

A regional wastewater management stakeholder process and rule-making petition to the Texas Commission on Environmental Quality

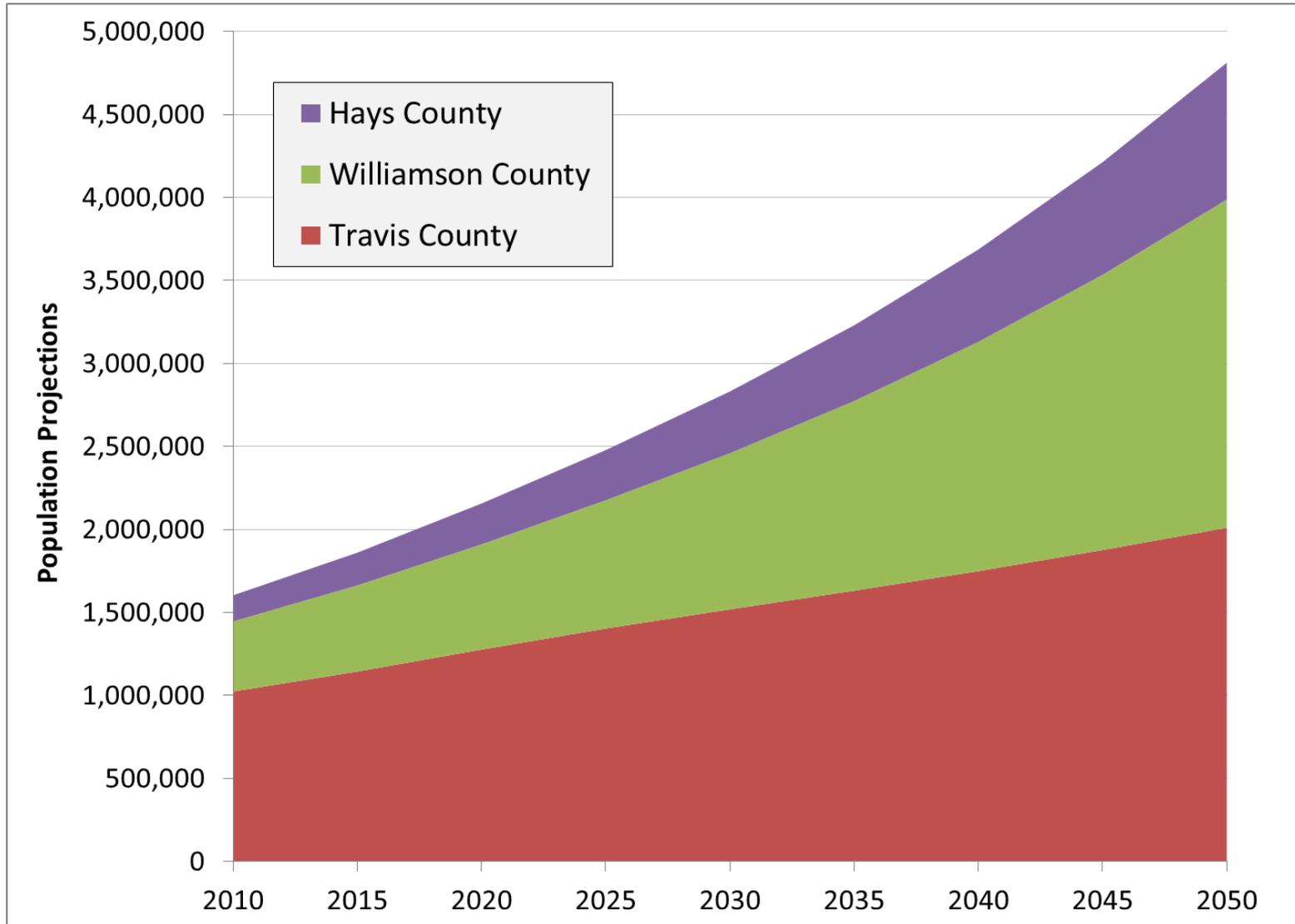
Presented to the LCRA Water Quality Advisory Committee
April 21, 2016

Chris Herrington, P.E.



