Drainage Impact Analysis of Potential Changes to Accessory Dwelling Unit (ADU) Policy

Background. City Council is considering potential changes to facilitate the construction of Accessory Dwelling Units (ADUs) on single-family zoned properties. Concern has been expressed that such changes will lead to increases in impervious cover and concomitant increases in stormwater runoff and localized drainage and flooding problems. This brief analysis comments on these prospects and puts them in context with larger drainage and flooding concerns.

Existing Drainage Concerns. Austin, like most major US cities, has extensive drainage systems which are both built before modern drainage criteria and deteriorating with age. Approximately 20% of our storm drainage systems are older than our first Drainage Criteria in 1977 and as such are undersized to handle runoff based on today's criteria. Austin also has many habitable structures and low-water street crossings that are inundated by the 100-year floodplain. Increased runoff in areas upstream of undersized drainage systems and low-lying structures contributes incrementally to the flooding problems in many areas. The Watershed Protection Department (WPD) is concerned about continued, incremental increases in impervious cover in areas with flooding concerns. This is a general problem that will be largely addressed with capital investments to upgrade our drainage systems with participation from the private sector. WPD currently invests about $25 million per year towards capital projects to solve flood, erosion, and water quality problems citywide. But this rate of investment means that many existing drainage problems will require many decades to address. Additional drainage system improvements are made by private entities through the development process, including public-private partnerships with the City of Austin.

ADUs and Impervious Cover. New construction of accessory dwelling units (ADUs) represents a potential increase of impervious cover on a given single-family residential (SFR) lot. However, the ADU proposal in and of itself does not increase the allowable base zoning impervious cover: it only provides a different mechanism for redevelopment. Increases in impervious cover on SFR lots comes in many forms in addition to ADUs, including expansions of the primary structure, driveways and footpaths, and separate garages and sheds. The strong housing market in Austin appears to favor building patterns which effectively maximize the available impervious cover on a given lot. This is a trend that WPD has been following for some time. The Urban Core has been steadily increasing in impervious cover for decades. This trend is likely to continue whether the ADU proposal is passed or not. WPD assumes for floodplain modeling purposes that all properties will eventually build to their respective maximum allowable impervious cover levels. This is done both to ensure a sufficiently conservative floodplain delineation but also in recognition of this steady increase in urban impervious cover.

At the watershed (macro) level, the combined impact of all forms of impervious cover on drainage systems is of concern. But it is not clear that regulation of ADUs in particular will have a significant impact on this overall trend or extent of impervious cover. The proposed ADU requirement changes are designed to reduce impervious cover (via reduced parking, etc.), but we expect impervious cover levels to increase with or without changes in ADU policy. In speculation, ADUs could increase the rate of construction marginally, but is not expected to significantly change the overall trend or be a prominent factor in this increase.

At the site (micro) level, individual changes in impervious cover (new construction, additions to existing structures, ADUs, etc.) and associated drainage patterns can potentially have negative localized impacts. COA land development code and drainage criteria require that changes in runoff from development avoid any additional adverse flooding impacts. However, at the Building Permit level for single family zoning in the urban watershed, this is not reviewed in the permit application process.

Mitigation Considerations. There are various approaches to mitigate, or lessen, the negative impacts of increasing impervious cover on Austin's aging urban drainage systems. The most direct approach includes projects to improve drainage systems, provide flood detention and/or remove structures in low-lying areas. Such solutions are ongoing but are costly and often take several years to accumulate funding and construct. Regulatory solutions associated with commercial and multi-family Site Plan (SP) development provide mitigation by requiring "no adverse impact." Future code improvements under consideration with CodeNEXT may additionally require the retrofitting of drainage systems or providing flood detention as new development occurs. Such improvements would be incremental and proportionate to such redevelopment.

Development of individual single-family residential lots, however, does not require additional flood mitigation strategies beyond what may have been provided by the subdivision as new impervious is added up to the allowable maximum. SFR construction, unlike that for site plans or new subdivisions, only requires a Building Permit (BP), which does not require on-site flood mitigation or water quality control. In the past, prospects for such requirements have been explored (e.g., during the deliberations for the McMansion ordinance). But design, permitting, and post-construction maintenance and ownership challenges have obscured a clear path for such solutions. Another possibility would be the requirement of Building Permits to provide a drainage plan to better accommodate drainage on-site (without, necessarily, the formality of an engineered control). Such potential solutions would be considerations with and without construction with an ADU.

Summary Accessory Dwelling Units represent one of many potential sources of increasing impervious cover in Austin's rapidly urbanizing core. ADUs do not appear to be a major component of the overall impervious coverage nor do they necessarily appear to result in a build-out outcome substantially different than one without ADUs. Speculatively, a facilitation of ADUs may marginally increase the rate at which impervious cover is added. Increasing, unmitigated impervious cover is a major concern in many areas of Austin which lack adequate storm drainage systems. Impervious cover from ADUs adds to these concerns, but on the margins. At a watershed level, potential changes in ADU policy is more of a land-use policy concern than a specific drainage concern. In individual cases, ADUs—or any other increase in impervious cover or change in site drainage with construction—can cause localized drainage problems if not properly designed and no mitigation is provided.