Chateaux Sur Mer

Road Study Group Presentation

– February 2017

About this Communication

The goal of this communication is to provide an objective review of the Chateaux Sur Mer roadways. This document is for the benefit of the CSM Improvement Association membership.

Project Overview – Roads Study Group 2016-2017

- Background
- Road Study Group
  - Learning, Information Studied
- Engineering Study
- Costs

Background

Roads within Chateaux Sur Mer have been a topic for decades

- Previous boards have researched the topic
- Various tests have been conducted to increase effectiveness of the roads
- Other neighborhoods within proximity to Chateaux Sur Mer have dealt with roads either through paving or improving their existing dirt/pit shell road system
- An assessment was conducted in 2006 that evaluated installing paved road system

Over the past several years

- The runway entrance into Chateaux Sur Mer was paved in 2014
- A vote to pave the remainder of roads in Chateaux Sur Mer was defeated 33 ½ -32 ½ in 2015
- The Chateaux Sur Mer Board initiated an Engineering Study in early 2016 to determine how our existing roads could be improved

This Presentation reviews the 2006 Report, the 2016 Engineering Study, and additional considerations raised by the Chateaux Sur Mer community to present the Road Study Group's findings to our membership

Background – 2006 Study

- 2005 – Joseph Lutz (surveyor) preliminary review based upon his experience with Sanibel road design and regulatory agencies
- Mr. Lutz reviewed (1) leave road 'as is' and optimize (2) put down a surface (tar, cold rolled, or other materials) on existing road bed (3) create a sustainable tar road with compacted bed and appropriate drainage.
- Mr. Lutz recommended: (1) essential to have a well designed drainage system (2) best surface is a tar surface meeting construction standards for residential application (6" compacted base, 6" of compacted limestone, 1 ½" of asphalt) (3) drainage system for major roads (RBM, RB) have swales and culverts under every driveway.
- TDM Consulting (Dean Martin) engaged for a detailed proposal
  - Concluded total project cost for Mr. Lutz's recommendations of $1,085,975

No formal survey or surface testing was conducted.

Engineering Study – 2016/2017

- James Strothers (engineer) along with Sanibel Surveys, Inc. retained to study the functioning of CSM roads
- Improvement of existing dirt/pit shell roads and asphalt paving
- Environmental requirements, use characteristics, and both the short and long term cost considerations for our community
- Establishment of a baseline of existing roads:
  - Location and elevations
  - Features adjacent to road within right-of-way
  - Review drainage problems
- Preliminary layout plans and recommendations for:
  - Necessary improvements to create drainage solutions
  - Layout plans for retention of existing dirt/pit shell or paving
- Initial Phase: $15,700 (CSM Improvement Association reserves and budget)
- Final Design and Permit Assistance: $4,800

Current State of Roads

- Annual CSM Improvement Association budget provides for $15,000 for maintenance
- Key concerns with roads include particulate runoff into waterways, potholes formed (and reliance on Soon Come timing to repair), and general dust produced.
- These current state considerations are balanced against the cost to make improvements to enhance existing roads or to pave along with aesthetic considerations with asphalt
- Additional considerations to current state includes use of speed prevention methods and drainage.

Additional Considerations

The following areas were also important to our community members:

- Environmental impacts
- Health
- Safety
- Liabilities
- Water runoff onto adjacent properties
- Impact upon property values
- Aesthetics
- Property lines (right-of-ways / easements)
- Regulatory approvals
- Costs for any initial outlays and recurring maintenance of our roads

What We Learned As RSG Conducted our Diligence

- SFWMD (Southwest Florida Water Management District) – would issue a net benefit permit to CSM Improvement Association if a decision to pave was made as it would control particulate runoff w/ drainage improvements – Brian Rose SFWMD

- Dean Martin/TMI 2006 proposal based upon retrofitting roads to SFWMD 2006 objectives. In 2016/2017, SFWMD does not apply those objectives to established neighborhoods. Dean Martin indicated 2016/2017 objectives would create significant costs savings from 2006 pricing.

