This presentation premiered at WaterSmart Innovations

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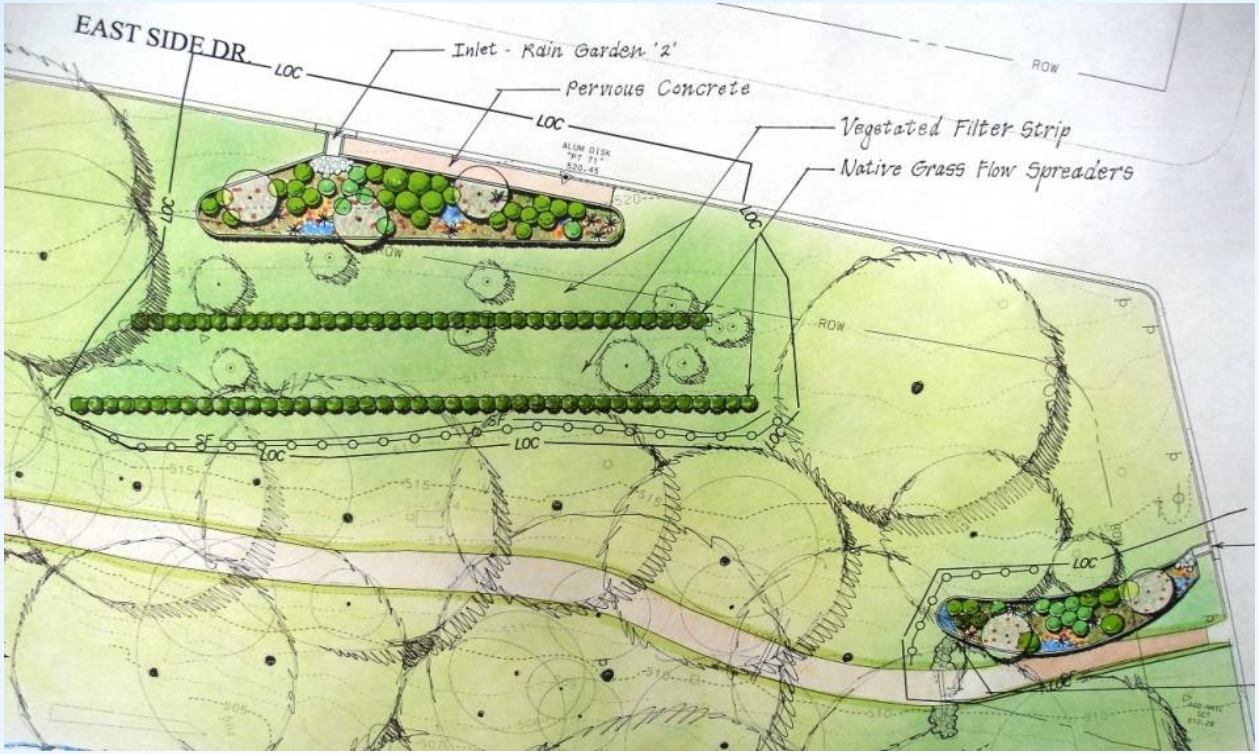

* Finding Stormwater's Potential In the Commercial Landscape

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* Background

Austin in a nutshell

- Water service population is 900,000
- Surface water utility
- 32 inches precipitation
- Prone to flash flooding
- 50 to 60% of peak usage goes to landscape irrigation

Summer 2009: Exceptional drought

Presentation to council on benefits of earth sculpting

Great idea…is it feasible in Austin?

* If it ain't broke…

- Current stormwater practices work
- Landscape requirements are enforced
- Recent irrigation design guidelines have been successful

No magic bullet

Goal: Get water to the landscape and set the water manager up for success.

* Preliminary Discussions

- Initial internal and external meetings
  - Internal: as much cross departmental interaction as possible
  - External: select firms with good reputations

- Importance of landscapes
  - Zones of tolerance
  - Practice areas
  - Heat island abatement
  - Watershed protection

- How will conservation and quality be affected?

