



**Planning Commission and Zoning and Platting Commission
CodeNEXT Work Session**

December 4, 2017 at 6:00 p.m.

City Hall
Council Chambers
301 W. 2nd Street
Austin, TX 78701

A G E N D A

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EXECUTIVE SESSION (No public discussion)

The Planning Commission and Zoning and Platting Commission, will announce it will go into Executive Session, if necessary, pursuant to Chapter 551 of the Texas Government Code, to receive advice from Legal Counsel on matters specifically listed on this agenda. The commission may not conduct a closed meeting without the approval of the city attorney.

Private Consultation with Attorney – Section 551.071

A. CITIZEN COMMUNICATION

The first four (4) speakers signed up prior to the meeting being called to order will each be allowed a three-minute allotment to address their concerns regarding items not posted on the agenda.

B. CITIZEN INPUT REGARDING CODE-NEXT

The first ten (10) speakers signed up will each be allowed a three-minute allotment to address their concerns regarding the CodeNEXT public review draft.

C. BRIEFING

1. Presentation and Discussion regarding CodeNEXT Draft Version #2: Flooding, Green Infrastructure and Open Space

Staff: Greg Guernsey, Director, Planning and Zoning Department, 512-974-2387; Jorge Rousselin, Acting Division Manager, Planning and Zoning Department, 512-974-2975

D. NEW BUSINESS

1. Discussion regarding matters related to CodeNEXT including but not limited to staff updates and schedule of discussion topics.

ADJOURNMENT

The City of Austin is committed to compliance with the American with Disabilities Act. Reasonable modifications and equal access to communications will be provided upon request. Meeting locations are planned with wheelchair access. If requiring Sign Language Interpreters or alternative formats, please give notice at least 2 days before the meeting date. Please call Andrew Rivera at the Planning and Zoning Department, at 512-974-6508, for additional information; TTY users route through Relay Texas at 711.



Analysis of Proposed Impervious Cover Entitlements for CodeNEXT Draft 2

November 29, 2017

Introduction

Impervious cover is any surface that prevents the infiltration of water into the ground, such as roads, parking lots, and buildings. When rainwater falls on impervious surfaces, the increased volume and velocity of runoff from these surfaces can contribute to erosion and flooding and impair water quality by carrying contaminants such as sediment, bacteria, and nutrients into Austin's aquifer and creeks. Impervious cover also displaces soils, trees, and other plants, increasing ambient temperatures and reducing stream baseflows and natural habitat. To minimize these negative effects, the Land Development Code places restrictions on impervious cover.

The Land Development Code has two sets of impervious cover limits – zoning limits and watershed limits. For all existing single family lots and for other types of development within the Urban watersheds, impervious cover is set exclusively by zoning. For other types of development in the rest of the city, the impervious cover limit is governed by the lower (i.e., more protective) of the two requirements. The Watershed Protection Department uses the maximum impervious cover allowed by the code to model and map floodplains as well as to design upgrades to drainage infrastructure.

CodeNEXT—the City's initiative to revise the Land Development Code—proposes to rezone the entire city. Watershed Protection staff have analyzed whether the maximum impervious cover allowed by CodeNEXT significantly exceeds the maximum impervious cover allowed by current code. Because the City's floodplain models and drainage system capacity analyses are based on fully-developed conditions, an increase in allowed entitlements could potentially impact the extent of the 100-year floodplain as well as the capacity of existing stormwater infrastructure.

Methodology

The analysis was performed using an Excel spreadsheet to calculate and summarize processed Geographic Information Systems (GIS) data. For every parcel within the city limits, the analysis calculated the following values:

- Existing amount of constructed impervious cover based on planimetric data
- Maximum amount of impervious cover allowed under the current Land Development Code by zoning and watershed regulations
- Maximum amount of impervious cover allowed under the proposed Land Development Code by zoning and watershed regulations

If the existing amount of impervious cover exceeds the amount allowed by current or proposed code, the spreadsheet assumed the existing amount of impervious cover in order to provide the highest, most conservative estimate of maximum build out.

The analysis for Draft 2 includes deductions for waterway setbacks and floodplains, where development is restricted or prohibited by the code. The maximum impervious cover allowed was reduced for sites limited by these features that lacked sufficient developable area in the uplands (i.e., outside of the creek setback areas). In addition, the analysis for Draft 2 uses waterway setbacks to calculate allowed impervious cover on a net site area basis in the Drinking Water Protection Zone. This means that the percent of impervious cover allowed (e.g., 25%) is applied only to the uplands area rather than to the entire site.

The analysis for Draft 2 does not account for other unique environmental features that may be located on a site, including steep slopes, sensitive features, and trees. The regulatory protections associated with these features could potentially lower the total amount of impervious cover for any given site. The CodeNEXT draft states for every zoning category that “the maximum percentage of impervious cover allowed...may not be attainable by a project due to unique site characteristics, such as trees, waterways, and steep slopes. Where necessary, the project shall reduce the amount of proposed impervious cover to comply with other requirements.” Given this caveat, the maximum percentage of impervious cover shown below for each watershed will always be higher than the ultimate anticipated buildout. For the purposes of this analysis, the key results to evaluate are the differences between the percentages, rather than the percentages themselves.

Results

The existing impervious cover, as well as the comparison of maximum entitlements under current code and CodeNEXT, is summarized below by watershed as well as for the watershed classifications and Council districts. See the map below for the location of watersheds and watershed classifications. Note: The analysis was only performed on parcels within the city limits, so the total acreage for certain watersheds (e.g., Brushy Creek, Maha Creek) is very low compared to the overall size of the watershed.