What We Learned As RSG Conducted our Diligence

- Limerock Bearing Ratio (LBR) – value derived from soil samples that evaluates the mechanical strength of roadway subgrades and basecourses required in Florida.
  - Would help determine the amount of material needed as a proper sub-base
  - LBR was not assessed in 2006.
  - Five (5) samples were taken January 23, 2017 by Universal Engineering Sciences Inc. $1,400
    - FDOT Standard Specifications call for a LBR of 40 (w/ 5 lower tolerance) or greater
      - Location 1: Rue Helene LBR 92
      - Location 2: Ruelle LBR 77
      - Location 3: Rue Belle Mer LBR 122
      - Location 4 & 5 Results not yet returned

Based upon these results, a durable, normal life cycle with minimal sub-base would be required if we choose to pave. 3 ½ total inches of height for paved surface on current base is height addition.

What we Learned as RSG Conducted our Diligence

Infiltration Testing

- Conducted by Velocity Engineering Services, LLC

Infiltration Test Results

Test #	Test Location	Infiltration Rate (cm/hr)
INF-1	Grassed Area - Directly Adjacent to Roadway	0.98
INF-2	Existing Limerock Roadway	1.56
INF-3	Grassed Area - Backyard of 4664 Rue Belle Mer	37.5

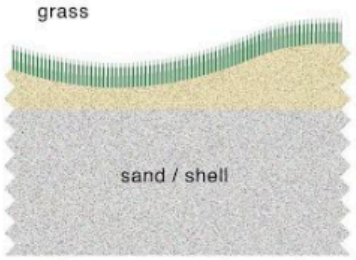
The infiltration rate of asphalt pavement would be at or near zero. Tests INF-1 and INF-2 both had very low infiltration rates (near zero). Test INF-3 had a much higher infiltration rate (24 to 38 times higher) which is typical for the well-draining sands in this area.

The poor infiltration rate in test INF-1 appears to be caused by the accumulation of silt deposited on the ground surface by runoff from the adjacent limerock roadway. A test hole was dug in this location and high concentrations of silt were observed in the top 2 to 3 inches of soil below the ground surface. Clean sand was observed below this depth.

It should be anticipated that grassed areas that have been receiving roadway runoff will have lower infiltration values due to the silt inhibiting the passage of water. If the roadways is paved with asphalt so that silt runoff no longer occurs, it would be possible to remove the top 2 to 3 inches with a high silt content, place clean sand and new sod, and significantly improve the infiltration rate in these areas.

Road Surface and Soil Absorbability - Permeability

50’ from Road Soil Makeup

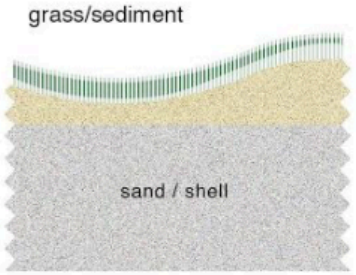


cubic centimeters/m

38

100%

10’ from Road Soil Makeup

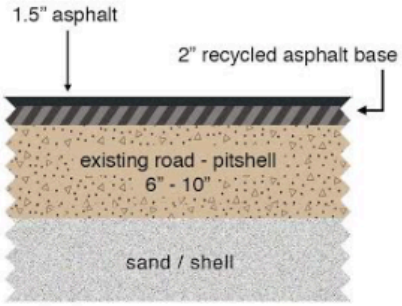


cubic centimeters/m

1

2.6%

Road Makeup Paved

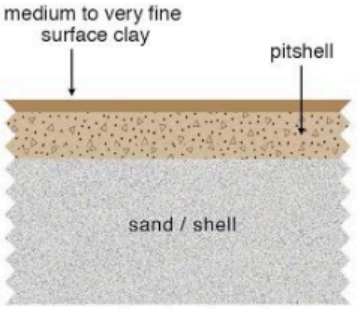


cubic centimeters/m

0

0%

Road Makeup Shell



cubic centimeters/m

1.5

3.9%

Note: 0 - 1.5% is extremely low permiability (100% = maximum permeability)

