



**DIPATTAMENTON MINANEHAN TANO'**  
(Department of Land Management)  
**GUBETNAMENTON GUAHAN**  
(Government of Guam)



DEPARTMENT OF  
LAND MANAGEMENT

**EDDIE BAZA CALVO**  
Governor

**RAY TENORIO**  
Lieutenant Governor

**MICHAEL J.B. BORJA**  
Director

**DAVID V. CAMACHO**  
Deputy Director

Street Address:  
590 S. Marine Corps Drive  
Suite 733 ITC Building  
Tamuning, GU 96913

Mailing Address:  
P.O. Box 2950  
Hagåtña, GU 96932

Website:  
<http://land.guam.gov>

E-mail Address:  
[dlmdir@land.guam.gov](mailto:dlmdir@land.guam.gov)

Telephone:  
671-649-LAND (5263)

Facsimile:  
671-649-5383

February 6, 2017

**MEMORANDUM**

**TO:** Chairman, Guam Land Use Commission

**FROM:** Guam Chief Planner

**RE:** **Update-** Assessment of Proposed Multi-Family Development in a Previously-Approved Planned District Development (PUD) (154-2-4-REM-NEW-2-REM in the municipality of Yona)

On September 8, 2016 representatives of Mr. Kevin Chien, dba Wonderful Resorts, LLC requested clarification from the Guam Land Use Commission as to whether or not the intent to construct six (6) townhomes for a total of twelve (12) multi-family residential units on the subject lot was consistent with the established "PUD" designation. Clarification was needed in response to the fact that although existing uses within the entire PUD reflects uses suggested in a schematic plan that appeared be part of a master plan, no information was available to indicate such a plan was the adopted by the Commission. Thus, the need to re-affirm the original intent of providing multi-family housing on that area currently known as 154-2-4-REM-NEW-2-REM or Takayama Golf Course and its surrounding bounded lands.

The PUD was acted upon and approved by then-Territorial Planning Commission action on June 22, 1972 and the Commission appeared to accept that consistency does exist in what may have been the original intent and that which is being presented at this time by Wonderful Resorts, LLC.

The Commission did however express its concern that a re-assessment of the intended plan be required, given the time that has lapsed since the 1972 approval. The Commission requested the applicant to provide information on both a schematic overlay of land use and calculations of infrastructure use or for that matter the potential impact of the project with existing infrastructure conditions in and to the surrounding community.

The applicant provides a response b Commission directive and addressing earlier concerns on density and infrastructure. Discussion also presents a multi-phase and "smart/multi-use neighborhood development approach with a variety of neighborhood amenities that would be distributed throughout the property".

  
**Maryin Q. Aguilar**  
Guam Chief Planner

**Attachments**



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Mailing Address:  
P.O. Box 2950  
Hagåtña, GU 96932

Website:  
<http://dlm.guam.gov>

E-mail Address:  
[dlmdir@dlm.guam.gov](mailto:dlmdir@dlm.guam.gov)

Telephone:  
671-649-LAND (5263)

Facsimile:  
671-649-5383

*September 8, 2016*

**MEMORANDUM**

**TO:** Chairman, Guam Land Use Commission

**FROM:** Guam Chief Planner

**RE:** **Staff Report**  
Assessment of Proposed Multi-Family Development in a  
Previously-Approved Planned District Development (PUD)  
(154-2-4-REM-NEW-2-REM in the municipality of Yona)

**1. PURPOSE:**

- A. APPLICATION SUMMARY.** The Applicant, Kevin Chien, dba Wonderful Resorts, LLC request
- B. LEGAL AUTHORITY.** Title 21 Guam Code Annotated, Chapter 61, Zoning Law, §§61103 and 61635.

**2. FACTS:**

- A. Location.** Subject lot is located in the municipality of Yona in an area better known as the Windward Hills Country Club.
- B. Present Zoning.** Subject property is currently zoned "PUD" or "PDD", a Planned District Development per Territorial Planning Commission action on June 22, 1972.

**3. APPLICATION CHRONOLOGICAL FACTS:**

- A. Previous Commission Actions.** See 2A.
- B. Date Heard by ARC.** N/A.
- C. Public Hearing and Results.** N/A.



- b. With respect to roles and responsibilities of existing uses, the applicant insists that all uses have been separated in interest to certain groups of ownership, with the golf course and property it is contained within belonging to one entity separated from existing housing subdivisions. Association of each use would most likely be associated or linked through interdependency of infrastructure (i.e. easements, water, power, etc.). Property ownership of the entire PDD program has since evolved to indicate separate ownership between the golf course proper and individual residential lots located adjacent to or within the golf course, and thus is essentially a separate entity having no obligatory relationship to any current any homeowner's association other than within a particular existing home subdivision cluster.
- c. With respect to how the new development scheme would affect current uses, the applicant insist that although a grand scheme reflects 200 townhomes, the main focus of development would be restricted to the initial first phase of a single cluster of six townhomes or 12 individual residential units, hence, the initial intent to secure a building permit.

On August 11, 2016 the Commission engaged in general discussion regarding the former Takayama Golf Resort, now Wonderful Resorts, LLC and the company's intent to construct a first phase 12-unit townhome development within its property as described above. The request for discussion was brought forth to the GLUC by the Planning Division for the purpose of providing a summation of matters at hand and to request further guidance.

All pertinent information regarding the rezoning of Lots 154-2-, 154-3 and 154-4 in the municipality of Yona from "A" (Rural-Agricultural) to "PUD" or a Planned Unit Development is critically limited to an amended zoning map (Exhibit A) and summarized minutes of the 1972 meeting (Exhibit B). The Commission's directive, without formal action, insisted the developer provide a broader explanation of project *scope of intent and work* with discussion on caveats, as noted thus far.

### GLUC's ROLE

As provided earlier, multi-family development is one of the various uses permitted within the approve PUD thus, the proposed twelve or even ultimate 200 townhomes as proposed is consistent with the Territorial Planning Commission's 1972 intent.

However, if such approved uses are permitted, then one may inquire as to the role the Commission plays in assessing the request to precede with the proposed "R-2" development. In our opinion, the answer lies in the fact that it is not a matter of whether or not an opportunity exists for the Guam Land Use Commission to administratively assess the use, but rather to ensure that regardless of any prior approval, such use will not have an impact on the surrounding community. This is more so relevant with respect to the Commission's mandate to insure that "minimum regulations for the protection and promotion of the public health, safety and general welfare of the people of the Territory of Guam, which regulations are deemed necessary in order to encourage the most appropriate use of land, to provide adequate open spaces about buildings for light and air, to prevent undue concentration of population<sup>2</sup>".

January 30, 2017

Michael Borja, Director

Department of Land Management  
590 South Marine Corps Drive  
ITC Building, Suite 733  
Tamuning Guam 96913

**TRMA**   
Taniguchi Ruth Makio Architects

**Subject:** Request for Concurrence for Windward Hills Country Club (LOT NUMBER 154-2-4 REM-NEW-2-REM) PUD development

Hafa Adai Mr Borja,

Thank you to you and your planning team, for taking the time to provide feedback and guidance related to the Request for concurrence for Wonderful Resorts LLC, the owner/operator of the Windward Hills Country Club, a PUD.

The owners had planned for the design and construction of phases 1 and 2 for the property, consisting of R-1 and R-2 residences for the PUD when a clarification was requested to confirm that the program was in compliance with the approved PUD uses.

Additionally there was a request to provide a corresponding density calculation for the approved PUD program

In October the GLUC reviewed the request for concurrence that the proposed project complied with the PUD's approved uses. GLUC asked that additional information be provided, to help the Commission visualize the character of the proposed project and all the other allowed uses in the PUD. We are pleased to submit this illustration to GLUC for their consideration along with corresponding the density calculation, to assist GLUC in determining that the direction for design and construction are consistent with the approved PUD.

