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EXECUTIVE SUMMARY

GENERAL

San Ignacio Heights is located in Green Valley AZ, an unincorporated community in Pima County. Each of the 80 subdivisions in Green Valley has an HOA. Many of these are responsible for street maintenance. Each HOA is represented by the Green Valley Council. It incorporated as an Arizona 501(c)(4) Corporation in 1973. The Council is an all-volunteer organization that serves as the community's "Civic Voice." It acts as Green Valley's liaison for governmental relations with local municipalities, the City of Tucson, Pima County, the State of Arizona, as well as Federal and Tribal governments.

San Ignacio Heights (SIH) was developed by Fairfield Homes beginning in 1990. The Community was constructed in four phases, with portions of the Community being built in 1990, 1991, 1992, and 1997. This makes the infrastructure, streets, sidewalks, sewer and water lines approximately 25 to 32 years old.

There are 159 homeowners in the subdivision. The subdivision is about 55 acres in size. There are about 20 acres of common areas. About 14 acres are routinely maintained. There are about 2.3 miles of 26 feet wide streets and about 0.2 miles of 42 feet wide Desert Jewel. SIH does not own the first 700 feet of Desert Jewel off Camino Del Sol.

FINDINGS

SIH streets were constructed by Fairfield Homes, the developer, at a time when standards and inspections were different in an at the time rural area. There were minimal or no standards required. There was no inspection or only cursory inspections by Pima County. The average life expectancy of an asphaltic concrete in this geographic region is approximately 25-35 years depending on how well they are maintained. SIH streets have been fairly well maintained. SIH streets were built on soils that are a good road base. SIH streets are beyond their designed service life. Based on a detailed study reported on April 6, 2022 by Frank Civil Consulting 1/ most if not all of the streets should be milled and replaced with new asphalt. These findings are similar to those of other HOA's of similar age in Green Valley (Desert Hills II for example). About 4 years ago Desert Hills II HOA completed a mill and replace with an assessment of \$5000 for each of their 600 homeowners. Canoa Seca to our immediate north has homes built in 1988-1989 time frame. They are using a PolyChip overlay about every 8 years. Canoa Seca Covenants do not require special assessments.

Maintenance costs will continue to increase until the street surfaces are eventually milled and replaced with new asphalt. If left untreated, asphalt will break up and fail completely to a surface with potholes and broken asphalt.

CONCLUSION

Based on the findings, the SIH Roads Committee recommends milling and replacing the 2 ¼ inch layer of Asphalt Concrete (AC) on most of the streets to the standard of 2 to 2.5 inches for local streets and 3 inches for cul-de-sac as soon as possible if funds can be made available. If not consider a PolyChip Overlay.

INTRODUCTION

Arizona is the sunniest state in the United States. In Tucson there are an average of 3852 hours of sunlight per year (of a possible 4383) with an average of 10 hours and 32 minutes of sunlight per day. All that sun and heat are the leading cause of deterioration for asphalt. This is not unlike the asphalt underlayment on the roofs of our homes. It also deteriorates, becomes brittle and leaks.

Asphalt concrete or hot mix asphalt is made up of specified crushed rock and sand (mineral aggregates), asphalt liquid binder and mineral fillers. The harsh UV rays of Arizona's sunshine erode the surface of asphalt. UV rays combine with oxygen in the air to create a chemical effect — or "oxidation" — on asphalt. Oxidation steadily breaks down the asphalt's binders (or the refined petroleum product that gives asphalt its spreadable, watertight features), which leads it to become brittle and disintegrate.

While the sun is-on the whole-damaging to asphalt, Arizona's sunny climate does have its benefits. In other climates that experience longer, colder winters, a continuous "freeze-thaw" temperature cycle can seriously damage asphalt. When temperatures regularly dip below freezing and rise again, ice and warm, expanding air can cause deep cracks in asphalt's surface. Arizona avoids this cycle which is good for asphalt's lifespan. However, because of the wide variation between daytime and night time temperatures in the desert, our asphalt is affected by these extreme fluctuations.