The analysis showed a slight decrease (-0.57%) in the maximum amount of impervious cover allowed by CodeNEXT. The Urban watersheds in the inner core of the City—where the most severe challenges related to flooding, erosion, and water quality generally are located—also showed a slight decrease (-0.95%) in the maximum amount of impervious cover allowed by CodeNEXT. The reduction in the urban core is likely attributed to the shift from high-intensity commercial zones (e.g., CS, GR) to mixed use and main street zones in centers and corridors. This shift resulted in the maximum entitlement for many parcels decreasing from 90 to 95% down to 80 to 90%, depending on the zone.

In certain Suburban watersheds (e.g., Onion Creek, Dry Creek East, and Maha Creek watersheds) the increase in entitlements can be attributed almost entirely to the rezoning of large parcels (e.g., Roy Kizer Golf Course, Circuit of the Americas) from interim Rural Residential (I-RR) to categories that are more in line with the current land use (e.g., Public, Commercial Recreation).

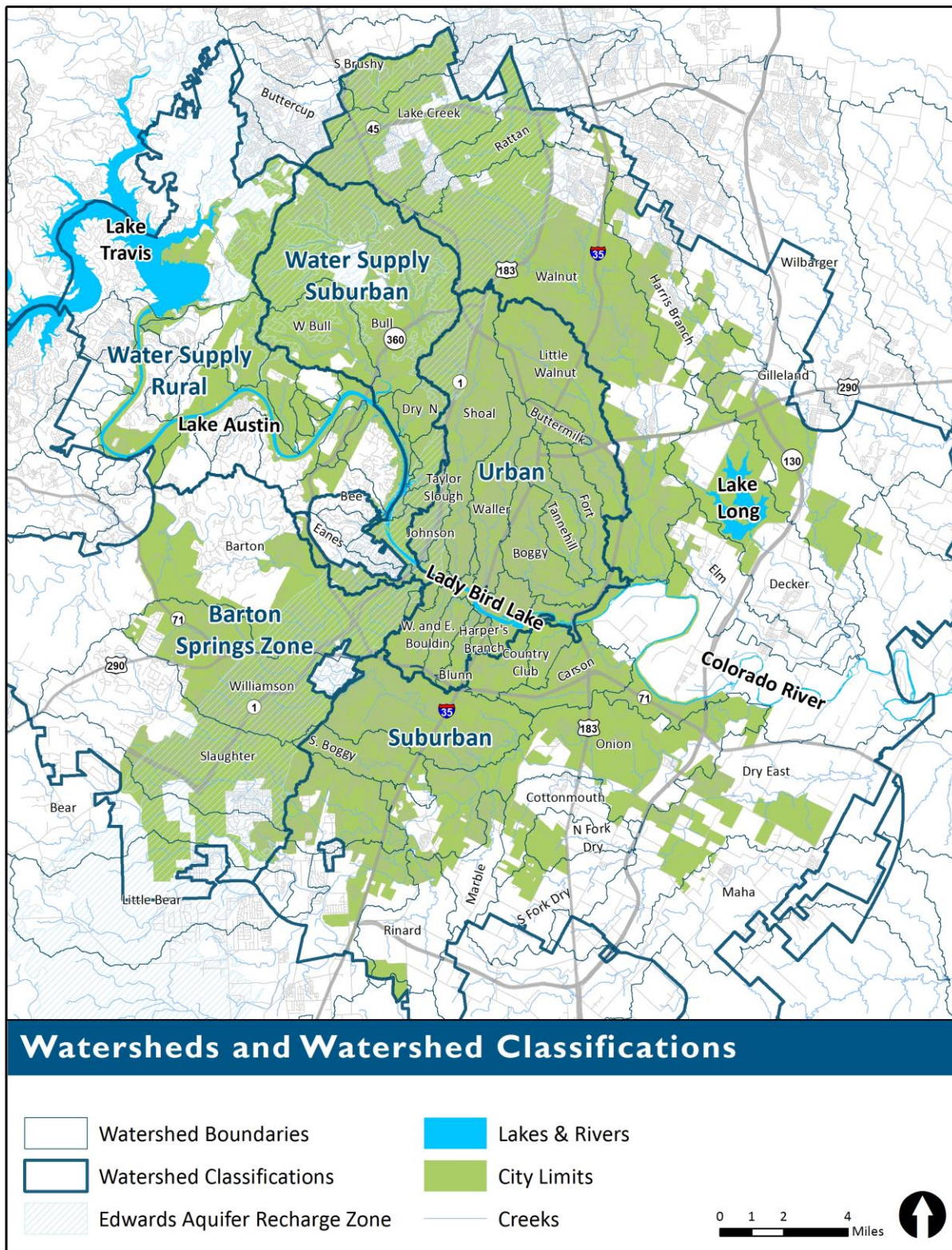
Next Steps

As the draft zoning map is refined during the public review process, Watershed Protection will continue to update the impervious cover entitlements analysis detailed above to evaluate whether the results have changed. In addition, Watershed Protection engineering staff are working on parallel modeling efforts to quantify the potential downstream benefits of the proposed CodeNEXT provision related to flood mitigation for redevelopment as well as to quantify the potential flood-related impacts associated with residential infill. The results of those modeling efforts will be published in a separate report.