The Problem (Part 1)

Central Texas Population Growth



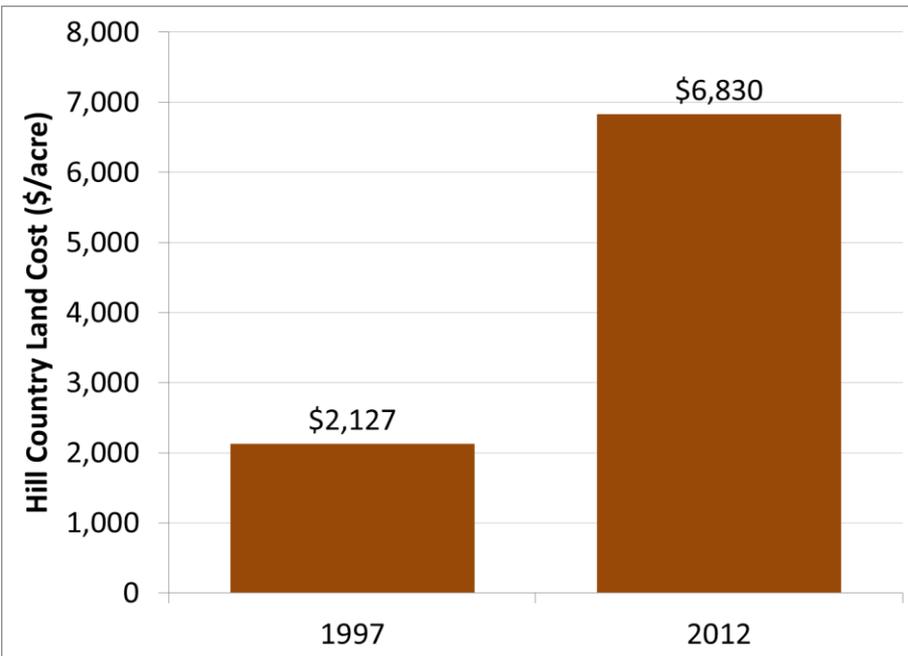
2012 Texas State Water Plan

- Immediate need for 3,600,000 ac-ft/year of additional water
- Projected to need 8,300,000 ac-ft/year by 2060
- Losses from not meeting water needs \$115,700,000,000/year by 2060 with potential loss of >1,000,000 jobs

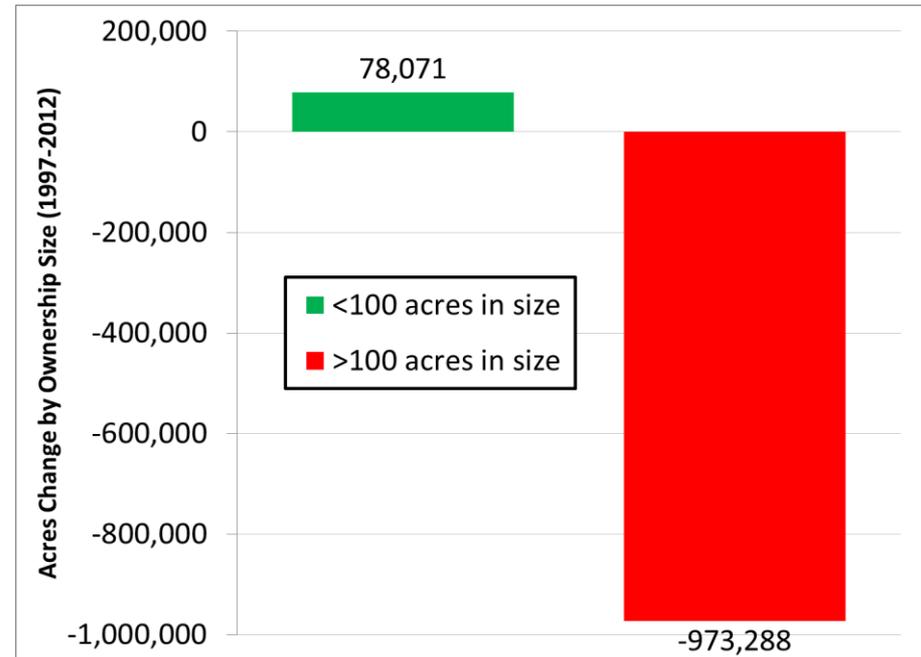


Changing Hill Country Land Market

Increasing land cost



Increasing land fragmentation



The Problem (Part 1)

More people means:

- More wastewater to dispose of
- Less potable water supply
- More expensive land in smaller pieces

The Problem (Part 2)

Current Options for Wastewater Disposal

Regulated by Texas Commission on Environmental Quality (TCEQ)

