



**TRANSPORTATION & CAPITAL
IMPROVEMENTS (TCI)**

**DEVELOPMENT SERVICES
DEPARTMENT (DSD)**



TO: Development Services and Transportation & Capital Improvements Customers

SUBJECT: **INFORMATION BULLETIN 570**
Atlas 14, Volume 11 Precipitation Frequency Estimates

DATE: April 8, 2019

CREATED BY: Transportation & Capital Improvements (TCI)

Purpose:

Transportation & Capital Improvements (TCI) is issuing Information Bulletin (IB) 570 in support of the Unified Development Code (UDC) amendment implementing the National Weather Service Atlas 14, Volume 11 precipitation frequency estimates as best available data for storm water and floodplain design and analysis. The Information Bulletin will be effective on the date the Atlas 14 UDC amendment becomes effective.

Scope:

The adoption of Atlas 14, Volume 11 (A14) effects how adverse impact analyses, flood studies, and other storm water and floodplain analyses will be performed.

Adverse Impact Analysis:

All plats receiving a plat number and permits receiving an application for permit (A/P) number prior to the adoption of the Atlas 14, Volume 11 UDC amendments may use the rainfall data effective at the time of submittal. However, TCI recommends that those projects utilize A14.

Upon adoption of the Atlas 14, Volume 11 UDC Amendments, all plats receiving a plat number and permits receiving an A/P number must provide an adverse impact analysis in accordance with Chapter 35, Appendix H of the UDC, using A14 rainfall data. This includes projects where a plat number is obtained before adoption of A14 and an A/P number is obtained after the adoption of A14. These analyses will compare existing conditions with A14 rainfall data to proposed and ultimate conditions using A14 rainfall data.

If the analysis indicates No Adverse Impact, then the payment of FILO would be allowed as per UDC Section 35H-4.3.1D- Fee In Lieu Of. These are examples of situations with **No Adverse Impact**:

- No increase in water surface elevation (WSE) downstream;
- Increased WSE in downstream channel, rise contained within freeboard, no erosive velocities;
- Increased WSE in detention pond, but discharge flow rate, Q , still meets code ($Q_{pr} \leq Q_{ex}$), pond has sufficient volume, and outflow velocity is no more than 6 fps;
- Increased flow to downstream underground drainage system, but Hydraulic Grade Line and Energy Grade Line (HGL/EGL) elevations meet code;
- Increased flow to street, but street capacity still meets code;
- Increased WSE at existing downstream culvert crossing, but rise is contained within freeboard; and
- Low Water Crossing (LWC) where existing WSE and velocity are within the “Proceed with Caution” zone, and proposed and ultimate conditions WSE and velocity are also within the “Proceed with Caution” zone.
- May include other situations.

If the analysis indicates an adverse impact, the impact would be mitigated at the time of the plat or permit as per the UDC. These are examples of situations with an **Adverse Impact**:

- Increased WSE that places any building into floodplain or COSA regulated water surface;
- Increased WSE at any building already in the floodplain or COSA regulated water surface;
- Increased WSE in channel, rise exceeds freeboard (rise on another owner’s property outside of easement);
- Increased velocity in channel, where velocity is erosive;
- Increased flow to underground drainage system, HGL above grade;
- Increased flow to street, exceeds street capacity;
- Increased WSE elevation at existing downstream culvert crossing such that the culvert crossing is now a LWC (Dry to Wet), even if the proposed WSE and velocity are within the “Proceed with Caution” zone;
- LWC where proposed or ultimate conditions WSE and velocity are within the “Dangerous” zone; and
- Detention pond where increased design storm flow and WSE overtops dam/embankment outside controlled weir/overflow structure.
- May include other situations.

In some cases, the downstream analysis will indicate that components of the drainage system are out of compliance, but there is not necessarily an immediate adverse impact. These are examples of drainage system components being **Out of Compliance**:

- Detention pond where design storm WSE and discharge Q increases and does not meet code ($Q_{pr} > Q_{ex}$); pond may have insufficient volume per code. However, the pond does not overtop and the increased Q does not have an adverse impact.
- Increase in underground drainage system, EGL above grade and HGL below grade. (May require replacing manhole covers with bolted manhole covers)
- May include other situations.