Watershed	Total Acres within City Limits	Existing Impervious Cover (percent)	Allowed Maximum Impervious Cover (percent)		Difference between Current and Proposed Entitlements
			Current Land Development Code	Proposed Land Development Code	
Barton Creek	10,389	16.2%	17.9%	17.9%	-0.02%
Buttercup Creek	443	30.9%	54.0%	53.8%	-0.24%
Bee Creek	659	6.1%	10.6%	10.6%	0.03%
Bear Creek	2,669	11.6%	15.4%	15.5%	0.06%
Blunn Creek	926	48.9%	66.6%	64.9%	-1.67%
Buttermilk Branch	1,060	60.4%	73.0%	72.9%	-0.12%
Boggy Creek	3,929	45.0%	62.1%	60.7%	-1.41%
Bohls Hollow	2	0.0%	0.0%	0.0%	0.00%
Brushy Creek	4	48.6%	68.5%	68.5%	-0.01%
Bear Creek West	297	0.0%	3.8%	3.8%	0.00%
Bull Creek	14,174	22.3%	28.6%	28.4%	-0.14%
Carson Creek	3,315	35.9%	60.9%	61.5%	0.55%
Country Club East	1,173	27.6%	61.4%	57.1%	-4.26%
Country Club West	1,786	46.0%	62.7%	61.2%	-1.47%
Cedar Hollow	14	0.0%	0.0%	0.0%	0.00%
Commons Ford Creek	303	0.9%	11.5%	11.5%	0.00%
Connors Creek	395	1.9%	2.5%	2.5%	-0.01%
Colorado River	3,624	18.1%	48.1%	46.0%	-2.13%
Cuernavaca Creek	59	3.2%	6.1%	6.1%	0.00%
Cottonmouth Creek	876	0.8%	62.7%	62.7%	-0.08%
Coldwater Creek	175	3.8%	9.3%	8.9%	-0.40%
Decker Creek	4,856	6.1%	37.2%	26.2%	-10.95%
Dry Creek East	4,459	11.8%	50.5%	55.4%	4.96%
Dry Creek North	1,368	31.9%	36.4%	36.3%	-0.04%
Eanes Creek	1,161	33.4%	40.1%	39.6%	-0.48%
East Bouldin Creek	1,202	55.0%	68.8%	68.0%	-0.75%
Elm Creek	764	21.7%	53.3%	50.5%	-2.81%
Fort Branch	2,169	38.9%	58.7%	57.6%	-1.17%
Gilleland Creek	6,238	6.8%	57.4%	56.2%	-1.16%
Honey Creek	24	0.0%	1.1%	1.1%	0.00%
Hog Pen Creek	191	0.7%	5.6%	5.6%	-0.05%
Harrison Hollow	39	0.0%	0.3%	0.3%	0.00%
Harper's Branch	342	52.9%	63.0%	62.4%	-0.55%
Harris Branch	3,639	20.0%	63.8%	63.8%	0.03%
Huck's Slough	109	32.6%	40.1%	39.9%	-0.20%
Johnson Creek	1,155	49.5%	56.5%	56.3%	-0.25%
Little Bee Creek	60	17.2%	17.2%	17.2%	0.00%
Lady Bird Lake	4,385	41.1%	52.9%	50.9%	-2.01%
Little Bear Creek	909	0.0%	7.6%	7.6%	0.00%
Lake Austin	7,467	6.1%	12.2%	12.2%	-0.08%
Lake Creek	6,937	30.4%	56.6%	56.7%	0.08%
Lake Travis	3,774	4.5%	7.7%	7.4%	-0.24%
Little Walnut Creek	7,278	51.5%	66.5%	65.4%	-1.17%
Maha Creek	85	27.2%	31.2%	59.9%	28.69%
Marble Creek	696	23.5%	52.7%	51.5%	-1.19%
North Fork Dry Creek	930	0.9%	73.5%	73.6%	0.04%
Onion Creek	13,935	18.0%	54.6%	54.9%	0.28%
Panther Hollow	2,117	2.3%	7.2%	7.2%	0.00%

Watershed	Total Acres within City Limits	Existing Impervious Cover (percent)	Allowed Maximum Impervious Cover (percent)		Difference between Current and Proposed Entitlements
			Current Land Development Code	Proposed Land Development Code	
Plum Creek	159	0.0%	65.1%	65.1%	0.00%
Rattan Creek	3,499	10.9%	57.2%	57.2%	0.02%
Running Deer Creek	25	0.0%	2.4%	2.4%	0.00%
Rinard Creek	886	8.3%	57.8%	57.8%	0.03%
South Boggy Creek	2,824	33.3%	51.9%	51.9%	0.07%
South Brushy Creek	2,507	29.0%	59.4%	59.4%	0.01%
South Fork Dry Creek	634	0.0%	77.9%	77.9%	0.00%
Shoal Creek	8,271	54.4%	63.5%	63.1%	-0.42%
Slaughter Creek	11,004	26.9%	34.9%	34.2%	-0.66%
Steiner Creek	37	0.0%	0.4%	0.4%	-0.01%
St. Stephens Creek	656	22.8%	27.1%	27.1%	0.00%
Tannehill Branch	2,646	47.2%	66.6%	65.3%	-1.29%
Turkey Creek	1,324	0.8%	7.3%	7.3%	0.00%
Taylor Slough North	957	33.9%	37.9%	37.7%	-0.17%
Taylor Slough South	414	41.5%	44.5%	44.5%	-0.03%
West Bull Creek	4,243	6.9%	15.9%	15.7%	-0.18%
West Bouldin Creek	1,705	47.4%	62.4%	61.5%	-0.91%
Walnut Creek	22,837	31.9%	58.0%	57.1%	-0.88%
Waller Creek	3,594	59.9%	71.2%	71.2%	-0.08%
Williamson Creek	17,900	35.3%	44.3%	44.2%	-0.08%
Watershed Classification					
Barton Springs Zone	30,595	20.8%	24.1%	24.1%	0.01%
Suburban	98,855	24.5%	55.8%	55.1%	-0.76%
Urban	38,115	50.7%	64.3%	63.3%	-0.95%
Water Supply Rural	16,875	4.4%	9.4%	9.3%	-0.10%
Water Supply Suburban	24,246	21.5%	28.1%	27.9%	-0.23%
Council District					
District 1	30,208	21.0%	54.4%	51.6%	-2.77%
District 2	29,603	21.4%	55.9%	56.8%	0.91%
District 3	11,543	40.9%	60.0%	58.4%	-1.54%
District 4	7,596	57.1%	68.3%	67.9%	-0.37%
District 5	15,304	32.4%	49.3%	48.7%	-0.63%
District 6	31,810	18.0%	36.3%	36.2%	-0.09%
District 7	17,960	40.3%	61.8%	61.0%	-0.78%
District 8	28,919	20.0%	23.7%	23.6%	-0.07%
District 9	7,994	54.3%	66.4%	65.2%	-1.22%
District 10	27,409	22.1%	28.9%	28.8%	-0.10%
TOTAL	208,686	26.8%	45.8%	45.2%	-0.57%

