

A public draft of Code SMTX was released on May 27, 2016. Over 1,000 comments on the public draft were received, analyzed, and responded to resulting in the release of a revised draft in January of 2017. This amendment report represents the analysis and input received from the Planning and Zoning Commission and City Council during two Joint Workshops and eleven Work Sessions held over the last several months. Direction on these amendments will lead to the production of a final draft of Code SMTX, the City's new land development code.

Amendment Report

June 9, 2017



Engineering and Engineering

Environmental and Drainage Sections



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EDWARDS AQUIFER RECHARGE ZONE

STORMWATER QUALITY AND STREAM PROTECTION

CURRENT CODE SMTX PROPOSAL

SUMMARY OF CODE REQUIREMENTS (SEC. 6.1.1.1 (A) (4); 6.1.4.1)

TSS Removal: Changes from limiting Total Suspended Solids (TSS) increase to no more than 20% above that which would occur naturally to requiring an 85% reduction in increased TSS.

Stream Protection Volume: Change from no standard to capture the runoff from developed area from 1.25-inches of rainfall (85th percentile storm rainfall depth) and infiltrate into ground or detain for a period of 48 hours.



Applicability: New development and redevelopment. Redevelopment that increases gross floor area or improved site area by 25% or less cumulatively, the environmental standards shall apply to the additional floor or site area only. For redevelopment that increases gross floor area or site area by more than 25% cumulatively, both the existing building, or site and the additional floor or site area must conform to the environmental standards.

AMENDMENTS SUGGESTED DURING THE WORK SESSIONS

AMENDMENTS

- Increase the Stream Protection Volume to capture the runoff from 1.6-inches of rainfall (90th percentile storm rainfall depth)
- Increase the TSS requirement to be 89% reduction

RELATED COMPREHENSIVE PLAN GOALS

ELEMENT	GOAL OR OBJECTIVE
Environment and Resource Protection 	Adopt watershed specific regulations based on scientific understanding of water quality impacts
Land Use 	Implement rain water retention and storm water Best Management Practices Adopt scientific standards for development in environmentally sensitive areas

RELATED PUBLIC FEEDBACK RECEIVED ON PUBLIC DRAFT

SOURCE	#	COMMENT
Residents	32	Increase Stream Protection Volume to 90 th percentile

STAFF ANALYSIS AND CONSIDERATION

Bioretention Pond Cost Increase Based on Requirement Level

Description	Commercial (20% IC)	Multi-Family Res. (20% IC)	Single Family Res. (20% IC)
Base Bioretention Pond Cost for 1.25-in and 85% Removal	\$499,130	\$410,719	\$266,700
Base Bioretention Pond Percentage of Total Project Cost	7%	4%	11%
Increase in Bioretention Cost from 1.25-in and 85% TSS Removal			
1.25-in and 89% TSS Removal	39%	51%	34%
1.6-in and 85% TSS Removal	0%	5%	28%
1.6-in and 89% TSS Removal	39%	51%	34%

Notes:

- 1) Based on 20, 18.8, and 12.5 acre developments for commercial, multi-family residential, and single family residential respectively.
- 2) IC = Impervious Cover
- 3) Costs are approximate
- 4) Bioretention is one BMP of many that can meet the 1.25-in and 85% removal requirement
- 5) The cost to construct homes was not included in the total project cost for Single Family Residential which is the basis for the base bioretention pond percentage of total project cost.

PROPOSED AMENDMENTS

Staff does not propose any amendments and has provided cost analysis as guidance for Planning and Zoning and Council to determine requirement levels.

TRANSITION ZONE AND CONTRIBUTING ZONE WITHIN THE TRANSITION ZONE

STORMWATER QUALITY AND STREAM PROTECTION

CURRENT CODE SMTX PROPOSAL

SUMMARY OF CODE REQUIREMENTS (SEC. 6.1.1.1 (A) (4); 6.1.4.1)

TSS Removal: Change from no standard to requiring an 80% reduction in increased TSS.

Stream Protection Volume: Change from no standard to capture the runoff from developed area from 1.25-inches of rainfall (85th percentile storm rainfall depth) and infiltrate into ground or detain for a period of 48 hours.