Environmental Considerations

- As discussed, SFWMD would provide a 'net benefit' credit for paving to "cap" the particulate runoff
  - A fee of $2,000 would apply
  - SFWMD believes the current situation is not environmental friendly
  - The particulate eventually sinks to the bottom of our bayous and raises the base impacting Chara algae growth to which we budget $14,000 per year to help control
- Included as overlays to either dirt road or paved road improvements are drainage improvements including exfiltration of particulate
  - Much more intensive to maintain for dirt road system / not recommended
- Currently, our lake ranks 33 of 72 lakes sampled for water quality around Sanibel (Community Lakes Baseline Water Quality Study Report prepared by SCCF)
- City of Sanibel is interested in having CSM waters mapped – FGCU Study
  - We are the head of the Sanibel River

Health Considerations

- EPA: Road dust is major source of particulate matter in the atmosphere. Particulate matter is measured in micrometers.
  - < 2.5 micrometers (fine particles) and 2.5 to 10 micrometers (inhalable coarse particles); human hair = ~ 100 micrometers
- Road dust can be held in the atmosphere for hours
  - Typically includes metal particles from brakes and tire wear
- Hospital admissions related to heart and lung disease result (Yale University Study 2015 – largest contributor from road dust)

Safety Considerations

- Sanibel conducted Shared Use Pathway Study Nov. 2015
- Relatively few crashes between bicycles/pedestrians and cars though of the events noted (between 2012 through July 2015)
  - 15 at or near driveways
  - 9 at intersections or mid-block crosswalks
- Overall, pedestrians/bicyclists and car events are happening mainly on Periwinkle

