, water, and wastewater treatment are physiological needs that communities must provide for residents to ensure that those residents continue to pursue goals and objectives that are meaningful, and that contribute to the economic stability of the aforementioned community. If basic resident needs are unattainable, those residents will not feel safe, they will not engage with others within the community, they will not have the self-esteem necessary to pursue personal goals, and ultimately, they will not develop the practical skills needed to become contributing members of society. In addition, and even if these basic needs are attainable, without roads and public transportation residents within this community will be unable to actualize, or realize their own potential because they will be unable advance those skills that they have cultivated toward the achievement of outcomes within their economic ecosystem.

In 2017, the American Society of Civil Engineers (ASCE) released a report complete with a grading scale for the infrastructure system within each State. The report, aptly named *Failure to Act*, extrapolated a per capita cost associated with inadequate and/or substandard infrastructure, to American households. According to ASCE, it costs Florida families “\$9 per day” to respond to inefficiencies that correlate with inadequate infrastructure (ASCE Florida Infrastructure Report Card, 2017). This means that the per capita annual cost to U.S. households is \$3,285, or approximately



Figure 3: a water main break can have the capability to destroy a surrounding community and uncertainly will debilitate homes and business for weeks and sometimes months.

capita annual cost to U.S. households is \$1.1 trillion¹ that goes to infrastructure improvement and maintenance through 2040. The cost however does not outweigh the need, as infrastructure upgrades create new jobs, and provide greater incentives to developing, and redeveloping communities that are seeking solutions for job growth, and an increase in total gross domestic product (GDP) for their respective communities. Of course, jobs and GDP are not the only contributing factors to a community’s potential for economic growth. Perhaps as important is an

educated and highly skilled workforce that is prepared for the challenges associated with the creation of new jobs within their local economy. Ideally, your goal is to provide sufficient and diverse housing stock, much of which is at affordable prices to the average American family. New housing development exacerbates the demand for infrastructure development, which forces the issue for whether or not to incorporate utility service in advance of new development, or waiting until said new development arrives and essentially play catch up to provide new utility service. Planning to add utility capacity in advance of new development can be costly, however as Hanson et al (1987) explains, the provision of utilities in advance of site development “contributes to the conversion of urban and urban-fringe land for development by facilitating a cycle of change where high user charges for infrastructure investment together with increased market value for land act as an impetus for land conversion” (Hanson et al, 1989, pg. 170). From this perspective, the provision of utilities can be viewed as an incentive for residential home builders, commercial property developers, and manufacturing companies seeking industrial land, to perform a higher level of due diligence than they may for cheap land that is not pad ready². The provision of adequate utilities also ensures that any outstanding environmental concerns about future site development, whether it be residential, commercial or even industrial, are considered and accounted for. It also ensures that land use designations are in fact consistent and compatible with the type of occupancy that will take place on any given parcel. The scale of the underground piping, and any stormwater considerations for new development are contingent upon the land use of the affected parcel, making it beneficial for developers to choose a site that has already accounted for water and stormwater considerations in advance of any new development, because they know beforehand the level of capacity that their potentially new site can handle, which can be measured against expected traffic patterns for their new development. Keeley (2007) supports this assertion, writing, “ascertaining each property’s share of (stormwater) burden makes it possible to reward owners who reduce (stormwater) emissions from their property with reduced user fees (Keeley, 2007, pg. 155). This is

¹ This number was extrapolated using the associated cost provided by the ASCE in this report, and population data retrieved from the US Census Bureau

² Pad Ready: when property is ready for the final phases of development including clearing and grading, structure development.

important for several reasons, first and foremost however is that time is quite literally money to developers, and because the market dictates property value increases and decreases, so what may be \$975,000 today may be \$1.5 million the following year. A developer's ability to expedite a project, and prevent unnecessary time applying for permits is advantageous toward the developer's goal for attaining their bottom line.

The Capital Utility of Water

Unquestionably, the most imperative and fundamental utility for new development is water. Water is the basic tenet that is necessary to support new development, and sustain existing development within a growing community. Water is provided either by a central provider through underground piping, or from an individual well and pumping system. Clean, accessible water for all is an essential part of the world we want to live in and there is sufficient fresh water on the planet to achieve this. Water scarcity, poor water quality and inadequate sanitation negatively impact food security, livelihood choices and educational opportunities for poor families across the world. Carolini and Raman (2020) reinforce this sentiment, and believe that local authorities and planners have a responsibility to obtain accurate data about the inadequacies of access to water and sanitation to the urban poor within their communities, writing, "who gets what and where are just as important inputs in planning for water and sanitation systems as how much and how quickly services are secured and paid" (Carolini & Raman, 2020, pg. 101). Fortunately, there has been great progress made in the past decade regarding drinking sources and sanitation, whereby over 90% of the world's population now has access to improved sources of drinking water, but as we will highlight throughout this report we still have a long way to go.

The ASCE report, *Failure to Act, the Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure* estimates that the U.S. spends over \$200 billion³ annually on sustaining existing drinking water delivery and wastewater treatment facilities. These costs are then passed on to the U.S. taxpayer who sees an immediate reduction to their standard of living, and an increased cost of "almost \$900 per year" to support inadequate infrastructure that may, or may not be providing service to their residences, businesses or places of work (ASCE, Failure to Act p. 6, 2017). The report also estimates that, if water delivery systems and wastewater treatment facilities continue to decline, as the demand for water delivery continues to increase, by the year 2040 the U.S. will shoulder a "\$481 billion⁴" deficit in GDP (ASCE report, 2017 p. 6). This could mean that the U.S. would incur as much as a "\$734 billion⁵" cumulative loss in business sales within this period, and the loss of a potentially hundreds of thousands of domestic jobs (ASCE report, 2017 pp. 6). The U.S. will need to spend nearly "\$200 billion" on water delivery systems and wastewater treatment facilities by 2040 to ensure that the spending gap between expected capital needs and current

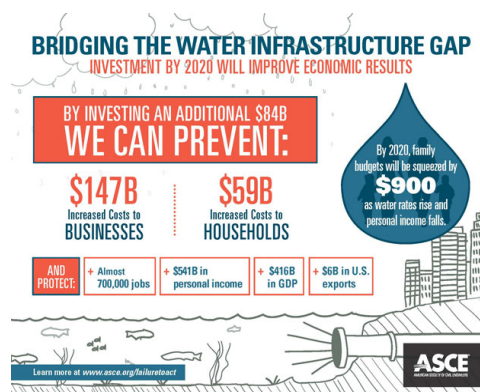


Figure 4: Retrieved from ASCE (2017) Failure to Act report

³ Figure based on 2020 prices, retrieved from ASCE report Failure to Act

⁴ Retrieved from ASCE report Failure to Act, *the Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure*

⁵ Retrieved from ASCE report Failure to Act, *the Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure*

expenditures does not grow faster than the projected growth in employment, income and GDP (ASCE report, 2017 p. 20).

The ASCE report, *Failure to Act* graded each state on its existing infrastructure capabilities. According to the report, the State of Florida scored a C+ and a C respectively for drinking water delivery systems, and wastewater treatment facilities. The report estimates that daily demand for drinking water will increase by 20% to 7.7 billion gallons per day by 2030 (ASCE Report Card p. 2, 2017). This is substantially greater than what Florida’s Department of Environmental Protection reported for 2010, which was 6.4 billion gallons per day. The existing infrastructure will need to include enhancements for individual wells, as well as improvements to existing centralized delivery systems. The State of Florida’s wastewater treatment infrastructure actually scored lower than the drinking water infrastructure, as ASCE scored Florida with a flat C. Much of the reason for the low scoring is because of the large number of Florida’s population, especially in rural areas, that are still connected to antiquated septic systems. Many of these systems consist of basic effluent and treatment tanks, and a simple drain field that disperses the treated effluent back into the soil and ultimately to the groundwater. We will discuss in a later section the harmful impact that this has on the environment, but for this section, it is important to note that conventional septic systems are reliant upon the individual landowner to maintain. Failure to maintain these systems can induce onsite raw sewage issues at various times and for a multitude of reasons, including power outages and flooding. This can affect health and cause property values to fall if not remedied.

