NEW BUSINESS: CODE AMENDMENT INITIATION REVIEW SHEET

Amendment: Initiate an amendment to Title 25 of the City Code regarding floodplain regulations.

Description: Our understanding of flood risks in Austin are changing. A new rainfall study to be published by the National Weather Service later this year indicates that the new 100-year floodplain will be similar to the current 500-year floodplain. We have sound, scientific data that allows us to take a proactive approach to these changes instead of waiting years until we have updated floodplain studies. The proposed code amendment will redefine the 100-year floodplain to protect the health, safety, and welfare of our community.

Proposed Language: TBD

Background: Initiation recommended by Codes and Ordinances Joint Committee on June 20, 2018.

Staff Recommendation: NA

Board and Commission Actions:

Council Action:

Ordinance Number: NA

City Staff: Kevin Shunk **Phone:** (512)974-9176 **Email:** kevin.shunk@austintexas.gov

M E M O R A N D U M

TO: Mayor and Council

FROM: Michael L. Personett, Interim Director MLP
Watershed Protection Department

DATE: June 14, 2018

SUBJECT: Update on Atlas 14 Activities – Code Amendment Process

In January of this year I provided you with a memorandum alerting you to draft results of a historical rainfall study that will redefine rainfall intensities (e.g., a 100-year storm) in the Austin area. The study, which we are referring to as "Atlas 14", is part of a nationwide effort led by the National Weather Service (NWS), in partnership with the U.S. Army Corps of Engineers, U.S. Geological Survey, the Texas Department of Transportation, the Harris County Flood Control District, the City of Austin Watershed Protection Department (WPD), and others. The results of this study are expected to be finalized and published this fall.

The Atlas 14 study is based on an updated period-of-record that considers rain events up to, and including, Hurricane Harvey. Our current design storm rainfall intensities are based on a dataset that extended through 1994. In large part due to the number of significant rainfall events that have occurred since that time, the draft results of the Atlas 14 study, a small portion of which is presented in the table below, show a significant increase in design storm rainfall intensities. When the NWS publishes the final results in the fall of this year, we do not expect them to be significantly different than those released for peer review earlier this year.

Probability of Occurrence in any Given Year	Return Period	Current Rainfall Intensity (24-hour storm)	Atlas 14 Rainfall Intensity (24-hour storm)
4%	25-year	7.6 inches	Almost 10 inches
1%	100-year	10.2 inches	Up to 13+ inches
0.2%	500-year	13.5 inches	Not yet available

Redefining rainfall intensities in Austin has far-reaching implications to understanding our community's flood risk, City of Austin flood risk reduction policies and programs, capital

improvement projects, land use regulations, and impacts on the community as a whole. Issues of concern include:

- Buildings and Roadways in the Floodplain – Our understanding of flood risk is changing. The number of buildings that could now be impacted by a storm having a 1% chance of occurring in any given year (100-year storm) is greater by nearly 76 percent. This will include an increased probability of flooding at some City of Austin facilities. Our refined understanding of flood risk also indicates that an increased number of roadways will now be impacted by a storm having a 1% chance of occurring in any given year.

- Floodplain Regulations and Insurance – Floodplain regulations related to development within the 100-year floodplain will extend to more than 3,400 additional acres of land, which is approximately a 21 percent increase of land in the mapped floodplain. In addition, once floodplain maps are updated, Federal flood insurance requirements may apply to a larger number of properties.

- Drainage Criteria – A change in the design storm rainfall intensities will impact drainage criteria for the design of flood risk reduction projects and both public and private drainage infrastructure. For the most part, the sizing of such infrastructure will increase and associated costs will be higher.

In response to the proposed rainfall intensity changes and with the goal to continue to protect our residents from the effects of flooding, WPD is initiating a code amendment process. We believe that we have sound, scientific data that allows us to take a proactive approach to these changes instead of waiting years until we have updated floodplain studies. We plan to initiate this process with the Codes and Ordinances Joint Committee of the Planning Commission this summer. The process will include public hearings and public meetings to receive input from the Environmental Commission, the Planning Commission, external and internal stakeholders, and the City Council. After receiving input and completing the draft code amendments, staff will request your final approval of the code amendments.