Applicability: New development and redevelopment. Redevelopment that increases gross floor area or improved site area by 25% or less cumulatively, the environmental standards shall apply to the additional floor or site area only. For redevelopment that increases gross floor area or site area by more than 25% cumulatively, both the existing building, or site and the additional floor or site area must conform to the environmental standards.

AMENDMENTS SUGGESTED DURING THE WORK SESSIONS

AMENDMENTS

- Increase the Stream Protection Volume to capture the runoff from 1.6-inches of rainfall (90th percentile storm rainfall depth)
- Increase the TSS requirement to be 85% reduction
- Increase the TSS requirement to be 89% reduction

RELATED COMPREHENSIVE PLAN GOALS

ELEMENT	GOAL OR OBJECTIVE
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Environment and Resource Protection	Adopt watershed specific regulations based on scientific understanding of water quality impacts
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Land Use	implement rain water retention and storm water Best Management Practices Adopt scientific standards for development in environmentally sensitive areas
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RELATED PUBLIC FEEDBACK RECEIVED ON PUBLIC DRAFT

SOURCE	#	COMMENT
Resident	32	Increase Stream Protection Volume to 90 th percentile
Resident	7	Expand water quality standards including removal of 85% TSS to all watersheds in city...
Resident/ Developer	*	These requirements will make it too expensive for small local business owners to develop in this area
Engineer	*	These standards are nothing new as Austin has similar water quality requirements

* Engineering and Development Community Open House

STAFF ANALYSIS AND CONSIDERATION

Bioretention Pond Cost Increase Based on Requirement Level

Description	Commercial (80% IC)	Multi-Family Res. (75% IC)	Single Family Res. (50% IC)
Base Bioretention Pond Cost for 1.25-in and 80% Removal	\$350,044	\$337,539	\$266,700
Base Bioretention Pond Percentage of Total Project Cost	6%	4%	20%
	Increase in Bioretention Cost from 1.25-in and 80% TSS Removal		
1.25-in and 85% TSS Removal	43%	22%	0%
1.25-in and 89% TSS Removal	98%	84%	34%
1.6-in and 80% TSS Removal	28%	28%	28%
1.6-in and 85% TSS Removal	43%	28%	28%
1.6-in and 89% TSS Removal	98%	84%	34%

Notes:

- 1) Based on a 5-acre development
- 2) IC = Impervious Cover
- 3) Costs are approximate
- 4) Bioretention is one BMP of many that can meet the 1.25-in and 80% removal requirement
- 5) The cost to construct homes was not included in the total project cost for Single Family Residential which is the basis for the base bioretention pond percentage of total project cost

PROPOSED AMENDMENTS

Staff does not propose any amendments and has provided cost analysis as guidance for Planning and Zoning and Council to determine requirement levels.

SAN MARCOS RIVER PROTECTION ZONE

STORMWATER QUALITY AND STREAM PROTECTION

CURRENT CODE SMTX PROPOSAL

SUMMARY OF CODE REQUIREMENTS (SEC. 6.1.1.1 (A) (4); 6.1.4.1)

TSS Removal:

- **Outside San Marcos River Corridor:** Change from no standard to requiring an 80% reduction in increased TSS.
- **Inside San Marcos River Corridor:** Change from treatment with sand filter (89% reduction efficiency) to 80% reduction in increased TSS.

Stream Protection Volume:

- **Outside San Marcos River Corridor:** Change from no standard to capture the runoff from developed area from 1.25-inches of rainfall (85th percentile storm rainfall depth) and infiltrate into ground or detain for a period of 48 hours.
- **Inside San Marcos River Corridor:** Change from capture 0.5 inch from developed area to 1.25-inches of rainfall (85th percentile storm rainfall depth) and infiltrate into ground or detain for a period of 48 hours.



Applicability: New development and redevelopment. Redevelopment that increases gross floor area or improved site area by 25% or less cumulatively, the environmental standards shall apply to the additional floor or site area only. For redevelopment that increases gross floor area or site area by more than 25% cumulatively, both the existing building, or site and the additional floor or site area must conform to the environmental standards.