Septic Tanks and the Wekiwa River Basin

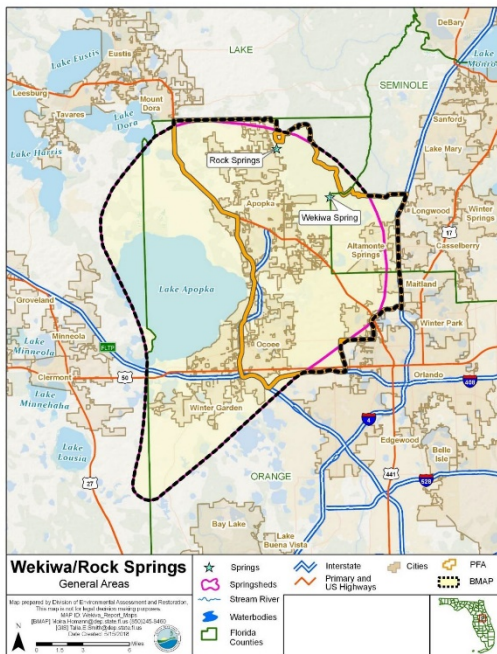


Figure 5: Wekiwa Rivershed Map via FL DEP

In a (2007) research study pertaining to local government innovation for stormwater quality, Swearingen – White & Boswell concluded that local governments, “need innovative practices to address nonpoint source pollution,” and that creative solutions to water pollution and stormwater challenges have “proven to be the Achilles heel of efforts to improve surface water quality in the United States” (Swearingen – White & Boswell, 2007, pg. 185). The Florida Springs and Aquifer Protection Act (Chapter 373, Part VIII, F.S), authorized in 2016 by the Florida Legislature, identified 30 *Outstanding Florida Springs* (OFS) that were determined would require additional protection from nitrogen and phosphorous⁶ pollution. One of these additional protection mechanisms was a requirement for a water-quality restoration plan that would identify mitigation strategies to combat increased levels of nitrogen and phosphorous, and a timeline for implementation. The Basin Management Action Plan (BMAP⁷) is designed to, “achieve a science-based pollution reduction goal, known as a Total Maximum Daily Load (TMDL⁸),” with an intent to be implemented ‘in five year phases over a 20 year lifetime’ (FLDEP, BMAP p. 13, 2018). The need for increased protection for Florida’s protected water resources is a critical

⁶ Nitrogen and phosphorous are the two key nutrients found in springs with an abundance of algae

⁷ Basin Management Action Plan, will be using BMAP throughout report

⁸ Total maximum daily load is the maximum amount of pollutant a waterbody can receive and still meet EPA standards

component for preserving Florida’s natural ecosystems, as well as sustaining drinking water resources for a population that is expected to increase substantially over the next 20 years. While nitrogen and phosphorous are crucial nutrient creating elements for Florida’s spring fed ecosystems, too much production can result in increased algae growth, which depletes oxygen flow within the water and causes damage to the underwater habitat of hundreds of indigenous species of Florida plants and wildlife. Nitrogen is the most abundant nutrient, and/or contaminant released into the soil from onsite sewage treatment and disposal systems (OSTDS), known universally as septic tanks.

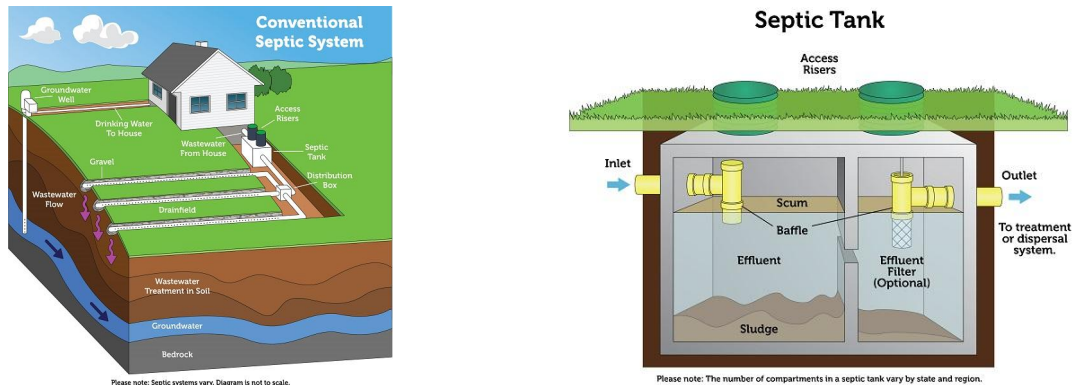


Figure 6: Image of a conventional septic system and how a septic tank works, Retrieved from epa.gov

The Florida Springs and Aquifer Protection Act defines an OSTDS (onsite septic) as being, or consisting of one of more of the following components:

- A system that contains a standard subsurface
- A laundry wastewater tank
- A solids or effluent pump
- A graywater system tank
- A pump tank
- An aerobic treatment unit
- A grease interceptor
- A mound drain field system
- A septic tank
- A waterless waste-compositing toilet

Onsite septic systems are significantly less expensive to construct in the place of an extension from a centralized wastewater system, especially for large residential developments that may consist of 300 or more single-family homes within rural areas that are not within the jurisdiction of the centralized utility provider. In Florida, development within rural areas is likely to be restricted because of environmental regulation that was designed to mitigate any/all negative impacts on existing environmental resources and natural habitats. The result are low density communities that consist of no more than 1 dwelling unit per acre⁹ (Du/AC), and that do not require the capacity that would be expected for a community with much more compact development and a greater population density per square mile. In these cases, residential developers typically choose to construct an OSTDS for each home within the community, primarily because of the cost associated with extending centralized wastewater treatment utilities to these rural areas. The extension of centralized wastewater utility services to rural areas is very expensive, and is typically reflected in the final sale price of single-family homes within this development. It is also complex, as the local government, the utility provider and the developer would require legally binding agreements for the provision of services to these areas, making the local government contractually obligated to ensure that centralized wastewater utility services are provided indefinitely to this community, regardless of any outstanding circumstances.

⁹ Dwelling unit per acre: One single family residence on 1 acre of land

Constructing an OSTDS, especially for a community that may be platted for 300 or more homes is certainly not an easy fix to a complex issue. The Florida Department of Health (FDOH) estimates that single family homes that consist of 751 – 3300 ¹⁰square feet (sq/ft) of building area can require between 200 and 400 gallons of wastewater flow per day, which, if being processed by an OSTDS, must be treated for excess nutrients that would indefinitely contribute negatively to the surrounding environmental resources. Additionally, the placement and construction of the tank and drain field can be difficult, as septic tanks cannot be constructed in areas that do or could receive high traffic volumes with vehicles and/or heavy machinery, and a drain field can be up 100 feet long and require potentially hundreds of pounds of mineral aggregate. Finally, it must be noted that the burden for maintenance, as well as any required nitrogen and phosphorous treatment enhancements would be the final responsibility of the home owner. The associated costs are considerable, ranging between \$10-20,000¹¹ per capita. In addition, many of the nitrogen treatment systems require additional, and more frequent maintenance due to the pumps that are necessary for aeration and the movement of water from one chamber to another. Florida’s DEP does manage a financial assistance program to help property owners with onsite septic systems within the BMAP upgrade their existing tank with nitrogen treatment enhancements, but the utilization of this program typically does not happen until a property owner applies for a permit to repair an onsite septic tank, which increases the chance that environmental damage has already occurred. For the 2019/2020 period that funding program has been depleted.