Map of Watersheds and Watershed Classifications



For more information, please contact the following staff from the Watershed Protection Department:

Matt Hollon
(512) 974-2212
matt.hollon@austintexas.gov

Erin Wood
(512) 974-2809
erin.wood@austintexas.gov

Kelly Strickler
(512) 974-1845
kelly.strickler@austintexas.gov

CodeNEXT Policy Table for Drainage and Environmental Proposals

Subtopic	Code Citation	Proposed Code Changes	Rationale	Policy Considerations for Proposed Changes			Key Criteria Changes
				Advantages	Challenges	Policy Alternatives	
Article 23-3D: General Planning Requirements, Water Quality Division							
Green Stormwater Infrastructure and Beneficial Use of Stormwater	23-3D-6 <i>Water Quality Control and Beneficial Use Standards</i>	NEW PROPOSAL <ul style="list-style-type: none">Require the use of green stormwater infrastructure (GSI) on commercial and multi-family development to address water quality, water conservation, and ecological functions .Allow use of conventional controls on commercial sites with more than 80% impervious cover if irrigation demands are met using rainwater harvesting.Offer incentives for rainwater harvesting for projects at all impervious cover levels by crediting stored rainwater up to 25% of water quality volume.Exceptions offered for residential subdivisions, regional ponds, difficult site conditions, and "hot-spot" land uses with highly contaminated runoff (e.g., auto repair facilities).	Current water quality requirements are typically met with sedimentation/filtration controls, which are effective at filtering polluted runoff and mitigating the impacts of impervious cover on stream channel erosion, but they do not significantly address other important ancillary goals such as supporting on-site vegetation, increasing rain water infiltration, and reducing potable water consumption. The use of green stormwater controls can offer additional benefits to the more traditional controls (see list at right). 🔄 Recommended by the Green Infrastructure Working Group. Implements Actions CFS A38, CFS A42, LUT A37, LUT A39, and CE A6 in Imagine Austin.	<ul style="list-style-type: none">Green controls have been used and tested across the US and allowed (but not required) in Austin for water quality compliance since 2007.Where infiltration practices are adopted, improves hydrology (increased creek baseflow, reduced runoff).Conserves water, reduces potable irrigation.Rainwater harvesting credit addresses traditional conflict between water quality and conservation goals.Provides green function / ecosystem services (resilience in heat and drought, natural habitat, ambient cooling).Provides human and cultural benefits (health, well-being, green oasis, lowered stress).Smaller scale enables simple, familiar routine maintenance (landscaping, irrigation operation, etc.).Typically can double up GSI location with other site elements (e.g., landscaping).	<ul style="list-style-type: none">GSI controls can require more detailed attention during design and construction than conventional controls.Potentially higher initial and ongoing maintenance cost for some GSI applications compared to more traditional methods (e.g., complex plantings, pumps, etc.).Require more frequent routine maintenance (trash removal, sediment buildup, etc.).Small scale increases number of controls and may require additional review and inspection.Some GSI types have larger footprint than grey equivalents (e.g., rain gardens vs. sand filters).Proposal allows for reduced average annual rainfall treatment for systems that use a 25% rainwater harvesting conservation component.Lack of local data on long-term maintenance (e.g., how to re-construct green controls in the landscape when water quality volume needs to be re-established).	<ul style="list-style-type: none">Maintain or expand current toolbox of engineering alternatives (tradional and GSI) and allow owner to select their preferred approach to meet WQ requirements based on site conditions.Adjust the rainwater harvesting system to provide more or less conservation vs. standard water quality storage volume.Require 100% use of green controls even on sites with more than 80% impervious cover (may require indoor use of rainwater).Require use of GSI on all residential development, including building permits (1 - 2 units), residential heavy (3 - 6 unit), and subdivisions.	<ul style="list-style-type: none">Add new Beneficial Use section.Refine design criteria for some options.Clarify eligibility for payment-in-lieu of on-site controls.
Water Quality Protection	23-3D <i>Water Quality</i>	NO SUBSTANTIAL CHANGES Key historical water quality protection standards, including watershed impervious cover limits, stream and lake buffers, floodplain protections, cut and fill limits, steep slope protections, erosion and sedimentation control requirements, and protections for critical environmental features are all carried forward.	The major provisions of this Article were revised entirely in the 2013 Watershed Protection Ordinance.	N/A	N/A	N/A	N/A

