
FINAL REPORT

REDEVELOPMENT AND DRAINAGE TASK FORCE

February 6, 2018



Stephen C. Costello
Chief Resilience Officer
City of Houston

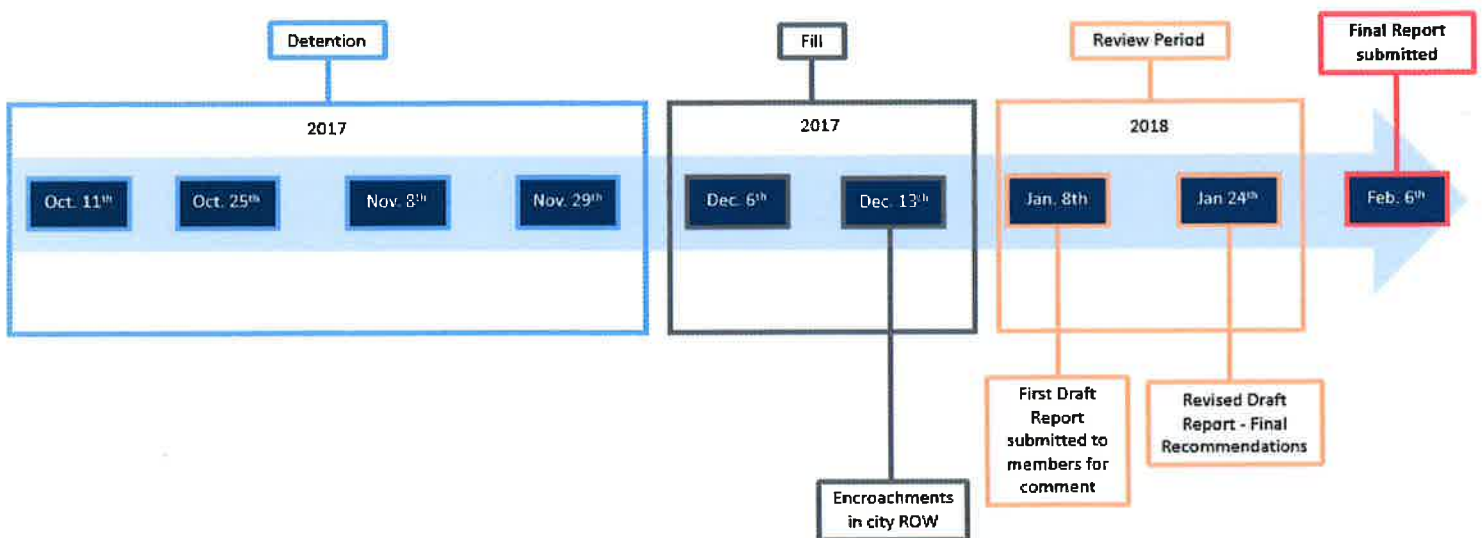
Introduction

The purpose of this report is to provide an overview of the activities, discussions, and recommendations of the Redevelopment and Drainage Task Force. The Redevelopment and Drainage Task Force, initiated pre-Hurricane Harvey by Chief Resilience Officer Stephen Costello, has worked to address three redevelopment issues: detention; fill; and encroachments in the city right-of-way. Task force membership is comprised of residents, city and county officials, and members of the engineering, architecture, development, real estate, construction, and green communities. Meetings were facilitated by Alan Witt, professor at the University of Houston, and Stephen Costello.

The stated goals of the task force are as follows:

- To ensure the City of Houston's design standards are conducive to responsible development which does not negatively impact drainage
- To empower the City of Houston to effectively and consistently apply and enforce drainage-related development rules

Figure 1. Task Force Timeline



Detention

The first four meetings were dedicated to exploring the city's detention requirements related to redevelopment. A brainstorming session took place at the kickoff meeting held October 11, 2017. Task force members were broken into six groups comprised of members from varying interests and asked, "What issues come to mind when considering the city's detention criteria as promulgated in Chapter 9 of the City of Houston Department of Public Works and Engineering Infrastructure Design Manual (IDM)?"

Groups presented the following issues, comments, and ideas:

- Current calculations are flawed because they are not hydrology based; detention volume is currently only based on the change in impervious cover
- Use one standard for all development regardless of size
- When redeveloping a parcel, mitigate for more than just increase in impervious cover
- Increase standards – need safety net for overflow
- Incorporate effect of overland sheet flow into detention calculation
- Use impact fees to provide area-wide relief
- Review TP100/101 for possible options
- Enforce requirements for under 15,000 sq. ft.
- Redefine 100-year storm/update rainfall data
- Set detention criteria on a sliding scale by watershed; take into consideration historic flooding
- Have different requirements for infill vs. suburban development
- Impact of detention is determined in isolation
- Modify detention criteria to remedy past problems
- Focus detention in areas which need protection
- Focus on conveyance – better investment than “holding” rainfall volume
- Offer incentives – public/private partnerships for regional detention/leverage 380s
- Incorporate new water detention methods
- Allow developers to over-detain and sell excess volume
- Incentivize impervious area reductions through use of green storm water infrastructure/low-impact development and pier and beam construction
- Need certification process for maintenance of detention/enforce maintenance of detention
- Too many small ponds
- Address past detention violations
- Improve maintenance of storm sewers

At the second and third meetings, October 25, 2017, and November 8, 2017, members focused on: 1) detention rate, minimum parcel size, detention credit (grandfathering); 2) alternatives to detention; and 3) green infrastructure. Details of these discussions are shown below.

Detention Rate, Minimum Parcel Size, Detention Credit

- Require 0.5 acre-feet/acre for all sizes and all development
- No minimum parcel size
- For lots under 15,000 sq. ft., find way to allow for shared detention
- Consider varying detention amounts by watershed
- Use regional rather than lot-by-lot approach
- Phase out credit for existing development (grandfathering) over time
- Allow or disallow detention credits based on conveyance conditions, watershed location
- Consider allowing developers to sell detention credit in same hydraulic service area
- City and developers should share the cost of fixing inadequate infrastructure

- Need legal clarification on whether eliminating detention credit would be considered a taking
- Different areas have different needs; explore criteria as function of level of service
- Entire city system inadequate, so there is need for uniform criteria
- Consider public/private partnerships to develop detention on city-owned parks and other public lands

Alternatives to Detention

- Pay impact fee in lieu of detention if less than two-acres impervious or one-acre foot of detention
- Require lots under 15,000 sq. ft. to pay impact fee and avoid providing onsite detention
- Ensure impact fees are managed properly and with great transparency
- How to structure and spend fee in lieu of detention revenues is very important
- Must spend fees collected in same hydraulic service area

Green Infrastructure

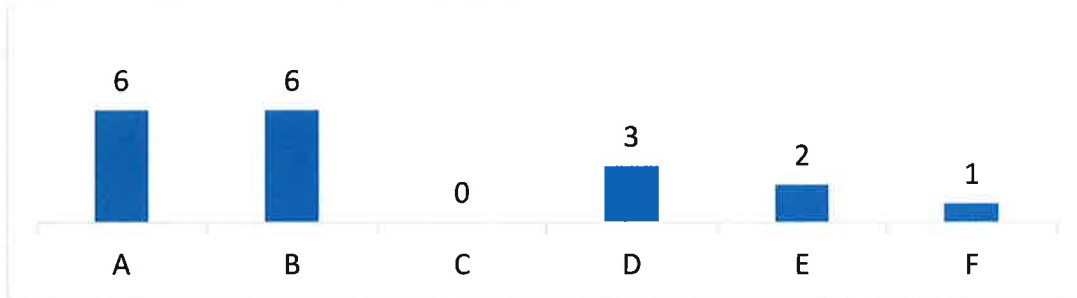
- Allow reduced detention rate for sites that use green infrastructure (like Harris County)
- Offer more green infrastructure options
- Green strategies must be explicitly permitted
- Manage expectations associated with benefits of green infrastructure
- Require alternative retention methods such as green roofs or rain gardens
- Vary green infrastructure incentives based on location – urban vs. suburban

At the fourth meeting November 29, 2017, the goal was to come up with a set of recommendations related to the city's detention criteria to advance to the mayor. The following recommendation options were presented. Task force members again broke into six groups to come up with consensus within each group. Groups were then asked to choose which of the following six recommendations they were in favor of advancing:

- A. Require payment of a fee in lieu of detention for lot sizes under 15,000 sq. ft.
- B. Provide detention credit for broad range of (green) low-impact development techniques (to mirror county criteria).
- C. Maintain existing detention credit for existing impervious cover when redeveloping site. Require mitigating detention only for increased impervious cover and change in hydraulic efficiency, if applicable.
- D. Eliminate detention credit for existing impervious cover when redeveloping site. Require mitigating detention for entire redeveloped site.
- E. Provide 50% detention credit for existing impervious cover when redeveloping site. Require mitigating detention for increased impervious cover and 50% of existing impervious cover.

- F. Maintain existing detention credit for existing impervious cover when redeveloping site.
Impose higher detention rate standard (over-detain) for increased impervious cover.