* Possible and Benficial

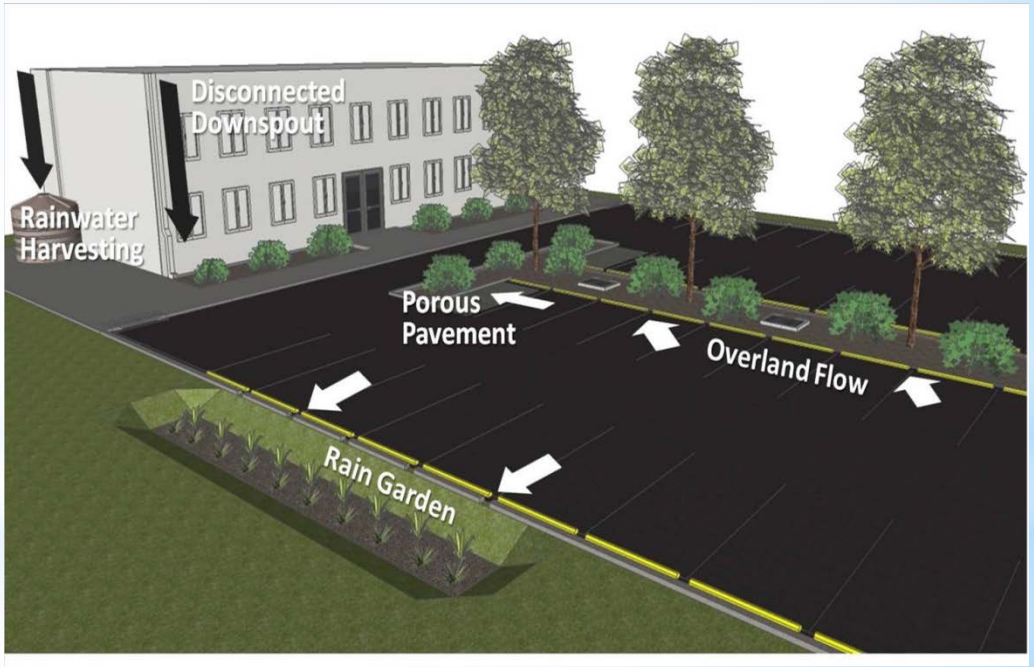
- Encourage vs. Enforce?
- Some sites are proven successes:
  - Innovative water quality controls
  - Rebates for rainwater harvesting
  - LID sites
- Report to council : Possible and Beneficial

*Discussions, and then some

- Numerous internal and external meetings
- Wide variety of fields
- How to word and structure the ordinance
- Retain design and compliance flexibility
- Keep costs down

Environmental Board Subcommittee

Long haul led to unanimous council vote.



*Final Product

- Direct Stormwater to at least 50% of required landscape area
  - Overland flow
  - Rain gardens
  - Rainwater harvesting
  - Porous pavement
  - Retention irrigation
  - Disconnected downspouts
- Show drainage areas on site plans
- Stormwater from “hot spot” land uses and parking lots over the aquifer recharge zone may not be used unless landscape doubles as a water quality control
- Undisturbed, natural land may count towards the 50% requirement