AMENDMENTS SUGGESTED DURING THE WORK SESSIONS

AMENDMENTS

- Increase the Stream Protection Volume to capture the runoff from 1.6-inches of rainfall (90th percentile storm rainfall depth)
- Increase the TSS requirement to be 85% reduction
- Increase the TSS requirement to be 89% reduction
- Include segment of the Blanco River that falls in the COSM jurisdiction
- Include TSS removal and Stream Protection Volume city wide

RELATED COMPREHENSIVE PLAN GOALS

ELEMENT	GOAL OR OBJECTIVE
Environment and Resource Protection 	Adopt watershed specific regulations based on scientific understanding of water quality impacts
Land Use 	Implement rain water retention and storm water Best Management Practices Adopt scientific standards for development in environmentally sensitive areas

RELATED PUBLIC FEEDBACK RECEIVED ON PUBLIC DRAFT

SOURCE	#	COMMENT
Residents	53	Increase Stream Protection Volume to 90 th percentile
Residents	7	Expand water quality standards including removal of 85% TSS to all watersheds in city...
Resident/ Developer	*	These requirements will make it too expensive for small local business owners to develop in this area
Engineer	*	These standards are nothing new as Austin has similar water quality requirements

* Engineering and Development Community Open House



STAFF ANALYSIS AND CONSIDERATION

Bioretention Pond Cost Increase Based on Requirement Level

Description	Inside SMR Buffer Zone (30% IC)	Outside SMR Buffer Zone		
		Commercial (80% IC)	Multi-Family Res. (75% IC)	Single Family Res. (50% IC)
Base Bioretention Pond Cost for 1.25-in and 80% Removal	\$208,367	\$350,044	\$337,539	\$266,700
Base Bioretention Pond Percentage of Total Project Cost	7%	6%	4%	20%
Increase in Bioretention Cost from 1.25-in and 80% TSS Removal				
1.25-in and 85% TSS Removal	0%	43%	22%	0%
1.25-in and 89% TSS Removal	7%	98%	84%	34%
1.6-in and 80% TSS Removal	28%	28%	28%	28%
1.6-in and 85% TSS Removal	28%	43%	28%	28%
1.6-in and 89% TSS Removal	28%	98%	84%	34%

Notes:

- 1) Based on a 5-acre development
- 2) IC = Impervious Cover
- 3) Costs are approximate
- 4) Bioretention is one BMP of many that can meet the 1.25-in and 80% removal requirement
- 5) The cost to construct homes was not included in the total project cost for Single Family Residential which is the basis for the base bioretention pond percentage of total project cost

PROPOSED AMENDMENTS

Staff does not propose any amendments and has provided cost analysis as guidance for Planning and Zoning and Council to determine requirement levels.

EXPAND STREAM WATER QUALITY AND BUFFER ZONES

CURRENT CODE SMTX PROPOSAL

SUMMARY OF CODE REQUIREMENTS (6.2.2.1; 6.2.2.2)

Stream Water Quality and Buffer Zones:

- Inside Edwards Aquifer Recharge Zone:** Waterway type “Sub-Minor Waterways” has been added for waterways having a drainage area greater than or equal to 5-acres and less than 50-acres. Sub-Minor Waterway shall have a minimum water quality zone width of 25-feet on each side of the waterway centerline or equal to the limits of the 100-year floodplain based on a fully developed watershed. A buffer zone of 25-feet in width has also been established Sub-Minor Waterways.

Water Quality and Buffer Zones Defined by Offset Method- Inside EARZ

Waterway Type	Defining Drainage Area	Existing Code		Revised Code	
		Water Quality Zone Width Offset from Stream Centerline	Buffer Zone Width Offset from WQZ	Water Quality Zone Width Offset from Stream Centerline	Buffer Zone Width Offset from WQZ
Sub-Minor Waterways	$5 \leq DA < 50$ acres	No Requirement	No Requirement	25 feet	25 feet
Minor Waterways	$50 \leq DA < 250$ acres	50 feet	100 feet	50 feet	100 feet
Intermediate Waterways	$250 \leq DA < 1000$ acres	100 feet	100 feet	100 feet	100 feet
Major Waterways	$1000 \text{ acres} \leq DA$	200 feet	100 feet	200 feet	100 feet

- Outside Edwards Aquifer Recharge Zone:** Waterway type “Minor Waterways” was revised to include waterways having a drainage area greater than or equal to 50-acres and less than 120 acres. Minor Waterways have a minimum water quality zone width of 50-feet on each side of the waterway centerline or equal to the limits of the 100-year floodplain based on a fully developed watershed. The buffer zone is 50-feet in width for a Minor Waterway.