Figure 2. Number of Groups in Favor of Each Recommendation

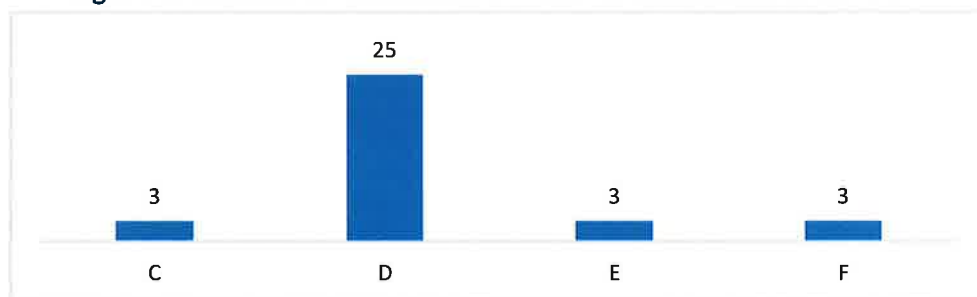


One group was in favor of advancing both D and E

One group had mixed consensus on which recommendation to advance – D, E, or F

Next, to address the recommendations that did not achieve overall consensus, individual task force members were asked to vote by placing a dot sticker on the recommendations (C, D, E, or F) he/she favored advancing.

Figure 3. Number of Individuals in Favor of Recommendations C-F



Groups also put forth certain caveats associated with the recommendations. Below are the consensus detention recommendations with caveats:

- **Require payment of a fee in lieu of detention for lot sizes under 15,000 sq. ft.**
Caveats
 1. **Place collected funds in dedicated fund to be only used in specific service area where funds are collected (similar to park dedication fund)**
 2. **Ensure amounts collected are sufficient to be effective**
- **Provide detention credit for broad range of (green) low-impact development techniques (to mirror county criteria)**
Caveat
 1. **Ensure proper inspection and maintenance of green infrastructure**

- **Eliminate detention credit for existing impervious cover when redeveloping site. Require mitigating detention for entire redeveloped site. (*There was not a full consensus for this recommendation, but it received the vast majority of task force votes.*)**

Caveats

- 1. Implement phasing strategy**
- 2. Clearly define what constitutes redevelopment**

At the fifth meeting held December 6, 2017, two additional detention-related recommendations were approved by task force members.

- **Allow for the sale of excess detention capacity within the same hydraulic service area (detention volume banking)**
- **Encourage private sector involvement in creating regional detention in parks or other public lands**

Fill

The topic of fill was introduced at the December 6, 2017, meeting. Discussions centered around requirements in the Section 9.02(C) of the IDM and the Houston Amendments to the 2012 International Building Code Section 106.3.

Task force members broke into six groups to discuss these focus questions: 1) What problems are brought forth by 9.02(C) and how should requirements be modified? 2) Should a grading permit be required for <50 cubic yards and should “engineered grading” be required for all lot sizes? 3) Should the city follow Harris County’s lead in disallowing fill to elevate structures in the 100-year floodplain?

Groups presented problems associated with the city’s requirement to move drainage from back of lot to front of lot. Members advocated for more flexibility to accommodate natural drainage patterns. Groups also debated the correct thresholds for requiring grading permits and “engineered grading.”

This discussion on fill continued at the sixth meeting held December 13, 2017. The group heard from homebuilders who described specific situations relating to fill requirements.

Task force members agreed to remove the one-acre threshold in 9.02(C) and clarify the section’s contradictory language and specify need for flexibility to accommodate natural drainage patterns.

Task force members also discussed changing the thresholds for grading permits and engineered grading. It was suggested “engineered grading” needed to be better defined in the section. Some offered the possibility of lowering the <50 cubic yard requirement for permitting and changing the requirement for engineered grading to 1000 or 2500 cubic yards (instead of 5000) or some percentage of total lot size. This matter was revisited at the task force meeting on January 24, 2018, and the majority of task members present voted by a show of hands to lower the threshold amount for engineered grading. Of 31 members

present for the vote, 15 voted to lower the threshold to 1000 cubic yards and nine voted to lower it to 2500 cubic yards.

To summarize, task force recommendations related to fill are:

- **Remove the one-acre threshold in IDM Chapter 9 Section 9.02(C)**
- **Clarify contradictory language in IDM Chapter 9 Section 9.02(C) and specify need for flexibility to accommodate natural drainage patterns**
- **Clearly define “engineered grading” in Houston Amendments to the 2012 International Building Code Section 106.3**
- **Change threshold amount in Houston Amendments to the 2012 International Building Code Section 106.3 (no permit required for <50 cubic yards; engineered grading required for 1000 cubic yards)**

Encroachments in City Right-of-Way

Also at the meeting held December 13, 2017, task force members were introduced to problems related to encroachments in the city’s right-of-way negatively affecting drainage flow. PWE staff presented current regulations and showed several photographs depicting examples of problems which occur when work (some permitted, most not permitted) is performed in the city’s right-of-way. Examples include filling in driveway culverts and paving over roadside ditches.

City ordinance 28-1 states it is unlawful for any person to throw or deposit in any ditch anything which will in any way obstruct the free flow of water. A large group discussion ensued regarding enforcement of this ordinance. Task members brought forth the following issues:

- Must have significant public education campaign to inform citizens of their responsibilities
- Need full understanding of legal ramifications if city takes back its right-of-way
- If permitted work, city should pay for removal; if unpermitted, property owner should pay
- The city’s neighborhood protection group is already in neighborhoods looking for code violations; this group should also identify drainage encroachments
- Need to establish policy and process to remove encroachments
- There will be public support for enforcing rules and removing obstructions post-Harvey if effort is initiated soon

Task force members were in favor of the following recommendations:

- **Initiate a widespread public education campaign to inform citizens of their responsibilities regarding roadside drainage**
- **Fully enforce all applicable rules to re-establish drainage in the public right-of-way**

Conclusion

At the final meeting held January 24, 2018, task force members reviewed each recommendation and discussed written comments submitted to date. Task force members were given the opportunity to express any concerns related to the recommendations. One recommendation related to fill was modified at this meeting.

Recommendations contained within this report are hereby submitted to Mayor Sylvester Turner for his consideration. It is important to note that while each recommendation did not receive unanimous support, the final recommendations are supported by the majority of members.

Through these proposed recommendations, the task force aims to achieve its goals and ensure city regulations are consistent with promoting better drainage in Houston. Any policy and regulation changes resulting from these recommendations will be carefully evaluated and implemented by officials in the Public Works and Engineering and Legal Departments in cooperation with City Council and outside stakeholders.

Chief Resilience Officer Stephen Costello gratefully acknowledges the participation and valuable input of each task force member.

Attachments:

- A. Task force membership list
- B. Final list of recommendations
- C. Comments on DRAFT Report
- D. Presentations

ATTACHMENT A
Task Force Membership List

Task Force Membership		
Last Name	First Name	Organization
Acquaro	Peter	Community Representative
Bell	Tomaro	Community Representative
Blancett	Janet	Society of Asian Scientists and Engineers
Bloom	Michael	Houston Land/Water Sustainability Forum
Blount	John	County Engineer, Harris County Public Infrastructure Division
Bulloch	Kathlie	Managing Engineer, Public Works and Engineering, City of Houston
Burger	Linda	Community Representative
Buscha	Tim	Association of Civil Engineering Companies
Butler	Christon	Acting Deputy Director, Public Works and Engineering, City of Houston
Calvert	Rogene	Blueprint Houston
Clegg	John	American Institute of Architects
Cole	Kevin	Greater 288 Partnership
Colombo	Anthony	Houston Contractors Association
Costello	Steve	Chief Resilience Officer, Mayor's Office, City of Houston
Dargan	Eric	Deputy Director, Chief Operating Officer, Public Works and Engineering, City of Houston
De La Pena	Jose	Society of Hispanic Professional Engineers
Dishberger	Mike	Greater Houston Builders Association
Edmondson	Becky	Community Representative
Edwards	Keith	North Houston Association
Friedrichs	Edwin	Urban Land Institute
Gant	Johnny	National Society of Black Engineers
Grothues	Julie	Community Representative
Haddock	Carol	Director, PWE
Hendricks	Julie	Kirksey Architecture
Hightower	David	Houston Real Estate Council
Huffmaster	Michael	Community Representative
Jones	Randy	Community Representative
Klein	Mark	Community Representative
Koehl	Robert	Community Representative
Lennard	Lee	West Houston Association
Menendez	Daniel	Society of American Military Engineers
Mengwasser	Drew	American Society of Landscape Architects
Murray	Bridgette	Community Representative
Nichols	Bruce	Community Representative
Parker	Steve	Community Representative
Pinheiro	Rod	Assistant Director, Public Works and Engineering, City of Houston
Poppe	Russ	Executive Director, Harris County Flood Control District
Ritchie	Andrew	Houston Apartment Association
Roberson	Abbey	Texas Medical Center
Salazar	Andres	Amercian Society of Civil Engineers
Sanders	Josh	Houstonians for Responsible Growth
Sarman	Stan	Community Representative
Walsh	Patrick	Director, Planning and Development, City of Houston
Wicker	Madeline	Community Representative
Wile	Randolph	Wile Interests
Witt	Alan	Professor, University of Houston - Facilitator
Wolff	Ed	Houston Association of Realtors
Zeve	Matt	Director of Operations, Harris County Flood Control District