WPD staff is actively involved in and is focusing our attention on the impacts that this flood risk information has on our community. As the code amendment process continues we will have a great deal more information to discuss with you. In the meantime, if you or your staff have questions please direct those to Kevin Shunk, P.E., CFM, Managing Engineer for the WPD Watershed Engineering Division at Kevin.Shunk@austintexas.gov or at (512) 974-9176.

cc: Spencer Cronk, City Manager
Assistant City Managers
Department Directors

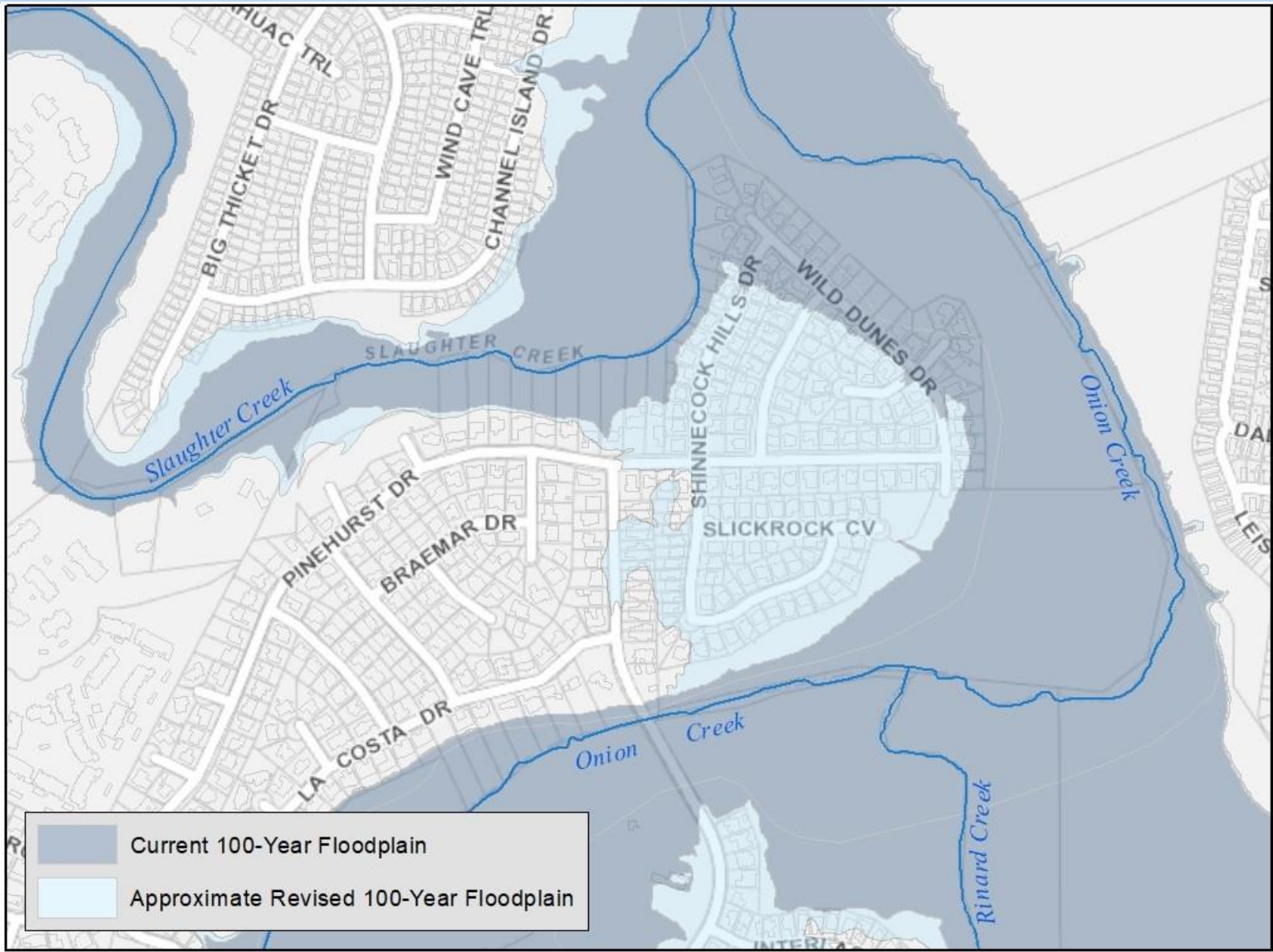
Changing Our Understanding of Austin's Flood Risk