Seal coating asphalt acts as a form of sunscreen for asphalt. Arizona asphalt should be seal coated periodically. Seal coats provide a wearing surface to reduce the impact of sun and storm water and help to keep asphalt from becoming brittle and fills small cracks to keep water, dirt and debris out. Seal coating and chip seal can optimize the life of asphalt pavement when appropriately used.

Starting in mid-June and running through the end of September, Arizona's monsoon season brings heavy downpours. If an asphalt roadway is degraded enough these sudden intense rainfalls can erode damaged pavement and pond water, allowing water to infiltrate to the road base and causing it to lose its structural integrity. The base course becomes soft because of moisture and traffic loads cause the pavement to crack more and eventually break up. Where there are alligator cracks, when one piece of asphalt pops out of the matrix others quickly follow and a pothole forms.

Because of the dry, warm environment, asphalt can be laid during most of the year (temperatures 45 degrees and rising). However, because of hot summers and monsoon season, October through May are the best months to complete work. This is also the time when seasonal owners and renters and year round residents are absent. However, May through July can also be the most expensive time to do work as contractors are solicited during those times when residents are absent.

As would be expected with changing board and committee members, San Ignacio Heights has had different types of pavement remediation over the last approximately 30 years. This has created a lack of uniformity in pavement conditions. Also, at 30 years the pavement has deteriorated to where further remediation is not effective in preventing further damage and is a waste of homeowners money.

The purpose of this plan is to provide "A Roadmap Forward to Uniform Pavement Maintenance".

This plan is a living document, a blueprint that the HOA board, roads committee and homeowners use to maintain the roads that we own in common. This helps us maintain and protect the investment each homeowner has in our streets. It provides future boards and roads committees with baseline and

historical information on what has been done, when, where and why it was done and provides a basis for sound funding.

PAST STREET MAINTENANCE

Listed below are the major street maintenance projects conducted by the HOA over the last 26 years. These projects were initiated and completed by the HOA Roads Committee. Records 2/ that include bids and billings have been maintained by the Roads Committee.

2023 – Bates Paving – Crack seal all roadways except Desert Jewell. Fog Seal areas repaved in 2016. Repaint street markings. - \$40,000.

2022 - Frank Civil Consulting - \$4,675 Streets condition evaluation and recommended action.

2017 - Bates Paving and Sealing - \$62,877 Crack sealing and overall sealing of all roadways except Desert Jewell

2016 - Bates Paving and Sealing - \$137,850 included; Wescotta Ct, W. Mariquita (below Wescotta Dr.), S Anastasia Ct., West Circulo de la Piñata, W. Acala, S. Campina Ct., W. Mariquita (at Ramada) and intersection of Acala and Marquita. Crack seal Desert Jewell from Camino del Sol to below Emelita Dr.

2016- \$4,870 Ace Asphalt - Repair Westcott Dr. & Wescotta Ct.

2015 - \$13,286 Bates Paving and Sealing - Repair intersection of Wescotta Dr. and Mariquita, and cul de sac on Anastasia Ct.

2015 - \$5,522 Bates Paving and Sealing - Anastasia Ct.

2014 - \$4,414 Bates Paving and Sealing Asphalt Repairs - Anastasia Ct. & intersection of Wescotta and Mariquita

2012 - \$58,665.09 Bates Paving and Sealing - Road repair, crack sealing and overall road sealing

2008 - SIH HOA received a bid from Bates to pulverize and process and reuse onsite 4 to 6 inches of all the streets for a proposed cost of \$704,267. Excluding a list of items.

2008 - \$36,613 Bates Paving and Sealing - Repairs and Seal coating

2007 - \$38,613 Bates Paving and Sealing - Anastacia and Campina cul de sacs & Crack Seal all Streets.