ATTACHMENT B
Final List of Recommendations

Detention Recommendations

- **Require payment of a fee in lieu of detention for lot sizes under 15,000 sq. ft.**
Caveats
 1. **Place collected funds in dedicated fund to be only used in specific service area where funds are collected (similar to park dedication fund)**
 2. **Ensure amounts collected are sufficient to be effective**
- **Provide detention credit for broad range of (green) low-impact development techniques (to mirror county criteria)**
Caveat
 1. **Ensure proper inspection and maintenance of green infrastructure**
- **Eliminate detention credit for existing impervious cover when redeveloping site. Require mitigating detention for entire redeveloped site.**
Caveats
 1. **Implement phasing strategy**
 2. **Clearly define what constitutes redevelopment**
- **Allow for the sale of excess detention capacity within the same hydraulic service area (detention volume banking)**
- **Encourage private sector involvement in creating regional detention in parks or other public lands**

Fill Recommendations

- **Remove the one-acre threshold in IDM Chapter 9 Section 9.02(C)**
- **Clarify contradictory language in IDM Chapter 9 Section 9.02(C) and specify need for flexibility to accommodate natural drainage patterns**
- **Clearly define “engineered grading” in Houston Amendments to the 2012 International Building Code Section 106.3**
- **Change threshold amount in Houston Amendments to the 2012 International Building Code Section 106.3 (no permit required for <50 cubic yards; engineered grading required for 1000 cubic yards)**

Encroachments in City Right-of-Way Recommendations

- **Initiate a widespread public education campaign to inform citizens of their responsibilities regarding roadside drainage**
- **Fully enforce all applicable rules to re-establish drainage in the public right-of-way**

ATTACHMENT C
Comments on DRAFT Report

Comments from Harris County Flood Control District representative:

Small sites

The methods for small redevelopment tracts would have these challenges:

- The impact fee option would have similar drawbacks as we have experienced. The time and effort managing the accounts would not seem to be cost effective. Also, providing mitigation in the same vicinity where the fees are collected is not always feasible.
- Requiring a standard detention basin for developments smaller than an acre would be problematic because the restrictor size would need to be smaller than a 6 inch diameter to be effective. Such small openings would be clogged most of the time.

Detention rate for redevelopment sites

Some of the proposals are based only on impervious cover. Runoff from a site can increase from regrading a site even if there is no increase (or even a decrease) in impervious cover.

Comments from Society of Asian Scientists and Engineers representative:

I propose the following addition to the Encroachments in City Right-of-Way section:

The city's neighborhood protection group is already in neighborhoods looking for code violations; this group should also identify drainage encroachments. **Home Owners Associations (HOAs) within the City will be asked to include in their housing covenants keeping city ROW ditches that provide drainage immediately in front of a home owner's property clear and free flowing.**

This requirement would be similar to covenants requiring home owners to limit the number of vehicles parked in public streets in front of their houses and other such interfaces between private property and public spaces. HOAs have the advantage of providing more frequent surveillance at the neighborhood level and already have established enforcement processes built into the housing covenants.

Comments from Houston Real Estate Council representative:

Introduction

Chapter 47 Article 14 of the Houston City Code establishes a Municipal Drainage Utility System and provides that the drainage service that the City provides is a public utility. The ordinance recognizes the existing conditions of impervious cover by charging a monthly utility fee, based on existing impervious cover, for draining into the City's drainage system.

Upon redevelopment of a tract containing existing improvements, a property owner is given credit for the existing service capacity that water and waste water place upon the City's systems, and for the existing impervious cover on the tract. The use of the credit recognizes the existing burden on the utility system for which the City is charging in the form of the "Drainage Charge" on the monthly Utility Bill. Credits for existing utility capacity are commonplace for redevelopment and should be continued.

Additional burden created by the redevelopment is accounted for by the impact fees and increased utility charges, determined by any increase in water and sewer capacity and any

increase in impervious cover, as well as detention required under current regulations for any increase impervious cover.

Eliminating credit for the existing impervious cover does not reduce flooding. There are many factors that impact drainage such as inadequate conveyance systems and bayou capacity. Houston was mostly developed prior to the adoption in the early 1980's of the flood plain regulations and the inadequacy of existing local drainage systems in the street will have a greater effect on flooding than the existence of the credit.

Changes

Definitions

Project Development is the specific site described and depicted in the application for a building permit.

New Development is the addition of new impervious cover on a Project Development on property that has not been covered by impervious cover within the past 5 years. In other words, "greenfield development".

Redevelopment is the addition of new impervious cover on a Project Development on property that had impervious cover within the past 5 years.

Requirements

New Development will continue to be provided in accordance with the following current requirements:

- Tracts ≤ 1.00 acre -- Detention for New Development will be provided at a rate of 0.20 acre-foot per acre of proposed impervious cover for the Project Development.
- Tracts > 1.00 acre -- Detention for New Development will be provided at a rate of 0.50 acre-foot per acre of proposed impervious cover for the Project Development.

Redevelopment detention will be provided in accordance with the following:

- The detention requirements for Redevelopment of new impervious cover (increase in cover over existing) are the same as for New Development.
- For existing impervious cover that is being redeveloped, the detention requirement increases to 3,630 CF/Ac for the mitigation of change in hydraulic efficiency and require the payment of a fee that supports a dedicated regional (watershed service area) detention fund. (Such an impact fee will have to be determined per statutory requirements.)
- A property owner may pay a fee of \$XXXX per acre of existing impervious cover in lieu of detention otherwise required to mitigate any improved hydraulic efficiency.
- For tracts less than 15,000 sq ft that are either a New Development or Redevelopment, the property owner may pay a fee of \$XXXX per acre feet in lieu of providing on site detention of required detention. (Funds received from such fees would have to be dedicated to improving the storm water utility system in the immediate service area.)

Multiple, small detention ponds are inefficient, ineffective, ugly, health hazards and, overtime, are lost to poor maintenance/management and lack of adequate enforcement.

Small Detention

- Allow detention banking, both public and private.
- Allow private, defined drainage service area detention for phased developments.
- Honor prior agreements on public and private sub-regional detention and defined drainage service area detention.

- Allow private property owners to satisfy detention requirements by creating detention capacity in public lands, including parks.

Comments from Urban Land Institute representative:

GENERAL

Better planning results in more effective and efficient use of funds for drainage improvements. Planning is not as effective if it is performed in pieces. Plans that are developed at one time provide the best results. Houston should present a bold response to the flooding challenges it faces based on detailed analysis of the existing conditions and historical information, to develop a coordinated plan for the region.

Houston knows what to do. Houston needs to take a bold step and do it. To determine all flooding risks, the City of Houston needs a region-wide drainage study that includes not only bayous, but also tributaries and individual neighborhood drainage systems. This could be visionary for not only the Houston region, but for the whole country. Our risk of flooding is not only from Riverine Flooding but also from sheetflow and insufficient neighborhood drainage systems. Each area has unique characteristics that impact drainage, and therefore, one set of standard regulations for the city will not provide the correct answer for each neighborhood.

FILO

Fee in Lieu of (FILO) providing detention can be a good idea for smaller developments. However, FILO is a complicated issue that is governed by state statutes, and therefore, an in-depth legal analysis should be performed. The City of Houston should consider hiring outside legal counsel to assist in this analysis so stakeholders will see the outcome as being objective.

DETENTION BANK

Detention Banking can be complicated, and if pursued, should include an analysis of potential unintended consequences. Keeping accurate records can be difficult to manage if the detention facility's ownership remains in the private sector. Issues associated with maintenance can also be a concern. If the facility is constructed by the private sector and given to the City of Houston to manage, this could possibly work similar to what is done in new subdivisions by Municipal Utility Districts. If the developer builds excess detention capacity, the City of Houston could reimburse them from money collected as new development in the area buys excess capacity from the detention bank. The City of Houston could even participate in sub-regional detention basins in joint projects with property owners. Selling 'detention credits' in the private market could be difficult for the City of Houston to track.

GRANDFATHERING

Any grandfathering proposal should be kept as simple as possible. Set some parameters such as requiring full detention if a renovation project costs more than 50% of the value of the existing development or if all of the site is redeveloped. Provisions will need to be made to track development so sites are not allowed to redevelop totally by doing the redevelopment 25% at a time. This issue is also governed by state statute and development of guidelines should include a thorough legal review.

Comments from Houston Land/Water Sustainability Forum representative:

It's not obvious how we can incentivize green infrastructure without changing the current detention requirement to be "hydrology-based." Hydrology-based means that the detention volume is based on the difference in the total runoff volume between the pre-development and post-development

site, rather than the percentage change in imperviousness. Currently, permeable paving and green roofs and other methods that reduce the change in imperviousness are already incentivized, because they reduce the volume of required detention.

A hydrology-based green infrastructure “credit” will really only work if the default detention rate is high enough to make the green option reduce the required volume of detention in a meaningful way. Harris County rules start at 0.55 ac-ft/ac and, if technically based using hydrology, allow sites with green infrastructure to provide as low as 0.35 ac-ft/ac.