Treat and discharge effluent directly to a water body (TPDES)



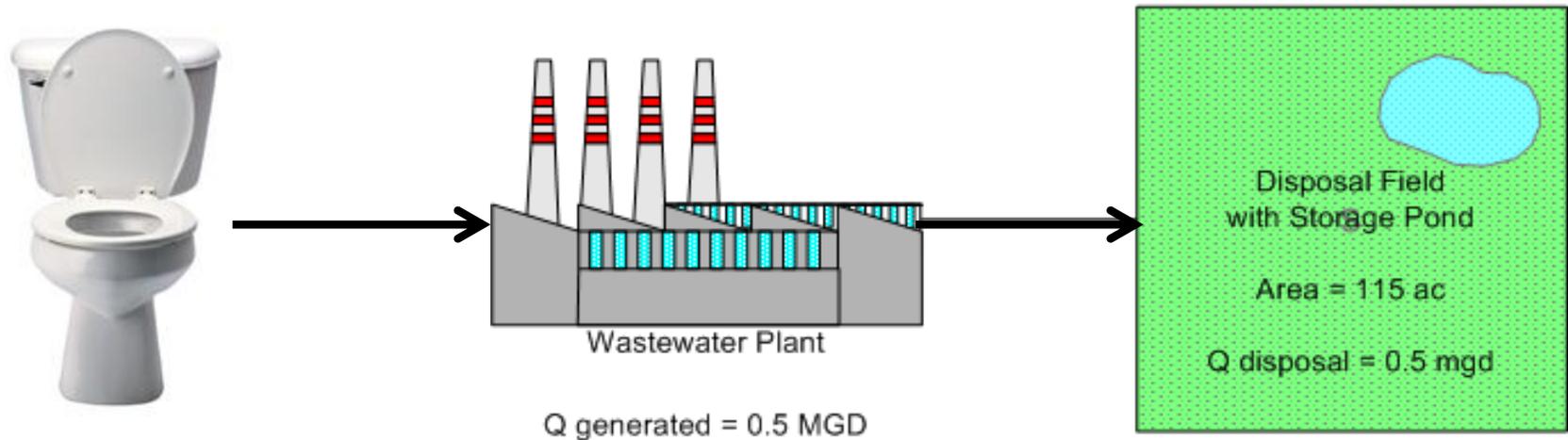
Treat and irrigate effluent on the land (TLAP)

[30 TAC 222](#); [30 TAC 309](#)



Wastewater Disposal by Land Application (TLAP)