Wekiwa-Rock Springs Basin Management Action Plan

The Wekiwa – Rock Springs BMAP consists of approximately 183,165 acres¹² (286 square miles) of area that lies within Lake, Orange and Seminole Counties. The existing densities and intensities are a mixed bag, as the BMAP stretches from very rural Lake and Seminole Counties into high-density urban areas within the cities of Altamonte Springs, Maitland and Orlando. Within the Wekiwa – Rock Springs BMAP there are approximately 30,000 lots less than 1 acre in size that are currently served by an existing OSTDS. With the authorization of the *Florida Springs and Aquifer Protection Act*, and the pending BMAP for this primary focus area, it will now be possible to not only restrict the construction of new onsite septic systems, but also monitor and regulate existing septic systems that may not be equipped with enhancement mechanisms that remediate the effects of the nitrogen in the effluent. This is significant as these OSTDS within the BMAP account for more than 20% (296,984 pounds per year) of nonpoint source nitrogen pollution, and more than 29% of the aggregated pollution that feeds back into the Wekiwa River spring-shed. To provide some context, this means that each person residing within the BMAP accounts for 9.012 pounds of nitrogen pollution to area within the boundaries of the Wekiwa – Rock Springs BMAP each year. In order to achieve the TMDL, the properties within the

Recharge Area	Total OSTDS	OSTDS Parcels < 1AC	Credit Enhancement	Credit for Sewer
High	26,621	23,447	110,560	161,587
Medium	6,751	5,742	15,042	21,984
Low	177	158	83	121
Total	33,549	29,347	125,684	183,692

Table 1: Above is a table that identifies a number the total number of septic systems within the BMAP.

boundaries of the BMAP, less than 1 acre in size that have an existing onsite septic system will need to develop a remediation strategy should they seek assistance to either enhance their existing OSTDS. The enhancements, also known as retrofitting, can include in-ground nitrogen reducing biofilters, in-tank

¹⁰ Retrieved from Florida Administrative Code 64E.6, Standards for Onsite Sewage Treatment and Disposal Systems

¹¹ Figures retrieved from Florida Department of Health white paper about costs and benefits associated with enhancements for septic systems and switching to sewer

¹² Figures retrieved from Florida DEP, Wekiwa-Rock Springs Basin Management Action Plan report, pg. 29

nitrogen-reducing biofilters and aerobic treatment units (ATU) or performance-based treatment systems (PBTS) capable of meeting or exceeding the NSF standard 245 nitrogen removal rate before disposing the effluent into the drain field. Should a home owner need to take steps to enhance their existing OSTDS, they will need to apply for a permit from the appropriate authorities to do so. This can be difficult, especially for older homes within rural areas that are recognized as protected. The permitting process for new OSTDS construction has become much more restrictive, and are generally proscribed to these rural areas that do not have access to centralized wastewater treatment. Difficulty aside, should there be no other alternative, and there are no foreseeable centralized wastewater treatment access solutions available, it is still possible to receive a permit for new OSTDS construction. In fact, OSTDS construction permits are still being issued for the area within the boundaries of the BMAP, and specifically within the Pine Hills Community. Between the years of 1971 and 2018 nearly 64,000

OSTDS Repairs Since 2016 by Pine Hills Area Zip Code							
	2016	2017	2018	2019	2020	2021	'21 Project
32808	31	52	59	53	67	41	82
32811	2	2	6	3	4	8	
32818	66	135	147	111	144	67	134
32835	86	105	144	100	139	102	

Table 2: Data for this table was provided by Florida's Department of Health, Orange County, FL

were constructed on individual lots in Orange County (FL), 33,549 of those being within the Wekiwa Rock – Springs BMAP. When looking closer at this data however, the number of permits for new OSTDS installations (Figure 7) consistently decreases, while the number of permits for OSTDS repairs (Figure 8) increases steadily, which is consistent with the Pine Hills Community as well as Orange County as a whole. Since 2016 the number of OSTDS repairs within the Pine Hills area has increased each year, with an exception in 2019 where repairs experienced a slight decline. In 2021 the OSTDS repairs are projected to surpass the numbers from previous years, specifically within the two zip codes that encompass the Wekiwa – Rock Springs BMAP focus area, 32808 and 32818. The causes for the increases could be due to several reasons, but the most likely reason is the OSTDS age. Many of the homes, and associated OSTDS that are receiving repairs within these two zip codes are older and likely do not have the enhancement mechanisms that are necessary to decrease nitrogen and phosphorous contamination. To provide context specific to this proposed project, nearly all of the structures located on the parcels within the proposed project boundaries were built in the 1950s and 1960s, using construction engineering methods that were not as considerate of the existing environmental conditions within the Wekiwa River Basin. The typical style of construction for OSTDS during this time period used gravity to process the effluent, and disperse it into leaching beds through a drain field. These septic tanks and drain fields however did not have the ability to process the effluent at acceptable levels, dispersing effluent with rich nutrient contents back into the soil. Considering that nearly all of these parcels are located within the Wekiwa River Springshed and the proposed Wekiwa-Rock Springs BMAP, these OSTDS would likely be considered as non-compliant with today's environmental regulation codes, and would require inspection, repairs and enhancements, and potentially replacement. OSTDS repairs to systems this old can also be a challenging obstacle to overcome. The cost to repair a substandard OSTDS is significant, especially for households with a combined income of less than \$40,000 annually, which is the combined income for the majority of households within the Pine Hills Community. Permits for OSTDS repairs are being issued however, and these repairs are in fact completed. In 2018, within Orange County, 1,348¹³ permits were issued for OSTDS repairs, and since 1991, 29,599¹⁴ permits have been issued for onsite septic system repair. When compared to the number of issued permits for new

¹³ Ibid FDOH

¹⁴ Ibid FDOH

OSTDS construction over this same time period, the number of repairs far outweighs the number of new installations. This supports the theory that many of the OSTDS constructed before 1991, were in need of repair with enhancements that adequately treat the effluent before dispersing it back into the environment. It also means that, regardless of whether or not enhancements are made to the current septic infrastructure on the parcels within the proposed project area, contamination will still occur as the existing infrastructure is outdated and in need of a complete replacement.

Septic vs Sewer – the Case for Pine Hills

The Pine Hills Neighborhood Improvement District (PHNID) is located within the Pine Hills Community, much of which is in unincorporated West Orange County. The boundaries of the District consist of the properties adjacent to Pine Hills Road from West Colonial Drive (SR 50) north to Champagne Circle and Silver Star Road from Perrine Place west to North Hiawassee Road. It also includes the commercial properties adjacent to North Hiawassee Road from Odessa Drive north to Hickory Branch and Powers Drive just north of Silver Star Road. The PHNID functions as a Business Improvement District that serves as the entity accountable for implementing redevelopment and revitalization strategies within the Pine Hills business corridors. The majority of these businesses are considered small businesses and consist of 10 employees or less, including the proprietor. These small businesses operate on budgets that oftentimes exceed the proprietor’s financial capacity, which makes it difficult for them to balance operational responsibilities, and seek solutions that will support their business development needs within the community. These businesses also serve a large, urban community of over 70,000 residents which has for many years been underserved. Many of these residents, and employees working for the aforementioned business owners live in households with a combined income of less than \$40,000 annually with very little disposable income available to spend on anything other than basic necessities. Orange County Ordinance #2011, adopted by the Orange County Board of County Commissioners on December 20, 2011 established the PHNID. This ordinance was in direct response to the recommendations of the 2010 Pine Hills Business Redevelopment Task Force, which issued its final report in November 2010. The report identified five key elements for successful redevelopment of the Pine Hills community:

PINE HILLS KEY FACTS	
POPULATION	73,444
MEDIAN AGE	31.4
PER CAPITA INCOME	\$15,533
HOUSEHOLD INCOME	\$37,932
DISPOSABLE INCOME	\$37,222

Table 3: Pine Hills fast facts. Retrieved from www.census.gov

1. Establish an effective implementing organization
2. Create a vibrant, mixed-use Town Center for the community
3. Develop attractive and functional corridors
4. Establish effective intermodal connectivity in the community
5. Create and sustain strong neighborhoods

We will expound upon how this proposed project will address each of these goals later in this report.