See next page -->

CodeNEXT Policy Table for Drainage and Environmental Proposals

Subtopic	Code Citation	Proposed Code Changes	Rationale	Policy Considerations for Proposed Changes			Key Criteria Changes
				Advantages	Challenges	Policy Alternatives	
Article 23-10E: Drainage Infrastructure							
Flood Mitigation for Redevelopment	23-10E-3 <i>Standards for Approval</i>	SIGNIFICANT CODE REVISION Require all development--both new and redevelopment--to provide flood mitigaton through on- or off-site controls, conveyance improvements, and/or payment-in-lieu. The level of mitigation required is based on the reduction of post-development peak flow rates of discharge to match those for undeveloped conditions (zero impervious cover). Only applies to the area developed / limits of construction.	Since 1974, development has been required to provide stormwater detention to ensure that post-development stormwater peak flows not exceed those that exist from the site at the time of application. This helps minimize adverse flood impacts downstream that the new development would contribute to. This current code does not account for impervious cover on a site that existed before 1974 that impacts existing flood hazards. By requiring all sites to either match the peak runoff rates generated by undeveloped conditions or provide a payment-in-lieu of detention, this proposal asks that redevelopment account for its proportionate share of downstream flooding by either constructing on-site controls, downstream conveyance improvements, or providing funding for the City to address other citywide flood hazards. 🔄 Recommended by the Flood Mitigation Task Force. Implements Action CFS A42 and CFS A45 in Imagine Austin.	<ul style="list-style-type: none">• Helps reduce existing flooding and erosion hazards created by existing development--not just hold the line on existing problems.• Each development addresses its proportional share of the problem.• Establishes consistent stormwater detention requirements for greenfield and redeveloped sites.• Many options for compliance, including onsite detention, improving downstream conveyance, and payment-in-lieu which would be determined based on drainage conditions at and downstream of each development.• Redevelopment with existing, compliant detention and conveyance are not affected.	<ul style="list-style-type: none">• May add cost to many redevelopment projects.• Some types of detention facilities require additional land area.• May discourage redevelopment, which would prevent other benefits of such redevelopment from being realized.• Incremental benefits may take a long time to show results.	<ul style="list-style-type: none">• Apply only to larger sites and exempt smaller sites.• Require the stormwater detention, but at a lower level of control (e.g., 10-year control rather than full 100-year control).• Exempt areas that do not have known flooding or drainage problems.• Maintain status quo and continue to address existing flood hazards primarily via public capital projects.	<ul style="list-style-type: none">• Update to include new proposal for redevelopment sites.• Define "undeveloped conditions."
Regional Stormwater Management Program (RSMP)	23-10E-3 <i>Standards for Approval</i>	NEW TO CODE Existing Program Add a code reference to the RSMP, which is currently outlined in the Drainage Criteria Manual (DCM).	Providing a reference to this program in the code will codify its existence and promote its use.	Ease of use; clarity.	None.		<ul style="list-style-type: none">• Revise to describe process.



Zoning and Platting Commission CodeNEXT Recommendations

Watershed-related Questions and Data Requests in October 30th, 2017 Draft #2 Recommendation

November 29, 2017

Questions regarding the Flood Mitigation Task Force (FMTF) Report:

- Which regulatory recommendations identified in the report are addressed in CodeNEXT?
- What feedback did the consultants provide for each regulatory recommendation in the FMTF Report?
- How is each recommendation addressed in CodeNEXT?
- If any recommendation was not addressed in CodeNEXT, what is the rationale?

The [FMTF Final Report](#) contains recommendations on a wide array of subjects concerning mitigation strategies, funding, maintenance, education, and many other important topics; the attached summary table discusses the status of FMTF recommendations related to the Land Development Code.

General Questions:

- Numerous individuals and groups have raised flooding concerns. How have those individual concerns been addressed? How is the comment process demonstrating the community's concerns are being heard and addressed?

Staff shares the community's concerns about citywide flooding. The current CodeNEXT draft includes provisions beyond what the current code requires to help address flooding concerns. The most significant of these items is the flood risk reduction requirement for commercial and multifamily redevelopment projects.

Additional recommendations will be included in Draft 3 regarding measures designed to minimize house-to-house drainage problems during the Building Permit phase of residential construction.

The FMTF Final Report also recommended a forum for citizen concerns be created, and the Environmental Commission has stepped forward as such a forum (per another FMTF recommendation that the Environmental Commission play a larger role). The Commission requested and received Council approval to create a standing Drainage Infrastructure and Flood Mitigation (DIFM) committee which considers drainage topics and which includes several FMTF former members as ex-officio participants. Meetings have included presentations and discussions on CodeNEXT drainage and flooding proposals, and have included citizen comment and discussion.

- Additionally, it must be noted that the Environmental Commission is not making a recommendation on the second draft due to not having enough information. What additional information is needed? How quickly can that information be provided?

The Environmental Commission noted the following gaps in their November 1, 2017 Resolution:

- The Environmental Commissioners have not had relevant and essential draft code language, and the analysis associated with the proposed language.

Draft 2 was provided on September 15, 2017. The comparison of existing impervious cover versus proposed impervious cover entitlements was presented at the Environmental Commission Drainage subcommittee meeting on October 16 and posted to the Council Q&A message board on October 20. Results of the creek and localized flood modeling analysis related to the Draft 2 flood risk reduction requirement and residential infill is scheduled to be presented to the Environmental Commission on December 6, 2017.

- The drainage impact analysis requirements for “missing middle” housing was presented to an Environmental Commission sub-committee for the first time only 1 week ago, in conceptual form, without any specific draft code language; in other words, these proposed requirements are not even part of draft 2 of the code.