Water Quality and Buffer Zones Defined by Offset Method- Outside EARZ

Waterway Type	Defining Drainage Area	Existing Code		Revised Code	
		Water Quality Zone Width Offset from Stream Centerline	Buffer Zone Width Offset from WQZ	Water Quality Zone Width Offset from Stream Centerline	Buffer Zone Width Offset from WQZ
Minor Waterways	50 ≤ DA < 120 acres	No Requirement	No Requirement	50 feet	50 feet
Minor Waterways	120 ≤ DA < 250 acres	50 feet	No Requirement	50 feet	50 feet
Intermediate Waterways	250 ≤ DA < 1000 acres	100 feet	No Requirement	100 feet	100 feet
Major Waterways	1000 acres ≤ DA	200 feet	No Requirement	200 feet	100 feet

AMENDMENTS SUGGESTED DURING THE WORK SESSIONS

AMENDMENTS

- No administrative adjustment should be allowed for cut and fill standards in water quality or buffer zones
- Allow the combined width of water quality and buffer zones to exceed the width of the 100-year floodplain
- Have the “Sub-Minor” waterway designation apply to the Transition Zone
- Encourage developers to keep waterways natural even if they are very small
- The code should not allow waterways to be filled in
- The proposed code should help incentivize preserving natural waterways

RELATED COMPREHENSIVE PLAN GOALS

ELEMENT	GOAL OR OBJECTIVE
Environment and Resource Protection 	Adopt watershed specific regulations based on scientific understanding of water quality impacts

FEEDBACK RECEIVED ON PUBLIC DRAFT

SOURCE	#	COMMENT
Resident	29	No administrative adjustment should be allowed for cut and fill standards in water quality or buffer zones. Water Quality Zones and Buffer Zones begin at the edge of each waterway, first the WQZ, then the Buffer Zone. They are part of the treatment train to clean water before it reaches creeks and rivers. The vegetation both slows runoff and filters it. To allow cut and fill is to weaken the natural treatment of stormwater. This kind of Administrative Adjustment happens out of sight and undermines the erosion and sedimentation control ordinance.
Resident	30	I concur with comment 29. The purpose of the buffer and water quality zones is nullified by adding cut and fill materials along these areas of the waterways. This goes for all waterways in San Marcos.
Resident	38	This (water quality zone and buffer zone shall not be greater than the 100-year floodplain) should be eliminated. It mixes flood issues with water quality issues. The WQZ and Buffer zone are important water quality features that provide the last feature of filtration before entering the waterway. The floodplain is about flooding. Why should one limit the other?
Resident	38	Agreed the water quality zone and the buffer zone should not be limited by the 100 year flood plain
Resident	36, 37	Have the "Sub-Minor" waterway designation applied city wide
Resident	39	Add a footnote to this table: "No cut and fill allowed in any Water Quality Zone or Buffer Zone"
Think Tank		Allowing zero tolerance for cut and fill in water quality zones outside the Edwards Aquifer Recharge Zone is too restrictive. Environmental standards should not be a one size fits all.

STAFF ANALYSIS AND CONSIDERATION

- No additional amendments to the code were made for cut and fill in water quality zones for the following reasons:
 - Inside the Edwards Aquifer Recharge Zone no cut or fill is allowed within a water quality zone.
 - Outside the Edwards Aquifer Recharge Zone allowing cut and fill provides development flexibility. Any reclamation of water quality zone within a 100-year floodplain requires a Qualified Watershed Protection Plan, environmental mitigation, Planning and Zoning Commission approval, and compliance with the City's Flood Damage Prevention Ordinance.
- Some current code water quality and buffer zone requirements for the Edwards Aquifer Recharge Zone were not included with proposed code and will now be included such as:
 - Water quality zone shall be the 100-year floodplain for FEMA mapped floodplain
 - Buffer zone can extend beyond the 100-year floodplain
- Staff does not see an issue with extending Sub-Minor Waterway designation to include areas within the Transition Zone and Contributing Zone within the Transition Zone.

PROPOSED AMENDMENTS

The following amendments are based on the suggested amendments submitted during the work sessions with Planning Commission and City Council. These amendments have been analyzed for consistency with State Law and other code provisions, processes and practices.