The Septic Project

The intended purpose of this report is to demonstrate a need, and explain any/all of the impacts associated with the connection of the properties adjacent to North Pine Hills Road to a centralized wastewater treatment system, universally known as gravity sewer. This project would eliminate the

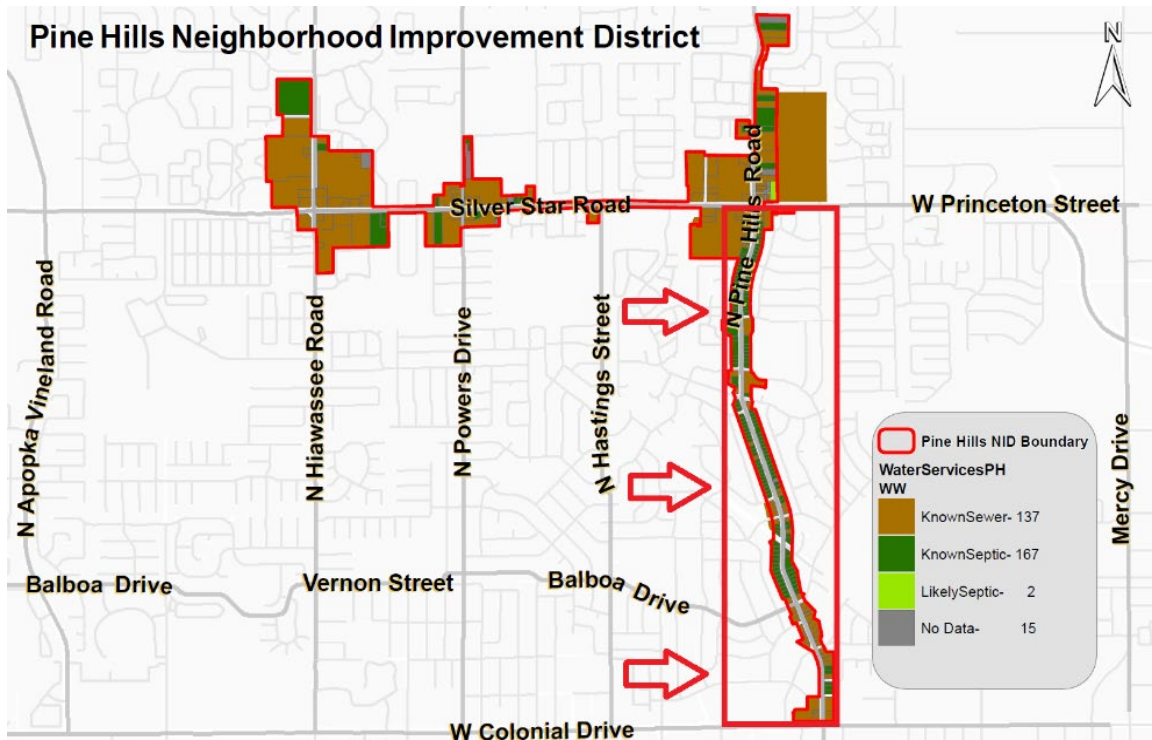


Figure 7: Map of PHNID boundaries with parcels still on existing OSTDS. Notice that Pine Hills Road is primarily on OSTDS.

need for individual OSTDS on each of these properties, provide a more effective method of wastewater treatment for property and business owners, and increase the value of each of these properties. The boundaries of the proposed project area begin at the intersection of North Pine Hills Road and State Road 50 (West Colonial Drive), and end at the intersection of North Pine Hills Road and Silver Star Road. The proposed project area is located within unincorporated Orange County. Although unincorporated this area is considered an urbanized area with nearly 1.4 million square feet of low to heavy commercially zoned properties, and nearly 250,000 square feet of property zoned for professional business/office. Traffic counts throughout the PHNID average between 40,000 and approximately 50,000 vehicles per day making this a heavily traveled commercial corridor. This area within the PHNID is roughly 1 mile from the utility boundary for the City of Orlando. North Pine Hills Road predominantly relies upon individual onsite septic systems for its wastewater treatment. One hundred and seventy three out of two hundred nineteen (71%) properties that lie adjacent to North Pine Hills Road are currently using OSTDS for wastewater treatment. The total population in this area exceeds 25,000 making this a densely populated urban area on the cusp of Central Florida's most densely populated city. In addition, this area is within the Wekiwa Spring and Rock Springs BMAP, making it plausible that the effluent released from the drain fields on these properties contributes significantly to the high percentage of nitrogen pollution from onsite septic systems within the BMAP.

Another topic of concern is the construction of new OSTDS within the BMAP despite the remediation strategies for pollution from OSTDS runoff. The primary focus area for this study is located

OSTDS	OSTDS Issued Permits		OSTDS Construct Approve		OSTDS Final Approve	
	Orange County	Pine Hills	Orange County	Pine Hills	Orange County	Pine Hills
	245	38	218	26	186	21

Table 4: The number of permits issued in 2019 for new onsite septic system construction was still very high, especially considering the 2018 final determination of the primary focus area for the BMAP.

within an urban environment where sewer extensions, while expensive, are much more practical than onsite septic. Unfortunately, permit applications for onsite septic systems are still being approved within the study area. In 2019, thirty-eight permits were issued by FDEP and FDOH for new onsite septic system construction within or near the zip codes that are attributed to the PHNID. Of those thirty-eight, six permits were issued for construction within proposed project area. Also in 2019, twenty-six construction approvals were issued by Orange County for OSTDS within or near the boundaries of the PHNID. Of those, five construction approvals were issued for the proposed project area.

Defining a Long-Term Strategy and the Selection of a Solution

The lives of many people that own property and businesses on North Pine Hills Road would be significantly impacted by a project that would provide greater utility capacity within this corridor. Considerable effort has been invested in the development of a community devised plan for the rebranding and redevelopment of a community that has been underserved for many years. The greatest deterrence to redevelopment has been the existing conditions, as the properties that lie adjacent to North Pine Hills Road still contain 1950s and 60s ranch style homes, many of which have fallen into decline and are dilapidated. The incorporation of principles that promote diversity, a pedestrian friendly environment and a potential destination for restaurants and shopping were, and continue to be points of emphasis that must be accounted for by Orange County Staff and Community leaders moving forward. Any plans and strategies, however are contingent upon Orange County's adoption of a modernized code of ordinances that is adaptable and can facilitate sustainable development patterns while accounting for the community's desire for development that is aesthetically pleasing.

Orange County has developed a plan to modernize the existing land development code, and simplify how new development is governed within the built environment. *Orange Code* "ensures sustainable land development that preserves the character of existing communities, celebrates Orange County's diversity and creates vibrant places to live, work and relax" (Orange County, 2020). The expectation for the Orange Code initiative is to rethink how new development and redevelopment impact the existing built environment, and how this development can contribute to the Community's character. Orange Code will regulate the form of new development within targeted growth corridors to facilitate sustainable development and redevelopment, while contributing positively to the existing built environment. An updated code that enhances the existing character, form and scale of the Pine Hills Community will allow for the implementation of many of the plans and strategies that the Community has identified as critical its revitalization. The PHNID envisions multiple land uses in a pedestrian friendly retail destination that provides an assortment of restaurants, shopping and entertainment for Orange County residents, and tourist interested in experiencing Central Florida's diverse cultures. Perhaps the two most consequential actions toward the achievement of the vision for the PHNID would be to rezone the properties that lie adjacent to North Pine Hills Road to permit low intensity uses, and the provision of centralized wastewater treatment. North Pine Hills Road is predominantly zoned to permit professional office uses such as: CPA offices, hair and nail salons and children's day cares. The current professional office zoning classification allows the existing 1950s and 60s structures to be utilized as office space without requiring amendments to the existing structure's site plan to accommodate commercial level traffic. As previously mentioned these properties are predominantly occupied by old homes, many of which are dilapidated and in need of substantial renovations. Parking for these businesses is considered substandard, as many of these properties cannot support the existing parking capacity levels of the businesses that inhabit them. Finally, and most importantly, nearly all of the businesses operating in these existing structures are supported by individual OSTDS that are likely as old as the homes themselves, making it very difficult for these business owners to expand their

