

FCHOA 2015 Roads Rehabilitation/ Renovation Project

Summary of PSOMAS Report

Phase 2 Financial Planning

Written by Irene Barg, FCHOA Roads Committee

PSOMAS Engineering Assessment

- PSOMAS was requested to assess the costs and benefits of various pavement repair options.
- They commissioned a soils report and completed a pavement design.
- The soils report provided answers to several unknown or contested questions about our streets:
 1. No aggregate base materials below the pavement were observed.
 2. The existing pavement shows substantial cracking due to age.
 3. The pavement material is “brittle” and is subject to more cracking.
 4. The sub-grade soils are suitable for support of pavement.

Pavement Options Evaluated:

- Option 1. Double chip seal*.
 - ***“This option doesn’t address the pavement damage that has occurred. Within approximately three to five years you will be back where you are today.”***
- Option 2. Overlay 1-1/2” on existing pavement.
 - ***“This option will improve the ride quality for the first five years and reflective cracking will begin between 3 to 5 years after 1-1/2” overlay. The pavement will return to the state it is today in year 9”.***
- Option 3. Remove and replace existing asphalt pavement. Pave with 2.5 inches of asphalt.
 - ***“Performing a complete replacement will give you a pavement design life of 20 years but with proper maintenance FCHOA should be able to achieve 30 or more years of pavement life.”***
- Option 4. Pulverize existing asphalt pavement (blend with existing native soil to form 8” subbase). Pave with 2.5 inches of asphalt.
 - ***“This option and Option 3 are approximately equivalent in structure quality. This option will raise the pavement elevations and introduce addition items to consider.***

*All “quotes” are from Heidi Lasham PE, and taken directly from PSOMAS report.

Cost Benefit Analysis (CBA)

- A CBA is a tricky thing. Because you have to place a 'value' on a qualitative benefit (improved ride, safety, etc.).
- Review of the various pavement options reference, a Vehicle Operation Cost (VOC). **The VOC is an estimate of the extra annual cost to you to operate your vehicle on poorly maintained roads. It is not part of the pavement construction or maintenance costs.**
- More importantly, the VOC also allows us to establish a fair qualitative comparison (1=Good, 2=Fair, 3=Mediocre, 4=Poor) among the various options over their lives.
- The amount of the VOC for Tucson, was derived from a research report developed by TRIP, a prominent national transportation research group.
- The next slide shows all options compared to one another within a 30 year period. VOC and pavement costs are shown separately.