Conventional model without beneficial reuse



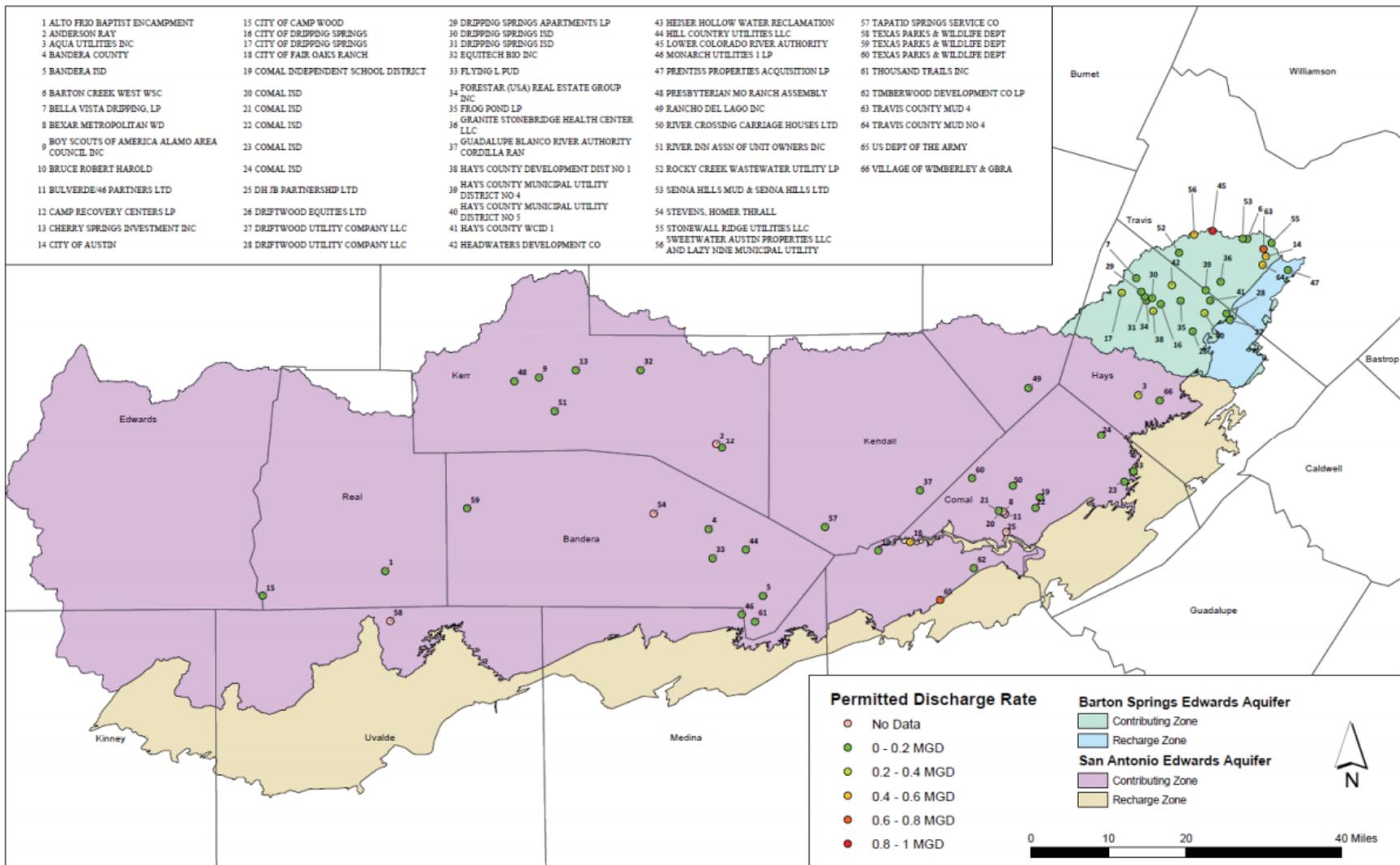


Figure 1. TLAPs Permitted within the San Antonio and Barton Springs Recharge and Contributing Zones

Total permitted TLAP flow:

5.75 MGD in the Barton Springs Edwards Contributing Zone

3.18 MGD in the San Antonio Edwards Contributing Zone

From [Ross, 2011](#)

TLAP Disposal Fields



30 TAC 210 Beneficial Reuse Authorizations

With either a TLAP or discharge permit, treated effluent (aka, reclaimed water) can be used **on-demand** to:

- Irrigate landscapes
- Flush toilets
- Fire protection
- Dust control
- Cooling towers
- Etc.



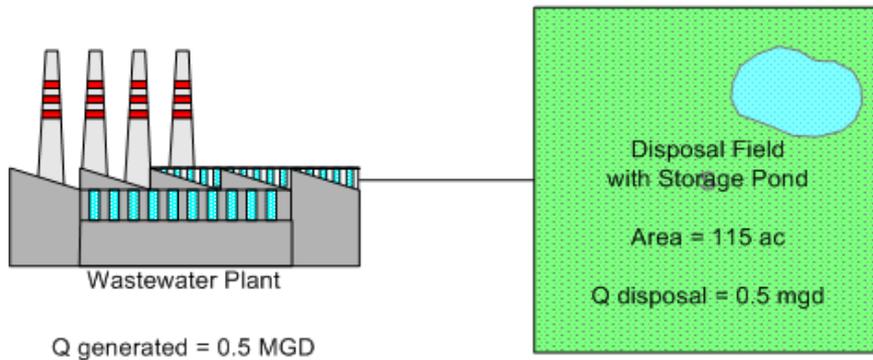
Photo by Ed Clerico

TLAP vs 210 Reuse Inconsistency

- TLAP permit created for **continuous** disposal
(112+ page application form)
 - Water balance
 - Soil analysis
 - Geologic Assessment
 - Map of application area
 - Environmental buffers
 - Public notice
- 210 Reuse created for **on-demand** use
(5 page application form)
 - Map of service area
 - Is it over Edwards Aquifer?