businesses. The cost(s) associated with the maintenance, and potential replacement of individual OSTDS can be burdensome, and in the case of the small businesses adjacent to North Pine Hills Road insurmountable. The table below outlines the associated costs with both wastewater treatment options including low-passive and enhanced OSTDS options for onsite treatment. The cost to maintain an existing OSTDS is reasonable, but it is contingent upon the property and/or business owner to perform this maintenance regularly. Should this maintenance not be performed severe issues such as flooding and contamination occur, which can also become an issue for the Florida Department of Health and the Florida Department of Environmental Protection. The cost to install a new OSTDS is quite expensive no matter which option you choose, although it should be noted that for the properties within this project area the enhanced OSTDS will be the only option for replacement. Typically the cost to connect to gravity sewer is quite expensive as well, but in cases similar to what our objective is for this project, a government entity can step in and shoulder the infrastructure costs because a project of this magnitude addresses a community need, adds capacity to the entity's existing infrastructure network and minimalizes the burden and responsibility for maintaining the system. The monthly fees associated with gravity sewer range between \$17 – \$40 per month, contingent upon the size of the building, and whether or not there is existing infrastructure within a close proximity.

Cost Associated with Septic vs. Gravity Sewer			
Cost(s)	OSTDS		GRAVITY SEWER
New Install	Low-Passive \$3-6K	Enhanced \$10-15K	Connection costs \$2,500-\$20K depends on building size, and existing infrastructure
Fees	No associated monthly/annual fees		\$17-\$40 p/month
Maintenance	\$250 - \$450, EPA suggests every 3-5 years		Included in monthly fees
System Life	15-25 (max) year		Ongoing maintenance, paid for in monthly fees

Table 5: Costs associated with OSTDS vs. Gravity Sewer. Retrieved from FDOH OSTDS whitepaper and the Orange County Utilities Department.

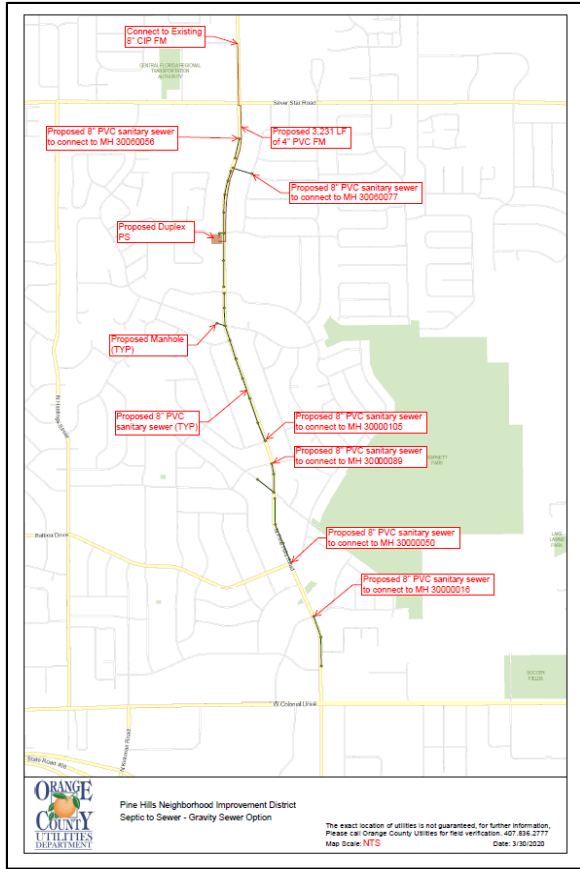
The goal to initiate a rezoning process, and upzone these properties from the professional office zoning classification to a light, low intensity commercial zoning classification is dependent upon the provision of increased wastewater utility capacity, as it is unlikely that any retail that may come as a result of private investment will be able to adequately maintain its existing operation using an individual OSTDS. Private investment would presumably include the acquisition of multiple contiguous sites in an effort to aggregate the acreage needed to include required elements such as utilities, including wastewater. The majority of these properties are less than one quarter of an acre in size, and the OSTDS occupy a large section of each site. Eliminating each of these individual OSTDS, and connecting to a centralized wastewater treatment system would allow private investors interested in retail development to include necessary elements that contribute to the overall site design and site function. Elements such as access management, and the specific locations for ingress and egress, building setback, storm-water and utility connections are all critical components of site development, and typically are the first boxes that developers must check before moving forward with the design of their project. Upgrading the wastewater treatment utilities for North Pine Hills Road is an imperative project that helps property and business owners within the PHNID take considerable steps toward the realization of each of the five goals for redevelopment identified in the previously mentioned (2010) report. This project contributes to each of these goals by providing the utility capacity that is necessary for business expansion, business recruitment and/or property sale and acquisition. It would difficult to create a vibrant, mixed-use town-center with attractive and functional corridors without the added utility capacity. Redeveloping North Pine Hills Road with parkway design features and elements would not be possible with parcels less than one quarter of an acre, and each of which are connected to individual OSTDS. Finally, and most important is facilitating a sustainable economic environment that is inclusive and provides access to necessary resources for a diverse business community and any potential investors seeking to acquire and redevelop property on North Pine Hills Road.

Projected Economic Impact

To determine the economic impact that is generated from a project of this magnitude, a model would need to be developed that accounts for many variables that are associated with new construction and added utility capacity. The expansion of existing services, the creation of jobs, and the revenue being invested back into the local economy can be related to the direct, and indirect impacts that each of these variables have on the Pine Hills Community. The direct impact is generally associated with the expansion of existing services, and the creation of new jobs to accommodate the increase in demand. The indirect impact is associated with the industries that supply and support the directly impacted local economy. The economic impact engendered by new construction is immediate and effects the local retail industry, as well as the vendors that supply these local businesses, causing them to respond in an effort to account for the increase in traffic. As an example, approximately 188 – 200 construction jobs will be created immediately for a project of this magnitude. These would be considered direct jobs, as they are associated directly with the project. Many of these construction workers will choose to eat lunch at a local restaurant, which creates an increase in demand for these services. To account for this added demand the local restaurant will need to hire additional employees and increase their food supply, calling upon their food supply vendor to ensure that they (the vendor) can handle the request for increased supply. That vendor receives their supply from another supplier, and this supplier has delivery drivers and warehouse workers that refrigerate the food supply. In this scenario, these jobs would be considered indirect jobs because, although they support the project, and may exist as a result of the project they are not jobs that were created to complete the actual work for the project.

Added utility capacity, or in this case the completion of a centralized wastewater treatment infrastructure project for North Pine Hills Road, is a future output and is the primary variable to extrapolate the outcomes associated with a project of this magnitude. For example, adding utility capacity through centralized wastewater treatment increases the value of the properties within the project corridor, and ultimately facilitated an environment that was conducive for private investment. With this private investment comes new retail businesses, more jobs and an increase in overall GDP. Direct jobs associated with the completion of a centralized wastewater treatment infrastructure project would be jobs created within the local community as a result of this project. Indirect jobs in this scenario would again be an expansion of services and the creation of jobs within the companies and vendors that support the local businesses within the community.