#### Background

The property was approved as a PUD zone in 1972 as part of a larger property development. Single family detached homes were subsequently built and sold per the original PUD. Recreational uses allowed by the PUD such as the golf course and related club activities are also built and are in operation.

Per DLM Chief Planner, there was an administrative matter of providing a density calculation for the PUD. As neither the current owners nor DLM team have been able to locate a density calculation we have provided it herewith corresponding to the concept illustration

Additionally a representative of neighbors submitted clarification of how the proposed neighborhood might affect infrastructure in the surrounding homes during the October GLUC meeting.

A presentation is attached that calculates the density of the Golf Course Residences planned for the neighborhood.

### **Conceptual Masterplan Overview : Smart Growth and Multi-Use neighborhoods**

The plan for the property reflects all the allowed uses for the PUD in low impact configurations following smart growth principles that provide amenities and services for the residents and visitors within a walkable and pedestrian friendly development. Other priorities for the owners are to provide robust uses a variety for a high quality PUD. Allowable Uses for the PUD included:

- Single family detached residences (R-1)
- Multifamily residences (ie, duplexes, quads, townhomes, apartments and condominiums (R-2)
- Hotel use,
- Recreational uses
- Commercial uses
- Condominium uses
- Discover America Pavilion
- The Discover America Pavilion was intended for a series of pavilions and structures for Arts, Crafts, Displays and exhibits related to 1976 bicentennial celebration and may have been geared toward tourists.

The design team has proposed a smart growth /multi-use neighborhood development approach with a variety of neighborhood amenities that would be distributed throughout the property. The PUD zoning map allowed for condos and shops. Amenities might include playgrounds, health club (indoor and outdoor), daycare, walking paths, sport courts, convenience market, BBQ pavilions, wetland farming for medicinal plants (amot), pharmacy, pet care, barber/salon, coffee/cha shop etc. These amenities are intended to allow pedestrian friendly access and reduce reliance on vehicles, not to compete with the existing village center.

Additionally opportunities for such as onsite pharmacy, convenience market and provisions for utilizing wetland farming support active and independent lifestyles for aging residents.

Landscaping will be a major design element (along with nets) defining roads, and shielding pedestrian and vehicle access from errant golf balls. Walking and jogging paths skirt streets

A low impact, moderate height All-Suites hotel is programmed for TLA/TDY Service apartment (sometimes referred to as a Temporary Lodging Allowance) is programmed not to exceed 6 stories or 87' in height.

SFD, duplexes and/or townhomes are programmed for phases 3 and 4. The homes will be "benched" into the valley edges which descend/slope down as much as 50 feet to more than 100 feet below the plateau of existing homes.

### **Character of the development**

The owners have focused on the rental housing market.

The lot sizes and setbacks will follow the guidelines from the Guam zoning code in the event that homes are ever partitioned and sold pursuant to an HPR establishment.



The final mix of the housing types will depend on the housing/rental market desires. The PUD map allows for shops and condominiums. These have been dispersed through the property that support the neighborhood and reduce the reliance on autos for basic necessities.

The construction of the project and supporting uses is planned in approximately 5 phases which are aligned to the availability of Government infrastructure capital improvements slated for the village and surrounding areas.

Key among the infrastructure improvements are the ongoing Agat Wastewater Treatment Plant and the nearby Baza Wastewater Treatment Plant Improvements.

**Project Phases:**

Phase 1	16 Dwelling Units
Phase 2	68 Dwelling Units
Phase 3	105 Dwelling units
Phase 4	224 Dwelling Units
Phase 5	75 Units (all-suites transient accommodations)

**Calculation of density:**

Overview, the property is approximately 168 acres gross (680,000 sm).

The applicable method of calculating the density of the proposed residential neighborhood project is the Gross Site Density calculation method. The mix of densities help to create character and variety – moving away from monotonous neighborhoods and supports the Guam Zoning Code requirements for protecting open space.

**Gross Density Calculation:**

Total Number of residential Units	488 units	488 units =	2.90 Dwelling units
Total Area of the Property	680,000 sm	168 Acres =	acre

**APPLICABLE SECTIONS OF THE GUAM CODE ANNOTATED, GUAM ZONING CODE:**

- “To encourage the most appropriate use of land, to provide adequate open spaces about buildings for light and air, to prevent undue concentration of population, and to assure adequate provisions for community utilities and facilities such as water, schools, parks and other public requirements”.
- Cluster Development-
  - (h) Cluster Development. Placement of residential units in close association to each other in order to consolidate required lot area into usable open space for the benefit of those living in such residential units.

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- **Section 61635**

- (d) All structures, including accessory structures, shall not cover more than thirty percent (30%) of the area;
- (h) All impermeable surfaces considered as a structure constituting gardens, sidewalks, fences, barrier walls, retaining walls, open air recreational facilities exposed to sunlight, swimming pools, and all subterranean structures located beneath grade and covered by earth shall be considered as an open area.

The PUD law requires requires a ratio of 70:30 – 70% open space to 30%. In order to achieve the open space requirement a variety of housing types will be necessary. Also per the PUD law- golf courses can be included in the open space calculation.

Number of dwelling units	488
Approximate area of residences	40.00 acres
Approximate area of support spaces	10 acres
Required open space	168 acres x .7 = 117 acres
Allowable enclosed space	168 acres x .3= 50.4 acres
Summary	50 acres < 50.4 acres

Therefore the project is within the allowable open space threshold.

The design team has coordinated with government agencies including GWA, GPA and DPW highways. The concurrence of the GLUC is a priority in order to align with the CIP projects coming online.

**Floor Area Ratios Notes:**

The floor area ratios for the single family detached, zero lot line semi-attached , row 4 to 8 Townhomes and Multi Family follow the Floor Area Ratio standards from the zoning code. The property owners plan is to engage the rental market on Guam executive and higher quality homes.

Enclosed ground floor areas is 888,516 sf or approx. 21 acres

If the program changes in the future- each of the R-1 and R-2 residence types have been allocated yard areas and setbacks that match or exceed areas per the zoning regulations

**GCA current density range comparisons for residential projects are as follows:**

	Zoning code	Masterplan	Lot Size	No of D.U.	Height
Single family detached	4 D.U./ acre	4 D.U./Acre	5000 sf	45	2 story 30'-0"
Zero Lot line semi-attached (duplex)	6 D.U./acre	6 D.U./Acre	3000 sf	72	2 story 30'-0"
Row 4 to 8 (townhomes)	10 D.U./acre	10 D.U./Acre	2,500 sf	232	2 story
Multi-Family	26 D.U./acre	26 D.U./Acre	1,688 sf		3 -5 stories
Hotel (small)	32 D.U./acre	32 D.U./acre	1,168 sf	75	87 ft

**Coordination with Government Agencies:**

- The Planning team met with government agencies to discuss and coordinate the masterplan and phases and infrastructure.
- In the collaboration the infrastructure agencies provided feedback and guidance as to possible phasing timeframes and checked infrastructure capacity to meet the needs of the program.

**Guam Waterworks:**

GWA has several CIP programs underway at different stages for both water and sewer. Summary bullet points are provided below, details of discussions and feedback from GWA are provided in the attached "Assessment of Existing and Proposed Infrastructure".

- Agat Wastewater treatment plant and the Baza Garden WWTP Improvements will provide sewage capacity via the proposed force main.
- Currently sewage gravity capacity is available moving in the direction toward Route 4 and connection points are available nearby, fronting the apartment complex across the street from the current PUD entrance.
- Cross island Road Waterline
- The initial phases 1 and 2 are within the capacity of the available gravity connection. The additional capacity needed for the latter phases would be accommodated through the Baza and/or the force main line being added as part of the consent decree.

