No natural resource is more important to our future than Water. Water is what we do.
Threats to Water Quality in the Wimberley Valley

Declining groundwater levels – lower flows result in worsening water quality

Impacts of drought – lower flows, increased temperatures negatively affect dissolved oxygen and bacteria

Growth, development – increased impervious cover/increased stormwater flows; nonpoint source pollution from homes, cars, businesses; changes in wildlife habitat/patterns; aging infrastructure

2010 Pop. = 3.3M
2050 Pop. = 5.3 to 6.8M

The Wimberley Valley and Cypress Creek watershed
CYPRESS CREEK

Let’s keep it clean, clear & flowing

10

Celebrating 10 Years

Of stakeholder-driven watershed protection in the Cypress Creek Watershed

The Meadows Center for Water and the Environment
Texas State University

Texas Commission on Environmental Quality

EPA

Woodcreek

City of Wimberley

Guadalupe Blanco River Authority

Hays County

Wimberley Valley Watershed Association

Hays Trinity Groundwater Conservation District

LIONs International

Texas A&M AgriLife Extension

The Nature Conservancy

Texas Water Development Board

Ph. 512.249.9200 | meadowscenter@txstate.edu
The Cypress Creek Watershed Protection Plan aims to ensure that the long-term integrity and sustainability of the Cypress Creek watershed is preserved and that water quality standards are maintained for present and future generations.

- Activities to prevent pollution, protect flow
- Preserve water quality through local permitting, ordinances
- Improve tools for decision makers to calculate effects of land use changes on water quality
- Site-specific LID/Green Infrastructure demonstration sites
- Outreach and education efforts
- Monitoring and modeling water quality changes
A New Primary School for Wimberley ISD
WISD Primary School
Environmental Concerns

• Conversion of native range to developed site
• Standard construction w/ minimal water conservation practices
• Wastewater mindset with raw sewage to be transported to off-site WWTP (additional infrastructure including lift station needed)
• Water supply from already stressed Cow Creek aquifer... the source of flow for Jacob’s Well Spring
• Stormwater impacts to ephemeral tributary and Cypress Creek with no enhanced GSI
• A MISSED OPPORTUNITY
A solution?
WHAT IS ONE WATER?
An intentionally INTEGRATED approach to water

One Water promotes the management of all water—drinking water, wastewater, stormwater, greywater—as a single resource.

Across types of water

ALL WATER IS ONE WATER
Rain/Stormwater
Groundwater
Wastewater
Recycled Water
Drinking Water

Across regions/watersheds
ADVANCING
ONE WATER
IN TEXAS
The *One Water* Standard:

- *Collaboration*... with a wide variety of stakeholders and engagement with the community
- *Economics and finance*... that recognize the true cost of water, prices it accordingly, and are attractive for public and private investors
- *Green Infrastructure*... that works with and mimics nature
- *Closed-loop system*... that enhance nutrient and energy recovery and encourage water sensitive behaviors
- *Built Environment*... with multifunctional infrastructure that supplements the natural environment
- *Enabling conditions*... that foster innovative institutional and management arrangements
- *Flexible and adaptive*... to allow for innovation and strengthen

WISD One Water Challenges

• Requires Education
  – Elected officials, general contractor, architects, ENGINEERS, watershed stakeholders, and US!

• Requires Courage
  – Technology is still innovative w/ few Texas examples
  – Permitting processes do not incentivize reuse... treat wastewater as a nuisance that needs to be “disposed”

• Requires Investment

• Dare to Lead!
Wastewater as a Water Supply

The Wastewater Cycle

- Modify TCEQ regulations - incentivize reuse
- Reduce withdrawals from aquifers, rivers, lakes
- Preserve aquifers and streams natural character
Water Collection + Onsite Wastewater Reuse

- RECIRCULATING PACKED-BED FILTER SYSTEM
- FIRST COST SAVINGS - $300,000 *based on 7500/day system
- POTENTIAL SAVINGS VS CONVENTIONAL SYSTEM
  - OVER 30 YEARS ANNUALLY $20,000 - $30,000
- CASE STUDY – ORENCO SCHOOL – ADVANTEC
- PARALLEL PERMITTING APPROACH WITH HAYS & TCEQ
Stormwater Management

- Protect Water Quality & Conserve Water Quantity
# Conventional vs One-Water Cost Summary

<table>
<thead>
<tr>
<th>WATER SUBSYSTEM</th>
<th>COST TYPE</th>
<th>CONVENTIONAL</th>
<th>ONE-WATER</th>
</tr>
</thead>
<tbody>
<tr>
<td>WASTE WATER + REUSE</td>
<td>CAPITAL COST</td>
<td>$ 750,000</td>
<td>$ 446,778</td>
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<td></td>
<td>ANNUAL O &amp; M COST</td>
<td>$ 26,695</td>
<td>$ 6,000</td>
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<tr>
<td>RAINWATER + AC CONDENSATE</td>
<td>CAPITAL</td>
<td>-</td>
<td>$ 250,000</td>
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<td>COLLECTION FOR TOILET FLUSHING</td>
<td>ANNUAL O &amp; M COST</td>
<td>$ 19,488</td>
<td>$ 10,188</td>
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<td>STORMWATER MANAGEMENT (LID &amp; GREEN INFRASTRUCTURE)</td>
<td>CAPITAL COST</td>
<td>-</td>
<td>$ 125,000</td>
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<tr>
<td></td>
<td>ANNUAL O &amp; M COST</td>
<td>-</td>
<td>$ -</td>
</tr>
<tr>
<td>SUM TOTAL ALL WATER SYSTEMS</td>
<td>CAPITAL + 30 YEAR O &amp; M COST</td>
<td>$ 2,135,490</td>
<td>$ 1,307,418</td>
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</tbody>
</table>
Benefits: Bringing It All Together

- **FOR WISD:**
  - Reduced capital and operating costs
  - Establish leadership in the community on a flagship site
- **FOR THE COMMUNITY**
  - A catalyst for creating a watershed culture
  - A Living Lab for integrated water management
- **FOR THE CHILDREN**
  - Healthier and smarter kids
  - Engaging and Inspirational Learning Experience
Wimberley school to make history as first ‘One Water’ school in Texas

A 'One Water' school means it will use 90 percent less groundwater than a typical school of this size.

Author: Shawna Reding
Published: 8:04 AM CST December 3, 2018
Updated: 11:06 AM CST December 3, 2018
From Good to *One Water* Great
From Good to *One Water* Great

- **GOOD**: Educational signage for native plants, green stormwater infrastructure, and water saving plumbing fixtures
- **GREAT**: Incorporating One Water into a tangible asset interwoven into the architecture of the school, enhancing the learning experience.
Next Step: A *One Water* Master Plan:

- Future Development B: 18 ACRES
- Community Partner 3: 5 ACRES
- Community Partner 2: 5 ACRES
- Land Preservation: 4 ACRES
- Community Partner 1: 7 ACRES
- Future Development A: 37 ACRES
- Wimberley ISD Future Development: 8 ACRES
- Preserved Land For Creek Setback: 30 ACRES
- Wimberley ISD Primary School: 20 ACRES

Notes:
- Total Acreage: 148.4
- Topography @ 10' Contours

**WISD RR12 & WINTERS MILL PARKWAY TRACT - CONCEPT MASTERPLAN**
No natural resource is more important to our future than Water. Water is what we do.