Sanibel Bicycle/Pedestrian Crash Reports, January 1, 2012 through July 31, 2015

Ref.	Date	Location	Comments	Xwalk	DW
1	1/21/2012	1551 Periwinkle Way	V hit B as V was turning into DW; B was already in DW		x
2	2/17/2012	1 Wildlife Drive (Ding Darling)	V backed into B at exit		
3	2/23/2012	2025 Periwinkle Way	V and B touched while pulling out in early AM- no damage		x
4	3/27/2012	1149 Periwinkle Way	B lost control - no crash (poss. sight line issue)		x
5	3/30/2012	474 Lake Murex Circle	B head down, didn't see V w/trailer; could not stop		
6	4/25/2012	2331 Palm Ridge Road	V lost control; crashed into parked B; no inj/driver contact		
7	11/19/2012	Periwinkle Way and Dixie Beach Blvd.	V hit P as P was entering Xwalk	x	
8	12/10/2012	2173 Periwinkle Way	V and B collided when V stopped at Xwalk, then proceeded	x	
9	1/12/2013	2003 Periwinkle Way	B in driveway hit by V; V says not see B		x
10	1/28/2013	2163 Periwinkle Way	V exiting hit B; B says her fault, should have been in Xwalk		
11	2/11/2013	2460 Periwinkle Way	V hit B as V was turning in to parking lot		x
12	2/20/2013	1201 Periwinkle Way	V hit B as V was exiting parking lot		x
13	2/20/2013	Casa Ybel Road and Algiers Lane	B fell off bike; no V involved		
14	4/3/2013	1451 Middle Gulf Drive	B crashed into V; B issued Warning for poor bikemanship		
15	5/23/2013	2025 Periwinkle Way	V hit B as V was entering parking lot; V says B blocked by van		x
16	~~5/24/2013~~	~~1301 Estero Blvd, FMY BCH~~	~~O/S jurisdiction~~		
17	8/5/2013	1201 Periwinkle Way	V hit B as V was exiting driveway		x
18	10/14/2013	841 Lindgren Blvd.	V hit B-1 while turning; overcorrected, then hit B-2	x	
19	11/14/2013	2407 Periwinkle Way	B hit V as V was entering parking lot; B was prob. Intox.		
20	12/8/2013	Periwinkle Way and Casa Ybel Rd.	V hit B as V was making turn thru int.	x	
21	1/13/2014	1699 Periwinkle Way	B braked hard as V turned across DW; B thrown over h'bars		x
22	1/25/2014	2445 West Gulf Drive	V hit B as B was crossing street; violation by B (cit. issued)		
23	3/14/2014	Periwinkle Way and Casa Ybel Rd.	V hit B in Xwalk; both responded to Off. signal at same time	x	
24	~~3/15/2014~~	~~Sanibel Causeway~~	~~V vs. V; O/S jurisdiction~~		
25	3/19/2014	San-Cap Rd. and Pine Tree Drive	V hit B in road as V was Xing int.; B was thrown clear		x
26	~~3/28/2014~~	~~Periwinkle Way and Dorax Street~~	~~SV crash - no B involved (B was a witness only)~~		
27	7/18/2014	Near San-Cap Rd. and Tarpon Bay Rd.	V turning into parking lot on Palm Ridge hit B		
28	9/13/2014	Periwinkle Way @ Mango Bay DW	Exiting V hit EB B; B injured		x
29	12/23/2014	1025 Periwinkle Way	B WB on SUP; V claims he did not see B and bumper hit B		x
30	5/22/2015	2304 Periwinkle Way	V struck B at mid-block Xwalk	x	
31	1/7/2015	1551 Periwinkle Way	V backed into B in DW		x
32	1/18/2015	Periwinkle Way/Purdy St.	WB turning vehicle hit EB cyclist in Xwalk	x	
33	1/20/2015	1619 Periwinkle Way	WB turning vehicle hit EB cyclist on pathway in DW		x
34	2/21/2015	Middle Gulf Dr./Fulgur St.	EB to NB vehicle hit by EB cyclist who failed to stop at int.		
35	1/21/2015	Lighthouse Park entry	Vehicle backed into cyclist in Xwalk	x	
36	2/23/2015	1119 Periwinkle Way	WB cyclist crossing private road hit by NB car	x	
37	3/25/2015	Periwinkle Way and Tarpon Bay Road	V hit B as V was making rt. turn; B had no lights	x	
38	4/9/2015	Periwinkle Way/Palm Street	WB cyclist stopped suddenly at DW to avoid crossing car		x
39	5/22/2015	2304 Periwinkel Way	V hit B in Xwalk; B injured > to hosp.	x	
40	7/4/2015	1521 Periwinkle Way	WB cyclist hit by exiting vehicle		x
41	7/4/2015	1440 Middle Gulf Drive	EB cyclist hit by vehicle exiting parking lot		x

Note: Ref. Nos. 16 and 24 occurred outside City's jurisdiction. Ref. No. 26 did not involve a bicycle or pedestrian. Therefore, those reports were not used.

Table 1

Safety Considerations

Speed

- Speeds generally increase on paved roads versus dirt roads
- City fire and police do not endorse use of speed bumps or humps, though some locations have put them in (Dunes)
- Various speed deterrent opportunities exist that we can implement regardless of the road surface

Potholes

- Form easily on dirt roads (rains, sprinklers, dripping water from trees/ power lines)
- Water left standing on dirt causes erosion helped along with traffic moving over it
- In FL, freezing water not a big contributor of risk
- Entranceway being paved has not produced any potholes