**Guam Power Authority**

Energy efficiency is programmed for the dwelling units for environmental reasons as well as the appeal to tenants seeking sustainable homes. Use of renewable energy in the homes includes the use of photovoltaics and solar water heaters.

**Environmental Protection Agency**

We met with Angel Marques, Chief Engineer and Edgardo Ibay, Engineering Supervisor of Water Pollution Control Program of EPA who were already familiar with the site and the proposed work. We discussed the sewer line connections, stormwater treatment and wetland treatment for the proposed

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work. The discussion included if package septic systems were viable or even necessary. EPA advised informally that there was likely adequate sewer line gravity connection nearby that might be able

Primary comment is that it may be possible to coordinate on a connection to one of the existing sewerline connections near the apartment building

Additionally EPA advised that the owners and design team would need to coordinate the turnover and schedule of the work to align with the proposed wastewater treatment plant improvements for Agat and Baza Gardens. Both the Agat Wastewater improvements project and the Baza Gardens WWTP projects are currently underway as part of the consent decree.

The proposed neighborhoods utilize Best Management Practices (BMP) in the design to mitigate dust, noise and erosion during and after the construction of all phases.

**Mayors Office of Yona**

**Pending letter of support**

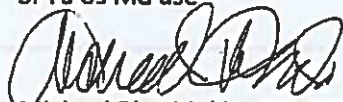
**Department of Public works Traffic engineering:**

The Civil Engineering consultant performed a physical traffic analysis which is provided attached to this summary. Based on the standards and best management practices (BMP) for traffic engineering the following summary is provided:

1. The additional traffic load to Route 17 was determined to be well within the capacity limits of the Route 17.
2. Effects to Vehicle movement on the feeder road leading to route 17 is limited to the two smaller phases 1 and 2.
3. Improvements related to the larger phases 3,4 and 5 will be part of the road and infrastructure work connected to the additional road access.
4. The attached civil engineering report shows detailed guidance regarding infrastructure and roadways.

In Summary, we hope that the information provided is sufficient for the GLUC and the DLM planning team to provide concurrence that the proposed work and the calculations and illustrations for the density of the proposed work are reasonable and consistent with the intent of the original PUD neighborhood, thereby allowing the owner to move ahead with the design and construction as prescribed herein.

Si Yu'os Ma'ase



Michael Blas Makio, AIA, LEED AP

Principal Architect

TRMA+/Taniguchi Ruth Makio Architects

**TRMA**   
Taniguchi Ruth Makio Architects

# WINDWARD HILLS COUNTRY CLUB

## Request for Concurrence for PUD Density Calculations

### LOT NUMBER 154-2-4-REM-NEW-2-REM

Lot Area:  $4738 \text{ sm} + 674,043 \text{ sm} + 1143 \text{ sm} + 2023 \text{ sm} (I\#4) + 1950 \text{ sm} = 683,897 \text{ sm}$

- I. Project Background
- II. Description of the PUD elements
- III. Application of PUD Regulations and Density Calculations
- IV. Collaboration with Agencies
- V. Supporting Considerations for Concurrence and Conclusion



## PROJECT BACKGROUND

- ▶ The PUD is a 168 acres, located in Yona aka the Windward Hills Country Club.
- ▶ The property was designated Planned District Development by TPC action on June 22, 1972.
- ▶ Sept. 2016 Wonderful Guam requested GLUC concurrence for a density calculation for the existing PUD, in order to begin the design and construction of residences and supporting amenities.
- ▶ GLUC requested a fuller picture of the intention and character of the proposed PUD and allowable uses including the projected density for the whole project.
- ▶ A mix of supporting uses is combined to create character and variety in the PUD – avoiding monotonous neighborhoods while supporting the GCA requirements for protecting open space.
- ▶ The PUD is programmed for a diverse and robust rental market, including “Senior Active Living Housing”, TLA/TDY/Service apartments and conventional rentals.
- ▶ Program is developed to encourage add'l permanent jobs in the village of Yona. Other examples include Wetland farming (“Amot”) opportunities and including village farmers in F&B.



## PROJECT BACKGROUND (CONT'D)- THE DESIGN PROCESS & DEVELOPING THE RIGHT DENSITY.

3

- Review of available documents for the PUD along with the Guam laws and GCA sections
- Overlaying the approved (1972) PUD map on the property to see which program uses fell within the property boundaries.
- Perform site visits to study the existing terrain, character of the current development and surrounding neighborhood.
- Synthesizing the PUD program into a concept focused on smart growth and diversity of housing types & PUD uses within reasonable density limits.
- PUD uses were laid out prioritizing pedestrian circulation and efficient distribution for water, power and sewer infrastructure
- A low impact 75 room all-suites hotel is proposed above the clubhouse, lockers, F&B and other amenities. Many of the supporting services will be made available to the Yona village.
- 2-covered parking is provided for each home. ADA parking is provided and visitor parking is provided. 40' streets allow for landscape buffer and street side parking too.



## PROJECT BACKGROUND

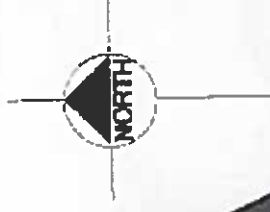




## DESCRIPTION OF PUD ELEMENTS

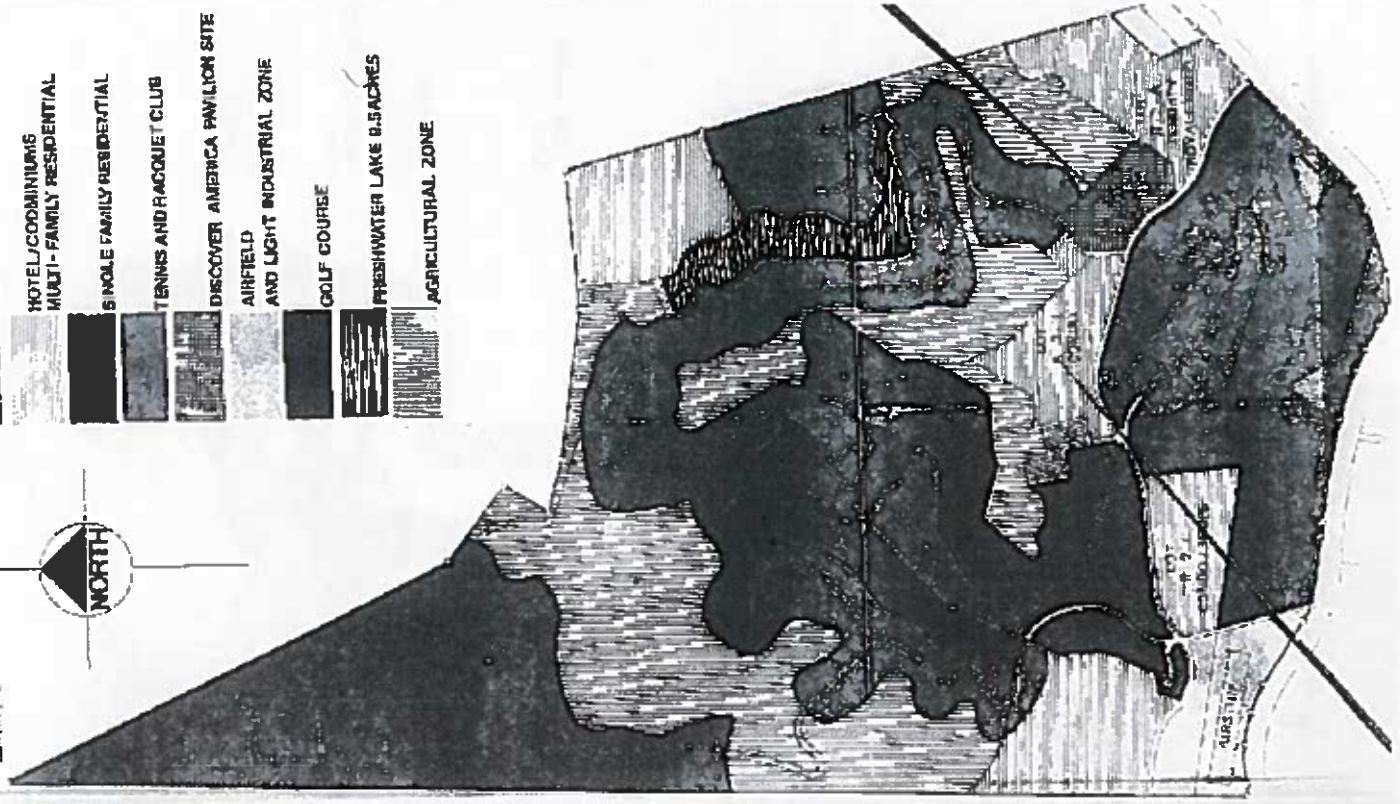
- ▶ Single Family Homes
- ▶ Multi-Family
- ▶ Condominium & shops
- ▶ Hotel
- ▶ Single Family Residences
- ▶ Tennis and Raquet-ball clubs
- ▶ Discover America Pavilion
- ▶ Air Field Light industrial
- ▶ Golf Course
- ▶ Fresh Water lake