Harris County requires the pre- and post-hydrographs determined and the volume is the difference in runoff volume, with a 0.35 ac-ft/ac min. The reduced detention rate should be based on hydrology.

(Other edits and clarifying language offered by the Houston Land/Water Sustainability Forum representative were incorporated into the final report.)

Comments from a community representative:

Redevelopment and Drainage Task Force Recommendations

A great achievement of this task force is obtaining consensus on universal detention requirement and eliminating grandfathering of preexisting impervious surface. The 0.5 mitigation rate was a logical leap from 50% mitigation ignoring that the major event rainfall was not one foot but rather 13 inches. Not such an egregious difference, but if we take 16 inches as major event (100 year) rain fall standard then 0.5 represents 37.5% mitigation, a travesty. Therefore, I believe we should be stating **50% mitigation (0.5-acre ft. detention per acre foot of impervious per foot of rain)**. This allows detention standard to be set, and automatically scaled as rain fall data is adjusted based on climatic observations.

Alternatives to Detention

- Pay impact fee in lieu of detention if less than two-acre feet impervious or one-acre foot of detention

This should be clarified to say that there should be a minimum size detention facility, ie one-acre foot (some said two to five was more practical)

➤ Provide detention credit for broad range of (green) low-impact development techniques (to mirror county criteria)

Caveat

Please note the Harris County credit is substantial and may exceed green infrastructure contributions depending on mitigation elements incorporated and their maintenance, and should be given detention mitigation credit to the extent mitigation is achieved

IDM Chapter 9 section 2 Policy: The policy principles state when multiple criteria apply, the more stringent standard should be used yet individual articles often which criteria to use (County criteria will be used above certain development size or for discharge directly to county/HCFCD facility). The more stringent criteria should be used.

On the point of fill

The small group result was clear – reduce fill allowance to 1000 – 2500 cu yd for sealed engineered drainage report. Yet we had a different result with the group discussion format e – leave it be. I suggest we revisit this point on quantity for fill to require sealed engineering study before finalizing recommendations.

Our mandate was to make sure we are not allowing practices of the past to continue if they had an adverse impact on flooding. Seeing as all fill is basically negative detention if you are within the 500 yr flood plain, this is quite concerning.

I suggest at minimum the task force should revisit this issue on Wednesday. Seemed to me we were converging on 1000 yd as threshold on engineered drainage.

**Comments from American Institute of Architects Houston Chapter on
Development and Drainage Task Force Recommendations, dated January 24, 2018**

General Comments

The purview of this task force was narrow, and limited to measures that will have only a small impact on flooding in the near future. Is the City undertaking a comprehensive study of the capacity problems with the current stormwater infrastructure, and which measures will be most effective in addressing them? AIA Houston would like to participate in future task forces addressing these issues.

New requirements should be graphically represented to better communicate the ideas behind them to the building industry and the public.

Detention Requirements

There should be an option for lots under 15,000 sf to implement appropriate engineered detention, particularly low impact development detention, instead of the fee. Since there are challenges in using impact fees to create added regional detention in areas where it is needed, this would have the positive effect of increasing capacity. It can also encourage positive stormwater practices on small lots.

Impact fees should be high enough to ensure that regional detention could realistically be built using those funds.

New policies for detaining water should be crafted in a way that encourages equitable transit-oriented developments. One possible consequence of more stringent detention requirements is to raise the cost of new developments. As a result, more development may take place outside of central areas that are served well by transit. While it may be reasonable for market-rate developments to factor in these costs, any policies around detention should incentivize the inclusion of affordable housing units near high-frequency transit (local buses, commuter buses, and rail). For example, developers of equitable transit-oriented development could receive credits, exemptions, or subsidies. Houston will be a more resilient city if low-income residents not only have access to affordable housing but access to affordable housing and transportation options. Houston should adopt a housing plan and make sure the flood management policies work in tandem with that plan.

Encroachment

The city should maintain open ditches to ensure proper functioning of the drainage system.

Comments from The Society of American Military Engineers representative:

The Society of American Military Engineers, Houston-Galveston Post appreciated being included in the City of Houston's Redevelopment and Drainage Task Force overseen by the City's Resilience Office.

The following is our input on the Revised Draft Report dated January 24, 2018.

- All grading, fill, and detention requirements for private development should be established by ordinance as adopted local amendment to building code. Houston to present has included key requirements only within the IDM, a non-codified publication with different purpose than regulation of private development. This has caused skepticism by both communities and developers regarding how serious the City is about such 'rules'.
- Enforcement of encroachments is a matter of will and stewardship for the public infrastructure. Please note that while not popular, CenterPoint does a pretty good job of clearing tree growth that might impact its overhead lines. Their actions may generate some concern and criticism, even though effective in furthering resiliency of power distribution system. In not removing encroachments, Houston compromises the service level that the infrastructure could otherwise provide for all public users, reducing to the restricted capabilities caused by the encroachment and the benefitting party. A resilient city has a place for everything and everything is in its place—and there are places where things should not be, to include trees and encroaching features. Discussion here should be one of accountability, not policy.
- In general, the paper focuses on changing development controls, and does not include review of public drainage systems, capacity and functionality. Houston accomplishes drainage through a \$100+ million/year drainage utility. Are there no improvements that could be made to how that utility provides drainage service throughout the City? How is HCFCD 'best' utilizing dedicated ad valorem taxes for drainage and flood mitigation across the county? If actual changes for flood mitigation are solely on the private side, engineers should at least provide better information to the public on the limits of service that they receive from public systems, so that citizens can make more informed decisions with regard to where and how to develop. This level of understanding would also benefit policy makers when considering the investment levels needed and the will of the public to fund.
- Public Engagement and Education is imperative for an understanding of the details and standards so that there is an equal starting point for discussion on policy. Drainage, as opposed to the other public works services of water, wastewater, and paving, requires a greater extent of understanding in order to have substantive, collective progress in the public

ATTACHMENT D

Presentations



Stephen C. Costello
Chief Resilience Officer
City of Houston

REDEVELOPMENT AND DRAINAGE TASK FORCE

Kickoff Meeting October 11, 2017 1

KICKOFF MEETING AGENDA

1. Welcome/goals, topics, and objectives of task force – Steve Costello
2. Introductions – all
3. Remarks by Mayor Turner
4. Description of existing detention criteria – Steve Costello
5. Facilitated discussion of major issues – Alan Witt/all
6. Solicit written feedback and recommendations – Alan Witt
7. Adjourn

2

- To ensure the City of Houston's design standards are conducive to responsible development which does not negatively impact drainage
- To empower the City of Houston to effectively and consistently apply and enforce drainage-related development rules

TASK FORCE GOALS

3

1

Detention

2

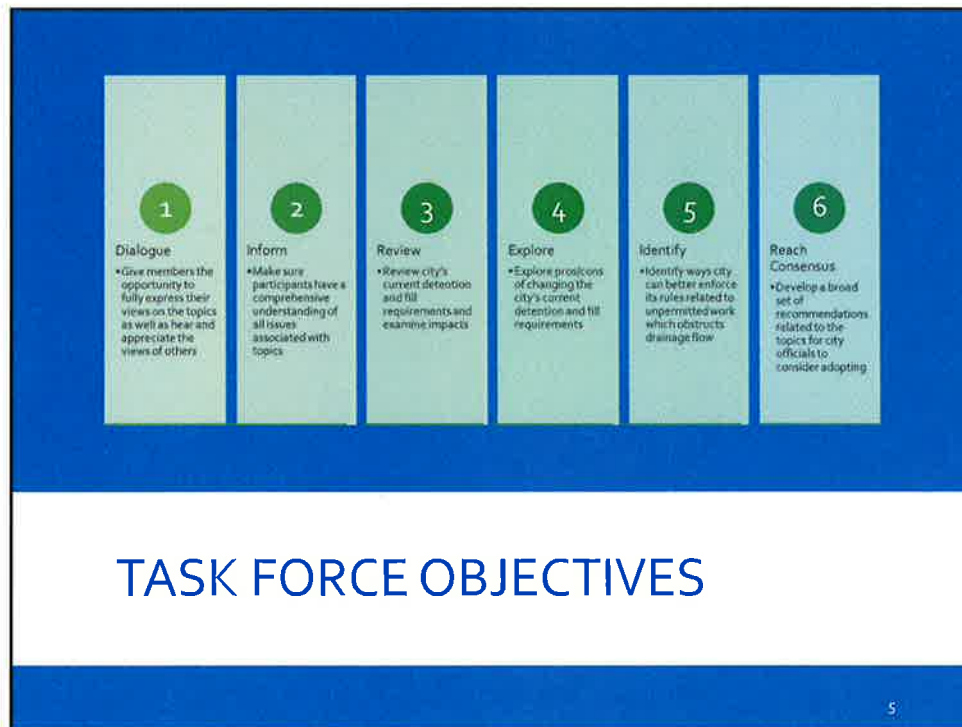
Fill

3

Unpermitted work in the city's right-of-way which obstructs drainage flow

TASK FORCE TOPICS

4



DETENTION CRITERIA

COH Design Manual Chapter 9 Stormwater Design Requirements Section 9.05

(H)(1): The intention of stormwater detention is to mitigate the new development or redevelopment on an existing drainage system. Stormwater detention volume requirements are based on increased impervious cover and on existing impervious area that are redeveloped.