2004 - \$28,511 Ace Asphalt - Sealing and Repair Various locations

2002 - \$9,816 Sunland - Crack Seal and Repair

1999 - \$20,832 Sunland Crack Seal & Seal Coating

1996 - \$13,165 Saguaro - Seal Coating

Total Streets Maintenance 1996 to 2023 equals \$479,691

There are about 65 two foot sewer access points with manhole covers and about 65 water access covers and survey monuments 8-10 inches in size. These require special attention during street maintenance operations. Paving companies charge to lower, then raise and reset them when repaving.

SAN IGNACIO STREETS

To manage the street network, a condition rating of very good to failed has been adopted. This rating is based on visible distress. All sections of a street may not have all types of distress listed for each condition rating. They may only have one or two types. These standards are utilized in determining strategies and alternatives for maintenance, rehabilitation, and reconstruction activities to meet our goal of good or better.

General Description of the driving surface

Very Good - No longitudinal cracks except at pavement joints. Occasional widely spaced transverse cracks spaced 40 feet or more. All cracks sealed or tight (less than ¼ inch). Recent overlay (less than 5 years).

Good - Slight raveling (loss of fines) and traffic wear. Longitudinal cracks (open ¼ to ½ inch). Some spaced less than 10 feet. First signs of block cracking. Slight to moderate flushing or polishing. Occasional patching in good condition. Shows signs of aging. Sound structural condition. Can extend life with sealant.

Fair - Moderate to severe raveling (loss of fine and coarse aggregate). Longitudinal and transverse cracks (open ½ inch) show first signs of raveling and secondary cracks. First signs of longitudinal cracks near pavement edge. Block cracking over the surface. Slight rutting or distortions (less than ½ inch). Extensive and severe flushing or polishing. Some patching or edge wedging in good condition. Surface aging but sound structural condition. Can extend life with a PolyChip or equivalent seal.

Poor - Closely spaced longitudinal and transverse cracking. Often showing raveling and crack erosion. Severe block cracking. Alligator cracking on less than 25 percent of the surface. Patches in fair to poor condition. Moderate rutting or distortion (1 to 2 inches deep). Needs milling and replacement in 5 to 10 years.

Failed - Alligator cracking over 25 percent of the surface. Severe rutting or distortion (over 2 inches). Extensive patching in poor condition. Potholes. Needs immediate (less than 2 years) milling and replacement and may need base course repairs.

Current Pavement Conditions are summarized in Table 1. below. This table shows each street, the sq. yds. of surface area and the current street condition. This condition rating was developed based on the Frank Civil Consulting report and the knowledge and experience of Roads Committee members. This condition is updated annually by the Roads Committee with expertise from outside experts as required.

Table 1. San Ignacio Heights Street Inventory and Status as of April 2023.

Street Name	Square Yds.	Current Level
Acala St	3675	Poor
Amulet PL	2004	Poor
Anastacia Ct	2447	Poor
Champia Ct North	2527	Poor
Campina Ct South		Good
Circulo de la pinata	4366	Fair
Constancia	1684	Fair
Emelita Dr	3921	Poor
Manolita Dr	1884	Poor
Mariquita St East	9815	Good
Mariquita St West		Poor
Westcotta Dr	3505	Poor
Wescotta Ct	2007	Good
Desert Jewell SIH Section	7056	Fair
Total	44891	

San Ignacio Heights Geology and Soils

Green Valley sits in the huge geologic Basin and Range Province that extends from southern Oregon to central Mexico. This mountain-valley topography results from an earth plate tectonic period of extension from about 15 to 5 million years ago that broke the crustal rocks of western North America into blocks, separated by steeply dipping faults. Some of these crustal blocks were uplifted to form ranges; other blocks subsided as much as 2.4 mi to form deep basins. Streams cut deep canyons into the rising ranges and transported eroded boulders, cobbles, gravel, sand and clay to aprons of sediment - alluvial fans and bajadas - in nearby subsiding basins. 3/ Green Valley sits in a basin trough. Sediments eroded over millions of years from the sides of the Sierrita and Santa Rita Mountains were and are carried north by the Santa Cruz River like a conveyor belt. The frontage road and I-19 are the western edge of the conveyor belt.