## LEGEND :



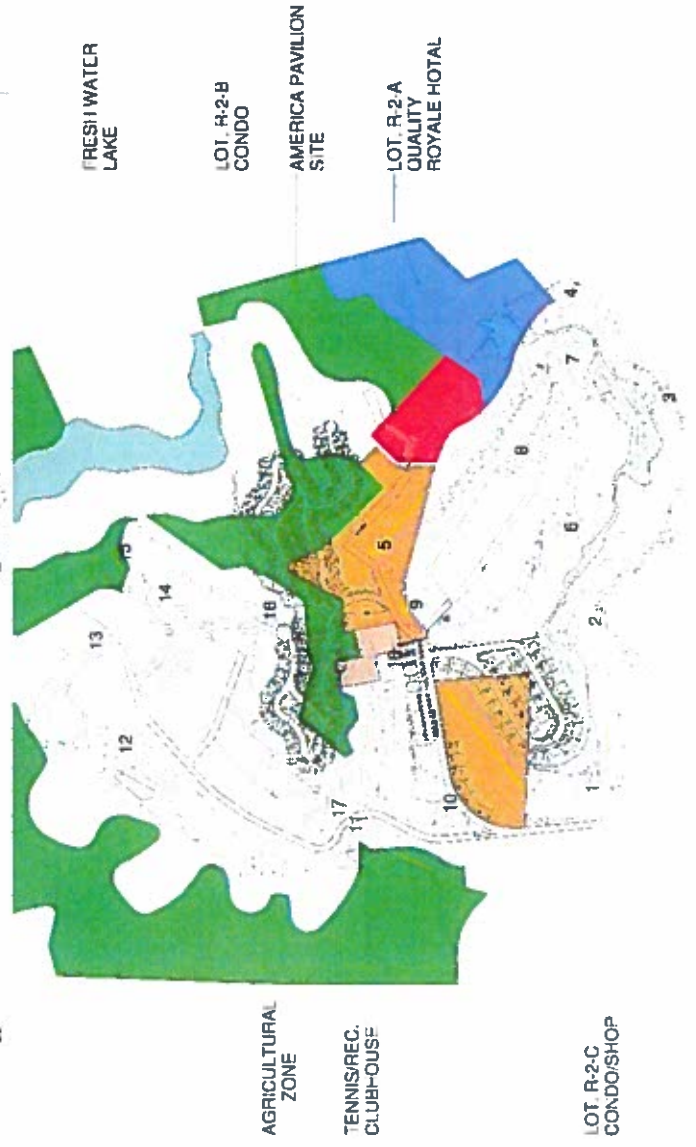
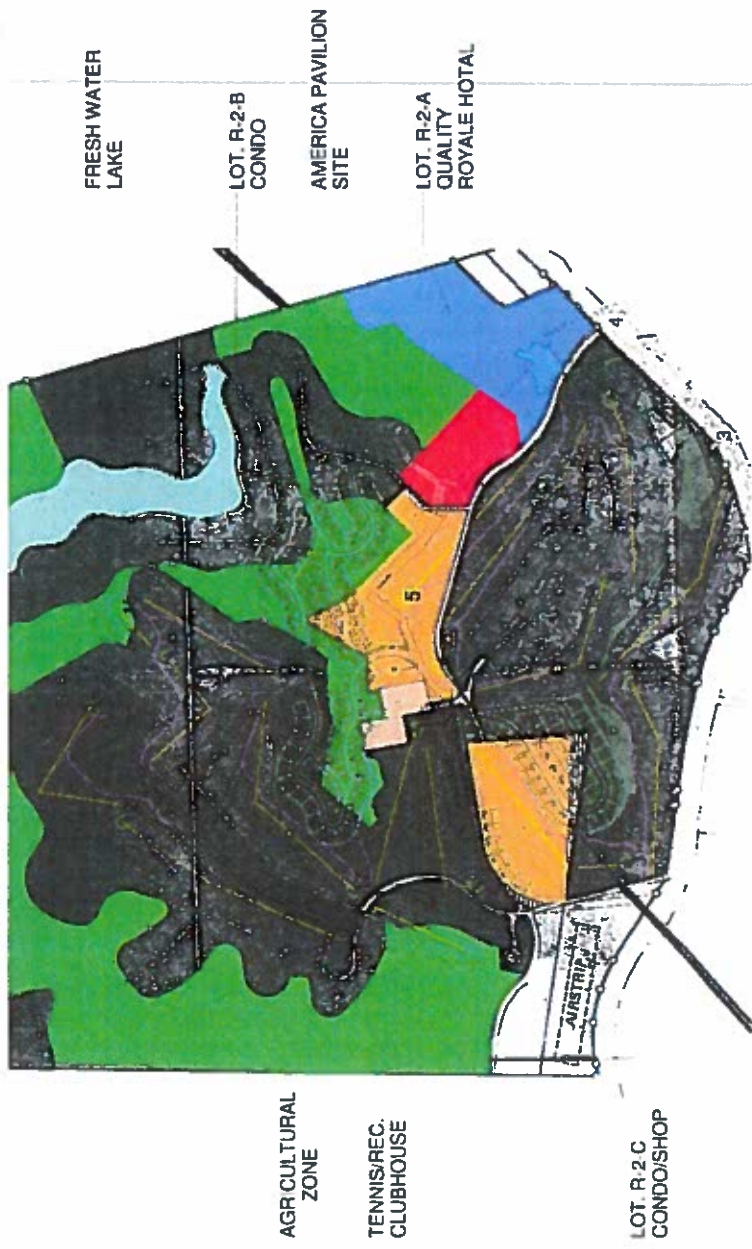
ZONING C

	HOTEL/CONDOMINIUMS
	MULTI-FAMILY RESIDENTIAL
	SINGLE FAMILY RESIDENTIAL
	TENNIS AND RACQUET CLUB
	DISCOVER AMERICA PAVILION SITE
	AIRFIELD AND LIGHT INDUSTRIAL ZONE
	GOLF COURSE
	FRESHWATER LAKE & SACKS
	AGRICULTURAL ZONE





## Description of PUD Elements





## Description

7

## of PUD elements

The approved PUD elements include single & multifamily residences, low impact, mid-rise, all-suites hotel, PUD amenities and recreational spaces