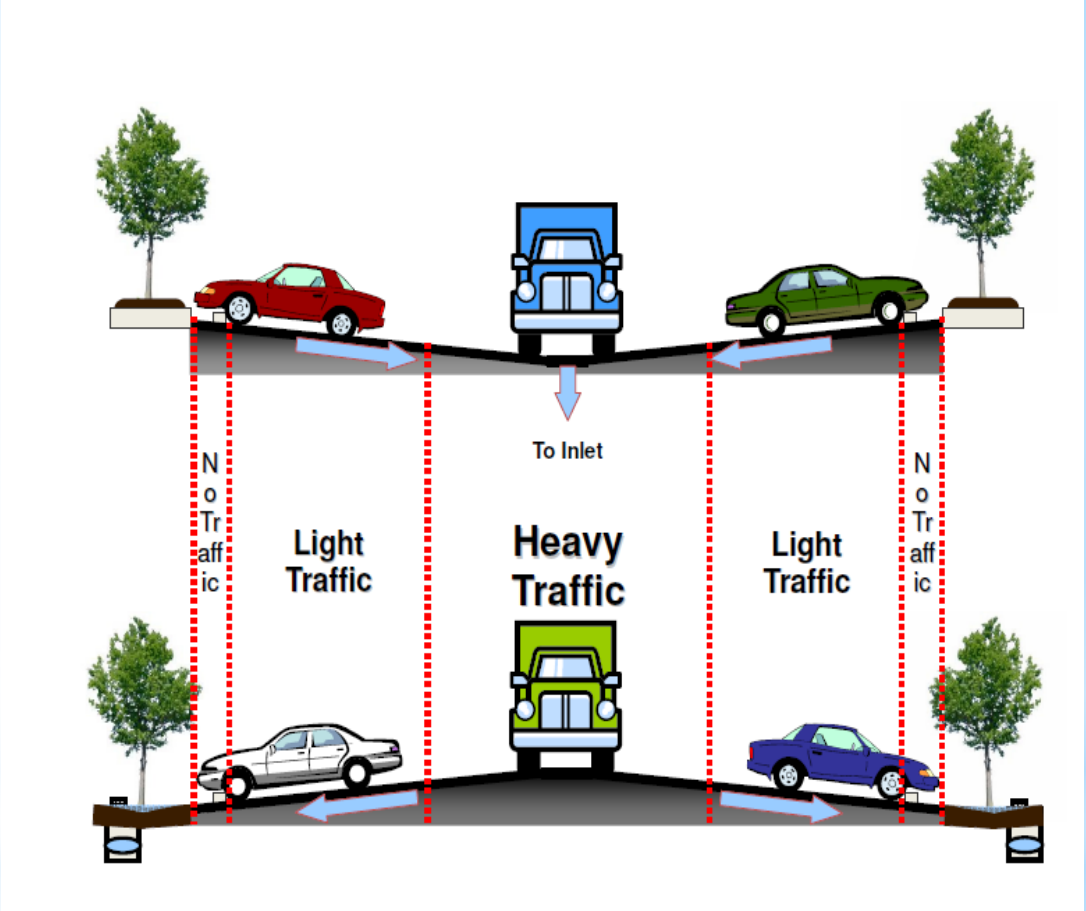
*Supplemental irrigation

- Supplemental required on all new trees, medians
- Permanent irrigation optional for perimeter landscaping represents a change from previous rule
- Temporary irrigation required for two growing seasons if no permanent irrigation is provided

*Points of contention and benefits

- Conservation versus quality??
- What areas need irrigation
- Flash floods

- Innovative water quality controls
- Pavement stability
- Cost efficiency
- Less irrigation waste
- Communication between disciplines