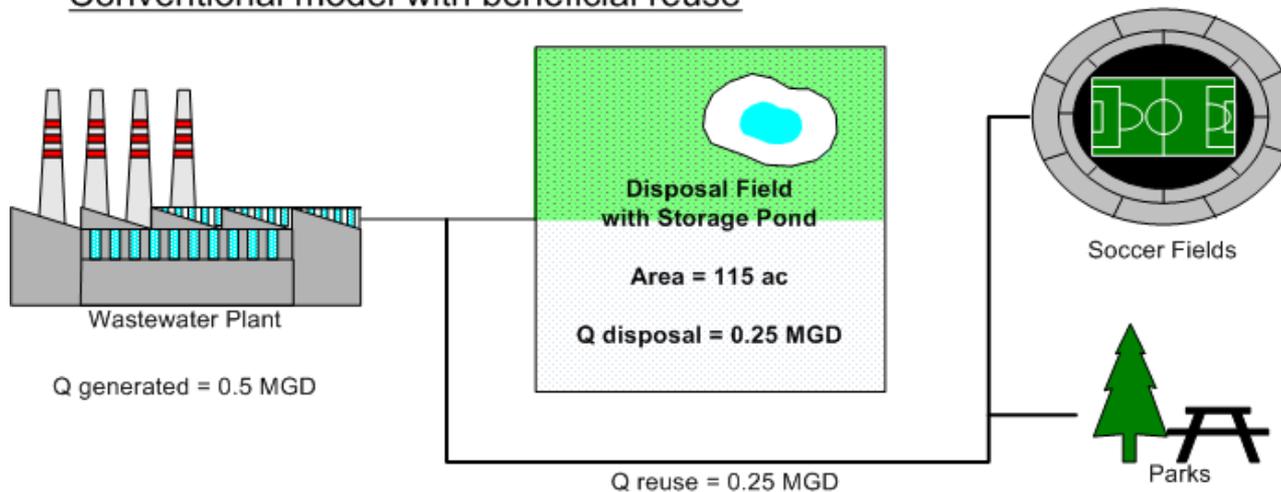
Current TLAP Paradigm Examples

Conventional model without beneficial reuse



Effluent is completely "disposed" on dedicated disposal fields, storage pond fully utilized

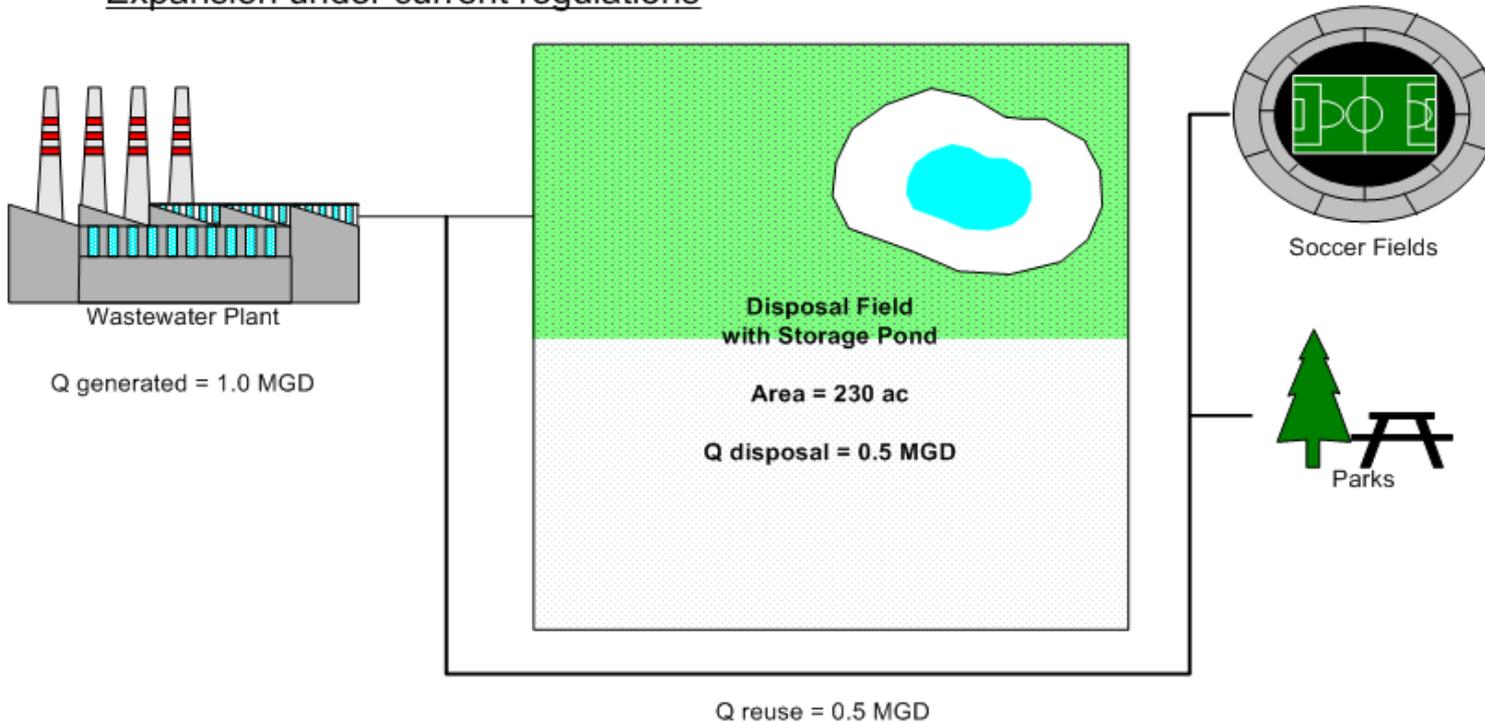
Conventional model with beneficial reuse