(H)(2): Application of Detention.

(H)(2)a: The use of on-site detention is required for all Developments within the City and for new or expanding utility districts within the City's ETJ. Detention may not be required if the City has developed detention capacity for a drainage watershed, and/or infrastructure improvements, to serve the drainage watershed in compliance with the requirements of this Chapter. Under these conditions, the City will consider a funding contribution in lieu of on-site detention volume constructed by the owner.

(H)(2)b: Stormwater detention requirements are invoked for redevelopments that change the quantity of impervious cover on the site or change the on-site (private) drainage system.

6

DETENTION CRITERIA

COH Design Manual Chapter 9 Stormwater Design Requirements Section 9.05

(H)(2)c: If New Development or Redevelopment drains directly into a channel maintained by HCFCD, then HCFCD requirements will govern. If New Development or Redevelopment drains directly to a roadside ditch, drainage ditch or storm sewer maintained by Harris County or TxDOT, then their respective criteria will govern.

(H)(2)d: If the drainage system outfalls directly into a channel maintained by HCFCD, and the requirements of HCFCD include payment of an impact fee, then no further impact fee will be required by the City.

(H)(2)e: A waiver of detention requirements may be requested if certain conditions are satisfied.

7

DETENTION CRITERIA

COH Design Manual Chapter 9 Stormwater Design Requirements Section 9.05

(H)(3): Calculation of Detention Volume.

(H)(3)a: Detention volume for development areas is calculated on the basis of increases to the impervious cover associated with the project development and existing conditions at the site.

(H)(3)b: Single family residential (SFR) lots of 15,000 square feet in area or less: SFR lots are exempt from detention if proposed Impervious Cover is less than or equal to 65%. Detention volume of 0.20 acre feet per acre is required for Impervious Cover over 65%. Existing SFR lots of 15,000 square feet or less may be further subdivided and exempt from detention provided the proposed impervious cover remains less than or equal to 65%. If shared driveway is used, detention volume of 0.20 acre feet per acre is required.

(H)(3)b.1: Detention requirement = 0.2 acre feet per acre of increased impervious cover over 65% of the project area.

(H)(3)b.2: The area of the common or shared driveway, the access easement, access road, private alley or public alley must be included in the calculation of the project area.

8

DETENTION CRITERIA

COH Design Manual Chapter 9 Stormwater Design Requirements Section 9.05

(H)(3)c: Areas less than one acre and not subject to 9.05(H)(3)b: Detention volume will be required at 0.20 acre-feet per acre of increased impervious cover. Additionally, detention volume will be required to offset redevelopment of existing impervious areas.

(H)(3)d: Areas greater than one acre and less than or equal to 10 acres: Detention volume will be required at 0.50 acre-feet per acre of increased impervious cover. Additionally, detention volume will be required to offset redevelopment of existing impervious areas.

(H)(3)e: Areas between 10 acres and 50 acres: Detention volume will be required at 0.50 acre-feet per acre of increased impervious cover. Additionally, detention volume will be required to offset redevelopment of existing impervious cover.

(H)(3)f: Areas greater than 50 acres: Detention will be per the most current version of the Harris County Flood Control District Policy Criteria and Procedures Manual

9

MEETING SCHEDULE

10/11/2017 Kickoff Meeting – Detention

10/25/2017 Detention

11/08/2017 Detention

11/29/2017 Fill

12/06/2017 Fill

12/13/2017 Drainage Obstructions

01/17/2017 Drainage Obstructions

01/24/2017 Wrap Up – Recommendations

All meetings held at 601 Sawyer, First Floor Conference Room, from 3:30 to 5:30 P.M

10

FEEDBACK AND RECOMMENDATIONS

Questions?

Ideas?

Recommendations?

Feedback?

Things you'd like to know?

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sallie.alcorn@houstontx.gov

832-393-1123



Stephen C. Costello
Chief Resilience Officer
City of Houston

REDEVELOPMENT AND DRAINAGE TASK FORCE

Meeting 2 - October 25, 2017

1

MEETING 2 AGENDA

1. Welcome - Witt
2. Introductions – first-time attendees
3. Meeting 1 issues overview – Costello
4. Introduce focus questions – Costello
5. Group discussion of focus questions - Witt/all
6. Present group results – group spokespeople
7. Wrap up – Costello/Witt

2

Meeting 1 Issues

DETENTION ISSUES

Calculation

- Current calculations flawed because not hydrology based, only based on impervious cover
- One standard for all developments regardless of size
- When redeveloping a parcel, mitigate for more than just increase in impervious cover (possible takings issue)
- Increase standards - need safety net for overflow
- Incorporate effect of overland sheet flow into detention calculation
- Use impact fees to provide area-wide relief
- Review TP100/101 for possible options
- Requirements for under 15,000 sq. ft.
- Redefine 100-year storm/update rainfall data

Location

- Set detention criteria on a sliding scale by watershed - take into consideration historic flooding
- Have different requirements for infill v suburban development
- Impact of detention is determined in isolation
- Modify detention criteria to remedy past problems
- Focus detention in areas which need protected
- Focus on conveyance -- better investment than "holding" rainfall volume

Incentives

- Offer incentives - public/private partnerships for regional detention/leverage 380s
- Incorporate new water detention methods
- Allow developers to sell volume if detain beyond requirements
- Incentivize decrease in impervious and use of green storm water infrastructure/LID/pier and beam v slab
- There's no incentive for developers to remove concrete

Maintenance/Enforcement

- Certification process for maintenance of detention/enforce maintenance of detention
- Too many small ponds
- Address past detention violations
- Better maintenance of storm sewers

Meeting 1 Issues

ADDITIONAL ISSUES

- Better maintenance of bayous
- Revisit Chapter 42 for more policing of development and densification
- Better coordination between agencies
- Form regional drainage system/multi-county drainage authority
- Plan to address fill and roadside ditches
- Educate public on rules and why the rules are in place
- Educate public on impervious and impact fee calculations

1

How would you modify detention criteria to consider hydrology, historic flooding, watershed, infill v suburban?

2

How would you modify detention criteria to mitigate for more than increase in impervious cover?

3

How would you modify detention criteria to incentivize green storm water infrastructure/low – impact development?

DETENTION FOCUS QUESTIONS

5

DETENTION CRITERIA

COH Design Manual Chapter 9 Stormwater Design Requirements Section 9.05

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REDEVELOPMENT AND DRAINAGE TASK FORCE

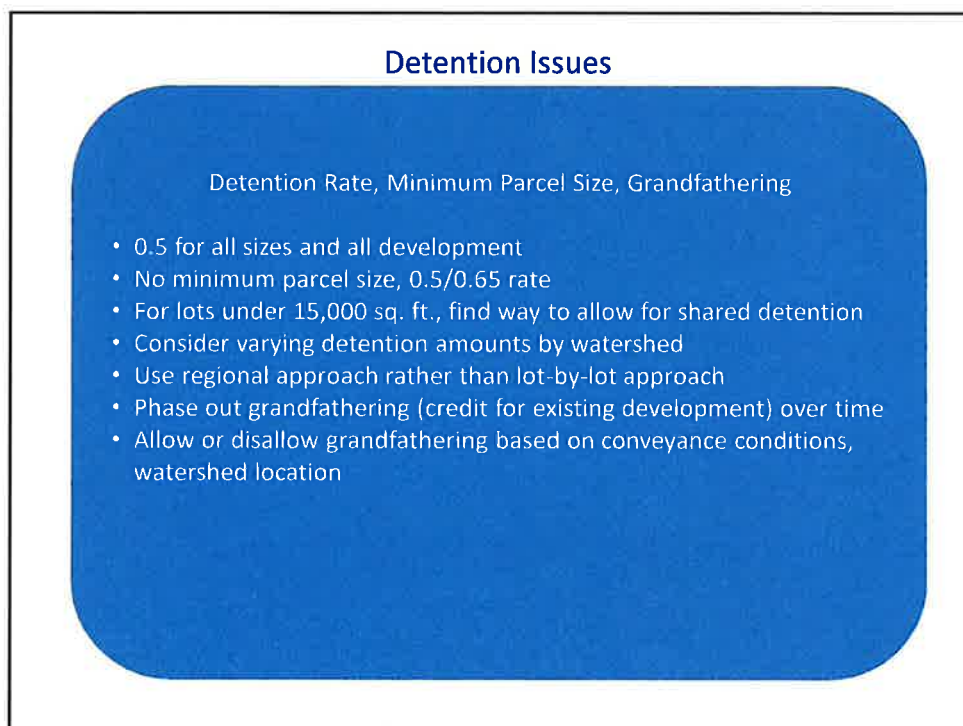
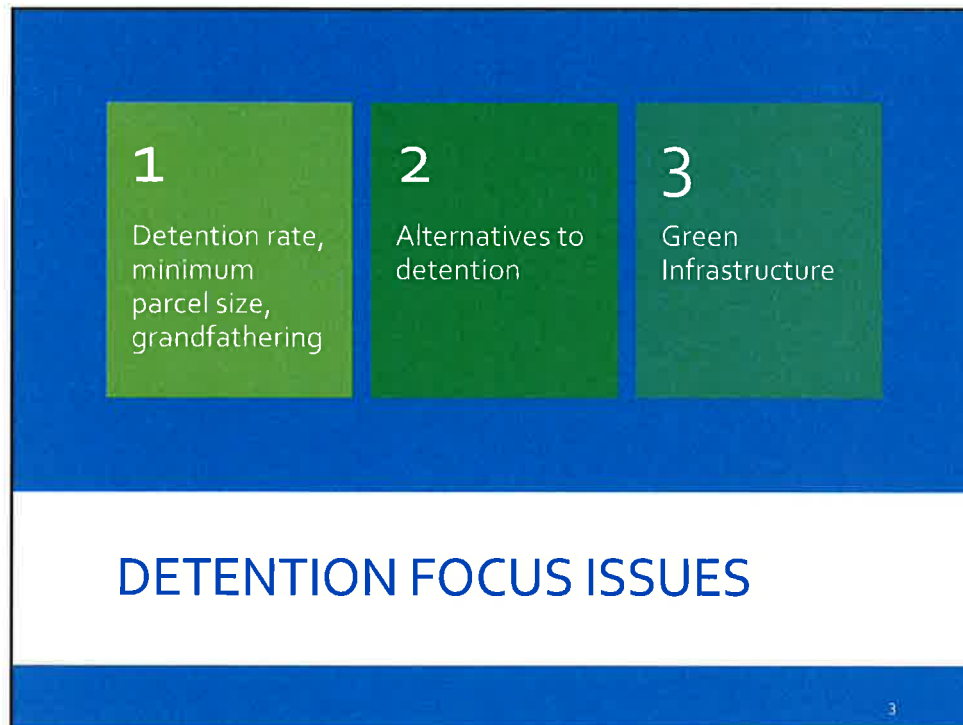
Meeting 3- November 8, 2017

