Memorandum to Austin City Council
External Stakeholders' Working Group
Gray Water Recommendations

September 20, 2012

To: Mayor Leffingwell

Council Member Riley

Council Member Martinez

Council Member Tovo

Council Member Morrison

Council Member Spelman

Council Member Cole

From: External Stakeholders of the Gray Water Working Group:

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Introduction

Every day each Austin resident generates about 70 gallons of wastewater. Even though more than half of this wastewater is relatively clean and safely reusable, all of it gets pumped to Austin's treatment plants, processed with oxygen and chemicals and discharged to the Colorado River. As External Stakeholders we have been working with the City to develop policies, ordinances, and educational information to allow and encourage Austin residents to reuse this gray water. Gray water reuse can nourish our gardens, reduce fire and foundation cracking risks, and sustain irreplaceable urban forests. Gray water reuse can preserve lake levels and river flows. Its reuse also

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reduces electricity used to pump and treat both water and wastewater; and the associated carbon footprint and greenhouse gases.

Domestic gray water use in the landscape can be an important part of a water conservation strategy, now and into the future. Gray water diversion into single-family and duplex landscapes can provide a safe, significant source of water, as demonstrated by a long nationwide history without a single case of health threat documented by the Centers for Disease Control. Toward that end, the External Stakeholders of the Gray Water Working Group offer this memorandum to document our recommendations based on our discussions of the last few months; and the collective wisdom of more than half a century of water engineering and design experience.

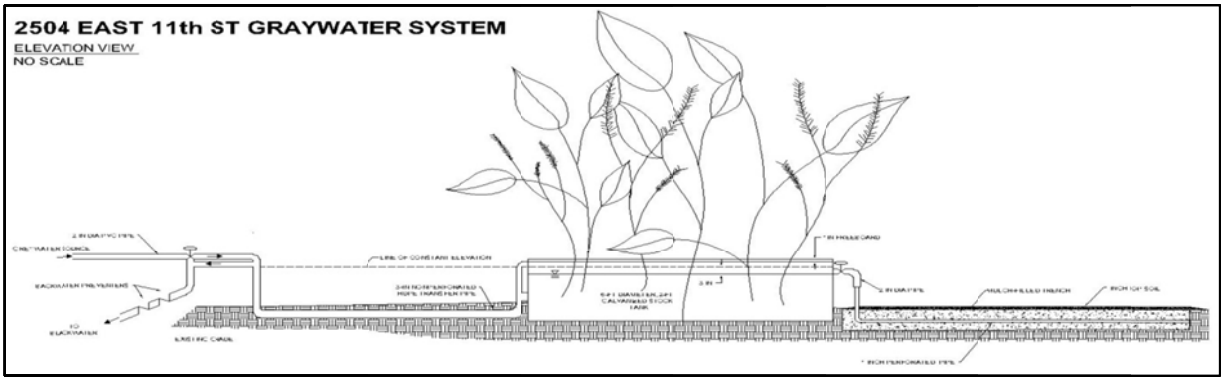
This memorandum includes

- Our Goals;
- Recommended Amendments to the Gray Water Portions of the 2012 Uniform Plumbing Code;
- Comments on Staff Recommendations; and
- Additional Recommendations.

Our Goals

Wide-scale residential gray water reuse in Austin requires a simple permit process for single family or residential duplex systems meeting these criteria:

- The amount of gray water is not more than 250 gallons per day;
- Gray water is reused on property where it is generated;
- The gray water system is designed and installed without the use of a pump (all flow conveyance is by gravity flow);
- The gray water system meets all relevant requirements of Chapter 16 of the 2012 Uniform



Plumbing Code, as amended by the sections below; and

- The gray water user provides on-going management for the system.

We propose that a gray water system meeting the requirements described above would be legal in the City of Austin without Reduced Pressure Zone (RPZ) or annual cross connection inspection.