Some effluent is beneficially reused on soccer fields and parks such that disposal field and storage pond are only partially utilized, disincentivizing TLAP

Example expansion under current paradigm

Expansion under current regulations



Doubling wastewater treatment capacity requires doubling of irrigation area and storage volume even if beneficial reuse will result in only partial utilization. Cost of new land is a disincentive to expansion of existing TLAPs

Discharge vs TLAP

Discharge

-  More expensive treatment plant
-  Plant requires more O&M
-  More water quality impacts
-  No land needed for disposal
-  More likely to trigger contested case hearing

TLAP

- Less expensive treatment plant 
- Fields require more O&M 
- Less water quality impacts 
- Land needed for disposal 
- Less likely to trigger contested case hearing 

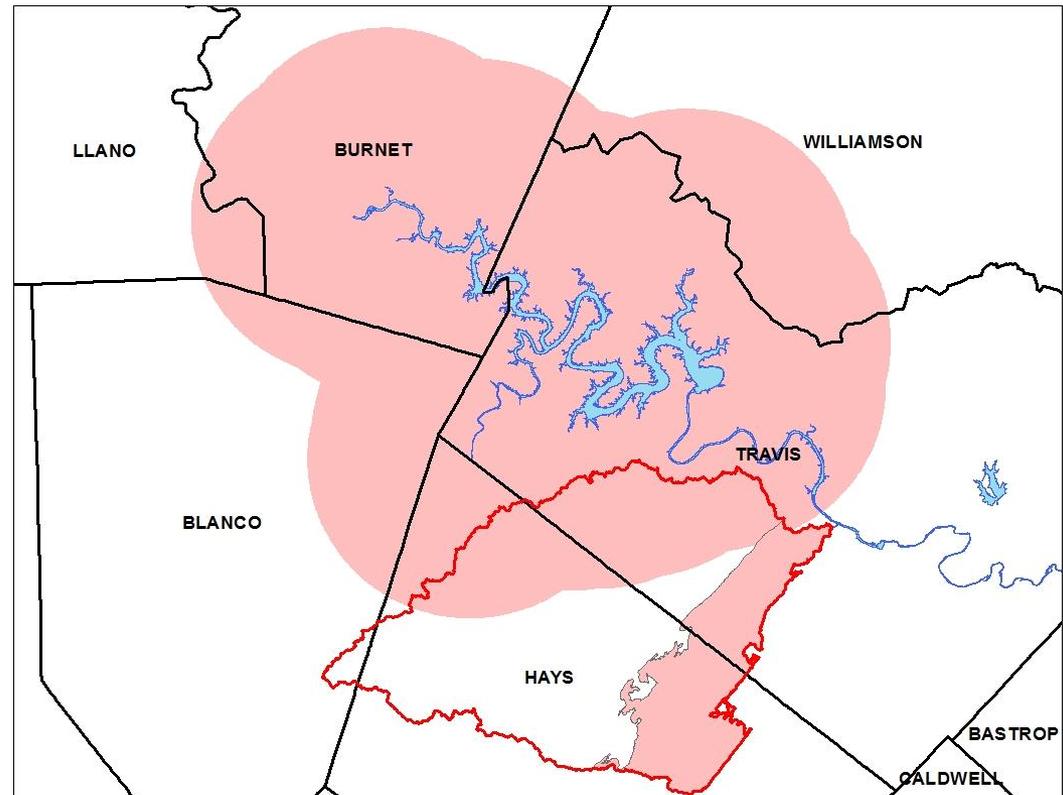
Regulatory Discharge Prohibitions

30 TAC 311

Discharges prohibited by rule within 10 miles of Lake Travis

30 TAC 213

Discharges prohibited over the Edwards Aquifer recharge zone



Environmental Limitations on Discharge

Limited assimilative capacity of some small streams may not be adequate for discharge