Liability Considerations

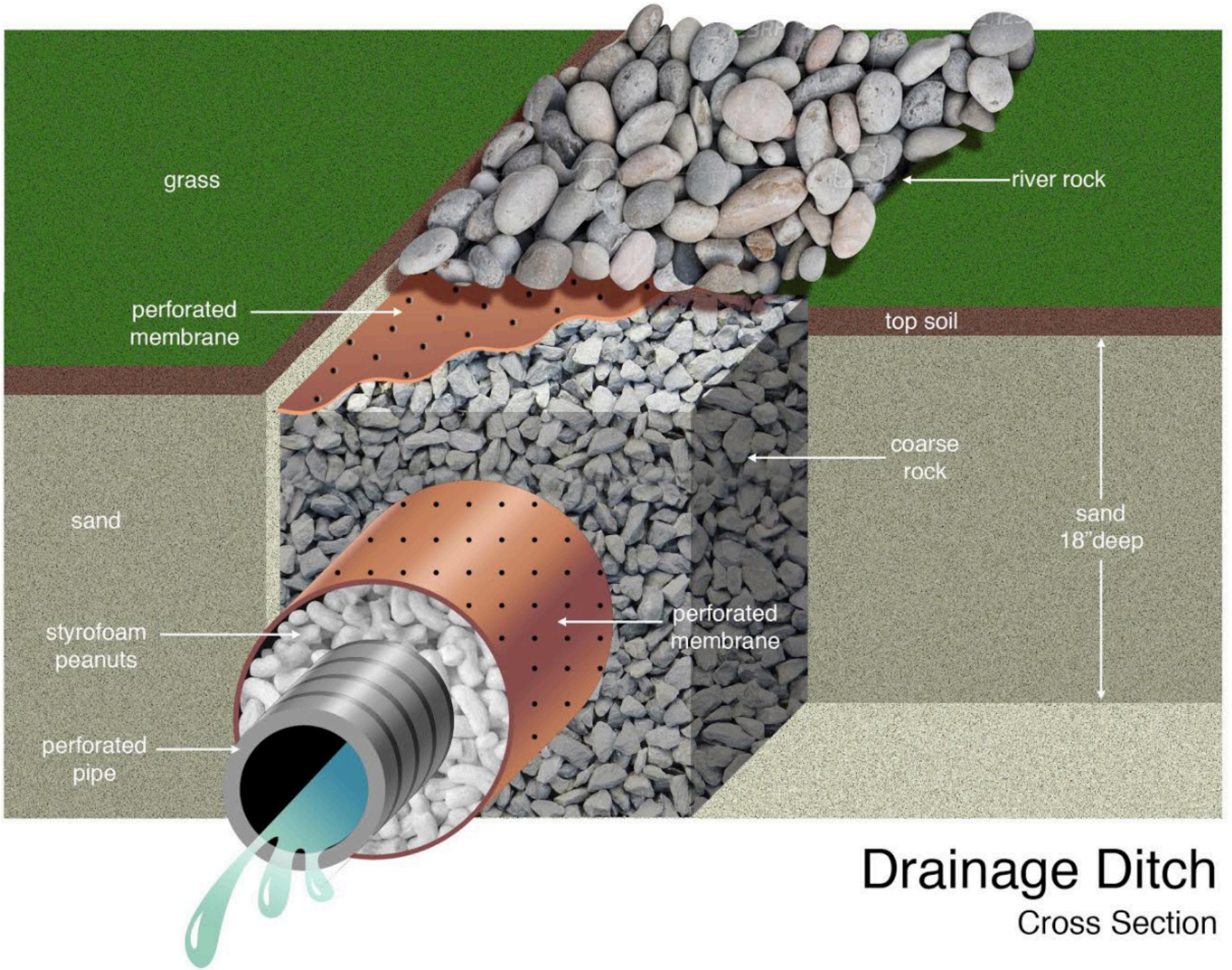
- Repair of cars due to potholes – who has liability?
- Neighbor or guest falls because of potholes – who has liability?

Association has been advised that, under Florida law, the holder of an easement is responsible for the maintenance/safety of the easement. CSM owners hold roadway easements and through the CSM covenants have charged the Association with maintenance of roads owned by the Association. Because the Association's assets are quite limited, in the event of a major inquiry or damage due to unsafe roadways, individual owners might face liability exposure if the Association's assets proved inadequate to cover damages.

Runoff Considerations

- Is there a difference between dirt road runoff or paved road runoff?
- Does dirt road allow absorption into the roads or not?
- How will proposed drainage solutions help or not?