Extensive staff coordination has been necessary to develop a staff recommendation that provides review of essential elements while minimizing design, construction, and permitting costs to the applicant. The proposed requirements for the residential heavy process are anticipated for Draft 3. DSD and PAZ will be presenting these requirements as part of the December 20 Missing Middle PC/ZAP meeting, and the Environmental Commission will be updated following that date. The drainage impact of these housing types is captured in the Single-Family Residential modeling analysis, which will be presented to the Environmental Commission on December 6, 2017.

- The Environmental Commission still has not received all the modeling and analyses that it deems necessary to evaluate the drainage and other impacts resulting from the proposed code changes, including a comparison of existing impervious cover (as it exists on the ground now) versus proposed impervious cover entitlements under CodeNEXT and localized drainage and flooding impacts.

The drainage modeling was complex and has taken more time than originally anticipated. We know that this was a high priority for Commissions, Council, and the public, and we regret the delay. The creek and localized flood modeling analysis related to the Draft 2 flood risk reduction requirement and residential infill will be presented to the Environmental Commission on December 6, 2017. The comparison of existing impervious cover versus proposed impervious cover entitlements was presented at the Environmental Commission Drainage subcommittee meeting on October 16th and posted to the Council Q&A message board on October 20. Staff’s revised, final report on Draft 2 impervious cover entitlements is complete and will be available prior to the combined PC/ZAP meeting on December 4th and the Environmental Commission meeting on December 6.

Data Requests:

- Data on all the locations of localized flooding throughout the city.

The most complete source of citywide localized flood information comes from what we refer to as the localized flood complaint database. This includes the drainage-related complaint calls that staff receives from the community regarding building, yard, and street flooding. Per the Watershed Protection Master Plan protocol, staff verifies and groups complaint calls into local flood problem areas. These areas are indicated on the Watershed Protection Master Plan Problem Score Viewer and summarized by watershed

in the Watershed Protection Master Plan (pg. 88), which are both available on the city's website (<http://austin.maps.arcgis.com/apps/MapJournal/index.html?appid=d45481abb0804c95a8e6b033188982b9>, <http://www.austintexas.gov/department/watershed-protection-master-plan>).

Staff superimposed the local flood problem areas data on maps showing maximum entitlements for impervious cover between current code and Draft 2 CodeNEXT proposed zoning. This information was posted to the Council CodeNEXT Q&A website on October 20 and shared with PC/ZAP on November 16. The information shows most localized flood problem areas to have no increased impervious cover entitlements; in the small number of cases where increases are proposed, WPD has already proposed capital improvement program (CIP) projects to improved drainage.

Meanwhile, staff is currently in the process of creating engineering models for the drainage system citywide. These models help us validate the complaint data and prioritize project areas instead of relying solely on the complaint database.

- A list of all buyout locations; and identified buyout locations including money secured for buyouts, buyout status pending and properties identified but no money available to proceed with the buyouts.

The Watershed Protection Department currently has five buyout project areas. These include: Lower Onion Creek; Upper Onion Creek Recovery Buyouts; Middle Williamson Creek; February Drive; and Charing Cross. Staff has a recommended flood risk reduction project to expand the Upper Onion Creek project area. The Watershed Protection Department has recommended using existing funding to initiate phase 1 of this project. City Council must approve the use of the existing funding for this project, which we anticipate taking the item for City Council consideration in early 2018. The available funding is not enough to complete the project. The table below summarizes each project and provides its status as of November 17, 2017.

Project Area		Buyout Status		Financial Status ^	
		# Properties Acquired to Date	# Properties in Project Area	Current Project Cost Estimate	Expenditures to Date
Lower Onion	Army Corps Project Area	483	483	\$73.2M	\$66.3M
	25-Year Project Area	133	137	\$33.1M	\$28.3M
	100-Year Project Area	192	203	\$53.7M	\$44.3M
Middle Williamson		48	66	\$25M	\$18.0M
Upper Onion	Recovery Buyouts	3	10	\$5M	\$2.1M
Walnut - February Dr		3	5	\$1.9M	\$728k
Bull - Charing Cross (LFHM)		3	5	\$1.8M	\$1.1M

^ FEMA grant funding is reflected in the appropriations and expenditures where appropriate (\$7.8M for Lower Onion - Army Corps Area and \$1M for Lower Onion - 100-year Area)

Zoning and Platting Recommendations:

- “The Zoning and Planning Commission [sic] recommends that the City of Austin implement a regional storm water management system for the remaining watersheds that don’t have a Regional Storm Management Program (RSMP). We would also like the RSMP to be the subject of a third party evaluation per the flood mitigation task force recommendation.” (pg. 6)

WPD agrees with these recommendations. The Regional Stormwater Management Program is available citywide—the Drainage Criteria Manual will be updated to clarify that all watersheds are eligible for RSMP. WPD staff has contracted with a consultant to evaluate appropriate RSMP fees consistent with construction costs and benchmark program with other cities. In addition, the consultant will make recommendations on potential improvements to the administration of the RSMP. This evaluation is expected to be completed by July 2018.

- “The Zoning and Platting Commission recommends that properly credentialed engineers review subjects that they are licensed in, including site plans for three to nine residential units.” (pg. 6)

WPD staff agrees with this recommendation. Floodplain review for site plans, subdivisions, and building permits is currently completed by properly credentialed engineering staff. Drainage review for site plans and subdivisions is currently completed by engineering staff as well. WPD is working with Development Services to propose a requirement for a simplified drainage analysis by a licensed professional engineer for 3 – 6 unit development on residential lots to address lot-to-lot drainage issues while minimizing design, construction, and permitting costs to the applicant. The Planning Commission and ZAP are scheduled to be briefed on this proposal on Dec. 20, 2017, and it will be included in CodeNEXT Draft 3.