# TRMA

Taniguchi Ruth Makio Architects

**TOTAL COUNT: 488 DWELLING  
UNITS**



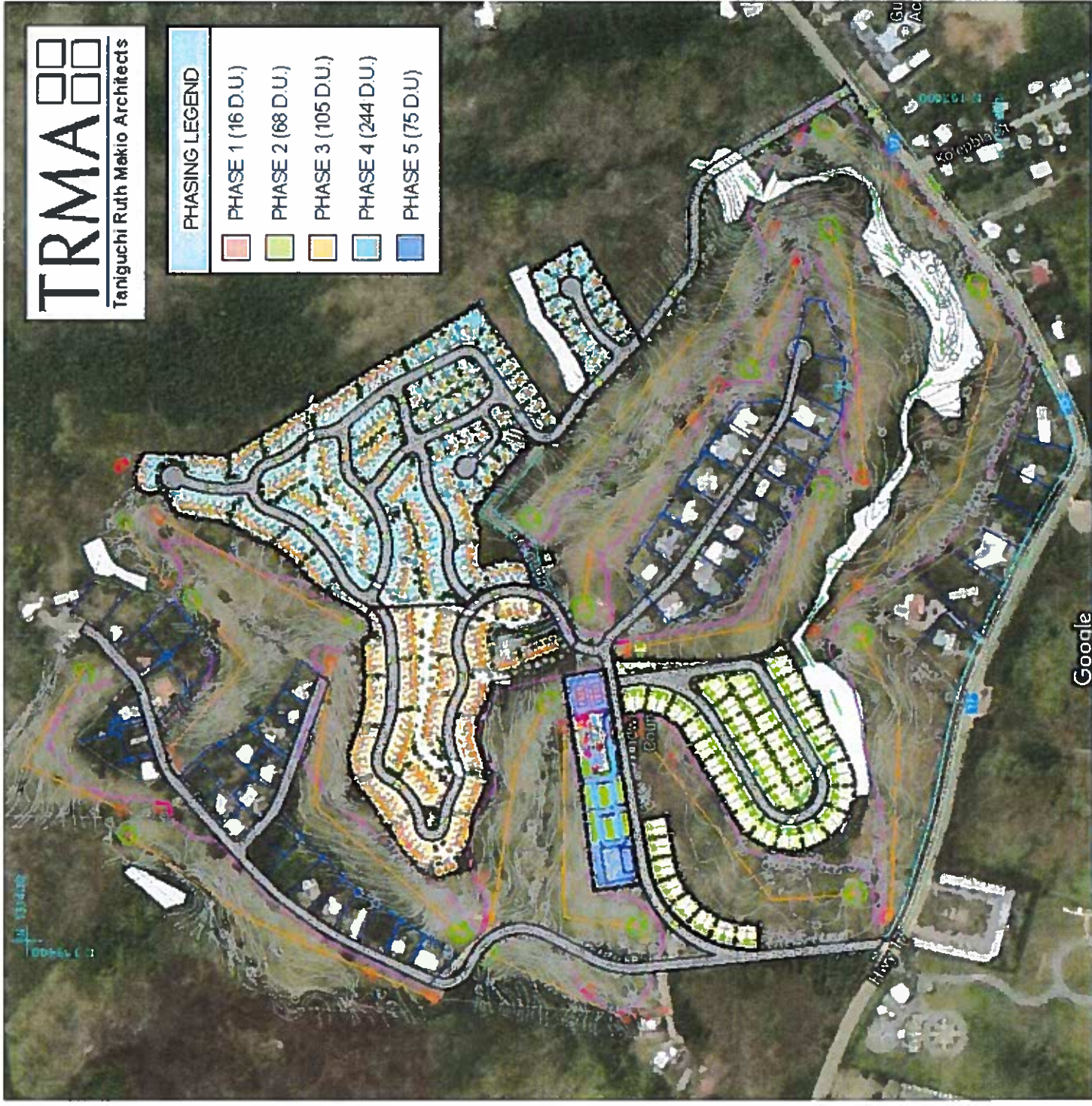


## Description

8

## of PUD elements

Smart Growth  
/sustainable  
growth  
principles are  
applied in the  
masterplan to  
provide  
supporting  
neighborhood  
spaces &  
reduce  
vehicle use.

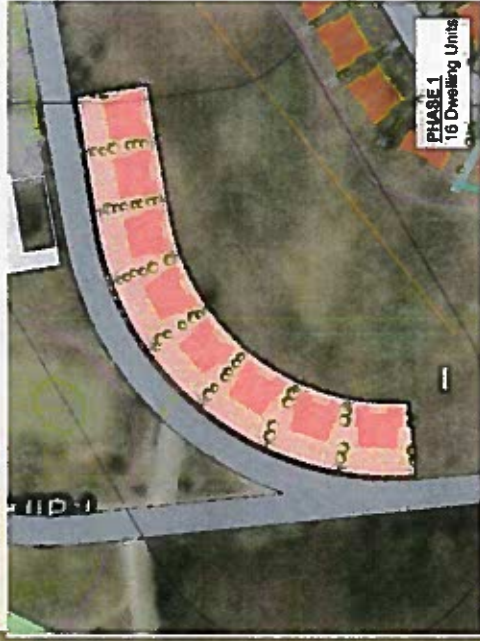


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# Description of PUD elements

9





## Description of PUD elements

10

Landscape provides character and natural sun shading, noise buffers and defines fairways and protects homes.





## Description of PUD elements

11



A new access road mitigates traffic impacts to the existing roads and provides a routing for new power, water and sewage.





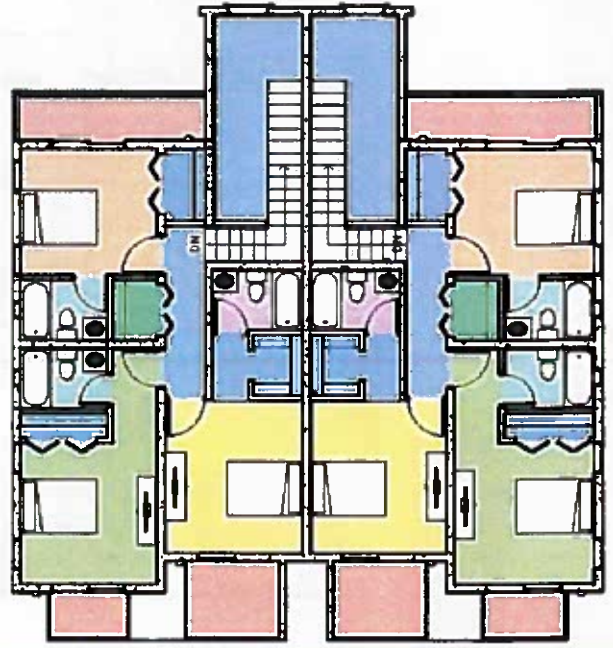
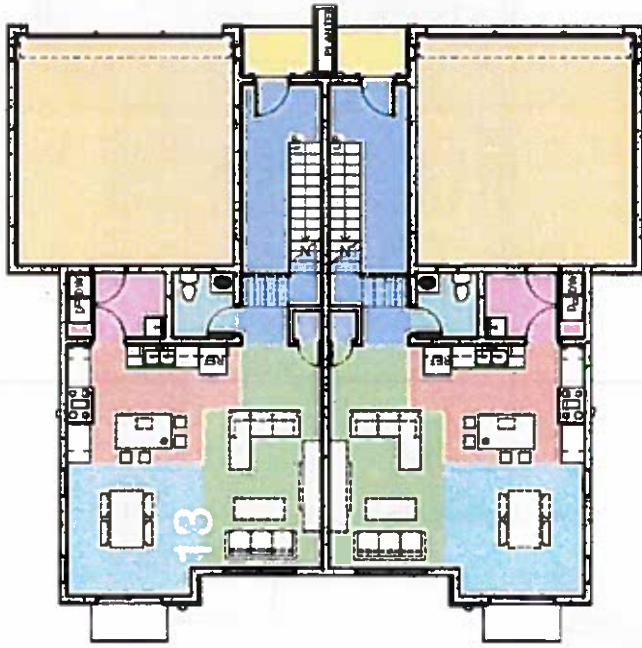
## Description of PUD elements