The Problem (Part 2)

More people means:

- More wastewater to dispose of
- Less potable water to drink
- More expensive land in smaller pieces

- TLAP don't always offset demands on potable supply
- TLAP vs. Reuse inconsistency
- Expanding TLAP requires more land (even if unused)
- Trend to convert TLAP facilities to discharge
- **TLAP get no credit for beneficial reuse**

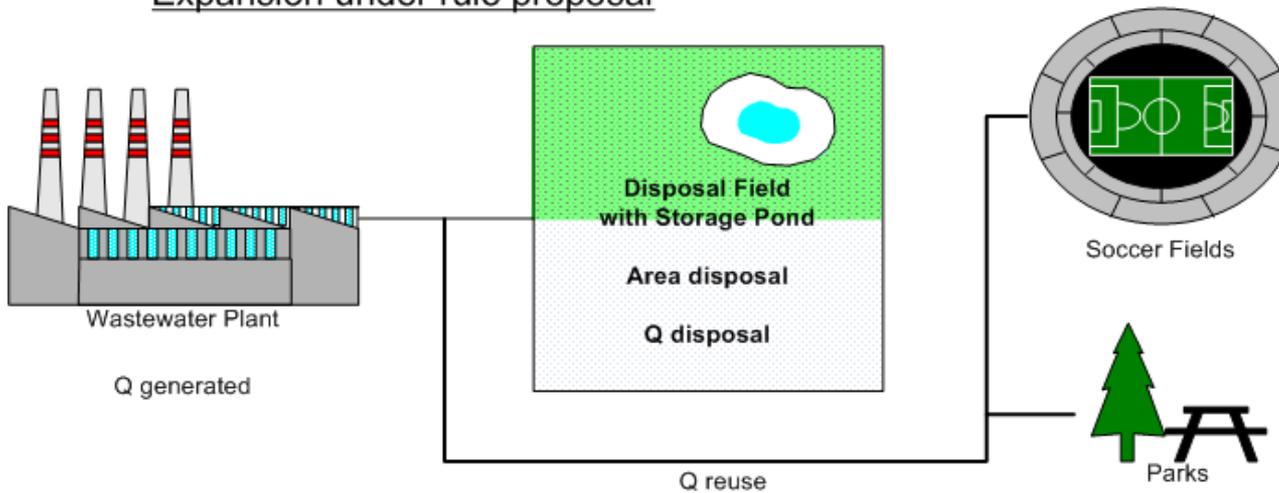
What is the proposed solution?

Proposed Solution

- Petition TCEQ to surgically modify 30 TAC 222 and 30 TAC 309
- Provide new optional “credit” for beneficial reuse to reduce size of TLAP fields and storage ponds
- Create a flexible mechanism so that beneficial reuse can be added over time without triggering permit amendments
- Do not require permittee to own or lease beneficial reuse areas to take advantage of the credit
- Better align beneficial reuse and TLAP rules when utilizing the “credit”
- Do not modify 30 TAC 210 beneficial reuse rules

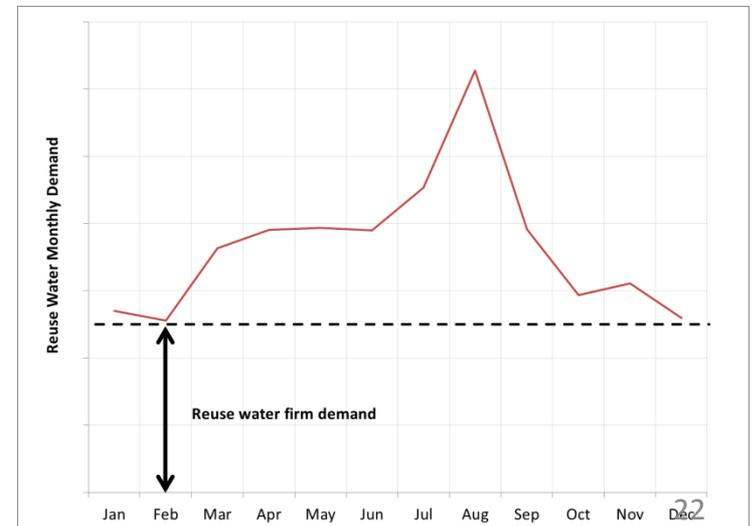
Example Expansion under Rule Proposal

Expansion under rule proposal



Area required for TLAP disposal is reduced by the amount of wastewater that can reliably be utilized for beneficial reuse