1

MEETING 3 AGENDA

1. Welcome - Witt
2. Meeting 2 detention issues overview - Costello
3. Facilitated large-group discussion of detention issues – Costello/Witt/all
4. Finalize detention-related recommendations – Costello/Witt/all
5. Wrap up – Witt

2



Detention Issues

Alternatives to Detention

- Pay impact fee in lieu of detention if less than 2-acre feet impervious or 1-acre foot of detention
- Require lots under 15,000 sq. ft. to pay impact fee
- Ensure impact fees are managed properly (similar to park dedication fund)

Detention Issues

Green Infrastructure

- Provide detention credit for green infrastructure at calculated detention rate
- Offer more green infrastructure options
- Green strategies must be explicitly permitted
- Manage expectations associated with benefits of green infrastructure
- Require alternative retention methods such as green roofs or rain gardens
- Vary green infrastructure incentives based on location - urban v suburban

Detention Issues

Additional Recommendations

- City of Houston and Harris County work together to define quantitative low-impact development practices
- Expedite regional study for 13-county area
- Apply rules consistently across 4-county area
- Consider incentives for public/private partnership
- Educate the public on how the drainage system works and what citizens can do to help
- Establish clear ownership and maintenance responsibility of detention facilities
- Set up detention inspection program (every 3-5 years by COH inspector or annually certify by PE)
- Create drainage "TIRZs" to fund detention needs
- Establish better data management, citizen access to plans

Main Questions

1. 0.5 detention rate?
2. Minimum parcel size?
3. Phase out grandfathering? Duration?
4. Establish fee in lieu of detention?
5. Offer detention credits for green infrastructure?
6. Other?

MEETING SCHEDULE

~~10/11/2017~~ Kickoff Meeting—Detention
~~10/25/2017~~ Detention
11/08/2017 Detention
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City of Houston

REDEVELOPMENT AND DRAINAGE TASK FORCE

Meeting 4- November 29, 2017

1

MEETING 4 AGENDA

1. Welcome, Maps, Legal, Overview – Costello
2. Meeting Goal: Detention recommendation – Witt
3. Small group discussions (30 minutes)
4. Presentation of recommendations – group spokesperson
5. Large group discussion and votes – Witt/Costello/all

2

Meeting 1-3 Overview

Meeting 1

Small group brainstorming to come up with list of issues associated with the city's detention criteria – issues centered on calculation, location, incentives, and maintenance

Meeting 2

Small group discussions focused on how to modify existing criteria to address identified detention issues

Meeting 3

Large group discussion of detention issues – considered rate, minimum parcel size, detention credit, alternatives to detention, and green infrastructure

Meeting 3 Notes

Grandfathering – need legal clarification on whether getting rid of detention credit for existing impervious would be considered a taking
Could apply a new standard to increased impervious
Harris County rate .55 and credit for existing impervious -can go as low as .35 if use LID
If City knows where development will occur, it should upgrade the infrastructure there. City funding insufficient to fix infrastructure supporting existing impervious. Need developers to participate
Want to adopt new rules not to prevent development, but be transparent
Eliminate frog ponds
Main questions all linked together – changes need to address all four at once – rate, minimum parcel size, grandfathering, and fee in lieu of
Public/private partnership for growth - 10 acres/5 acre development new – give credit for public participation to offset
Share the cost of inadequate infrastructure
Goal is to do something to make it a better situation
Need to change what we do – formula only after grandfathering/fees
This is the group that must change things – don't want to miss opportunity

Meeting 3 Notes (cont.)

Upgrades must be proportionate to the increased load to the system
Don't want to study this for 2 years
If not a taking – phase out grandfathering over 2-5 years
If it is a taking – no change
<15,000 sq. ft. lot – fee in lieu of
Public says city too developer-friendly
Different areas have different needs – explore the criteria as a function of level of service
Entire system inadequate
How about development moratorium like what was done when sewer capacity insufficient?
Where do we have a 2-year drainage system and where do we not?
Identify what we do have and what we need – want overall maps of city showing level of service and who has flooded
Need debris pick up map to indicate flooded areas
About half of flooding occurs nowhere near a bayou
Detention depends on capacity of receiving system, assumes 2-year downstream capacity, if not, develop zones (like TIRZs)
Use different approach based on capacity downstream

Meeting 3 Notes (cont.)

Fee in lieu of – like park open space fee – how money used
important/establish service areas for investment
How to structure and spend fee in lieu important
Drainage does not factor into siting decisions; rather, detention/drainage considerations affect cost and project feasibility
Underserved neighborhoods lack investment and infrastructure
Pendulum swings between science and politics
Get rid of minimum parcel sizes/if < 15,000 sq. ft., pay fee
City is reactionary – needs to be proactive
Fee in lieu of must be transparent
Detention should be on public land (parks)
Developers want problems solved, but development community doesn't want to pay for entire city's costs
Encourage green infrastructure and incentives – offer more incentives like Harris County

Detention Recommendations

MEETING GOAL

7

Recommendation Options

- 1. Require payment of a fee in lieu of detention for lot sizes under 15,000 square feet.
- 2. Provide detention credit for broad range of (green) low-impact-development techniques (to mirror county criteria).

Recommendation Options

- 3. Detention Credit options (four)
- 3a. Maintain existing detention credit for existing impervious cover when redeveloping site. Require mitigating detention only for increased impervious cover and change in hydraulic efficiency, if applicable.
- 3b. Eliminate detention credit for existing impervious cover when redeveloping site. Require mitigating detention for entire redeveloped site.
- 3c. Provide 50% detention credit for existing impervious cover when redeveloping site. Require mitigating detention for increased impervious cover and 50% of existing impervious cover.
- 3d. Maintain existing detention credit for existing impervious cover when redeveloping site. Impose higher detention rate standard (over-detain) for increased impervious cover.

MEETING SCHEDULE

~~10/11/2017 Kickoff Meeting—Detention~~
~~10/25/2017 Detention~~
~~11/08/2017 Detention~~
11/29/2017 Detention
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City of Houston

REDEVELOPMENT AND DRAINAGE TASK FORCE

Meeting 5- December 6, 2017

1

MEETING 5 AGENDA

1. Welcome – Witt
2. Overview of fill requirements, focus questions – Costello
3. Facilitated small group discussions – Witt/all
4. Presentation of recommendations – group spokespeople
5. Wrap up – Costello/Witt

2

Fill Requirements

*City of Houston Department of Public Works and Engineering Infrastructure
Design Manual*

Section 9.02(C):

Proposed New Development or Redevelopment greater than 1 acre shall not alter existing overland flow patterns and shall not increase or redirect existing sheet flow to adjacent private or public property. Sheet flow from the developed property shall discharge only to the abutting public R.O.W. Where the existing sheet flow pattern is blocked by construction (i.e. raising the site elevation) of the Development, the sheet flow shall be re-routed within the developed property to return flow to original configuration or to the public R.O.W. Except under special circumstances dictated by natural drainage patterns, no sheet flow from the developed property will be allowed to drain onto adjacent private property.