The streets and homes in SIH are built on 1 to 5 million year old dissected alluvial fan remnants and are at an elevation of about 3000 feet. These materials eroded from the ancient Sierrita Mountains to the west. McGee Ranch development is at the base of these mountains. Keystone Peak 6188 feet and Samaniego Peak 6000 feet are two prominent peaks that remain. The SIH streets and houses are on these very old stable non-flooding tops or flat terraces of these alluvial fan remnants. Because of these flat terraces, cuts and fills were minimized in development of SIH. These terraces are armored by a large amount of gravel, cobble and boulders that have prevented erosion. The soils that formed in this alluvium are very old and stable. They have been further cemented by CaCO₃ that has, over millions of years, blown from salt rich dust in surrounding playas. The San Ignacio Golf Course fairways and greens are located, for the most part, on the bottoms of these alluvial fan remnants which are not armored and have thus allowed for erosion or dissection. These bottoms occasionally flood.

The Surficial Geology Map 4/ describes two units in SIH. Qo2 – Early Pleistocene alluvium (~1 to 2 Million years old), highly dissected alluvial fan remnants with moderately well preserved fan surfaces and strong soil development. QTs - Early Pleistocene to Pliocene alluvium (~1 to 5 million years old). Unit QTs consists of very old, deeply dissected and highly eroded alluvial fan deposits. QTs surfaces are alternating ridges and deep valleys, with ridge crests typically 10 to 30 meters above adjacent active channels. The thickness of QTs deposits is not known. QTs surfaces are drained by deeply incised tributary channel networks. QTs deposits are dominated by gravel ranging from boulders to pebbles. Deposits are moderately indurated and are quite resistant to erosion because of the large clast size and carbonate cementation.

San Ignacio Heights Streets Subgrade (Soils Information)

The soils in the SIH HOA are an excellent road base. This is a main reason why our streets held up so well. They are a great mix of cobble, gravel, sand, silt and clay that is further cemented in areas with CaCO3 (lime) the same stuff used in concrete. The ratings on the USDA Soil Survey 5/ show that you can drive heavy military vehicles on them with little effect. The majority (47 acres) of the soils in the approximately 50 acre area delineated in the map below have an American Association of State Highway and Transportation Officials (AASHTO) rating of A-1 (excellent) for subgrade.



AASHTO Group Classification (Surface)—Pima County, Arizona, Eastern Part San Ignacio Heights HOA Soil Map

AASHTO Group Classification (Surface)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
	Arizo-Riverwash complex, 0 to 3 percent slopes	A-1	2.2	4.4%
60	Pinaleno-Stagecoach complex, 5 to 16 percent slopes	A-1	44.9	90.8%
81	Tubac gravelly loam, 1 to 8 percent slopes	A-4	2.4	4.8%
Totals for Area of Interest			49.4	100.0%

AASHTO group classification is a system that classifies soils specifically for geotechnical engineering purposes that are related to highway and airfield construction. It is based on particle-size distribution and Atterberg limits, such as liquid limit and plasticity index. This classification system is covered in AASHTO Standard No. M 145-82. The classification is based on that portion of the soil that is smaller than 3 inches in diameter.

Group A-1. The typical material of this group is a well-graded mixture of stone fragments or gravels, coarse sand, fine sand, and a non-plastic or slightly plastic soil binder. This group also includes stone fragments, gravels, coarse sand, volcanic cinders etc., without a well-graded binder of fine material. General Rating Subgrade Excellent to Good. Road base material used in road construction is classified as A-1. Thus the soils in SIH qualify as road base.