For situations where drainage components are out of compliance and the project is part of a phased development, Phased Mitigation may be allowed. **Phased Mitigation** timelines are as follows:

- Residential Subdivisions
 - Drainage components brought into compliance within the completion of 2 phases or 36 months, whichever comes first.
- Non-Residential Subdivisions (plats and permits), same owner for multiple parcels
 - Drainage components brought into compliance within the completion of 1 phase or 18 months, whichever comes first.
- In some cases, the owner and the city may agree to accept the drainage component being out of compliance with some other equivalent mitigation. This will be dealt with on a case by case basis.
- Phased Mitigation or equivalent mitigation must be documented through letter or agreement. Administrative Exceptions or Variances may be required.

In some instances, drainage components will be deemed Out of Compliance, but there is not an option for Phased Mitigation. Examples include:

- Single-Phase Residential Subdivisions
- Single-Phase Non-Residential Permits
- Phased Non-Residential Subdivisions (plats and permits), but multiple parcel ownership
- These situations will be treated on a case by case basis. In some cases, immediate mitigation may be required, and in some cases the owner and the city may agree to accept the drainage component being out of compliance with some other equivalent mitigation.
- Equivalent mitigation must be documented through letter or agreement. Administrative Exceptions may be required.

Floodplain Mapping:

The San Antonio River Authority (SARA) is in the process of remapping the FEMA floodplains and updating the Digital Flood Insurance Rate Maps (DFIRM) throughout San Antonio and Bexar County. Those mapping efforts will utilize A14 rainfall data, and will be completed on a watershed by watershed basis. There will be a lag time of approximately one (1) year or more between the date of the A14 UDC amendment and the date that DFIRM will be officially updated, depending on the watershed. There will be cases where drainage and flood studies will require using a combination of A14 rainfall data and pre-Atlas 14 rainfall data (2010). The summary below is intended to help clarify the submittal requirements and timeline based on the lag between A14 adoption and DFIRM updates:

- Plats, Permits, and CLOMRs submitted prior to adoption of Atlas 14:
 - CLOMR/LOMR submittals will be based on 2010 rainfall data;
 - COSA regulatory floodplains will be based on 2010 rainfall data; and
 - Adverse impact analyses will be based on 2010 rainfall data.
- Upon COSA adoption of Atlas 14, and before DFIRM is updated:
 - CLOMR/LOMR submittals will be based on 2010 rainfall data;
 - COSA regulatory floodplains will be based on A14 rainfall data; and
 - Adverse impact analyses will be based on A14 rainfall data.
- Upon COSA and SARA acceptance of revised DFIRM hydrology:
 - CLOMR/LOMR submittals will be based on A14 rainfall data;
 - COSA regulatory floodplains will be based on A14 rainfall data; and
 - Adverse impact analyses will be based on A14 rainfall data.
- There may come a point where projects may not be required to provide a CLOMR and/or LOMR due to the timing with the DFIRM updates. Those projects will be treated on a case by case and watershed by watershed basis. At that time additional Information Bulletins may be issued.

Finished Floor Elevations:

Within San Antonio city limits, the following will apply to residential and commercial building finished floor elevations (FFE).

- Building permits submitted prior to adoption of A14:
 - FFE shall be based on ultimate condition base flood elevations (BFE) using 2010 rainfall data, plus 1' freeboard in accordance with UDC Chapter 35, Appendix F.
 - COSA recommends but does not require that permits submitted prior to adoption of A14 also use A14 rainfall data.
- Building permits submitted after adoption of A14:
 - FFE shall be based on ultimate conditions base flood elevations (BFE) using A14 rainfall data, plus 1' freeboard in accordance with UDC Chapter 35, Appendix F.
 - This includes residential and commercial building permits on lots that are part of plats approved and recorded prior to adoption of A14.

For projects within Bexar County outside the City of San Antonio and in the City of San Antonio ETJ, refer to Bexar County requirements for FFE.

Any other situations related to adverse impact analysis, floodplain mapping, finished floor elevations, or other storm drain or floodplain analysis will be treated on a case by case basis. For additional information regarding this IB, please contact Jacob J. Powell, PE, CFM, Storm Water Engineering Manager, Transportation & Capital Improvements Department (TCI) at (210) 207-0176 or jacob.powell@sanantonio.gov.

Summary:

This Information Bulletin is for informational purposes only.

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