Fill Requirements

Houston Amendments to the 2012 International Building Code:
Section E103.2(9.) and Section E106.3

Section E103.2(9.) states that a grading permit is not required: A fill less than 1 foot in depth and placed on natural terrain with a slope flatter than 1 unit vertical in 5 units horizontal (20% slope), or less than 3 feet in depth, not intended to support structures, that does not exceed 50 cubic yards on any one lot and does not obstruct a drainage course.

Section E106.3 states that: Grading in excess of 5000 cubic yards shall be performed in accordance with the approved grading plan prepared by a civil engineer and shall be designated as "engineered grading." Grading involving less than 5000 cubic yards shall be designated "regular grading" unless the permittee chooses to have the grading performed as engineered grading or the building official determines that special conditions or unusual hazards exist, in which case grading shall conform to the requirements for engineered grading.

Fill Requirements

Harris County's proposed change to its floodplain management regulations – Section 4.05(b)(9):

No fill may be used to elevate structures in the 1 percent or 100-year floodplain. Structures may be constructed on an open foundation, such as piers, or on continuous foundation walls with properly sized and located openings. All foundations are required to be designed by a registered professional engineer. The drawings shall clearly show compliance with all provisions of these regulations. Fill may be used in coastal surge zones where floodplain fill mitigation is not an issue, however the standard for foundations remain the same.

FILL Focus Questions

What problems are brought forth by 9.02(C)? How should requirements be modified?

Should a grading permit be required for < 50 cubic yards?
Should "engineered grading" be required for all lot sizes?

Should city follow Harris County's lead in disallowing fill to elevate structures in the 100-year floodplain?

MEETING SCHEDULE

~~10/11/2017 Kickoff Meeting—Detention~~

~~10/25/2017 Detention~~

~~11/08/2017 Detention~~

~~11/29/2017 Detention~~

12/06/2017 Fill

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01/24/2017 Drainage Obstructions

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REDEVELOPMENT AND DRAINAGE TASK FORCE

Meeting 6- December 13, 2017

1

MEETING 6 AGENDA

1. Welcome - Costello
2. Discussion and vote to determine fill consensus recommendations – Costello/all
3. Presentation on drainage obstructions/encroachments in city ROW – Rod Pinheiro, PWE
4. Enforcement Issues – Costello/Pinheiro
5. Task force recommendation – Costello/all
6. Wrap up – Costello

2

Fill Requirements

City of Houston Department of Public Works and Engineering Infrastructure Design Manual

Section 9.02(C):

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- Remove > 1-acre threshold?
- City should not mandate back to front drainage for every lot. Allow natural drainage patterns to remain.

Fill Requirements

Houston Amendments to the 2012 International Residential Code:

Section E103.2(9.) and Section E106.3

Section E103.2(9.) states that a grading permit is not required: A fill less than 1 foot in depth and placed on natural terrain with a slope flatter than 1 unit vertical in 5 units horizontal (20% slope), or less than 3 feet in depth, not intended to support structures, that does not exceed 50 cubic yards on any one lot and does not obstruct a drainage course.

- Require grading permit for (what threshold)?

Section E106.3 states that: Grading in excess of 5000 cubic yards shall be performed in accordance with the approved grading plan prepared by a civil engineer and shall be designated as “engineered grading.” Grading involving less than 5000 cubic yards shall be designated “regular grading” unless the permittee chooses to have the grading performed as engineered grading or the building official determines that special conditions or unusual hazards exist, in which case grading shall conform to the requirements for engineered grading.

- Require permit for (what threshold)? Require engineered grading for (what threshold)?

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- City should adopt same requirement for single lots in the 100-year floodplain.

Drainage Obstructions

*City of Houston Code of Ordinances,
Section 28-1*

It shall be unlawful for any person to throw or deposit in any ditch anything which will in any way obstruct the free flow of water through the same.

Drainage Obstructions

City of Houston Code of Ordinances, Section 40-84

It shall be the duty of every owner of real estate in the city, abutting on any public street in the city, in front of which real estate or along which street the city council may order the construction, reconstruction or repair, or bringing to grade of sidewalks, driveways, curbs or gutters, or any of them, to cause the same to be constructed, reconstructed or repaired or bring the same to grade, as the case may be, in accordance with the terms of such order, the specifications set out in this article and on the line and grade as established by the city engineer for the particular block, street or community in which the real estate may be situated. Such property owners shall cause to be constructed such improvements in front of their respective property after the giving of notice as prescribed in this article, within the time fixed by the city council. After the expiration of the time indicated in the notice to construct, reconstruct, repair or regrade, if the abutting owner shall not have built such improvements as ordered and indicated in the notice, then the city shall have the right to construct the same in accordance with the order for the same, and the standard specifications hereinafter set out, under the supervision of the city engineer, and may advertise for bids or may itself construct such improvements, at the expense of the abutting property owner, and may recover a personal judgment in any court having jurisdiction of the amount for the cost and expense in constructing, reconstructing, repairing or regrading such sidewalks, driveways, curbs and gutters, with ten percent additional for attorneys' fees, and may, by ordinance, fix a lien on the property improved.

Drainage Obstructions

City of Houston Code of Ordinances, Section 42-186

- (b) Each additional parking space shall conform to the following requirements:
- (1) The size and dimensions of the parking space shall be in conformance with the requirements of the Construction Code
 - (2) The parking space shall be placed within the boundaries of the subdivision plat, unless the parking space abuts:
 - b. Culverts installed in accordance with the requirements of the design manual along an open ditch street adjacent to or within the subdivision plat boundary

Drainage Obstructions

Task Force Recommendation:

City should fully enforce all applicable rules related to re-establishing drainage in the public right-of-way.

MEETING SCHEDULE

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~~10/25/2017 Detention~~
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City ROW Monitoring & Enforcement



Points for discussion:

PART A:

- We have an issue of authority or execution of authority when it comes to citations of violations in our right-of-way (ROW).
- The question is: How should we handle ROW violations and what is the best way for PWE or the City of Houston to address these issues as they occur?
 - Who has the authority to monitor and enforce?

PART B:

- Duties of abutting property owners
 - Can the City enforce property owners to fix issues?

PART C:

- Adopt a Ditch Program

PART “A”

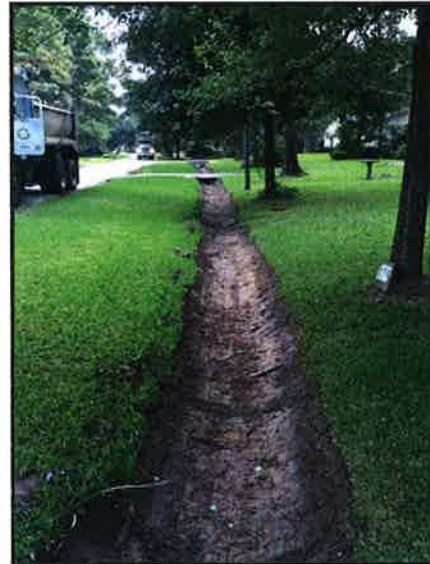
**Authority/Enforcement to issue
notice to remove obstructions w/n City ROW**



Chapter 28, Article I, Section 28-1 “Obstructing ditches”

It shall be unlawful for any person to throw or deposit in any ditch
anything which will in any way obstruct the free flow of water through
the same.

Roadside Ditch:



5



6



7



8

Center block retaining wall at the edge of the ditch in front of home



9

Sample of Encroachments



10

ROW with long run culvert - being uses for business parking



11

Heights Area – Residential Parking Pads



12

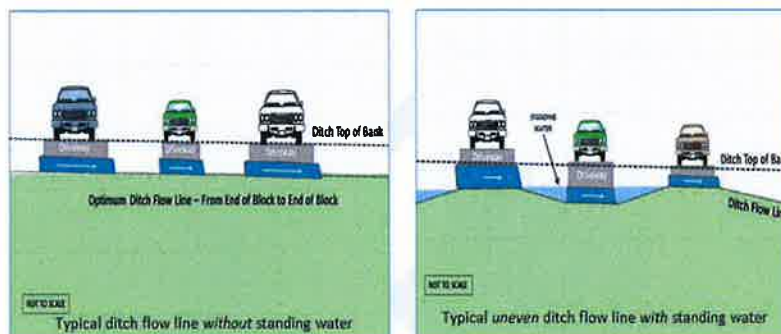
PART “B”

Duties of abutting property owners



The concern relates to constituents requesting additional maintenance after desilting was performed to **eliminate standing water**.

The standing water issue is mainly caused by: landscape features placed within ditch, culverts collapsed or not placed at the optimum elevation creating an off-set/ uneven ditch flow line.



Per City Code of Ordinance Section 40-84 it is the abutting property owner's responsibility to construct, reconstruct or repair both the ditch culvert and driveway. Such repairs require all parties involved to coordinate with the City through the permitting system.