Additional amenities include multi-use, neighborhood scale retail, postal service, health club, playgrounds, convenience store, Pharmacy, pet grooming, Day-care, sidewalks, running paths, sport activities,

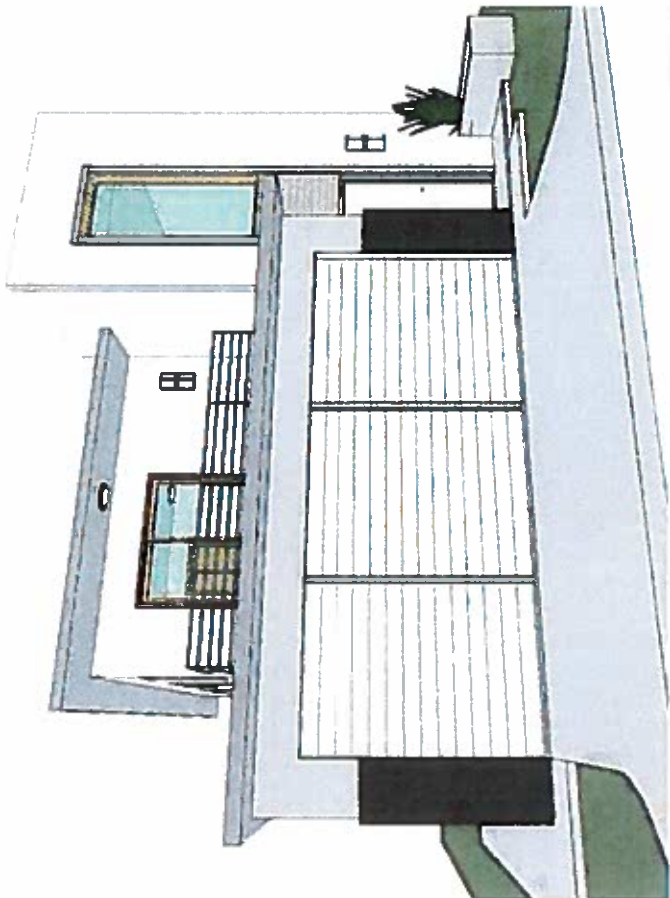
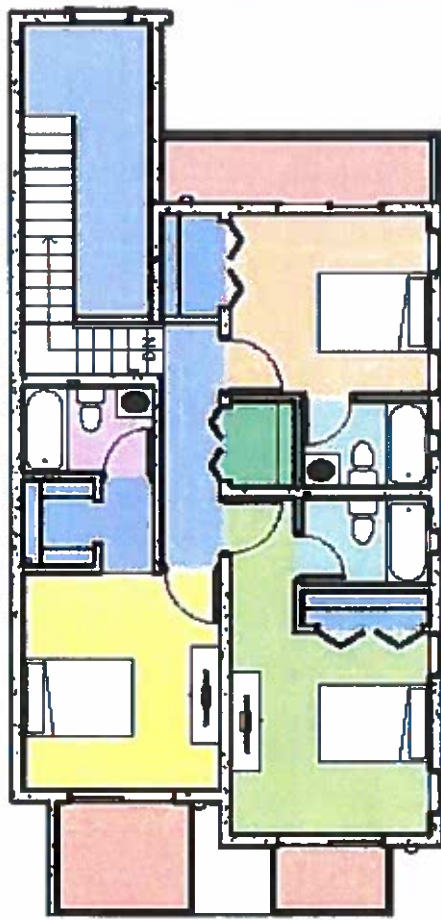