A reasonable process to allow these systems, combined with education and incentives, will support safe, water-conserving systems rather than illegal "maverick" systems that may fail.

Recommended Local Amendments to the Gray Water Portions of Chapter 16, Alternate Water Sources for Nonpotable Applications, of the 2012 Uniform Plumbing Code (Uniform Plumbing Code)

The City of Austin has begun the process of adopting the 2012 Uniform Plumbing Code (UPC) to replace the current 2009 code. The Mechanical, Plumbing and Solar Board of the City of Austin is expected to begin to accept public input on the new code at their next meeting.

The 2012 Uniform Plumbing Code is substantially improved in the area of gray water requirements over the 2009 code. Nevertheless, changes to the 2012 UPC are necessary to allow simple, safe, and environmentally-protective gravity-flow gray water systems in Austin.

1. Table 1601.5 Minimum Alternate Water Source testing, Inspection and Maintenance Frequency. Eliminate the requirement for an annual cross-connection inspection (also known as a Customer Service Inspection) and test for gravity flow systems installed with an air gap. Cross-connection inspection for these systems would be required only: 1) as part of initial installation; 2) when a plumbing permit for alteration of the water supply system is authorized at a gray water residence; or 3) when a new utility customer applies for a water or wastewater permit at a gray water residence.
2. Section 1602.4 Location. Distribution of gray water would be allowed across property lines where both properties are owned or under the control of the same person or entity.
3. Section 1602.6 Prohibited Locations. Gray water distribution would be prohibited over outcrop areas of the Edwards or Georgetown limestone unless a minimum of three soil test pits demonstrate a minimum of 2 feet soil depth in all three pits. Gray water distribution would be prohibited within 50 feet of the edge of any stream bank, bedrock outcrop, recharge features,

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or Critical Environmental Features, as defined by City of Austin LDC.

4. Section 1602.7 (4) Exception –Table 1602.10 could be used in lieu of percolation tests. We believe the reference to Table 1602.4 is an error.
5. Table 1602.10. Because of the limited water treatment afforded by coarse sand or gravel, soils meeting these descriptions could not be used for gray water irrigation. Change "Sandy clay" in the table to "Sandy clay or Clay loam".
6. Table 1602.11.2.3. Gray water may be released above the ground surface provided at least two inches of mulch, rock, or soil, or a solid shield covers the release point. Other methods which provide equivalent separation are also acceptable.

Comments on Staff Recommendations

On July 2, 2012, Greg Meszaros submitted a memorandum of thirteen impediments in the City of Austin to residential gray water systems; and staff's recommendations. While the External Stakeholders commend the Staff's work, however, and generally agree with the majority of their recommendations, we offer the following additional comments:

1. **More than one facility for guidance and information**

   External Stakeholders concur with Staff recommendation to centralize the permitting process from the perspective of the permit applicant.

2. **Required depth of leach field distribution piping**

   External Stakeholders concur with Staff recommendation *and recommend the following local amendment to the 2012 Uniform Plumbing Code:*

   "Section 1602.11.2.3. *Gray water may be released above the ground surface provided at least two inches of mulch, rock, or soil, or a solid shield covers the release point. Other methods which provide equivalent separation are also acceptable."*

   Note that material in trenches is covered in #3 below.]

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3. **Type of material required in trenches**

   External Stakeholders concur with Staff recommendations.

4. **Requirement of multiple zones for the system**

   External Stakeholders concur with Staff recommendations.

5. **Container requirement**

   External Stakeholders concur with Staff recommendations,

with the following addition:

The 2012 Uniform Plumbing Code requires a surge tank only when systems are unable to accommodate peak flow rates by gravity drainage. The 2012 Uniform Plumbing Code also requires an accessible valve that allows the gray water flow to be switched from the landscape distribution system to the sanitary drainage system (sewer or septic tank) at any time.