Detailed Street and Sidewalk Network Condition (Frank Civil Consulting Report)

Frank Civil Consulting completed an investigation of the existing asphalt conditions present in SIH. The purpose of this investigation was to evaluate existing pavement, drainage and related components and recommend remediation options. Visual examination of the site took place on Wednesday, March 2, 2022. During this examination, the existing pavement surfaces were reviewed and existing drainage and conveyance systems evaluated. Frank bored holes in the streets at select locations to measure the thickness of the pavement and to observe its condition. Based on 6 borings the thickness of the Asphalt Concrete (AC) is about 2 ¼ inches. The Aggregate Base Course (ABC) is 3 plus inches thick.

The Frank report provided the following summary.

In synopsis of the San Ignacio Heights Community, it was unfortunate that the Community has endeavored completing multiple different types of pavement remediation over its historical life. This has completed a lack of uniformity of surface appearance and structural conditions and has created difficult and expensive maintenance costs moving forward. These costs would have been greatly reduced had the Community chosen to complete more uniform pavement maintenance practices. Moving forward, Frank Civil Consulting's challenge will be to reestablish a baseline street condition for each street that will provide uniform appearance, structural condition, and

continuity of regular ongoing maintenance. Over a significant amount of the asphalt surface, we noted considerable delamination due to over application in an attempt to a significant cosmetically cover over the structurally fatigued asphalt. The seal coat product that will continue to delaminate until removal and replacement of the pavement is completed. Further attempts to seal coat will only delaminate as well. We identified isolated concrete structural fatigue due to shallow tree root systems that should be addressed as a part of future pavement maintenance projects.

Based on the recommendations provided within this report, should the board choose to pursue the work as identified, it can be expected that the remediation completed therein will provide the Community a good wearing surface for 3-5 years before further ongoing maintenance is recommended (excepting crack filling which should be evaluated every 12-18 months) or other unidentifiable structural repairs not evident at the time of this investigation. In addition, a reserve analysis of ongoing pavement maintenance should be part of a long range plan where corrective work is conducted annually over the life of the pavement to insure maximum life expectancy. This long range plan should incorporate the eventual and ultimate need to address complete removal and replacement of existing asphalt.

SIH Roads Committee Summary of Repair Options and Recommendations

In January 2023 the San Ignacio Heights (SIH) Roads Committee, with input from the Board, evaluated street repair options for the homeowners. This evaluation followed the study and report made by Michael Frank in 2022. They interviewed other HOA's and paving contractors. The following options were reviewed and evaluated.

1. Mill and Replace all streets - This process recommended by Michael Frank Civil uses a machine to mill or grind off the old asphalt. A large truck follows and the old asphalt is conveyed into it and is hauled away. The company may sell this as aggregate base course and up to 15% may be include in any new asphalt. After, milling repairs are made to the aggregate base course where it is damaged. This may be parts of streets or whole streets depending on the amount and type of damage. New asphalt is then laid down and compacted. Desert Hills II completed a mill and replace in about 2019. They highly recommended Michael Frank and are happy with the results. Pima County recently resurfaced Camino Del Sol using this method. This is the tried and true method that is most used by cities and counties. It has the least risk of failure.

2. Pulverize and Replace - This process was recommended by Bates Paving and was used in the past on Wescotta Court and the east end of Mariquita. Pima County reportedly recently used this process in the repair of Houghton Rd. In this process a machine pulverizes the old asphalt and mixes it with 4 -6 inches of the aggregate base underneath the old asphalt. Bates contends that this strengthens the aggregate base. Having worked in SIH over the years on many repairs they say our aggregated base course need repair. In this process they do not haul away the old asphalt so it saves trips by heavy trucks. They grade and pack the new aggregate base course. They then overlay it with new Asphalt. Since the old asphalt is not hauled away, this process raises the street by 2 to 3 inches which may cause issues at the join with the curbs. This method also is the most disruptive and may increase the likelihood of breaking underlying water lines. These lines are supposed to be at least 18 inches below the surface.