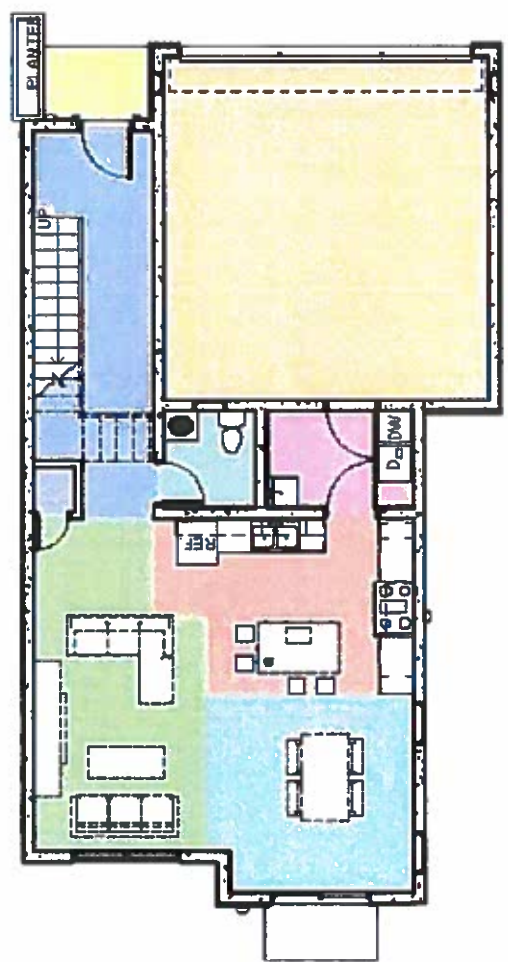
# Description of PUD elements

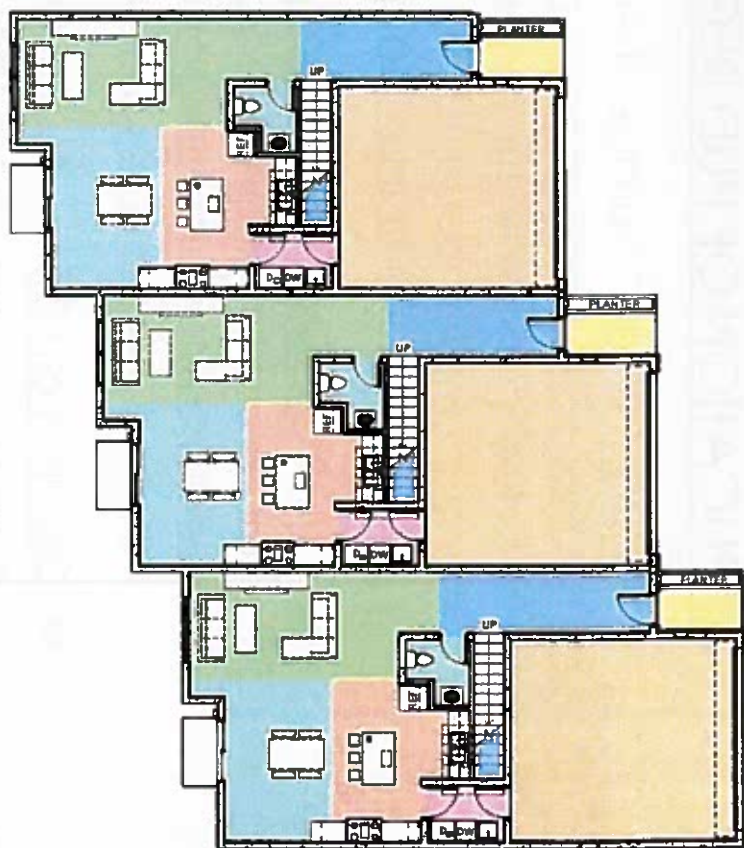
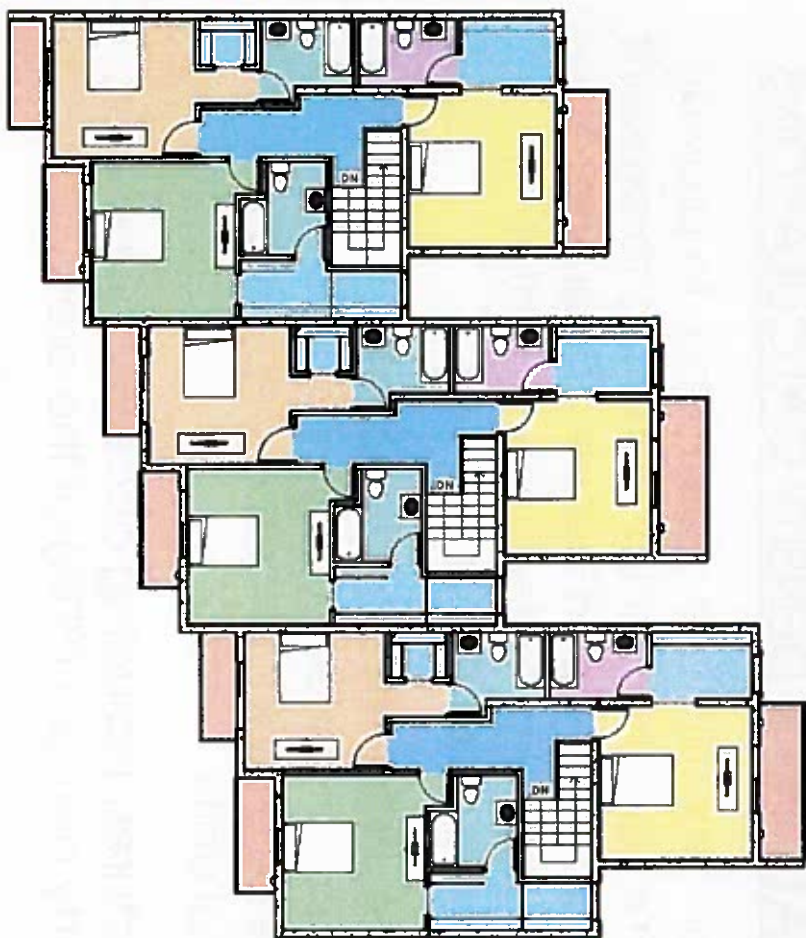
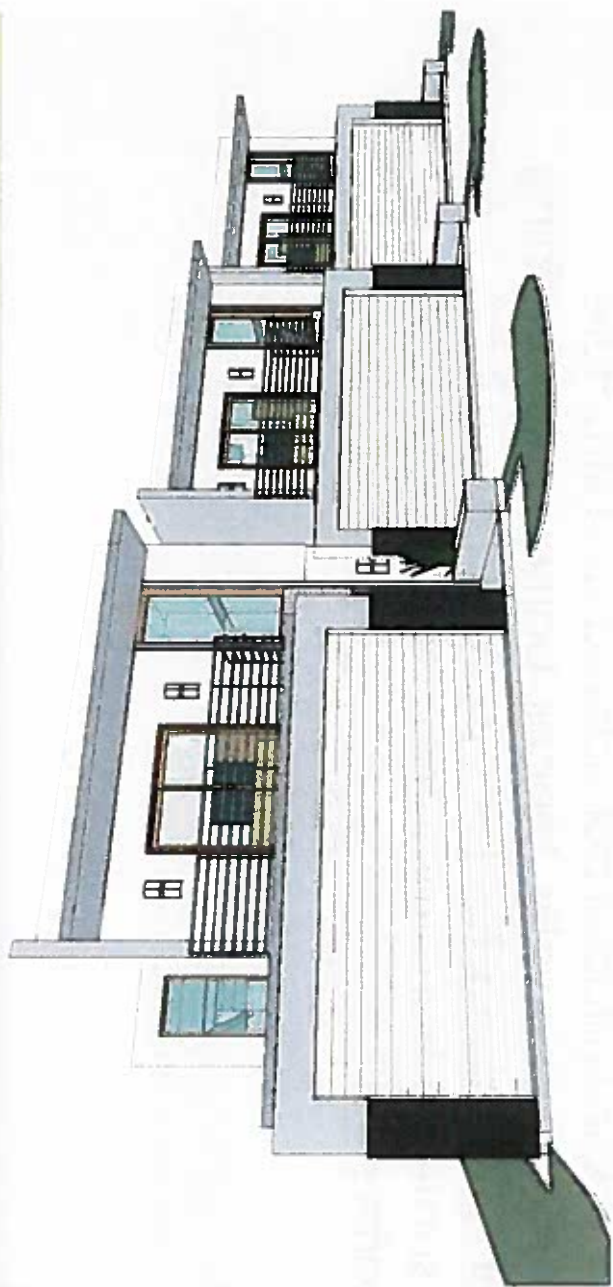






2-car garage is provided for each home. ADA parking and visitor parking is provided. 40' streets allow for landscape buffer and street side parking too.







## APPLICATION OF PUD REGULATIONS & DENSITY CALCULATIONS

- ▶ **GCA:** "To encourage the most appropriate use of land, to provide adequate open spaces about buildings for light and air, to prevent undue concentration of population, and to assure adequate provisions for community utilities and facilities such as water, schools, parks and other public requirements".
- ▶ (h) Cluster Development. Placement of residential units in close association to each other in order to consolidate required lot area into usable open space for the benefit of those living in such residential units.
- ▶ Section 61635: (d) All structures, including accessory structures, shall not cover more than thirty percent (30%) of the area;
- ▶ (h) All impermeable surfaces considered as a structure constituting gardens, sidewalks, fences, barrier walls, retaining walls, **open air recreational facilities exposed to sunlight**, swimming pools, and all subterranean structures located beneath grade and covered by earth shall be considered as an open area.

## APPLICATION OF PUD REGULATIONS & DENSITY CALCULATIONS

➤ The PUD law requires 70% open space to 30% enclosed. To achieve this requirement a variety of housing types are used. Per the PUD law, the golf course is included in the open space area.

➤ Number of dwelling units	488
➤ Approx. area of residences	40.00 acres
➤ Approx. area of support spaces	10 acres
➤ Req'd open space	$168 \text{ acres} \times .7 = 117 \text{ acres}$
➤ Allowable enclosed space	$168 \text{ acres} \times .3 = 50.4 \text{ acres}$

### ➤ **Summary**

**50 acres < 50.4 acres**

➤ **Calculation of density:** the property is approximately 168 acres gross (680,000 sm).

➤ The applicable density calculation for this PUD is the Gross Site Density method. Gross Density is determined by dividing the number of individual dwelling units by the area of the property:

➤ <u>Total Residences</u>	<u>488 units</u>	<u>488 units =</u>	<u>2.90 DU's</u>
➤ <u>Total Site Area</u>	<u>680,000 sm</u>	<u>168 Acres =</u>	<u>acre</u>



## COLLABORATION WITH AGENCIES: GWA

18

▲ Sewer and water for phases 1 and 2 is available.

Phases 3, 4 & 5 will correlate schedules to the completion Baza WWTP & Agat WWTP upgrades (mandated improvements).

▲ For water tanks- overnight pump schedules may be req'd. The existing homes & golf course are served by 6-inch water mains connected to the 16-inch GWA water main on Route 17.

▲ Phases 1 & 2 may be connected to the exist'g water mains. Phases 3, 4, & 5 may have a separate connection- via the new access road -to the Route 17 water main.

▲ Anticipated add'l demands were presented. GWA indicated that the working pressure available at the proposed connection point was 30 - 35 psi. GWA and advised that GWA cannot guarantee provision of adequate water supply for fire flow demand.