#	TITLE	SUMMARY
1	Enhanced Protection Zones	<ul style="list-style-type: none"> Change Section 6.2.1.1 (C) (1) to “Any waterway having a drainage basin of less than 50 acres outside the EARZ, Transition Zone, and Contributing Zone within the Transition Zone and 5 acres within the EARZ, Transition Zone, and Contributing Zone within the Transition Zone measured upstream from the proposed development;”
2	Water Quality Zones	<ul style="list-style-type: none"> Under Section 6.2.2.1 (A) (1) adjust wording to designate 100-year floodplain as water quality zone if located within the EARZ Under Section 6.2.2.1 (2)(a) change text to state: “These are established within the EARZ, Transition Zone, and Contributing Zone within the Transition Zone only” Under Section 6.2.2.1 (2) and (3) change “Non FEMA-mapped” to “Non FEMA Mapped or Floodway Defined”
3	Buffer Zones	<ul style="list-style-type: none"> Under Section 6.2.2.2 (A) (1) change wording of last sentence limiting the water quality and buffer zone not exceeding width of the 100-year floodplain to areas outside the EARZ only Under Section 6.2.2.2 (A) (2) add the following sentence: “The combined width of the water quality zone and buffer zone shall not exceed the width of the 100-year floodplain outside of the EARZ.”

FACILITATE LOW IMPACT DEVELOPMENT

CURRENT CODE SMTX PROPOSAL

STANDARD PROVIDED (SEC. 6.1.1.1 (A))

EARZ: 85% Reduction in Increased TSS and 1.25-inch Stream Protection Volume

Transition Zone and Contributing Zone within Transition Zone: 80% Reduction in Increased TSS and 1.25-inch Stream Protection Volume

San Marcos River Protection Zone: 80% Reduction in Increased TSS and 1.25-inch Stream Protection Volume

CODE BARRIERS REMOVED

Example: Section 7.2.3.1 (C) (2) was added which states "Landscaping and vegetation installed as part of a stormwater management feature may be counted towards the landscaping requirements."

DEVELOP STORMWATER TECHNICAL MANUAL

Will include more detailed and up to date design criteria to meet drainage requirements.

Will include more detailed design, material specification, and maintenance requirements for LID features.



Will begin development this Summer.

AMENDMENTS SUGGESTED DURING THE WORK SESSIONS

AMENDMENTS

- Require or give credit for rain garden features

RELATED COMPREHENSIVE PLAN GOALS

ELEMENT	GOAL OR OBJECTIVE
Environment and Resource Protection 	Incorporate Low Impact Development (LID) practices and other best practices early on and throughout the development process
Land Use 	Create specifications for the use of pervious materials Implement rain water retention and storm water Best Management Practices

RELATED PUBLIC FEEDBACK RECEIVED ON PUBLIC DRAFT

SOURCE	#	COMMENT
Resident	2	Low Impact Development should be incentivized. LID/GI retain rainwater on site....
Resident	3	Lack of adequate language to make reference to, encourage incentivize or integrate green infrastructure techniques...
Resident	8	To strongly encourage the inclusion of LID/GI in new development, the City should have in place financial incentives....
Resident	9	Highlight Green Infrastructure/LID as topic in Stormwater Technical Manual to encourage awareness if its viability and use.
Resident	10	Add LID design standards
Resident	18	Require 50% of stormwater to be directed to landscaped areas.

STAFF ANALYSIS AND CONSIDERATION

No additional analysis was performed.

PROPOSED AMENDMENTS

No amendments are proposed.