With a requirement for this ability to redirect gray water, the sanitary sewer or septic system, in effect, replaces the need for a surge tank to prevent soil saturation. We recommend that the City present this option to TCEQ as alternate compliance. The sewer/septic as "backup" is far preferable to storing gray water – Best practices preclude holding gray water, where it can become fetid.

6. **Cost issues related to septic-type build of 2009 Uniform Plumbing Code Chapter 16 design requirements**

   External Stakeholders concur with Staff recommendations. We request that the City quickly adopt the 2012 Uniform Plumbing Code as a basis for permitting affordable and cost-effective gray water systems in Austin.

7. **Cross connection and backflow requirements**

   While the External Stakeholders generally agree with Staff recommendations, we recommend a simple permit process based on 2012 Uniform Plumbing Code compliant gray water systems**.** External Stakeholders request that the City authorize permits for simple, gravity-flow gray water systems without requirements for a reduced pressure zone (RPZ) backflow prevention assembly and annual cross-connection inspection. These requirements may be appropriate auxiliary water systems that use a pump to pressurize water. They are unnecessary and inappropriate, however, for gravity-flow water supply systems with virtually no mechanism for contaminating the public supply.

   

   The cost and inconvenience of the RPZ requirements vastly outweigh any public health benefits. These factors will discourage almost all Austin residents from participating in a City permitting process. Some of these residents will proceed with unpermitted gray water systems, which is certainly more risky than a licensed gray water system without RPZ.

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8. **Customer Service Inspection (CSI) requirements**

   External Stakeholders support a consultant review of appropriate regulations for pressurized gray water and other auxiliary water supply systems. Gray water systems that use gravity flow for conveyance, however, represent no threat to the City's potable water supply. External Stakeholders request that the City eliminate the annual Customer Service Inspection requirement for gravity flow gray water systems, as expressed in the following proposed local amendment to the 2012 Uniform Plumbing Code:

   Table 1601.5 Minimum Alternate Water Source testing, Inspection and Maintenance Frequency. Eliminate the requirement for an annual cross-connection inspection (also known as a Customer Service Inspection) and test for small, gravity-flow gray water systems as described in "Proposed Near-term Strategy**"** of this document. Cross-connection inspection will be required only as part of initial installation; when a plumbing permit for alteration of the water supply system is authorized at a gray water residence; and when a new utility customer applies for a water or wastewater permit at a gray water residence.

9. **Lack of access to, communication about, and clarity of design requirements and definitions**

   External Stakeholders Comment – The general summary for citizens noted in the Staff recommendation should be of sufficient detail so as to include all requirements of the 2012 Uniform Plumbing Code and local amendments (and interim policy, as applicable) without the need to reference the actual documents.

10. **Requirement for engineered design**

    External Stakeholders concur with Staff recommendations.

11. **Lack of a clearly defined permit process specific to graywater**

    External Stakeholders concur with Staff recommendations.

12. **Lack of technical plan review prior to permit issuance**

    External Stakeholders concur with Staff recommendations.

13. **Limited access to technical guides and codes**

    Copies of the current plumbing code and local amendments should be supplied to area libraries and other public access locations.

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Additional Recommendations

In addition to staff recommendations external stakeholders offer the following additional recommendations to the City of Austin for gray water management and reuse:

- All new residential construction should be required to install separate gray water plumbing to allow the option for gray water diversion from the black wastewater system. Homeowners and developers should be made aware of gray water options and incentives.
- The aerobic mulch basin gray water system in the 2012 Uniform Plumbing Code should be identified as the preferred system over the anaerobic gravel disposal system.
- The City should establish numerical goals for gray water reuse during drought; and programs and incentives to achieve those goals. These goals should be commensurate with the potential benefits of gray water reuse to improve soil hydrology, maintain and improve urban forests, and reduce carbon dioxide and greenhouse gas emissions. An example of a quantifiable goal would be 1,000 permitted gray water systems in the City of Austin by 2017; and 10,000 permitted systems by 2022.