▲ Pressure for FP systems may require pumps. System dev't charges may be applied

▲ Phase 1:	8.80 gals/min	132 gc/d
▲ Phase 2:	37.4 gals/min	132 gc/d
▲ Phase 3:	58.8 gals/min	132 gc/d
▲ Phase 4:	122 gals/min	132 gc/d
▲ Phase 5:	22.1 gals/min	132 gc/d

## Collaboration with Agencies - GPA

- ▲ AE met with, the GPA & presented the est'd. consumption.
- ▲ Multi family homes are more efficient & reduce consumption by sharing outdoor & common area lighting
- ▲ PV net metering, PV street lighting & Solar water heaters in the PUD program help reduce Power consumption.
- ▲ Exist'g power lines serving the golf course & surrounding residences in the PUD may be replaced with a double main line feed with switches for zoning & Isolation (for load range of approx. 5,000 kva). For load demand of 7,000 kva & up a substation may be necessary.

▲ GPA will need phasing dates early during the preparation of permit /engineering drawings to coordinate supply.

▲ Add'l load may be factored to convert existing SFD homes to the new double main line.

Phase 1 demand is likely available from the current service.

Phase 1	range	160	-	324	kva
Phase 2	range	680	-	1377	kva
Phase 3	range	1,050	-	1399	kva
Phase 4	range	2 440	-	3680	kva
Phase 5	range	518	-	750	kva
Total	Range	4,848	-	7530	kva



## Collaboration with Government Agencies DPW Traffic:

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Traffic Impact Analysis estimated the add'l traffic generated by the project. The PUD shares an access road with the adjacent land owners leading to Route 17 (Cross-Island Road). We studied the intersection traffic levels anticipated for the PUD.

OTISS software was used to create a model of the Study Area, calculate the trip generation, and perform network analysis, using guidelines developed by Institute of Transportation Engineers (ITE).

Actual traffic counts were entered into the OTISS as the exist'g conditions. Traffic coming from and going to all directions were recorded.

Add'l volume of traffic before & after the completion of the development were generated by OTISS and compared to the capacity of each intersection being studied. The post-dev't volume of traffic did not exceed the capacity of the intersections.

Therefore the existing roads have adequate capacity to handle both the existing and additional volume of traffic.

Note that per DPW -Phase 2 of Route 17 Rehabilitation and Widening Project is currently in the design stage and will further enhance the capacity of Route 17.

A new access road will house utilities and traffic in phases 3,4 & 5 and mitigates minimizes road disruptions.

- Collaboration with Agencies – Guam EPA
- A Lidar survey was used to study the existing terrain and stormwater. Surface runoff from Phase 1 & 2, Clubhouse, & existing lots discharge into the wetland to the south. Phases 3 & 4 send surface runoff to the natural waterways to the NE.
- The site grading will be designed to minimize earthwork. Cut and fill shall be balanced to the extent possible to avoid importation of off-site fill materials or hauling of excess soil.
- Grading design will focus the stormwater management. Low-Impact Development (LID) and Best Management Practices (BMP) maintaining natural drainage patterns. Structural stormwater (BMPs) will be designed to remove 80% of the average annual post development (TSS) load & match the pre-dev't infiltration rates. BMPs will also be used so that the post-dev't peak discharge rate does not exceed the pre-dev't peak discharge rate for 25-year events.
- All BMPs will be designed complying with the CNMI/Guam Stormwater Management Manual, 2006.
- Designs will harvest rainwater for wetland support and for secondary landscape irrigation.

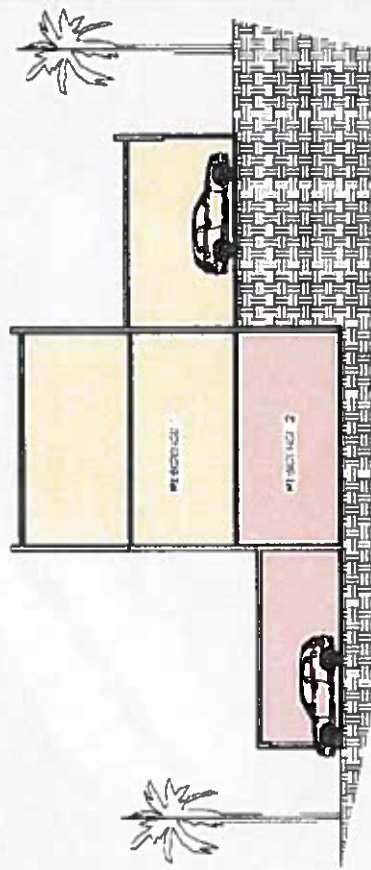


## Supporting Considerations and Conclusion

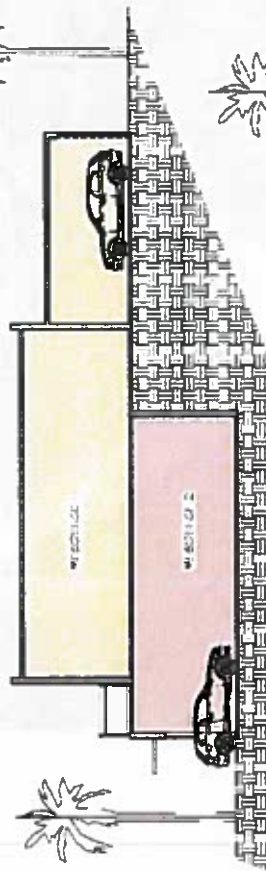
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- ▶ The planning team engaged with GPA, GWA, EPA and DPW Traffic engineering to establish open communications and incorporate information and concerns as they were made available.
- ▶ GWA advised the schedule of the CIP improvements for the Baza Wastewater and Agat projects. The planning team has correlated this to phases 3, 4 and 5.
- ▶ The AE and the property owner have maintained the Zoning regulations and setbacks. And strived to provide balanced and compatible density that supports a desirable character for the PUD and for Yona.
- ▶ With Smart Growth, Multi-Use Planning and Sustainability prioritized in the design and construction of the project, the PUD will add to the village of Yona and provide a positive example of density for other design and construction projects in the south.

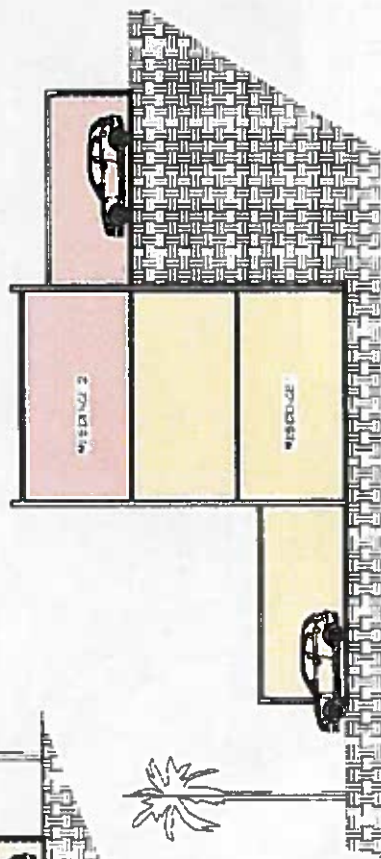
# Description of PUD elements



2  
SENIOR HOUSING -  
OPTION 2



1  
SENIOR HOUSING -  
OPTION 1



3  
SENIOR HOUSING -  
OPTION 3







**GCA Density Comparisons for Residential Projects:**

	Zoning code	Lot Size	D.U. Height
Single family detached	4 D.U./ acre	5000 sf	2 story 30'-0"
Zero Lot line semi-attached (duplex)	6 D.U./acre	3000 sf	2 story 30'-0"
Row 4 to 8 (townhomes)	10 D.U./acre	2,500 sf	2 story 30'-0"
Multi-Family	26 D.U./acre	1,688 sf	3-4 story(48'-0")
Hotel (small)	32 D.U./acre	1,168 sf	80'-0" ft