*Case Study
Pharmacy


Total Site: 2.4 acres
Pervious: 0.9 acres
Pct. IC: 63%
Pct. Pervious: 37%

Pharmacy

South 1st & Slaughter Lane

14,046 sq ft of required landscaping

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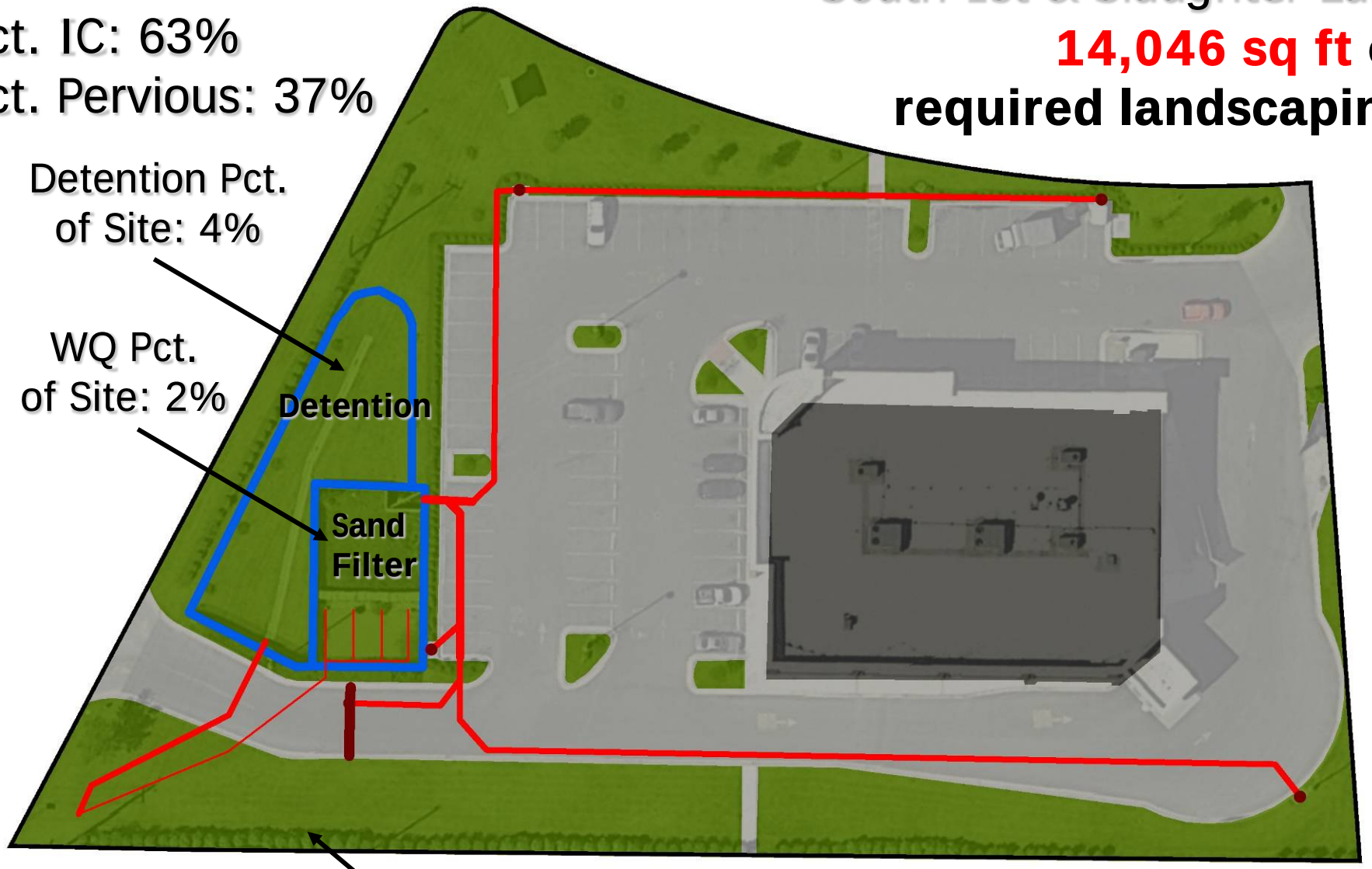