3. PolyChip Seal - PolyChip is a unique combination of recycled tire rubber, polymer modified asphalt and coated aggregate which provides a waterproof membrane over the pavement surface. The process

begins with a thorough cleaning of the roadway surface utilizing high-speed air blowers and/or mechanical sweepers. Pavement cracks ¼ inch wide or larger are then filled with a hot-applied rubberized crack sealer. PolyChip oil containing recycled tire rubber and polymers is heated and applied to the surface from a distributor truck brought from Phoenix. Immediately following the oil application, ½ inch aggregate is evenly placed using a chip spreader. A rubber tire pneumatic roller is used to help compact the aggregate in place. After curing, loose stones are swept from the pavement surface. The final step is the application of an asphalt emulsion known as “fog seal.” Fog sealing provides an attractive appearance while improving surface cohesion. The PolyChip system remains flexible at cold temperatures and maintains integrity at high temperatures to help reduce reflective cracking. The finished surface requires very little maintenance and is extremely durable.

Canoa Seca Estates to the immediate north of SIH uses PolyChip. CSE was developed 1989-1990 (Fairfield Developers worked from the north to south). CSE had no or minimal alligator cracking according to Curt Wagner, their Road Committee Chair. He had a career in asphalt pavement. In 2011 Sunland did 10,000 sq. ft. of patching. In 2012 Sunland did crack fill, chip seal (PolyChip) and fog seal. They Seal Coat every 4 years. Sunland just completed a crack seal in January 2023. Their streets looked good. They have similar soils and geology to SIH and are in similar landscape position. They have a bid (12/15/22) from Sunland for another PolyChip and other repairs for \$8.13 per sq. yd. CSE did this first PolyChip in 2012 and were happy with it and so now 10-11 years later now he/they plan another one.

Canoa Vista II HOA has also recently completed a PolyChip Seal using Sunland. They are happy with the result. They went through a process similar to the one SIH is now going through.

PolyChip Seal may be a viable option for SIH. The challenges with this method for SIH is that our streets are in worse shape than CSE's streets were when they did their first PolyChip 11 years ago. Cracks may soon surface from our poor streets. A PolyChip seal on SIH streets may not last 10 years. It may only last 6-8 years. If the process is repeated every 6-8 years then the cost over 30 years is similar to Mill and Replace. Also, since the work is redone every 6-8 years it disrupts homeowners.

4. Green Asphalt Overlay - Tucson Asphalt uses a proprietary rubber binder. This rubber (from old tires) increases the viscoelastic properties of the binders used to hold a pavement's components together. Stated Advantages - It gives asphalt flexibility and long-wearing durability to avoid most pavement-cracking issues that occur with the old traditional binders used here in Arizona's extreme weather. Green Asphalt is an overlay so also eliminates the process of removing all the old asphalt, so it reduces dust, noise, and traffic that result from using traditional asphalt binders.

Canoa Seca Estates II and San Ignacio Vistas used Tucson Asphalt and completed a Green Asphalt Overlay. According to Canoa, “Our decision making process was pretty extensive and I have attached a summary of our project without all of the attachments. Essentially we spent time with several contractors to understand our options and they provided bids for those options. We then ran the numbers and created an unsophisticated 10 year life cycle cost for each option. We selected Green Asphalt by Tucson Asphalt Co.” San Ignacio Vistas also used Tucson Asphalt. They indicated that they had problems with the first effort by Tucson Asphalt. They thought they may have gotten a bad batch. Tucson Asphalt returned and fixed the areas and they were satisfied with the result.

Since SIH streets have so much alligator cracking, this 1 inch of asphalt may crack and break up prematurely. There is more risk with this solution and it is expensive.

5. Slurry, Chip Seal or Micro Type Seals – None of the engineers, pavement contractors or those with careers in asphalt paving recommended this option. Our roads are too old and deteriorated for this to do any good. The purpose of these seals is to maintain the seal and pliability of new or younger asphalt. It will delaminate or peel quickly on our streets and we will only track it into our houses and wash it down the street and into the Santa Cruz river during the monsoon.

6. Do Nothing - This option is only a short-term solution. When we asked Michael Frank how long before we have potholes and broken rutted pavement he said 2 years. Others have said maybe 5 years before most streets deteriorate and affect the aggregate base course.