1. As shown through permeability testing asphalt and our current roads would not be material different with respect to water absorption.
2. Our current roads have produced permeability issues adjacent to the roadways that create standing/pools of water
3. Drainage/Filtration – would have same effect for either road system except higher maintenance requirements for dirt to maintain properly functioning filtration system.



Drainage Ditch

Cross Section

Property Value Considerations

- Chateaux Sur Mer (dirt/shell)
- Gulf Shores (paved)
- Gulf Pines (dirt/shell)

1/1/2006 through 12/15/2016

- Henderson (public road – paved 2006)
- Starling Way (private road – paved late 2006/early 2007)

Location	Non-Beach	Beachfront	# Sales
CSM	$327 sq. ft	$892 sq. ft	17 / 9
Gulf Shores	$363 sq. ft	$1,021 sq. ft	26 / 11
Gulf Pines	$320 sq. ft.	$835 sq. ft	38 / 5

Year	Price Sq. Ft	Avg. Selling Price	# Sales
1999-2006 (Unpaved)	$409	$807,968	16
2007-2017 (Paved)	$403	$884,187	8

Aesthetic Considerations

RSG has heard:

- Dirt/pit shell roads have more charm and way Florida was meant to be
- Others do not like the dust on/in houses and cars

Property Rights Considerations

- Konrads deeded roads, bayous, lakes, canals and walkway easements to CSM Improvement Association in 1974
- Individual CSM owners hold easements affording use of deeded CSM roadways and beach paths
- Association's ownership of roadways was confirmed by outside counsel, in response to questions raised by some of our membership
- Jim Strothers mapped out rights of way owned by association and compared them to actual location of existing roadways
- Current roadways are within the rights of way deeded by Konrads (with a few exceptions):
  - Where current roadways encroach on members' lots, owners would be asked whether they would consent or prefer to have any improved roadway relocated
  - Relocation within deeded rights of way is practicable and will involve minimal additional expense

Regulatory Considerations

Based upon our research and discussion with engineers, the following regulatory agencies require a permit for paving/filtration:

- SFWMD – 30 to 60 days from submission – will provide a net benefit permit for paving – Brian Rose

- Florida Department of Environmental Protection – ~ 2 weeks

City of Sanibel – no approvals/permits required because we are a private road – James Evans

Comparable Neighborhoods

	Gulf Pines	Gulf Shores
Contact person	Erhard Joeres	Paul Kiefer
Road Surface	Improved Dirt	Asphalt
Current Surface Installed	2015	2006
Annual Maintenance Budget	$18,000, excluding interim pothole filling cost -which is in the landscape budget	Very minor direct expense (see below), but some portion of current fees reserved vs. a new asphalt layer at end of 20 year life cycle
Annual Maintenance Procedures	(1) Add material to maintain crown (2) Fill & repair potholes (3) Apply #89 gravel to harden surface (4) Apply Calcium Chloride vs. dust	Occasional addition of gravel to aprons abutting road to support asphalt edges. Annual cost is under $1,000
Speed Control	Speed humps provide a physical reminder of speed limits.	No speed humps or bumps. Signs only at 20 mph.
Comments on surface performance	Attentive maintenance is key	Engineering evaluation in 2016 estimates that the current road has 10 years of effective life remaining. Total estimated life = 20 years
Annual HOA Fees	$1,250.00	$250.00

2016/2017 Engineering Study – Review

Improvement of Existing Dirt/Pit Shell Roads & Asphalt Paving

- Obtained existing elevations of road and surrounding areas. Updated location of roadway.
  - With some minor exceptions, roads within right of way
- Prepared base plans using field work data and utility information from City of Sanibel As-Built plans
- Prepared overview of six alternatives for roadway maintenance/improvements from ‘no change’ to paving with drainage for RSG.
- Investigated options to improve water quality of surface runoff based upon conversations with SFWMD.
  - Designed and planned infiltration areas to improve drainage
- Prepared preliminary plan of layouts for paving option to allow for estimates
- Researched permitting requirements
  - DEP field approval & SFWMD “Net Benefit Permit”