Section 40-84 - “Duties of abutting property owners”

It shall be the duty of every owner of real estate in the city, abutting on any public street in the city, in front of which real estate or along which street the **city council** may order the construction, reconstruction or repair, or bringing to grade of sidewalks, driveways, curbs or gutters, or any of them, to cause the same to be constructed, reconstructed or repaired or bring the same to grade, as the case may be, in accordance with the terms of such order, the specifications set out in this article and on the line and grade as established by the city engineer for the particular block, street or community in which the real estate may be situated. Such property owners shall cause to be constructed such improvements in front of their respective property after the giving of notice as prescribed in this article, within the time fixed by the **city council**. After the expiration of the time indicated in the notice to construct, reconstruct, repair or regrade, if the abutting owner shall not have built such improvements as ordered and indicated in the notice, then the city shall have the right to construct the same in accordance with the order for the same, and the standard specifications hereinafter set out, under the supervision of the city engineer, and may advertise for bids or may itself construct such improvements, at the expense of the abutting property owner, and may recover a personal judgment in any court having jurisdiction of the amount for the cost and expense in constructing, reconstructing, repairing or regrading such sidewalks, driveways, curbs and gutters, with ten percent additional for attorneys' fees, and may, by ordinance, fix a lien on the property improved.

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Collapsed long run culvert is causing water to sit stagnant in ditches



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PART “X”

Urbanization Impacts to Roadside Ditches/ Conveyance



Urbanization Impacts:

- Houston's densification began in **1999**. Before min. residential lots = **5,000 ft²**. After min. residential lots = **1,400 ft²**
- Houston's growth imposes greater demands on its **Drainage**.

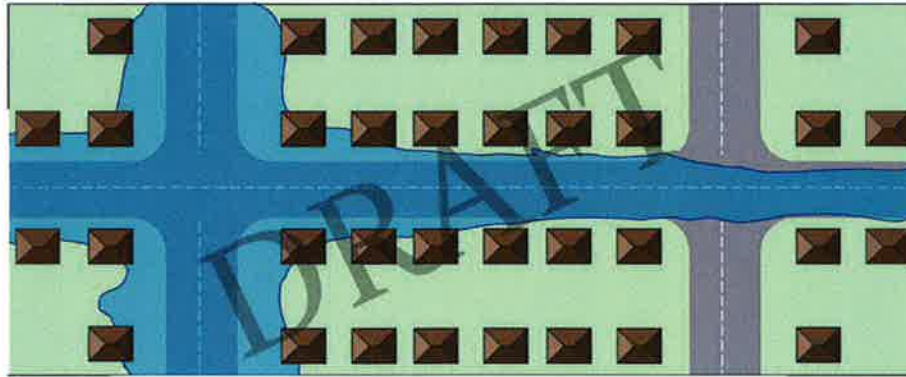
• BEFORE 1999



• AFTER 1999

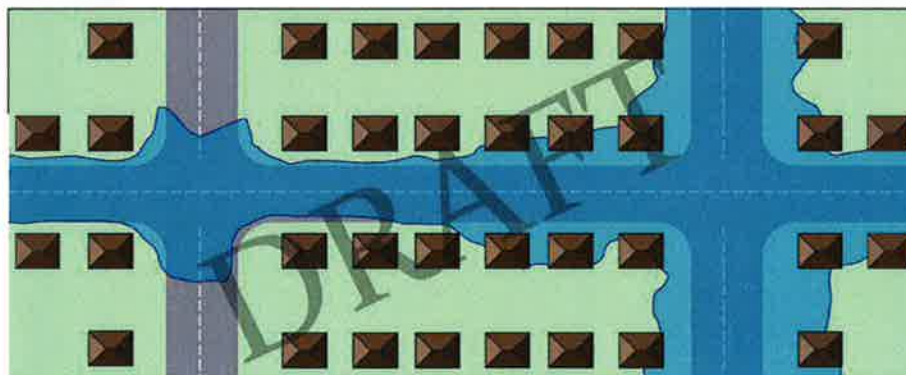


SWMB Findings:



“Moving the Flood”

SWMB Findings:



“Moving the Flood”

PART “C”

Adopt a Ditch Program





Our mission
is to engage individuals to take greater responsibility for their community environments.



As a national award-winning Keep America Beautiful affiliate, Keep Houston Beautiful has worked with all segments of the community for more than 35 years to educate and empower individuals to take greater responsibility for beautifying and enhancing Houston's environment. Each year's successes have created a cleaner and healthier city for all Houstonians.



Keep HOUSTON Beautiful

3000 Richmond Ave, Ste 350
Houston, TX 77098

Tel: 713.839.8855
Fax: 713.839.8880

www.houstonbeautiful.org
www.facebook.com/keephoustonbeautiful

Keep Houston Beautiful is the affiliate of the Houston Clean City Commission, Inc. A 501(c)(3) non-profit organization. Coverage is provided by a 30-member Clean City Commission which includes representatives from city council districts and appointed by the mayor.



Keep HOUSTON Beautiful



Adopt-a-Ditch

Targeting tree planting along center-line ditches, Keep Houston Beautiful's Adopt-A-Ditch tree program transforms public drainage esplanades into cleaner, more environmentally pleasant areas. A healthy tree canopy provides shade and reduces energy consumption while sequestering carbon dioxide and cleansing the air.

Adopt-a-Ditch

What type of program is this?

ADOPT-A-DITCH is an expansion of the successful Adopt-A-Block program that is a partnership between the City of Houston Public Works and Engineering Street and Drainage Division, Keep Houston Beautiful (KHB), local merchants, volunteers and residents. The goal of the effort is to raise the quality of life by transforming the adopted areas into cleaner, more environmentally pleasant places to live and work.

What are the advantages?

- Encourages neighborhood pride and increases property values
- Reduces litter removal costs
- Keeps ditches clean for stormwater removal
- Provides vegetation that will help filter stormwater
- Allows maintenance crews to do other tasks

How does it work?

EACH SITE selected will be matched with a local community organization/group who will agree to provide long-term maintenance of the project. The long-term commitments to the site include:

- Scheduling cleanup dates based on the City of Houston Public Works and Engineering Street and Drainage Division mowing schedule
- Recruiting volunteers and monitoring volunteers during clean up events
- Ordering equipment from the KHB Warehouse, distributing equipment and trash bags, and returning equipment to the warehouse after events
- Completing and returning Event Completion Forms after each event

I Want to Adopt-a-Ditch!

Organization: _____
 Address: _____
 Contact Name: _____
 E-mail: _____
 Phone: _____
 Anticipated Number of Participants: _____



Please return to:
 Keep Houston Beautiful
 3005 Richmond Ave., Ste. 330
 Houston, TX 77008
 Tel: 713.839.8253
 Fax: 713.839.8380
 Email: info@keephoustonbeautiful.org

OR SIGN UP ONLINE AT:

http://www.adoptaditch.org/uploads/4/6/5/7/4657636/adopt-a-ditch-signup-2008_000.pdf



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Storm Water Quality Education

Adopt-A-Ditch Project



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Storm Water Quality Education

Acres Homes Adopt-A-Ditch Project

BEFORE



Storm Water Quality Education

Acres Homes Adopt-A-Ditch Project

AFTER



Storm Water Quality Education

South Park Adopt-A-Ditch Project

BEFORE



Storm Water Quality Education

South Park Adopt-A-Ditch Project

AFTER



Storm Water Quality Education

Alameda Plaza Adopt-A-Ditch Project

BEFORE



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Storm Water Quality Education

Alameda Plaza Adopt-A-Ditch Project

AFTER





Stephen C. Costello
Chief Resilience Officer
City of Houston

REDEVELOPMENT AND DRAINAGE TASK FORCE

Meeting 7- January 24, 2018

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MEETING 7 AGENDA

1. Welcome
2. Present revised DRAFT Report
3. Review comments received on DRAFT Report
4. Finalize recommendations
4. Wrap up

2

Detention Recommendations

- Require payment of a fee in lieu of for lot sizes under 15,000 feet
Caveats: 1. Place collected funds in dedicated fund to be only used in specific service area where funds are collected (similar to park dedication fund)
2. Ensure amounts collected are sufficient to be effective
- Provide detention credit for broad range of (green) low-impact development techniques (to mirror county criteria)
Caveat: 1. Ensure proper inspection and maintenance of green infrastructure
- Eliminate detention credit for existing impervious cover when redeveloping site. Require mitigating detention for entire redeveloped site.
Caveats: 1. Implement phasing strategy
2. Clearly define what constitutes redevelopment
- Allow for the sale of excess detention capacity within the same hydraulic service area (detention volume banking)
- Encourage private sector involvement in creating regional detention in parks or other public lands

Fill Recommendations

- Remove the one-acre threshold in IDM Chapter 9 Section 9.02(c)
- Clarify contradictory language in IDM Chapter 9 Section 9.02(c) and specify need for flexibility to accommodate natural drainage patterns
- Clearly define “engineered grading” in Houston Amendments to the 2012 International Building Code Section 106.3
- Maintain threshold amounts in Houston Amendments to the 2012 International Building Code Section 106.3 (no permit required for <50 cubic yard; engineered grading required for 5000 cubic yards)

Encroachment Recommendation

- Initiate a widespread public education campaign to inform citizens of their responsibilities regarding roadside drainage
- Fully enforce all applicable rules to re-establish drainage in the public right-of-way



Stephen C. Costello
Chief Resilience Officer
City of Houston

THANK YOU