30 Year Comparison of the Options

Quantity utilized for B/C Analysis: 46,824 SY or 421,416 SF

Year	Option 1: Double Chip Seal			Option 2: 1-1/2" Overlay with Utility Adjustments			Option 3: Remove and Replace 2-1/2" AC			Option 4: Pulverize and Replace 2-1/2" AC		
	\$1.70 /SY			\$7.00 /SY			\$11.70 /SY			\$13.95 /SY		
	VOC #	VOC cost	Cost w/o VOC	VOC #	VOC cost	Cost w/o VOC	VOC #	VOC cost	Cost w/o VOC	VOC #	VOC cost	Cost w/o VOC
2016	4	\$ 106,500	\$ 86,700	1	\$ -	\$ 371,800	1	\$ -	\$ 547,900	1	\$ -	\$ 690,200
2017	4	\$ 106,500	\$ 7,100	1	\$ -	\$ 14,100	1	\$ -	\$ 14,100	1	\$ -	\$ 14,100
2018	4	\$ 106,500	\$ 7,100	2	\$ 25,700	\$ -	1	\$ -	\$ -	1	\$ -	\$ -
2019	4	\$ 106,500	\$ 46,900	2	\$ 25,700	\$ 7,100	1	\$ -	\$ -	1	\$ -	\$ -
2020	4	\$ 106,500	\$ 7,100	3	\$ 66,100	\$ 126,500	1	\$ -	\$ -	1	\$ -	\$ -
2021	1	\$ -	\$ 547,900	3	\$ 66,100	\$ 7,100	1	\$ -	\$ 7,100	1	\$ -	\$ 7,100
2022	1	\$ -	\$ 14,100	4	\$ 106,500	\$ 7,100	1	\$ -	\$ -	1	\$ -	\$ -
2023	1	\$ -	\$ -	4	\$ 106,500	\$ 7,100	1	\$ -	\$ -	1	\$ -	\$ -
2024	1	\$ -	\$ -	1	\$ -	\$ 547,900	1	\$ -	\$ -	1	\$ -	\$ -
2025	1	\$ -	\$ -	1	\$ -	\$ 14,100	1	\$ -	\$ 133,500	1	\$ -	\$ 133,500
2026	1	\$ -	\$ 7,100	1	\$ -	\$ -	1	\$ -	\$ -	1	\$ -	\$ -
2027	1	\$ -	\$ -	1	\$ -	\$ -	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -
2028	1	\$ -	\$ -	1	\$ -	\$ -	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -
2029	1	\$ -	\$ -	1	\$ -	\$ 7,100	2	\$ 25,700	\$ 7,100	2	\$ 25,700	\$ 7,100
2030	1	\$ -	\$ 133,500	1	\$ -	\$ -	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -
2031	1	\$ -	\$ -	1	\$ -	\$ -	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -
2032	2	\$ 25,700	\$ -	1	\$ -	\$ -	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -
2033	2	\$ 25,700	\$ -	1	\$ -	\$ 133,500	2	\$ 25,700	\$ 133,500	2	\$ 25,700	\$ 133,500
2034	2	\$ 25,700	\$ 7,100	1	\$ -	\$ -	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -
2035	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -
2036	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -
2037	2	\$ 25,700	\$ -	2	\$ 25,700	\$ 7,100	2	\$ 25,700	\$ 7,100	2	\$ 25,700	\$ 7,100
2038	2	\$ 25,700	\$ 133,500	2	\$ 25,700	\$ -	3	\$ 66,100	\$ -	3	\$ 66,100	\$ -
2039	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -	3	\$ 66,100	\$ -	3	\$ 66,100	\$ -
2040	2	\$ 25,700	\$ -	2	\$ 25,700	\$ -	3	\$ 66,100	\$ -	3	\$ 66,100	\$ -
2041	2	\$ 25,700	\$ -	2	\$ 25,700	\$ 133,500	3	\$ 66,100	\$ 133,500	3	\$ 66,100	\$ 133,500
2042	3	\$ 66,100	\$ 7,100	2	\$ 25,700	\$ -	3	\$ 66,100	\$ -	3	\$ 66,100	\$ -
2043	3	\$ 66,100	\$ -	2	\$ 25,700	\$ -	3	\$ 66,100	\$ -	3	\$ 66,100	\$ -
2044	3	\$ 66,100	\$ -	2	\$ 25,700	\$ -	3	\$ 66,100	\$ -	3	\$ 66,100	\$ -
2045	3	\$ 66,100	\$ -	2	\$ 25,700	\$ 7,100	3	\$ 66,100	\$ 7,100	3	\$ 66,100	\$ 7,100
Totals:		\$ 1,053,900	\$ 1,005,200		\$ 679,300	\$ 1,391,100		\$ 811,500	\$ 990,900		\$ 811,500	\$ 1,133,200
		\$2,059,100			\$2,070,400			\$1,802,400			\$1,944,700	

Assumptions:

Estimate is in 2015 dollars
 \$145 Vehicle Operation Costs per year per car
 Assumed 2 cars per home.
 FCHOA has 367 homes.

1	VOC Good = \$0 per year per vehicle on FCHOA Roadways = \$0/ yr
2	VOC Fair = \$35 per year per vehicle on FCHOA Roadways = \$25,700/ yr
3	VOC Mediocre = \$90 per year per vehicle on FCHOA Roadways = \$66,100/ yr
4	VOC Poor = \$145 per year per vehicle on FCHOA Roadways = \$106,500/ yr

*The dollar amount in the red indicates the need for complete reconstruction of the roadways.
 The above costs do not include any boulder removals, if needed.

Summary

- The cost for all options are estimated construction costs ONLY.
- ***“Given the current state of the FCHOA pavement PSOMAS recommends that you perform a total reconstruction (Options 3 or 4).”****
- ***“We recommend that the Board take Options 3 and 4 out to bid in a competitive bid process.”***

*All “quotes” are from Heidi Lasham PE, and taken directly from PSOMAS report.

FCHOA Roads Project Timeline

- The timeline below was created November 2015.
- As you can see we are basically on track.

FCHOA Roads Project

	2015				2016												2017			2021	2036	2046	
	Spring	Summer	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar				
Information Gathering																							
Contractor Proposal Evaluation																							
Annual Meeting 2015																							
Phase 1: Technical - Engineering Assessment																							
Phase 2: Financial Planning																							
Phase 3: Communication																							
Phase 4: Approval																							
Phase 5: Contractor Proposal Evaluation																							
Phase 5: Construction																							
Phase 6: Maintenance																							

Conclusion

- Phase 1: Technical – Engineering Assessment is completed.
- Phase 2: Financial Planning started in February in a meeting between the Communications and Roads committees.
- At the March 2016 Board meeting, Brian Bickel explained that the Roads Committee has been exploring the creation of a special tax district that would allow for the repair of all roads (including Evans Mountain and Ventana Canyon).
- Brian will provide more details about the special tax district in his presentation.

Thank you.