Perhaps the most imperative input for this model however is the direct cost (monetary) of the project. Without the project cost it is difficult to measure the scale of the project, and any/all associated impacts that it will have on the surrounding community. The scale of the project is a quantifier that contributes to the identification of any measurable impacts that the project will have on the local economy. For this project, Orange County's Utility Department carefully considered a range of options to achieve the desired outcome. Evaluating these options was critical to the development of a best possible solution that is practical in its approach to accomplish this objective, and considerate of the impacted property owners and businesses within the proposed project boundaries. The criteria used to evaluate these options were also comprehensive, and inclusive of components such as existing conditions, other projects that could be interrelated, and of course the impact that the construction would have on the property and business owners, and residents within Pine Hills. Ensuring the least amount of impact as can be possible, including financial impact(s), was essential to determining which option to choose. One option that was briefly considered would provide the utility framework, but



place the financial responsibility of connection to the new infrastructure on the property and/or business owner. Upon deliberation however, this option presented a high risk, low reward solution any positive economic impact would be contingent upon the property and business owner’s financial capability to pay the associated costs for the pumping infrastructure and connection. If they were unable to do so on their own, and benefit to the provision of new wastewater infrastructure would be moot, and ineffective. Additional solutions would need to then be considered, such as grant programs that would assist the business and property owners financially to connect to the new infrastructure. In summary, the public need and any benefits associated with this project were too substantial to place the burden on the shoulders of the property and business owners of the parcels adjacent to North Pine Hills Road. The most practical solution was an extension of centralized wastewater treatment infrastructure that would connect North Pine Hills Road in its entirety to this existing system. A major determinant in this conclusion was the nominal

impact to the property and business owners adjacent to North Pine Hills Road. It was important to consider any/all constraints, including financial when attempting to make a decision this significant. The provision of gravity sewer infrastructure laid the least amount of burden on the shoulders of these impacted residents and business owners, allowing them to carry on with their daily lives with an expectation that their operational needs will be met at a much higher rate of return than when they were operating on individual OSTDS. It also eliminates the need for the property and business owners to amend their existing footprint to account for additional infrastructure needed to connect to the

Gravity Sewer	Number of Parcels	Cost p/Parcel	Total Cost
	173	\$49,565.48	\$8,574,828.29*

Table 6: Total cost includes construction cost contingency of 30%. Breakdown included in Addendum 1

proposed centralized wastewater system, and any/all costs or fees associated with doing so. This option also mitigates any long-term impacts on the local economy, as the immediate construction phase of the project would likely be the only significant obstacle that property and business owners would need to navigate. It should also be acknowledged that much of the Pine Hills Community is already serviced by existing centralized wastewater treatment systems that are operated either by the Orlando Utilities Commission or Orange County’s Utilities Department. In fact, the area inside of the proposed project boundaries is one of only a few areas within urbanized Metro Orlando that is still utilizing OSTDS for its wastewater treatment. We have discussed this at length in other sections, but it is remarkable that, provided the increase in environmental regulation, and the existing utility operational capacity, this many parcels within an urbanized area are still operating on OSTDS for their individual wastewater treatment. Finally, as will be discussed below, the model developed for the gravity sewer project

generated a substantial economic impact for both the Pine Hills Community, and the properties within the proposed project boundaries.

Economic Impact Analysis – Model

In order to definitively understand how a project of this magnitude would affect the property and business owners within the proposed project area, the PHNID enlisted the assistance of multiple departments and agencies within Orange County Government, in an effort to quantify the economic impact of this project over a several year period. This project is expected to have a considerable impact on North Pine Hills Road, as well as the Pine Hills Community, and is likely to be the catalyst for a multi-year redevelopment effort within the proposed project corridor. The strategies for the redevelopment initiative were established in multiple studies culminating in the advancement of a true parkway, lined with retail and office uses that lead into a traditional mixed-use town-center at the intersection of North Pine Hills Road and Silver Star Road. To quantify the economic impact of this project, the PHNID, Orange County’s Economic Development Division and the Orlando Economic Partnership developed a model using IMPLAN that extrapolated immediate and long-term, tangible dollar amounts that can be tied to a project with this level of consequence. IMPLAN uses an

input/output model to estimate the impacts of industry activity on any defined geographical area. Since the outcomes of the two variables are associated with two different time periods, and entirely different industries, several models were developed that accounted for immediate and long-term impacts, as well as direct and indirect effects. Of those models the centralized wastewater treatment (gravity sewer) extension performed the strongest and had the greatest positive impact on the Pine Hills Community. The gravity sewer model was specific to the direct and indirect impacts to the local economy from the construction of the gravity sewer project, and estimated, future impacts to the retail industry within the local economy as a result of the enhanced wastewater treatment capacity.

The first scenario that was modeled for the gravity sewer option was the economic impact of the actual construction project on the Pine Hills Community. This analysis used construction industry wages and costs to estimate the impact of the gravity sewer options on both the Pine Hills Community, and the properties within the proposed project boundaries. Each dollar spent in a community, either on supplies, materials, wages, etc. is returned to the community at a certain ratio and ripples outward from the point of impact. In this way, different industries have different multipliers, where every job created or supported in the industry results in a specific number of jobs supported or created in another industry. The ripple effects create leakage in the model; once spending leaves the defined geography, the impacts are no longer calculated. It is helpful for small geographies such as Pine Hills to extend the geographic limits to adjacent areas that will also be impacted. The Pine Hills wastewater treatment construction model outlines two scenarios exclusive to the gravity sewer option; an immediate impact

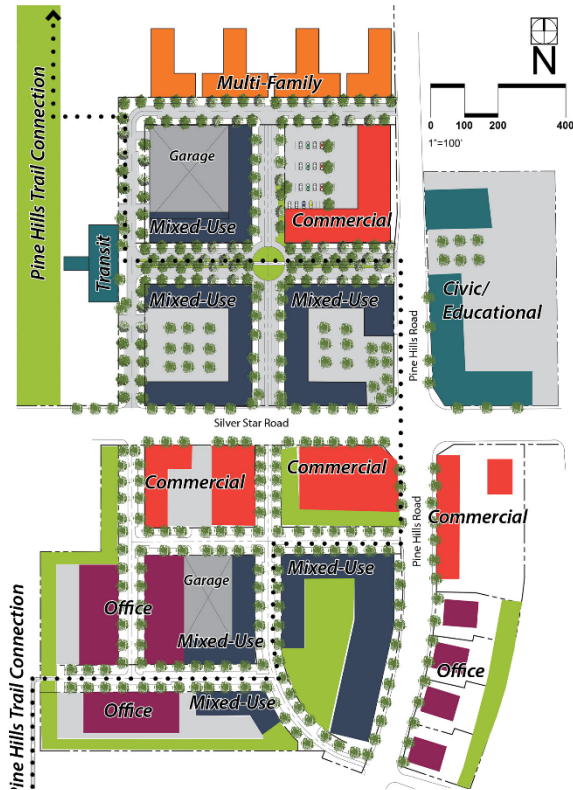


Figure 8: Conceptual for proposed town-center project located at North Pine Hills Road and Silver Star Road

scenario and an immediate – extended impact scenario. Each option is analyzed based on the impacts to zip codes 32808 & 32818, the zip codes associated with the properties within the proposed project boundaries, and the other analyzes the combined, extended impacts which includes zip codes 32804, 32811, and 32835, also considered the Pine Hills Community. In this way, a greater percentage of the true impact is captured.

The model shows that the increased spending in the gravity sewer option has the capability to easily create the largest number of jobs in local construction and can add as much as \$42.7 million in monetary value to the community. The immediate construction model, which focused on the two zip codes where the project will take place predicts 188 construction jobs that will be created as a result of this project, whereas the immediate – extended model, which includes all of the zip codes associated with the Pine Hills Community, predicts as many as 470 jobs to be created as a result of this project. The output from the immediate construction model is fairly specific and attempts to quantify the impact from the construction project, and in this case the impact would be the number of direct jobs created to support this project. The immediate – extended model however includes jobs associated with other industries that are impacted as a result of this project, which are best considered supportive, indirect jobs rather than jobs created. Indirect and induced effects come from increased industry (outside the direct industry of construction) and household spending. These impacts are low for this project because, again, these are considered jobs supported rather than net, new positions. The number of jobs,

Construction Project Model Output(s)	Jobs Created	Output
Gravity Sewer Immediate	188	\$17,080,966
Gravity Sewer Immediate + Extended	470	\$42,690,308

Table 7: When considering which option to choose it was critical to consider both the long and short-term futures of the impacted community. The gravity sewer option far outweighed the other options in both number of jobs created and potential spending as a result of the project

whether supported or created and the total output support the decision to pursue gravity sewer as the preferred option for wastewater treatment. Even though supported jobs are not defined as new jobs created as a result of this project, the demand for the services supplied by those supported jobs can increase the likelihood that new jobs will be created, should that demand extend over longer periods of time.