- “Neighborhoods identified in the report from the Mayor’s Task Force on Institutional Racism should not be upzoned and compatibility protections should be restored for properties with current single-family zoning. The Save Our Springs (SOS) ordinance passed in 1992 in the city to protect environmentally sensitive parts of Austin from overdevelopment. An unintended consequence is that the ordinance encouraged overdevelopment into east Austin. The Zoning served and Platting commission recommends that CodeNext provide enhanced environmental protections in central and east Austin to treat different areas of the city equitably and to avoid the negative consequences of impervious cover and overdevelopment in all areas of the city.” (pg. 9)

Austin lies along the boundary of two ecological regions: the Edwards Plateau (“Hill Country”) to the west and the Blackland Prairie to the east. The distinctive terrains and soils of these two regions pose unique challenges for the protection of creeks and floodplains. The Edwards Plateau features steep slopes, rugged canyons, and the caves and springs of the Edwards Aquifer; thin soils and rapid transmission of water mean stormwater receives very little filtration, which risks contamination of surface and groundwater. In addition, these western watersheds drain to the City’s principle sources of drinking water. In contrast, the Blackland Prairie features broad, alluvial floodplains as well as deep but erosive clay soils and creek banks. Given these fundamental physical differences, watershed regulations for the eastern and western watersheds have been tailored to best fit the unique and substantially different conditions of each region.

The City of Austin has responded to this challenge of developing and steadily improving its watershed protections. It was an early national leader in flood and water quality regulations. The 1974 Waterway Ordinance, 1980 Barton Creek Ordinance, 1986 Comprehensive Watersheds Ordinance, and 1992 Save Our Springs Ordinance were just a few efforts to direct development patterns in ways that prevent environmental harm and expense. However, the focus of these historic ordinances was on the western watersheds, such as in the Barton Springs Zone and around Lake Austin, without recognizing then that the eastern watersheds would also need a higher level of protection. Their fragile clay soils, expansive floodplains, and long history of farming and other land alteration pose different challenges that the Comprehensive Watershed Ordinance did not adequately address.

One of the core objectives of the 2013 Watershed Protection Ordinance was to provide better protection for the unique environmental resources in the eastern watersheds and provide similar levels of protection across the City as a whole. The ordinance extended creek buffers—setbacks to ensure that development is not built too close to waterways—to over 400 miles of “headwaters” streams. The ordinance also focused not only on preserving environmental resources but also on restoring the health and function of creeks and floodplains to regain lost ecosystem and cultural services. Together, these key changes will help foster the recovery and reforestation of degraded waterways, which will in turn better protect streams, rivers, and lakes downstream—preserving water quality for the citizens of Austin.

CodeNEXT proposes to carry forward the important strides made by the Watershed Protection Ordinance and its predecessors, hold the line on additional impervious cover entitlements, and build upon this foundation with new measures to enhance environmental function and resiliency to most gracefully accommodate its growing community.

Flood Mitigation Task Force (FMTF) Recommendations:
Summary of Recommendations related to Land Development Code

Recommendation	Staff Response / Comment	Status	FMTF Report Subsec.*
1. 3rd party evaluation of Regional Stormwater Management Program (RSMP) for effectiveness and accountability.	WPD continues to improve the way RSMP is administered.	WPD staff contracted a 3rd party consultant to evaluate appropriate RSMP fees consistent with construction costs and benchmark program with other cities. In addition, the consultant will make recommendations on potential improvements to the administration of the RSMP. This evaluation is expected to be completed by July 2018.	ES.13 1.A.9. 4.8.
2. Floodplain Variance policy: supportive of current approach with several suggestions.	WPD appreciates the support of our approach and is considering the suggested changes (e.g., provide public notification for properties & communities near proposed FP Variance requests).	WPD staff exploring implementation of potential improvements, e.g., Require public notice for Council floodplain variances.	ES.11 1.B.1. thru 1.B.3.b. 1.E.5.a. 1.E.5.b.
3. Work with city, state, and county authorities to continue to restrain development in 100-year floodplains.	Austin's 100-year floodplain regulations implemented in 1983 have been very successful in preventing development in the floodplain. Austin regulates floodplains at a higher level than the FEMA minimum standards, contributing to our Community Rating System rating (which makes flood insurance more affordable for Austinites).	The City of Austin and Travis County have established a single-office review process for development within the City's ETJ and we are working to improve our coordination with Travis, Williamson, and Hays Counties. Staff do not believe there is a need for any change in CodeNEXT.	ES.10

**Flood Mitigation Task Force (FMTF) Recommendations:
Summary of Recommendations related to Land Development Code**

Recommendation	Staff Response / Comment	Status	FMTF Report Subsec.*
<p>4. WPD should comprehensively plan every 5 years to coordinate land use, transportation, utilities, and drainage to set maximum impervious cover and on-site detention requirements in flood-prone areas.</p>	<p>Current Land Development Code requires new Site Plan & Subdivision developments to provide flood mitigation to a no adverse impact standard and coordinates transportation and utility infrastructure. Increases in impervious cover require mitigation via on-site controls, off-site improvements, or participation in the RSMP program. The Imagine Austin Comprehensive Plan also acknowledges the need to protect floodplains in Centers & Corridors.</p>	<p>WPD and PAZ staff worked with Opticos to ensure that CodeNEXT proposes no net increases in impervious cover entitlements on a watershed basis.</p>	<p>1.F.1. 1.F.1.a. 1.F.1.b. 1.F.1.c. 1.A.14.</p>

