

CSM Road Study Group Environmental/Regulatory Supplemental

In response to questions raised by members of the CSM community, the Board has asked the Road Study Group (RSG) to supplement its previously published communications to provide additional information with respect to the environmental and regulatory implications of proposed roadway improvements.

Background:

The focus on CSM's roadways is not new. Over the past decade, there have been numerous initiatives to address concerns with respect to the particulate matter associated with pit/shell roads, both as they relate to CSM's waterways (Lac Claudine and the bayou) and road surfaces. These efforts have had mixed results, as summarized below.

Waterway Initiatives. As long-time CSM residents are well aware, the accumulation of organic sludge over the past 50+ years poses a challenge to our waterways, organic materials left to rot can turn into nutrients that feed Charra algae and other organisms. Those here in 2011 will remember the lake (70%) and bayou (100%) covered in Charra, at a time when the CSM Association was undertaking a beautification project to restore our community after Hurricane Charlie and years of minimal budgets and basic maintenance efforts.

To address that situation, the Association looked at several alternatives. Given the depth of the sludge (30+ inches in some places, as determined by Aquagenix, our water treatment company), it was estimated that mechanical dredging would cost up to \$350,000. Instead, the Association opted for a system of "biological dredging" of the organics in our waters with the installation of aeration equipment and the use of bacteria to eat accumulated organic sludge. Maintenance of this system has an annual cost of approx. \$14,000/year. While these efforts have resulted in marked improvement in the condition of our waterways, significant challenges persist from the continued influx of particulate from our roadways.

Roadway Initiatives. As with the waterways, the Association has explored numerous alternatives to address the condition/functionality of our roadways. Many residents will recall the polymer trial on the entrance runway 4+ years ago, which attempted to address the significant dust and potholes that developed during dry winters and wet summer/fall seasons, respectively. In conjunction with that trial, Association representatives met with officials from SCCF and the City's natural resources department to discuss the trial. While no permitting was required, they recommended the installation of grasses along the runway to filter the rainwaters entering the waterways. Unfortunately, the polymer trial failed resulting in numerous surface potholes from rain and sprinklers.

In the wake of that failure, the Board recommended paving the runway, as a trial measure

to assess the viability of paving as a means of addressing the dust, potholes and particulate runoff posed by our pit/shell roadways. The resulting runway road was tilted 1 to 2 degrees toward the lake to naturally filter runoff in the grasses and sod was placed along the bayou side to do the same. The RSG believes the runway trial was a success, with the exception of the failure of the sod along the bayou.

Current Situation:

In the past year, the RSG has had multiple meetings and communications with the South Florida Water Management District (SFWMD) and the City of Sanibel regarding our roadways and their impact on our waters and air. We shared the pictures and videos (see attached photos) of the heavy fine particulate runoff during moderate to significant rain events. Those rain events also carry fertilizer and in the past calcium chloride (applied to the roadways to retain moisture and reduce dust) with the particulate. Weighing the alternatives of paving versus maintaining/upgrading the pit/shell roads, it became clear that paving would significantly reduce particulate runoff into our waterways. In addition, the RSG and its consulting engineer have had extensive discussions with the SFWMD with respect to employing infiltration and ex-filtration techniques (the cost of which is included in the proposed paving special assessment budget) to reduce particulate runoff into our waterways. While the RSG's consulting engineer also explored the possibility of employing the same techniques to reduce particulate runoff while maintaining our existing pit/shell roads, there was general agreement that such measures were unlikely to prove effective over time, as the high concentration of roadway particulate runoff would render them ineffective or extremely costly to maintain.

State and City regulators continue to promote the natural infiltration of waters into the water table through the natural percolation through our yards as the best method for the environment. With that in mind, the RSG commissioned Velocity Engineering to conduct a limited infiltration test locations on our pit/shell roads, 15 ft. into a yard and 75 ft. into the yard. The tests showed negligible permeability of the pit/shell roads and, more surprisingly, minimal permeability of the soils next to the road. The yard away from the road was 25 to 40 times more permeable than the other locations. Those results suggest (1) the areas proposed to be paved provide minimal percolation/drainage, and (2) it may be practicable to improve the drainage/infiltration of the areas next to the roadways if we reduce the current particulate runoff from our pit/shell roadways.

Regulatory Oversight. As noted above, the RSG has engaged in an on-going dialog with potential State and City regulators over the course of its study. Recognizing that a SFWMD permit would be a prerequisite to paving the CSM roadways, the RSG and its engineer have discussed the matters summarize above in order to establish the applicable permitting criteria. Those discussions have included a description of proposed infiltration techniques design (included in the RSG's town hall presentations) and location (*i.e.*, Association property). While the issuance of a SFWMD permit to pave will only follow a formal application and review (which the RSG was informed should only be submitted with the concurrence of the CSM

community), the RSG believes that the capping of the particulate runoff from the existing pit/shell roadways, together with infiltration measures of a type and location discussed with the SFWMD and included in the paving budget associated with the proposed paving special assessment, should be sufficient to result in the issuance of a SFWMD permit, based upon the net benefit resulting to our waterways.

Also on the environmental front, the Environmental Protection Agency, the Florida Department of Environmental Protection (DEP) and the City of Sanibel have recently focused on improving inland fresh water bodies by reducing the levels of nitrogen, phosphorous and chloroform pollution. While the City of Sanibel has been praised by the DEP for its proactive fertilizer regulations and informational activities to create awareness of it citizens, new targets for these pollutants pose a challenge Statewide. CSM is at the headwaters of the northwest section of the Sanibel Slough (formally the “River”), which is in much better shape than the southeast section, but we still need to be sensitive to taking actions which can move us and the City toward compliance.

The City has engaged FGCU scientists to study certain water bodies for further characterization, from a biological, chemical and organic perspective during different seasons, to determine what might be done to mitigate pollution levels. The CSM Board was asked, and has agreed, to participate in that study. We have asked the Natural Resources Department to keep us up to date on the findings and will report those to our membership as they become available. We have also requested educational sessions for CSM members interested in learning about our and Sanibel’s fresh water systems. (For more information on the DEP report and SCCF test results that can be found on the CSM website).

The RSG is awaiting confirmation from the City as to the nature and scope of any formal applications that may be required to improve the CSM roadways and waters. While the City has acknowledged that it has not previously required City permits for the paving of privately owned roads, they have reserved final judgment on the issue.

RSG