

# Independent Review of Proposed Wastewater Collection and Treatment System Project

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## Overview

- It is apparent that the existing condition of the septic systems in the downtown Wimberley area pose a real and continuing threat to the aquatic environment of Cypress Creek and the Blanco River
- The proposed action appears to represent a logical and environmentally sound alternative to existing conditions
- Meets the environmental challenges
- Provides foresight to accommodate expected increases in treatment needs due to projected increased population

## Potential for the effluent discharge to enter the Edwards Aquifer

- The proposed facilities would be located over the Trinity Aquifer, the Edwards Aquifer Contributing Zone and approximately 9 miles upstream of the recharge zone to the Edwards Aquifer
- Contaminants are transported downstream into the Edwards Aquifer contributing zone in the Blanco River (**True of Existing and Proposed Future Conditions**)
- Proposed 75,000 gpd effluent discharges is equivalent to approximately 0.21 percent of the 7-day low flow of the Blanco River
- 75,000 gpd is approximately 2.1 percent of the recorded lowest single daily discharge of the Blanco River
- 2-hour peak discharge is approximately 0.79 percent of the 7-day low flow of the Blanco River
- Putting these effluent discharges into perspective, a standard 5/8-inch garden hose delivers about 0.3 gallons per second or ~26,000 gpd.

## Lack of adequate soil cover to prevent infiltration of elevated nutrients into the shallow groundwater

- The proposed effluent would meet Federal and State Type I reclaimed water standards and permit limits for surface irrigation discharges
- The treatment process will remove nutrients (i.e. phosphorus) to levels that specifically target adequate reduction of nutrients in receiving waters
- The treatment process also results in substantive reduction in nitrogen species via nitrification and some level of denitrification
- Additional treatment will occur due to microbial process in the vadose zone of application areas

## Proposed phosphorus limits of 1.0 mg/l causing algal blooms

- Algal blooms require both nitrogen and phosphorus and target discharge levels for phosphorus are not anticipated to result in algal blooms in receiving waters
- USGS review of over 16,000 municipal waste water treatment plant discharge requirements show that a vast majority range between 0.5 and 1.0 mg/L
- This concentration in conjunction with dilution in the receiving waters is expected to result in a substantially reduced ambient phosphorus concentration in the Blanco River

## No limits on total nitrogen

- The vast majority of WWTP effluent discharge technologies target phosphorus removal with secondary nitrogen removal as a target
- The extended aerobic activated sludge process also is effective in nitrification of ammonia and some total nitrogen reduction is inherent in the solids removal

## Wastewater effluent chemistry is different than receiving waters

- This is true of every WWTP discharge in any aquatic system
- The fact that the discharge is different, in and of itself, does not constitute a basis for environmental degradation
- This is largely mitigated by the expected dilution in receiving water volumes of the Blanco River

## TCEQ precedent for more stringent standards

- This is primarily a regulatory question better addressed to TCEQ
- The analyses presented in support of the permit application meet established discharge requirements and adequate environmental protection of the receiving waters

## Degrade water quality downstream due to enriched nutrients

- The potential for this is extremely small given:
  - the proposed treatment process,
  - plant operations,
  - dynamics of proposed wastewater reuse
  - rare instances of wastewater discharge to Deer Creek and Blanco River with expected dilution due to volume of the receiving waters

## Areas of proposed application or application rates

- This should be resolved in response to the draft permit language where clarification can be requested
- My reading is that the green spaces are within the Blue Hole Park, soccer fields, and in the future potential green spaces within the downtown area

## Water quality will alter aquatic ecology

- I can find no evidence that this statement is supported by any material in the proposed permit application or by specific studies within the system given the expected effluent characteristics, land application or discharge characteristics

## Plant will not remove pharmaceuticals

- Very few if any existing WWTP are designed to remove this class of compounds and have varying degrees of treatment effectiveness depending on the pharmaceuticals
- Research is clear that use of septic systems require advanced treatment options for effective removal of pharmaceuticals when compared to tertiary WWTP processes using existing technologies
- Retrofitting of the existing septic systems would likely be both structurally difficult and cost prohibited.
- In context, the proposed direction of the City of Wimberley for the proposed WWTP plant is in the best interests of the environment

## Conclusion

- It is my opinion that the proposed action by the City represents an environmentally sound approach
- It will provide adequate protection for the sensitive environments not afforded under existing conditions
- The proposed action also affords an important critical step forward that provides for the necessary increased treatment capacity associated with future demands