**Flood Mitigation Task Force (FMTF) Recommendations:
Summary of Recommendations related to Land Development Code**

Recommendation	Staff Response / Comment	Status	FMTF Report Subsec.*
<p>5. Where flood problems severe, do not issue permits for new/re-/infill/ADU development until the flood problems are mitigated or certain conditions met.</p>	<p>Texas State Law strictly limits the use of moratoriums such that this recommendation is not possible. WPD is working to correct existing problems via capital improvement and operating program projects. Current code prohibits adverse flooding impacts to other properties and requires flood mitigation for increases in impervious cover for new Site Plan and Subdivision development.</p>	<p>Current code requires that new development not create adverse flooding conditions for Site Plan and Subdivision projects. CodeNEXT proposes to increase these requirements to include redevelopment projects. Drainage is not currently reviewed for single-family residential projects at the individual Building Permit level. City staff have examined possible solutions for single-family projects to address lot-to-lot drainage issues while minimizing impacts to staffing needs, affordability, and permitting complexity. We recommend that these projects be required to obtain an engineer's review and certification that any drainage changes will not negatively impact adjacent properties; this would not require a full determination of no adverse impact.</p>	<p>ES.10 1.F.1.e. 1.F.1.e.i. 1.F.1.e.ii. 1.F.1.e.iii.</p>

**Flood Mitigation Task Force (FMTF) Recommendations:
Summary of Recommendations related to Land Development Code**

Recommendation	Staff Response / Comment	Status	FMTF Report Subsec.*
6. Support for WPD recommendation in CodeNEXT for flood mitigation for redevelopment (must mitigate assuming greenfield conditions); enforce existing code.	WPD strongly supports that redevelopment provide flood mitigation per CodeNEXT.	WPD staff are modeling the potential benefits of this approach and will have results to share with the community in December 2017. Staff recommends that the flood mitigation based on undeveloped conditions requirement for redevelopment be applied to commercial/multifamily properties only.	ES.7 1.F.2. 1.F.2.a. 1.F.2.b. 1.F.2.d. 1.F.2.f. 1.F.2.g.
7. Do not wait for CodeNEXT to implement regulatory recommendations.	City staff understands the dilemma of whether to package new flood regulatory protections with the larger CodeNEXT effort or move forward before that multi-year process. Ultimately, it is the Council's decision in consultation with the community.	WPD staff informed the CodeNEXT Advisory Group and Council of this request. Council also were given the message directly by Task Force members. At present, these proposals are included as part of CodeNEXT and expected to be considered for approval by Council in spring 2018.	ES.15

**Flood Mitigation Task Force (FMTF) Recommendations:
Summary of Recommendations related to Land Development Code**

Recommendation	Staff Response / Comment	Status	FMTF Report Subsec.*
8. Strengthen floodplain code with either a larger than 100-year flood or additional freeboard requirement.	WPD agrees that this is an important question with increasing storm intensity / extreme weather. Most flood risks are in areas that originally developed prior to floodplain regulations.	The Corps of Engineers and other partners are in the process of updating rainfall recurrence data for the State of Texas. The resulting Atlas 14 publication should be completed in 2019. WPD staff will consider updating the Drainage Criteria Manual with this updated information. The creation of updated floodplain maps using this new rainfall information would take a number of years to implement.	1.F.2.c.
9. Ensure DSD staff can check if proposed development is located within known flooding problem areas and advise applicant, staff & Neighborhood Plan Contact Teams.	All proposed development is reviewed for floodplain conflicts. WPD staff agree that sharing information about known flooding problem areas is very important for DSD and the community. Flood risks along mapped creeks are currently available to DSD and the community. WPD is working to produce flood risk information associated with local flooding areas.	WPD staff is working to complete the the localized flood online mapping services. At this time, we do not have an anticipated completion date. As the information becomes available, WPD staff will work with DSD and PAZ staff to place this (and potentially more) information on the City's Development Web Map (viewer).	1.F.3.b.

**Flood Mitigation Task Force (FMTF) Recommendations:
Summary of Recommendations related to Land Development Code**

Recommendation	Staff Response / Comment	Status	FMTF Report Subsec.*
10. Green Stormwater Infrastructure: incentives to build onsite flood controls, one-time DUF discounts, cost-sharing options, and integration with "grey" infrastructure.	City Council approved a stormwater management discount program for voluntary installation of on-site stormwater control measures (SCMs) that exceed development requirements (both green and grey). WPD also considers green stormwater infrastructure when designing water quality and flood solutions.	Complete: Discount is available to the public. Green solution development ongoing. City staff is also developing an inventory of Green Stormwater Infrastructure (GSI) projects and programs per Council Resolution 20170615-071 that will leverage greater public and private use of GSI. The CodeNEXT Beneficial Use proposal will also provide green stormwater infrastructure on sites—enhancing infiltration for smaller storms.	ES.14 1.F.1.GI.1. thru 1.F.GI.4.b.
11. Discourage new/re-development in Onion Creek 500-year floodplain until FEMA review and map updates.	Floodplain maps finalized.	The new floodplain maps from the Onion Creek study for fully developed conditions have been completed since Nov. 2016 and are currently being used for City of Austin regulatory purposes. These floodplains now appear on the City's FloodPro site (ATXfloodpro.com) and development viewers. The federal process for formal FIRM adoption typically takes 1.5 to 2 years after the engineering work has been completed. WPD is evaluating future improvements to floodplain regulations, but these improvements are not considered for CodeNEXT.	4.7.

* Final Report link: <http://www.austintexas.gov/edims/document.cfm?id=254319>