Watershed Protection Department

June 14, 2018

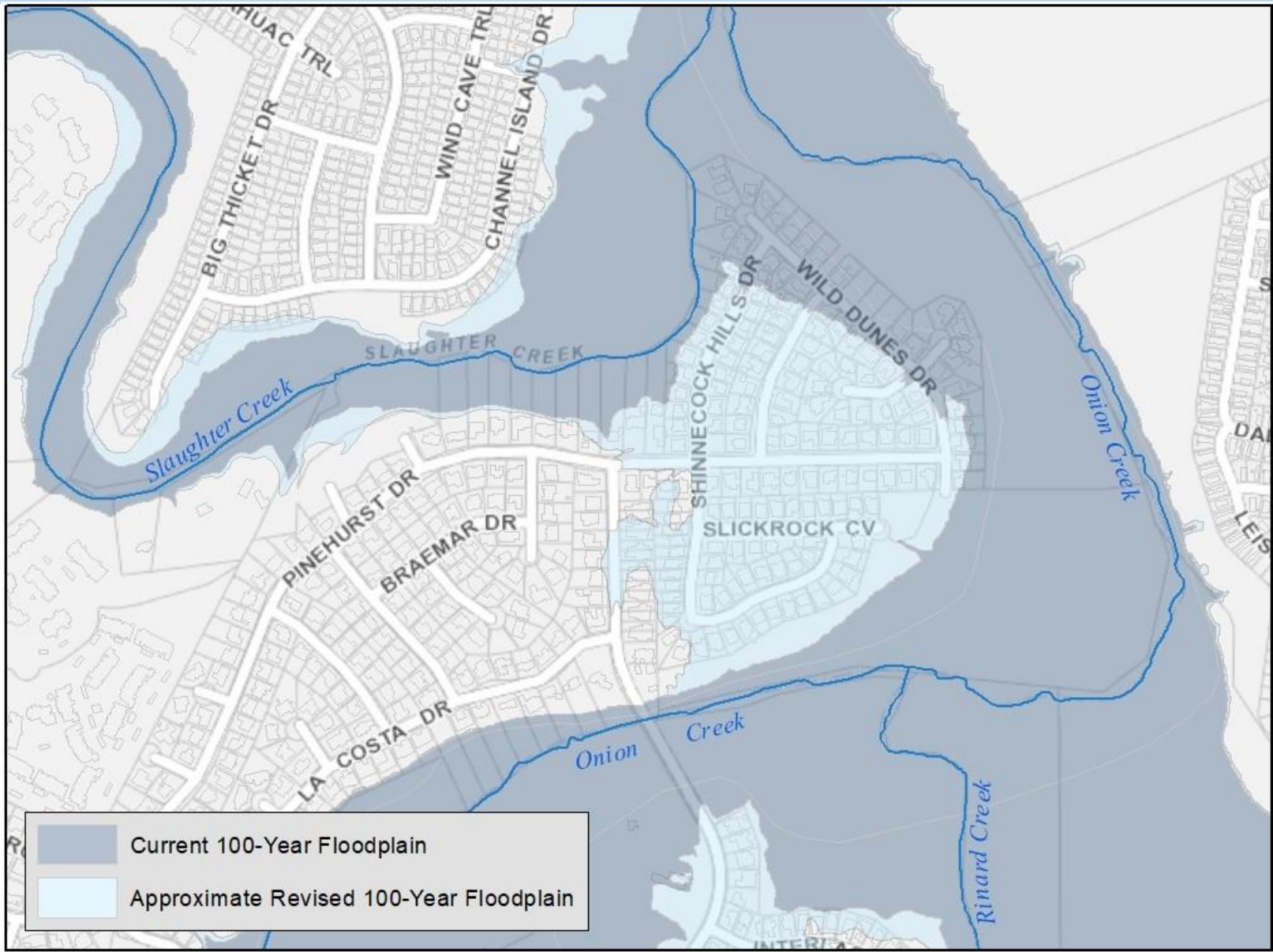
Our Understanding of Flood Risk is Changing