7. Pima County Takeover of SIH Streets On 3-16-23 Green Valley Council hosted staff from Pima County Transportation Department who explained the County's process for taking over private roads. It is important to note that the County said it is not interested in taking over private roads. It is interested in converting (abandoning) county roads. They indicated that the funding they are receiving is declining.

In summary, in order for the County to take over our streets, the HOA would need to complete several steps. First, we would need to hire an engineering company to complete a legal survey of area to be transferred including the streets, sidewalks, curbs and gutter area at our expense. This area may need to extend beyond the home side of the sidewalk and curb and into the homeowners lot in order to provide room for maintenance and repair. Each and every homeowner in the HOA would need to deed this property to the County. Next, the HOA would need to hire an engineering firm to evaluate the streets, sidewalks, gutters and any related areas. The County would then evaluate their report. The HOA would need to make the repairs to bring the streets, sidewalks, gutters and related areas up to current county standards "in like new condition". Once these conditions have been met and approved, Pima County would proceed to establish the roads after Board of Supervisors' approval and include it in Pima County's Maintenance System. These streets, sidewalks, gutters and related areas then become public property. The HOA and homeowners would have no say in signage, speed limits, usage, etc.

Pima County has a program where HOA's can apply to form a pavement district. The County would send their expert out to evaluate the streets and determine what was needed. They would bill the homeowners for their share of the fix by their length of street frontage. After the fix, the district would assess each homeowner an amount for ongoing maintenance through a property tax line item. Pima County's representative at this meeting did not know of any pavement districts that had been formed. Most of the HOA's representatives at this meeting showed no interest in Pima County involvement in their streets mostly because of conversion cost and concern over long-term maintenance by the County. The HOA Roads Committee does not recommend pursuing this option with the exception of Desert Jewell. If SIH, San Ignacio Golf Estates and San Ignacio Golf Course could reach an agreement with the county, then this common access street may be worth considering if conversion was not cost prohibitive.

Estimated Cost of Options

<u>Process</u>	<u>Cost per Sq.Yd.</u>	<u>Total cost for SIH</u>
1. Mill and Overlay all Streets (multiple Vendors)	\$27	\$1,233,481
2. Pulverize Overlay with New Asphalt (Bates)	\$27/sq. yd.	\$1,242,000
3. Green Asphalt Overlay (Tucson Asphalt)	\$15/sq. yd.	\$690,000
4. PolyChip - Hot Asphalt 3/8 to 1/2 Asphalt Coated Stone and fog seal (Sunland)	\$9.10/sq. yd.	\$396,827
5. Seal Coat (multiple vendors)	\$1.30-\$2.00/sq. yd.	\$60,000-\$90,000

Notes on Estimates; Cost for option 1 is based on the Frank Civil report and vendor estimates. Estimates ranged from \$1.2 to \$1.6 million. Cost for option 2 is based on a meeting with Bates and their verbal estimate. Cost for option 3 is based on the cost paid by neighbor HOA, adjusted for SIH square yards. Cost for option 4 is based on quote from Sunland in 2023. Cost for option 5 is based on past work.

Recommendations Post 2023 Vote Failure– The Roads Committee makes the following recommendations.

1. The HOA should pursue option 1 or option 4 and complete the work over the next 5 to 10 years as funding permits.
2. The HOA should find a long-term solution to adequately fund future road resurfacing and repair.

HOW THE WORK WOULD BE DONE

The HOA Roads Committee will solicit a minimum of 3 bids for all work unless a company with a proprietary process is chosen.

Bids with a recommendation by the Roads Committee will be presented to the HOA Board for final decision. Vendors may be interviewed by the HOA Roads Committee and Board.

The HOA Treasurer will serve as the contracting officer (CO). The Chair of the Roads Committee would serve as the contracting officer's technical representative (COTR) who signs off that the work has been completed according to the SOW. The Treasurer in consultation with the President of the HOA and the Chairperson of the Roads Committee will issue payment based on an agreed to schedule in the Statement of Work. HOA will notice homeowners on bid winner, work dates and times, etc. and will minimize impact to the extent possible on homeowners.