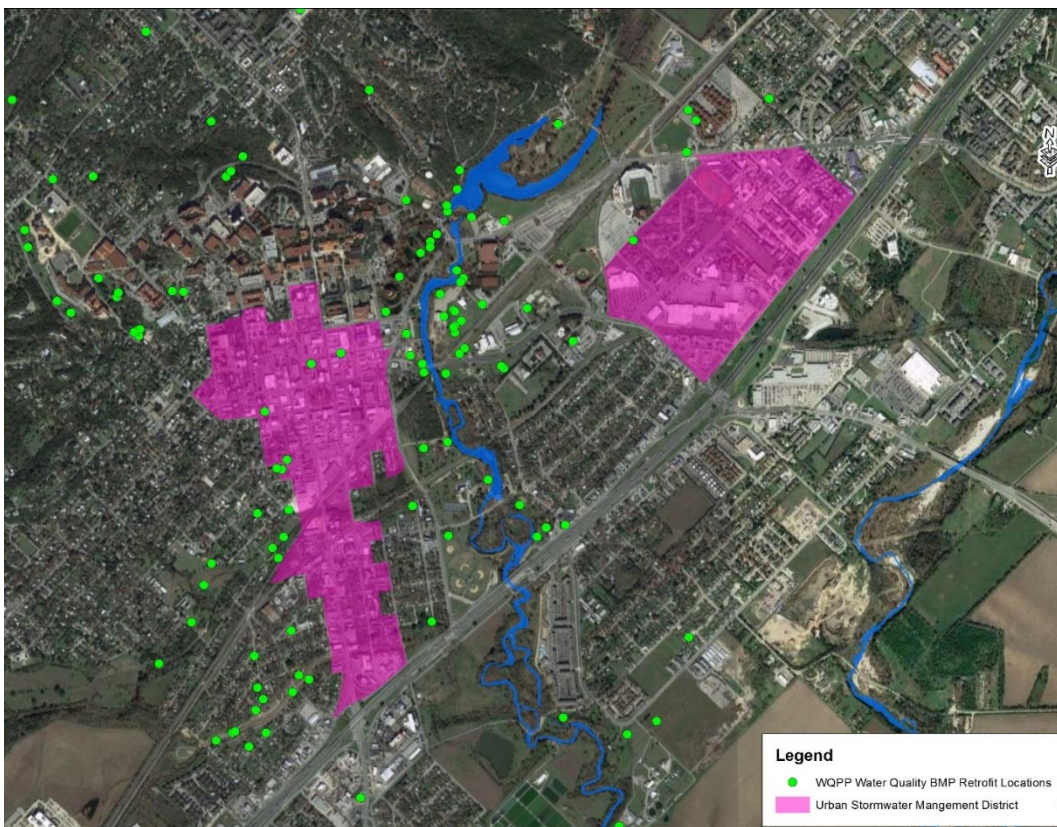
STORMWATER MANAGEMENT FUND

CURRENT CODE SMTX PROPOSAL

SUMMARY OF CODE REQUIREMENTS (SEC. 6.1.1.2 AND 6.1.1.3)

Stormwater Management District: Properties located within the urban stormwater management district established on the map above are eligible for waivers from requirements under Section 3.9.1.1(F) and Section 6.1.4.1 when the following standards are met:

- No adverse impacts are demonstrated through drainage analysis; and
- A payment is made into the stormwater management fund in accordance with Section 6.1.1.3.



Stormwater Management Fund:

- The amount of payment into the Stormwater Management Fund is set by Council and is fixed by a resolution adopted by the City Council in included in the City's Development Fee Schedule.
- Payments collected by the City shall be kept separate from other revenue of the City. Funds can only be used within the same watershed where they were collected and shall be dedicated solely to the purchase of land or construction of the following:
 - Retrofit and regional water quality Best Management Practices;
 - Regional detention and floodplain storage; or
 - Projects to increase flow conveyance.

- Any development required to implement the stormwater fee or approved alternatives shall run with the land and any subsequent modification of the parcel that requires more site or building area shall require subsequent action to satisfy the stormwater management fee requirement

QUESTIONS/COMMENTS DURING THE WORK SESSIONS

QUESTIONS/COMMENTS

Assess fees sufficient to pay the true cost of getting water downstream safely


How will the COSM charge the developer to create the stormwater management fund?

Will the COSM need to pay for regional storm water management and then recover fees from future developers at a later date?

Ensure adequate funding for the drainage utility

If the City will need to fund a portion of regional stormwater management – where will those initial funds be generated from?

RELATED COMPREHENSIVE PLAN GOALS

ELEMENT	GOAL OR OBJECTIVE
Environment and Resource Protection 	Develop a regional detention and water quality strategy (including fee-in-lieu) to improve land efficiency, affordability, and efficacy of systems

RELATED PUBLIC FEEDBACK RECEIVED ON PUBLIC DRAFT

SOURCE	#	COMMENT
		None provided

STAFF ANALYSIS AND CONSIDERATION

No additional analysis was performed.



PROPOSED AMENDMENTS

No amendments are proposed. Staff is working with a consultant to determine adequate strategies and fees for developing:

- Retrofit and regional water quality Best Management Practices;
- Regional detention and floodplain storage; or
- Projects to increase flow conveyance.