- Updated rainfall data is indicating that rainfall intensities are increasing
- This means:
  - The 100-year floodplain is getting larger. And so are other floodplains.
  - More people and property are at risk of flooding
  - Public and private drainage infrastructure will be larger and more expensive

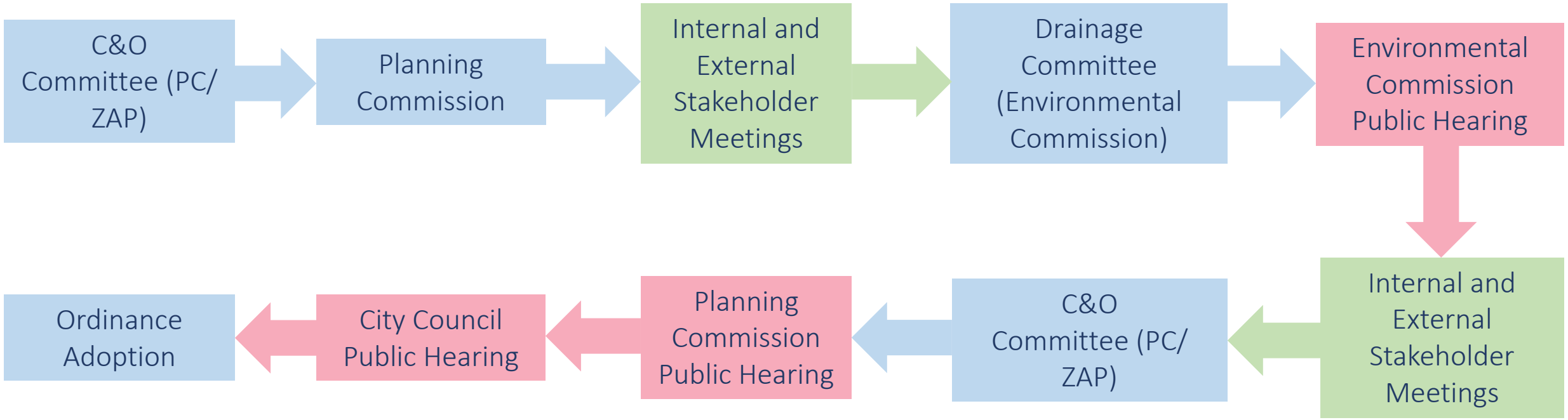


What Actions are Recommended?

- Floodplain regulations help protect the community from flood hazards
- WPD recommends a proactive approach for a more resilient community with an **interim Code amendment** to redefine regulatory floodplains
- Educate public and staff about flood risk
- WPD will update floodplain studies in a multi-year process



What Process Do We Propose?



3 public hearings

At least **4** stakeholder meetings

ENVIRONMENTAL COMMISSION MOTION 20180418 007a

Date: April 18, 2018

Subject: CodeNEXT and interim regulations addressing expected changes to 100-year floodplain

Motion by: Marisa Perales **Seconded by:** Pam Thompson

The Environmental Commission recommends incorporating into discussions regarding CodeNEXT the implementation of an interim regulation that redefines the 100-year storm event and floodplain.