RISKS

Risks associated with the plan are:

1. The repaving is poorly done. This risk is mitigated by ensuring that diligent inspections are completed according the SOW.
2. Water and sewer lines, that are the same age as the streets, have to be dug up and replaced. This risk is somewhat mitigated by ensuring that the new pipes are properly bedded and fill is compacted during installation and the area is repaved according to specifications.

SIH MAINTENANCE PLAN

The table below shows a long-term maintenance plan.

SIH Asphalt Maintenance Plan		
Year	Proposed Actions	Estimated Cost**
2024-2028	Repair as needed	?
2028 or	2 inch Mill and Overlay	\$1,600,000
2028	Poly Chip Seal	\$500,000
2031	Fog Seal	\$80,000
2034	Fog Seal	\$90,000
2037	Poly Chip Seal	\$600,000
2040	Fog Seal	\$110,000
2043	Fog Seal	\$250,000
2046	Poly Chip Seal	\$600,000
2049	Fog Seal	\$140,000
2053	Fog Seal	\$150,000
2057	2 inch Mill and Overlay	\$2,600,000
**Adjusted for historical average 3.8% rate of inflation		

CONCLUSION

The homeowners of SIH own the streets in common. The streets are ours to repair and maintain. There is no city government that taxes us to repair and maintain our streets and sidewalks. In 2023 the town of Sahuarita's budget was \$117 million. Homeowners paid about \$5000 in municipal taxes.

The HOA has homeowners with some skill and expertise who currently serve as volunteers to help us all maintain our streets. We do not have a staff of planners, engineers, technicians, contract officers, contract officers' technical representatives, clerical staff, etc.

Current roads committee Chair Al Loomis has 25 plus years' experience in road building and asphalt industry, member Dennis Lytle is a retired scientist with 30 plus years of soils, geology, and some road construction experience and David Caudill a retired Engineer has 30 plus years of Electrical Engineering and Construction Management experience.

Past Road Chairs or Co-Chairs include Gill Le Claire, Vern Evert, Andy Miller, Mike McDonald and committee members include Bill Goss, Harley Medgard, Bob Lane, Jim Lambert, Leo Prather, Dan Wilking, Steve Campbell, and Tom Kane. HOA board liaisons have included Bill Allen, Rick Lupu, Bob Mitacek, Dale Miller, John Plantz and Dave Fenner.

This plan presents the diligent work of these and many other homeowners over the years who did the best they could with the funds they had. This plan is owned by the homeowners and is a living document that is to be used by future homeowners to maintain our streets. Ideally a plan like this would have been put in place when the HOA was first formed. If funds had been collected over the past 30 years for the required street surface replacement it would have fairly spread the burden to all homeowners over the years. Since that did not happen, now is the time to start so that history does not repeat itself.

REFERENCES

- 1/ Report of Findings San Ignacio Heights Homeowners Association April 6, 2022, Michael Frank, Frank Civil Consulting
- 2/ SIH Roads Committee 3-ring binder with bids, invoices and records of past activities
- 3/ Bezy, J.V. and Conway, F.M., 2020. Island Mountains of Southeastern Arizona: Geology, Vegetation & Wildlife. Arizona Geological Survey Down-to-Earth #24, 99 p.
- 4/ Surficial Geologic Maps and Geologic Hazards of the Green Valley – Sahuarita Area, Pima County, Arizona By Philip A. Pearthree and Ann Youberg Arizona Geological Survey Digital Geologic Map 3. October, 2000, Arizona Geological Survey 416 W. Congress, Tucson, AZ 85701
- 5/ USDA Natural Resources Conservation Service, Soil Survey of Pima County Arizona. (<https://websoilsurvey.sc.egov.usda.gov>)
- 6/ Roadway and Development Streets Standards Manual. Pima County Transportation, Pima County Arizona 2020