RSG Analyzed Costs based upon Following Logic

Road Surface	Drainage Improvements	Safety Improvements
As Is / Baseline	Yes, can be done, not recommended (maintenance / SFWMD)	Yes, can be done
Improve existing dirt/pit shell	Yes, can be done, not recommended (maintenance / SFWMD)	Yes, can be done
Asphalt	Yes, can be done	Yes, can be done

- Drainage and Safety improvements are overlays that can be added onto any road surface.
- No Safety improvements were specifically estimated. Deferred to future committee.
- All costs shown are not final, final numbers will be forthcoming after vendor negotiations.

Scope of Work

Improved Dirt/Pit Shell Roads

1. Add material to correct elevations
2. Spread, grade, and compact added material
3. Create drainage improvements (not recommended)
4. Add dust control

Paved Roads

1. Stake out roadway per design
2. Build road base and Pave
   - 3 ½" (1 ½" asphalt, 2" recycled asphalt base)
3. Create drainage improvements
4. Integrate driveways
5. Add sod at surface edges

	Improved Dirt/Pit Shell	Paved Asphalt
Preliminary Capital Costs	$69,000 $87,300 (w/ drainage)	$256,000
Maintenance	$15,000 annually	$117,000 (Year 15 – Re-layering) $186,000 (Year 30 - Reconstruction)

Based upon preliminary estimates only. All Amounts are today's dollars, not indexed for inflation, rounded.

Cumulative Cash Outlays

	Improved Dirt/ Pit Shell	w/ Drainage	Paved Asphalt
Year 1	$84,000	$102,000	$256,000
Year 12	$249,000	$267,000	$256,000
Year 15	$294,000	$312,000	$373,000
Year 21	$384,000	$402,000	$373,000
Year 30	$519,000	$537,000	$559,000

Represents cumulative cash paid to vendors by that year end

Based upon preliminary estimates only. All Amounts are today's dollars, not indexed for inflation, rounded.

What Could This Mean to Me?

71 Lots

Current HOA Dues	HOA Dues Portion (Road Budget)	Total Dues Budgeted	Road Budget
$750	$211 per lot (28.17%)	$53,250	$15,000 (28.17%)

Maintenance	Improved Dirt/Pit Shell	Paved Asphalt
Year 1	Still requires $211 ($15,000 annual spend)	Requires $0 up to $141 depending on funding of Year 15/30 reserve
	$0 Savings from current dues related to roads	$70 savings up to $211 savings of dues related to roads
Capital	**Improved Dirt/Pit Shell**	**Paved Asphalt**
Year 1	$970 per lot | $1,230 per lot	$3605 per lot
If No Reserve		Year 15: $1,650 per lot Year 30: $2,620 per lot

- Capital assessment in year 1 would be required for either surface
- Same HOA dues for improved dirt/pit shell roads for recurring maintenance
- Range of options for HOA dues for paved asphalt future maintenance

Based upon preliminary estimates only. All Amounts are today's dollars, not indexed for inflation, rounded.

Next Steps / Outstanding Items:

- Feedback from membership
  - This presentation
  - Your feedback regarding direction, options, additional questions etc.
- Finalize drainage/infiltration design, locations, priority, and costs before meeting with SFWMD
- Meet with SFWMD to review status of RSG study for indication of any further information needs for “Net Benefit” Permit submission
- Finalize road specifications (dirt/pit shell & paved) and confirm total costs, timing, etc.
- Prepare for and conduct second CSM Member Informational Meeting
- Provide information to board to help in their determination of dues options to prepare for Association Annual Meeting on April 1, 2017

Looking Ahead

Town Hall Meeting #2

February 23, 2017 at 4:30 – 6:30 PM

Sanibel Public Library

Thank you

Additional Questions & Answer Session