VOTE 8-1

For: B. Smith, Thompson, Istvan, Maceo, Perales, Neely, Coyne, Guerrero
Against: H. Smith
Abstain: None
Recuse: None
Absent: Creel, Gordon

Approved By:

Marisa Perales, Environmental Commission Chair

M E M O R A N D U M

TO: Mayor and Council

FROM: Michael L. Personett, Acting Director MLP
Watershed Protection Department

DATE: January 30, 2018

SUBJECT: Preliminary Data for Re-Definition of Design Storm Rainfall Intensities

The National Weather Service (NWS), in partnership with the U.S. Army Corps of Engineers, U.S. Geological Survey, the Texas Department of Transportation (TXDOT), Harris County Flood Control District, the City of Austin Watershed Protection Department (WPD), and others, released preliminary results from their reassessment of design storm intensity for Texas. This information, now undergoing peer review, will be published as Volume 11 of the National Oceanic and Atmospheric Administration (NOAA) Atlas 14. The analysis is based on an updated period-of-record that considers rain events up to, and including, Hurricane Harvey. Our current design storm rainfall amounts are based on a dataset that extended up to 1994. Given the number of significant events that have occurred since that time, the preliminary findings are that the design rainfall totals are likely to be significantly higher than those that are currently in our drainage criteria.

This is a very significant development that has potentially far-reaching implications for current City of Austin flood risk reduction policies and programs, capital project development and delivery, and implications for the community as a whole. These implications relate primarily to the WPD flood risk reduction mission, both creek and localized flooding, but will also impact our stream restoration and water quality programs and projects, and potentially other City of Austin activities. Issues of concern include:

- Floodplain Maps – Re-definition of the extent of the 100-year floodplain which affects the City's overall floodplain management program and, in particular, the City's regulatory policies related to development within the 100-year floodplain.

- Increased Perception of Risk – An increase in the perceived risk to our community in flooding and drainage problem areas. As noted, this is an updated analysis of historical rainfall intensity based on additional data and improved statistical methods and provides us with a better understanding of the degree of flood risk.

- Drainage Project Design – A change in the design storm intensity will likely impact our standards for development and design of drainage projects for flood risk

reduction, both structural (e.g., a flood wall, channel modifications, storm drain systems) and non-structural (e.g., buyouts).

- Funding Needs – And finally, all of the above have implications for future costs of various programs, such as floodplain mapping and capital improvement projects.

The latest schedule provided by the NWS for the study, which began in May 2015, calls for web publication of the final digital data in October 2018 and publication of the associated documentation in December 2018. Publication of Volume 11 of Atlas 14 for Texas leaves one remaining study (five northwestern states) that will complete what has been an ongoing, comprehensive update of rainfall frequency and intensity data for the entire country.

WPD has been actively engaged as a partner in development of Atlas 14. Given this new information, we understand that our community faces a higher degree of flood risk than that represented by the previous Rainfall Intensity Study. Accordingly, in the immediate near-term, WPD will be focusing on these next steps:

- Continue to collaborate through the conclusion of the study process with our federal and state partners, in particular with FEMA and the Texas Water Development Board.

- Conduct preliminary analyses based on existing models to assess the degree of change in the spatial extent and depth of reference floodplains, including the number of existing structures and roadways potentially affected.

- Develop a preliminary summary of the various policy issues, including financial impacts, facing the City and our residents as we develop a better understanding of the implications of this change.

WPD staff is actively involved in and is focusing our attention on the impacts to our community. By the time the study is finalized, perhaps within the next six months, I anticipate we will have a great deal more information to discuss with you. In the meantime, if you or your staff have questions please direct those to Kevin Shunk, P.E., CFM, Managing Engineer for the WPD Watershed Engineering Division at kevin.shunk@austintexas.gov or at (512) 974-9176.

CC: Elaine Hart, Interim City Manager
Joseph G. Pantalion, P.E., Interim Assistant City Manager
Department Directors