The second model that was developed attempts to capture the estimated impact on the retail industry within both the Pine Hills Community and the properties within the proposed project boundaries. The first step for the development of this model was to identify the existing conditions. Business data was acquired from multiple platforms and analyzed to determine how many businesses and industries currently exist within each of the aforementioned areas, and how many employees are associated with those businesses and industries. Wage data, acquired from the State of Florida Department of Economic Opportunity was also used as an additional multiplier that ultimately contributed to the labor income effects on the economy as a result of the project. Within the proposed project boundaries, which consist of North Pine Hills Road, from State Road 50 (West Colonial Drive) and Silver Star Road, there are 150 locally owned and franchised businesses employing approximately 911

to continue operating on individual OSTDS jeopardizes the future of the water that we drink, and the natural habitat of thousands of native species.

The economic impact of this project is also substantial, and has the potential to drastically change the economic landscape for the Pine Hills Community. Connecting this urbanized area of Metro Orlando to a centralized wastewater treatment system is an incentive for private industry seeking to invest and redevelop the Pine Hills area. It also adds insurance for property and business owners motivated to redevelop their properties, as they will see an immediate increase in their property values as a result of this project. Finally, as the models that we have developed specifically for this project depict, there will be a sizable, positive economic impact for the Pine Hills Community as a result of this project. Approximately 188-200 new construction jobs will immediately be created as a result of this project, and as many as 470 direct and indirect jobs can be created over an eight to ten year period. This does not include new jobs in industries that are not identified in our models.

In summary, this project has the capability to touch the lives of thousands of people, and can contribute positively to the lives of many who, under normal circumstances, would not be able to afford to connect to a centralized wastewater treatment system. These residents within the Pine Hills Community deserve to have access to a utility that many believe to be essential. We believe in providing the highest quality of life for our residents, and the best possible economic environment for our business owners. This project supports these goals and fulfills the needs of the Pine Hills Community for many years to come.

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Pine Hills Neighborhood Improvement District - Septic to Sewer Cost Estimate (Gravity Sewer)

Estimate includes parcels currently on septic along Pine Hills Rd from SR 50 to Silver Star Road

PRELIMINARY PLANNING (X)

PRE-DESIGN ()

DESIGN FINAL ()

Estimate By: Paul Nielsen, P.E.

Date: June 10, 2021

ITEM / DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	ESTIMATED COST
GENERAL				
CONSTRUCTION MATERIALS AND INSTALLATION				
Mobilization, Bonds & Identification	5%	LS	\$224,897.02	\$224,897.02
Preconstruction Video	1	LS	\$25,000.00	\$25,000.00
Record Drawings	1%	LS	\$44,979.40	\$44,979.40
Public Information Officer	1	LS	\$50,000.00	\$50,000.00
Maintenance of Traffic	10%	LS	\$449,794.04	\$449,794.04
			Sub-Total	\$794,670.46
Install/Replace Sanitary Sewer				
Sanitary Sewer Main 8-inch Diameter (0 to 6' depth)	1571	LF	\$79.00	\$124,109.00
Sanitary Sewer Main 8-inch Diameter (6' to 8' depth)	978	LF	\$86.00	\$84,108.00
Sanitary Sewer Main 8-inch Diameter (8' to 10' depth)	3147	LF	\$93.00	\$292,671.00
Sanitary Sewer Main 8-inch Diameter (10' to 12' depth)	886	LF	\$100.00	\$88,600.00
Sanitary Sewer Main 8-inch Diameter (12' to 14' depth)	798	LF	\$111.20	\$88,737.60
Sanitary Sewer Main 8-inch Diameter (14' to 16' depth)	23	LF	\$114.00	\$2,622.00
Install/Replace Sanitary Manholes				
Sanitary Manholes 4-feet Diameter (0 - 6' depth)	9	EA	\$6,880.00	\$61,920.00
Sanitary Manholes 4-feet Diameter (6' - 8' depth)	5	EA	\$7,160.00	\$35,800.00
Sanitary Manholes 4-feet Diameter (8' - 10' depth)	10	EA	\$7,860.00	\$78,600.00
Sanitary Manholes 4-feet Diameter (10' - 12' depth)	5	EA	\$8,280.00	\$41,400.00
Sanitary Manholes 4-feet Diameter (12' - 14' depth)	3	EA	\$8,980.00	\$26,940.00
Sanitary Manholes 4-feet Diameter (14' - 16' depth)	0	EA	\$10,100.00	\$0.00
6-inch dia. PVC Force Main installation	3,231	LF	\$65.00	\$210,015.00
Tapping Sleeve and Valve Assembly (8-inch diameter)	1	EA	\$8,650.00	\$8,650.00
House Single Lateral Pipe (to ROW Line)	173	EA	\$1,950.00	\$337,350.00
Complete duplex pump station	1	LS	\$560,000.00	\$560,000.00
Concrete Sidewalk 4" Thick	1,481	SY	\$50.40	\$74,622.24
Remove & Replace Asphalt Roadway	24,677	SY	\$60.00	\$1,480,600.00
Septic Tank Abandonment	173	EA	\$3,500.00	\$605,500.00
Sod	556	SY	\$9.10	\$5,055.56
Driveway Apron	173	EA	\$1,680.00	\$290,640.00
Pine Hills NID Sub-Total				\$4,497,940.40
Sub-Total				\$5,292,610.86
Construction Cost Contingency 30%				\$1,587,783.26
Estimated Construction Costs (A)				\$6,880,394.12

OTHER CONSTRUCTION RELATED COSTS				
Pump Station Parcel	1	LS	\$100,000.00	\$100,000.00
FDEP Permit (General)	1	EA	\$500.00	\$500.00
OCU Wastewater Capital Fee	173	EA	\$3,346.00	\$578,858.00
Engineering Survey	7,403	LF	\$7.00	\$51,821.00
Engineering, Design and Const. Admin.	14%	LS	\$963,255.18	\$963,255.18
Estimated Other Costs (B)				\$1,694,434.18

Estimated Total Construction Related Cost of Project (A+B) \$8,574,828.29

CONSTRUCTION COST PER LOT

Number of Lots To Be Serviced

173

Lots

Overall Project Cost / Lot	\$6,935,047.79	/	173	\$40,086.98
Construction on Lot	\$1,060,922.50	/	173	\$6,132.50
Capital Charges	\$578,858.00	/	173	\$3,346.00

Cost per Lot [Cost of Project divided by Number of Lots] (C)

\$49,565.48

Connect to Existing
8" CIP FM

CENTRAL FLORIDA REGIONAL
TRANSPORTATION
AUTHORITY

Silver Star Road

Proposed 8" PVC sanitary sewer
to connect to MH 30060056

Proposed 3,231 LF
of 6" PVC FM

Proposed 8" PVC sanitary sewer
to connect to MH 30060077

Proposed Duplex
PS

Proposed Manhole
(TYP)

Proposed 8" PVC
sanitary sewer (TYP)

Proposed 8" PVC sanitary sewer
to connect to MH 30000105

Proposed 8" PVC sanitary sewer
to connect to MH 30000089

BARNETT
PARK

Proposed 8" PVC sanitary sewer
to connect to MH 30000050

LAKE
LAWN
PARK

Proposed 8" PVC sanitary sewer
to connect to MH 30000016

SOCCER
FIELDS

Balboa Drive

W Colonial Drive

State Road 408

N Kirkman Road



Pine Hills Neighborhood Improvement District
Septic to Sewer - Gravity Sewer Option

The exact location of utilities is not guaranteed, for further information,
Please call Orange County Utilities for field verification. 407.836.2777

Map Scale: NTS

Date: 06/10/21

Glossary

IMPACT TYPE

Direct Effect: Responses to the initial change, impacts resulting directly from the project activities.