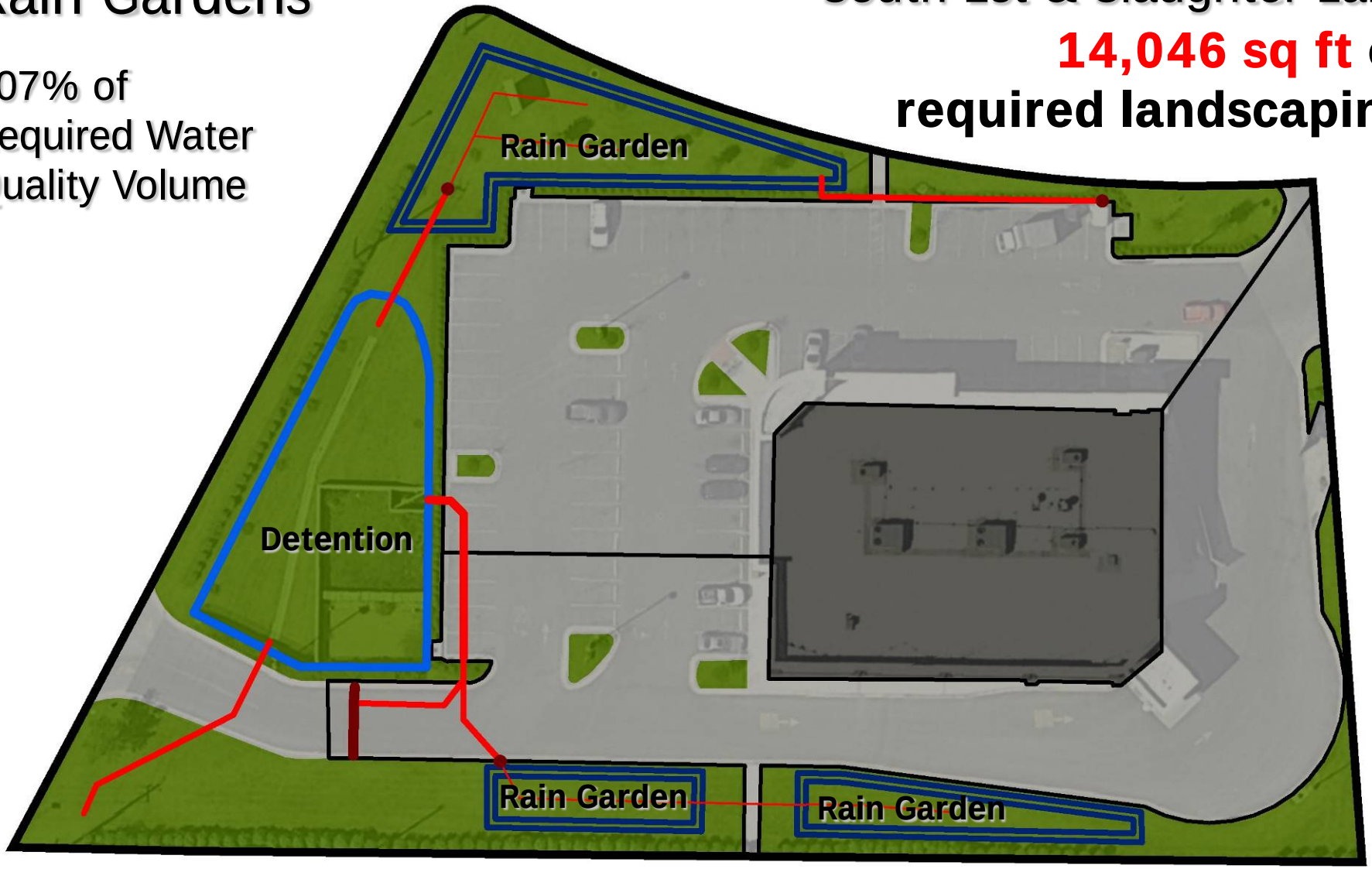
Potential for Rain Gardens

107% of Required Water Quality Volume

Pharmacy

South 1st & Slaughter Lane

14,046 sq ft of required landscaping



CVS Site: Conventional Sand-Filter vs. Rain Garden Cost Analysis

Cost Component	$/Units	Rain Garden	Existing/ Conventional	
Water Quality Control				
Excavation	$15/yd3	$ 5,863	$ 5,823	
Embankment	$5/yd3	$ 358	$ -	
Concrete	$500/yd3	$ -	$ 34,861	
Rain Garden Soil	$36/yd3	$ 8,062	$ -	
Sand	$8/yd3	$ -	$ 421	
6" perforated pipe	$23/ft	$ 4,674	$ 2,185	
6" solid pipe	$20/ft	$ 1,701	$ 1,900	
Subtotal Water Quality Control		**$ 20,658**	**$ 45,190**	
Storm Drainage				
18" RCP	$90.30/ft	**$ 30,702**	**$ 72,782**	
Landscaping (Water Quality areas only)				
Required Plants				
$/Plant	$16/each	$ 9,744	$ 2,100	*
Sod cost	$3.60/yd2	$ 1,719	$ 859	*
Subtotal Landscaping		**$ 11,463**	**$ 2,959**	
Totals		**$ 62,823**	**$ 120,931**	