$$Q_{\text{disposal}} = Q_{\text{generated}} - Q_{\text{reuse firm demand}}$$



Firm Reclaimed Water Demand

Firm reclaimed water demand means the minimum volume of reclaimed water that can be guaranteed to be beneficially reused over a specified time and includes reclaimed water used for indoor and outdoor purposes

“The Credit”

- Applicant may claim credit for 100% of the volume of firm reclaimed water demand for indoor uses
- Applicant may claim credit for 80% of the volume of firm reclaimed water demand for outdoor uses, *unless*
 - *During the first term of the permit, applicant reserves enough land to apply the total volume*
- “Credit” included in the hydraulic application rate water balance to reduce the total volume of effluent
 - *Thus reducing the size of dedicated disposal fields and storage ponds*

Demonstrating Firm Reclaimed Water Demand

- (a) An applicant establishes that reclaimed water is firm when the applicant:
 - (1) Demonstrates to the satisfaction of the executive director that a user will accept a specific volume of reclaimed water on a periodic basis; or
 - (2) Demonstrates a specific amount of reclaimed water use by the applicant.
- (b) An applicant may demonstrate its ability to transfer reclaimed water on a periodic basis when it requires a user to accept a specific amount of reclaimed water by contract or by appropriate regulation.

Link to 210 Authorization

- An applicant and, to the extent applicable, user must maintain its authorization under 30 TAC Chapter 210 (*Use of Reclaimed Water*) during the term of the permit.
- A permittee that relies on firm reclaimed water demand must receive an authorization required by 30 TAC Chapter 210 prior to initiating construction or, if already constructed, operating a wastewater treatment plant.
- BUT, exclude reclaimed water areas from TLAP application technical report requirements

Flexibility

Applicant must provide the executive director with a list of users, type of use, and areas that receive firm reclaimed water demand...

If the users or areas change, the applicant is required to provide an updated list within 30 days. A change in user or area is not an amendment to the permit.

Environmental/Safety Considerations

- Outdoor areas receiving firm reclaimed water demand must meet existing TLAP setback requirements from wells, surface water features, etc
- Areas utilized for the credit must be mapped
- Must do separate water balance for outdoor reclaimed water uses to prove demand is “firm”
- Discount credit for outdoor uses by 20%*
- In any phase, firm demand < total permitted volume
- No “substantially non-compliant” users within last 5 years
- Must record volume of reclaimed water transferred

Potential Benefits

- Another tool in the TCEQ wastewater toolbox
- Reduce land costs that disincentivize TLAP expansion
- Flexibility to accommodate growth as it happens
- Encourage investment in beneficial reuse infrastructure
- Generate new income from sale of reclaimed water
- Reduce need and likelihood of contested permits
- Protect high quality of raw water resources in place
- Conserve drinking water supplies

Process

Draft rule developed with broad stakeholder input:

- 20 wastewater utilities
- 10 cities
- 2 groundwater conservation districts
- 2 counties
- 1 river authority
- legal and engineering consultants
- multiple environmental advocates
- area legislators

Timeline

- Aug 31 Austin, Dripping Springs Mayors convene regional meeting
- Sep 14 First technical workgroup to review rule draft
- Oct 05 Second technical workgroup meeting to revise draft
- Dec 01 Third technical workgroup to finalize draft
- Mar 14 Submitted rule-making petition to TCEQ
- Apr 22 TCEQ staff provide recommendation
- May 11 TCEQ public hearing

For More Information

Access documents at: <ftp://ftp.ci.austin.tx.us/wre/wastewater/>

City of Austin web: austintexas.gov/department/proposed-wastewater-management-rule-revisions

TCEQ Rules web (once filed):
<https://www.tceq.texas.gov/rules/whatsnew.html>

Chris Herrington, 512-974-2840
Chris.Herrington@austintexas.gov