Indirect Effect: The impact of local industries buying goods and services from other local industries.

Induced Effects: Effects from increased household spending patterns.

ECONOMIC IMPACTS

Labor Income: All forms of employment income, including Employee Compensation (wages and benefits) and Proprietor Income.

Value Added: The difference between an industry's or an establishment's total output and the cost of its intermediate inputs. The GDP added to the economy/study area as a result of the project.

Output: Output represents the value of industry production. In IMPLAN these are annual production estimates for the year of the data set and are in producer prices. For manufacturers this would be sales plus/minus change in inventory. For service sectors production = sales. For retail and wholesale trade, output = gross margin and not gross sales.

FISCAL IMPACTS

Employee Compensation: Employee Compensation in IMPLAN is the total payroll cost of the employee paid by the employer. This includes wage and salary, all benefits (e.g., health, retirement) and payroll taxes (both sides of social security, unemployment taxes, etc.).

Proprietor Income: Proprietor income consists of payments received by self-employed individuals and unincorporated business owners. This income also includes the capital consumption allowance and is recorded on Federal Tax form 1040C.

Tax on Production and Imports (TPI): As part of the 2003 comprehensive NIPA revision, TPI replaced indirect business taxes and nontax payments as one of the three components of value added. This component includes sales and excise taxes, customs duties, property taxes, motor vehicle licenses, severance taxes, other taxes, and special assessments. It excludes most nontax payments, and as the name indicates, subsidies are netted out. (BEA)

Households: Residents of the study area. Final users of nondurable goods & services. One of several institutions in IMPLAN.

Corporations: A corporation is a legal entity, created for the purpose of producing goods or services for the market, that may be a source of profit or other financial gain to its owner(s); it is collectively owned by shareholders who have the authority to appoint directors responsible for its general management.

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Inputs

Company/Project Name: Pine Hills Wastewater Construction Project

Project Description: This model was developed to simulate the immediate impact of a gravity wastewater treatment project for North Pine Hills Road

LOCATION

County/City: Orange County

Immediate Zip Codes: 32808 & 32818

Extended Zip Codes 32804, 32811, 32835

SCENARIOS

Name: Gravity Sewer - Immediate

Activity Type: Construction, IMPLAN code 56 - Construction of new, nonresidential

Construction Years: 2020

Construction Spend \$8,471,501.43

Full Time Jobs Created: N/A

Average Annual Wage: N/A

Name: Gravity Sewer - Immediate & Extended

Activity Type: Construction, IMPLAN code 56 - Construction of new, nonresidential

Construction Years: 2020

Construction Spend \$8,471,501.43

Full Time Jobs Created: N/A

Average Annual Wage: N/A

Results

Pine Hills Gravity Wastewater Treatment Construction Impacts

Scenario 1 - Gravity Sewer - Immediate

Event Year - 2020

Economic

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	187	\$ 10,949,383	\$ 8,047,051	\$ 16,943,003
Indirect Effect	1	\$ 34,397	\$ 62,571	\$ 113,633
Induced Effect	0	\$ 5,741	\$ 16,332	\$ 24,331
Total	188	\$ 10,989,521	\$ 8,125,955	\$ 17,080,966

Scenario 2 - Gravity Sewer - Immediate & Extended

Event Year - 2020

Economic

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	468	\$ 27,373,457	\$ 20,117,628	\$ 42,357,507
Indirect Effect	1	\$ 88,705	\$ 156,614	\$ 281,550
Induced Effect	0	\$ 14,110	\$ 33,847	\$ 51,250
Total	470	\$ 27,476,272	\$ 20,308,089	\$ 42,690,308

Inputs

Company/Project Name: Pine Hills - Increase in Retail Businesses along N. Pine Hills Road

Project Description: The improvements to the wastewater infrastructure along N. Pine Hills Road are expected to result in an increase of retail businesses in the area. The following scenarios outline different percentage increases in the amount of new retail employment and subsequent spin-off impacts.

LOCATION

County/City: Orange County

Immediate Zip Codes: 32808 & 32818

Extended Zip Codes 32804, 32811, 32835

SCENARIO INPUTS

Retail Employment by Sector

	New Jobs based on % Increase in Employment				
	Current	25%	50%	100%	150%
Motor Vehicle Parts	8	2	4	8	12
Furniture Stores	1	0	1	1	2
Bldg Material and Garden Equipment	17	4	9	17	26
Food & Beverage	15	4	8	15	23
Health & Personal Care	5	1	3	5	8
Gasoline Stations	1	0	1	1	2
Clothing and Accessories	8	2	4	8	12
Sports Good, Hobby, Book, & Music	3	1	2	3	5
General Merchandise	8	2	4	8	12
Misceollaneous Retail	1	0	1	1	2
Nonstore Retailers	1	0	1	1	2
Total (May not sum due to rounding)	67	17	34	68	102

Sector	IMPLAN Code
Motor Vehicle Parts	402
Furniture Stores	403
Bldg Material and Garden Equipment	405
Food & Beverage	406
Health & Personal Care	407
Gasoline Stations	408
Clothing and Accessories	409
Sports Good, Hobby, Book, & Music	410
General Merchandise	411
Misceollaneous Retail	412
Nonstore Retailers	413

IMPLAN Report - Impact Increased Retail Employment

Scenario 1 - 25% Increase

Event Year - 2020

Economic

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	15	\$ 588,658	\$ 953,632	\$ 1,465,219
Indirect Effect	0	\$ 2,707	\$ 4,325	\$ 8,198
Induced Effect	0	\$ 169	\$ 435	\$ 669
Total	15	\$ 591,534	\$ 958,391	\$ 1,474,086

Scenario 2 - 50% Increase

Event Year - 2020

Economic

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	36	\$ 1,403,159	\$ 2,257,714	\$ 3,488,119
Indirect Effect	0	\$ 6,562	\$ 10,458	\$ 19,841
Induced Effect	0	\$ 422	\$ 1,090	\$ 1,674
Total	36	\$ 1,410,143	\$ 2,269,262	\$ 3,509,634

Scenario 3 - 100% Increase

Event Year - 2020

Economic

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	67	\$ 2,615,629	\$ 4,309,342	\$ 6,640,252
Indirect Effect	0	\$ 12,936	\$ 20,481	\$ 38,745
Induced Effect	0	\$ 791	\$ 2,045	\$ 3,140
Total	67	\$ 2,629,356	\$ 4,331,869	\$ 6,682,137

Scenario 4 - 150% Increase

Event Year - 2020

Economic

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	104	\$ 4,057,324	\$ 6,711,450	\$ 10,346,157
Indirect Effect	0	\$ 20,464	\$ 32,414	\$ 61,258
Induced Effect	0	\$ 1,244	\$ 3,217	\$ 4,940
Total	104	\$ 4,079,032	\$ 6,747,080	\$ 10,412,355

IMPLAN Report - Impact Increased Retail Employment

Scenario 5 - Cumulative 4-Yr Impact

Event Year - 2020-2024

Cummulative Economic Impact

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	104	\$ 8,664,770	\$ 14,232,138	\$ 21,939,747
Indirect Effect	0	\$ 42,670	\$ 67,677	\$ 128,042
Induced Effect	0	\$ 2,625	\$ 6,787	\$ 10,424
Total	104	\$ 8,710,066	\$ 14,306,602	\$ 22,078,212