* Pro-rated costs for landscaping in areas in common with rain garden

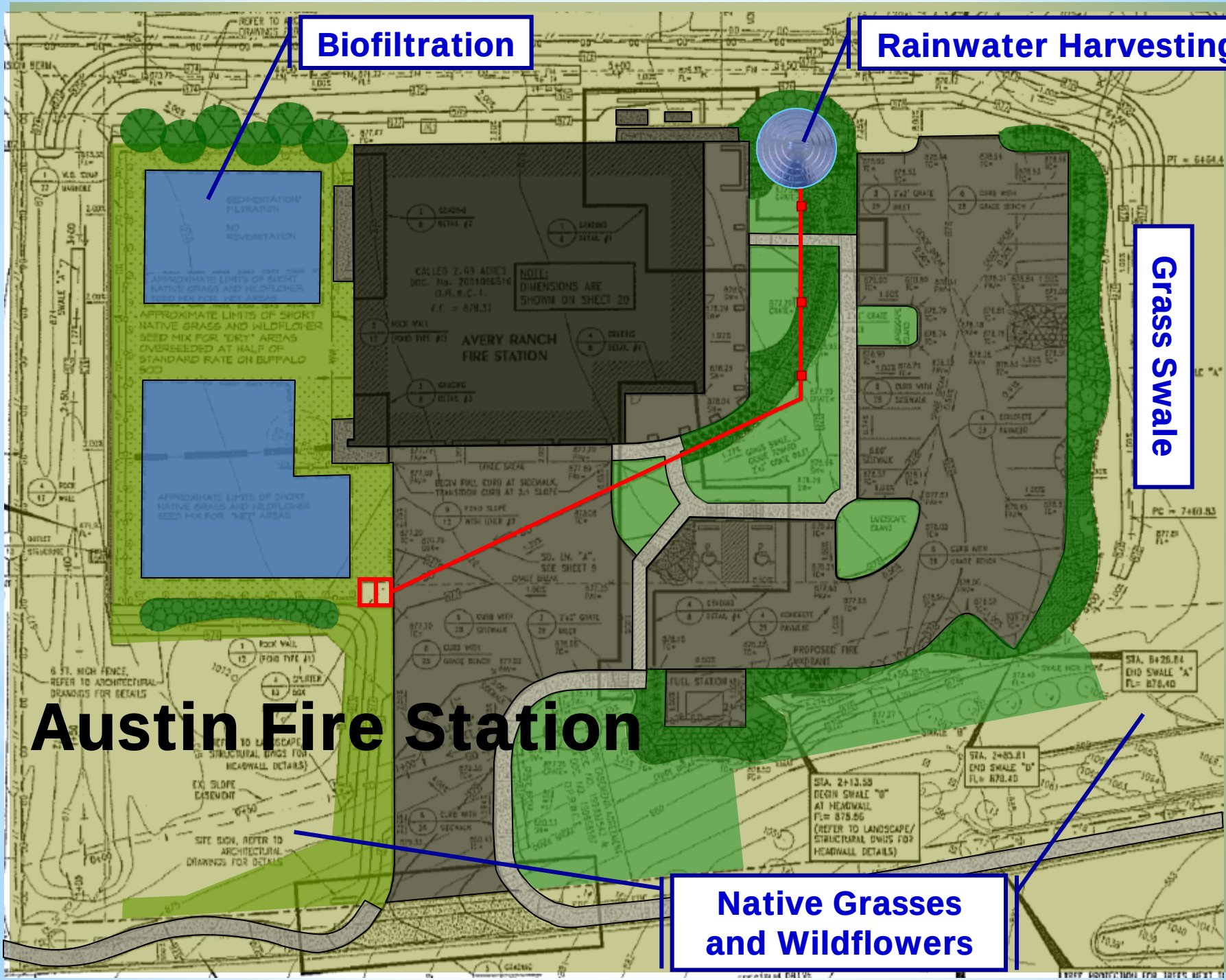
*What we've seen and what's next

What's Happening

- Stalled projects already permitted
- Undisturbed landscape is being used to meet criteria
- Communication, communication, communication
- NO RAIN!!

What's next?

- Monitor water usage
- Monitor plant health
- "Go big or go home"


Biofiltration
Rainwater Harvesting
Grass Swale
Native Grasses and Wildflowers
Austin Fire Station
AVERY RANCH FIRE STATION

*Questions?

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