

**PILOT WATERSHED DRAINAGE PLAN  
LITTLE RABBIT CREEK AND  
LITTLE SURVIVAL CREEK WATERSHEDS**

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**EXECUTIVE SUMMARY**

This study encompasses two watersheds within the Hillside area of Anchorage. Drainage in the Hillside area is primarily accommodated by ditched and natural channels. No single management entity is currently responsible for drainage from the top of each watershed to the bottom. The majority of roads and associated drainage ditches are located in Service Areas, home owners associations, and ad hoc maintenance groups. These entities do not have the planning, design, or funding capabilities or mechanisms required to identify and construct major drainage system upgrades.<sup>1</sup> These entities therefore have little control over solving persistent drainage-related problems caused by poorly designed or inadequate drainage facilities and cannot construct new or upgraded systems to control increased runoff from upstream development. Drainage is currently dealt with on a piece-meal fashion with subdivisions, homeowners and service area managers each attempting to convey runoff through or around their properties. This informal approach has resulted in numerous drainage-related problems. If this status quo remains, development will increase runoff to systems that already have problems and are not designed to convey increased flow. Existing drainage-related problems will worsen and new problems will be created, particularly in the steeper, higher elevation areas of the Hillside.

Based on the unique issues and characteristics of the Hillside, a new approach to managing and maintaining drainage on the Hillside is recommended. It includes four components. The first component is the creation of a district-wide service area or utility. This entity would manage, implement, and maintain drainage on the Hillside. The second component is establishment of required drainage-related controls for new development. These controls would help reduce the impact of drainage from new development. The third component is development of drainage plans for all watersheds within the Hillside planning district. These plans would develop regional systems that would fix existing drainage-related problems, plan for adequate conveyance of future flows, and protect valuable resources such as streams and high quality wetlands. The fourth component is development of rate studies to define equitable collection of fees to fund construction, management, and maintenance of

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<sup>1</sup> The Glen Alps Service Area and the Goldenview Rural Road Service Area can collect fees to construct capital improvement projects

drainage infrastructure on the Hillside. All four components are required for the approach to work.

To demonstrate the watershed drainage planning process in a practical way, the Little Survival Creek and Little Rabbit Creek watersheds were selected for development of a pilot watershed drainage plan. The watersheds encompass 4,800 acres (7.5 square miles) of land, ranging from 200 to 3,000 feet above sea level. The majority of the area is zoned for residential uses. Approximately 41% of the combined watershed area is currently developed, 44% is yet to be developed, and 15% will not be developed because it is zoned a watershed district.

This Pilot Drainage Plan for Little Survival and Little Rabbit Creeks defines infrastructure upgrades required to service both existing and future development within the pilot project study area. It also serves to define the protocols and procedures for development of the remaining Hillside District Plan drainage plans. Finally, it supports the HDP planning effort by providing information that can be used to develop recommended fee collection structures and institutional mechanisms for the planning, implementation, and maintenance of Hillside drainage improvements.

It is envisioned that this plan become a ‘living document’ that is periodically updated and revised to reflect changing conditions within the study area. Reviewing the plan on a regular basis keeps the plan updated to current watershed conditions and creates a ‘living document’ that can be a powerful planning tool for managers and decision makers.

This pilot watershed drainage plan presents the following specific recommendations for the Little Survival and Little Rabbit Creek Watershed:

- Recommended runoff controls for both individual lots and on a subdivision basis. Adopting, enforcing, and maintaining these simple, practical controls will help reduce future increases in runoff on the Hillside and the corresponding cost of constructing downstream drainage systems.
- Recommended stream setback and drainage easement scheme to protect this valuable resource
- Ranked mitigation measures for all existing drainage features lacking sufficient capacity to convey flows under full-build out conditions. The measures include replacement of undersized culverts, maintenance of existing ditches to increase conveyance capacity and construction of new ditches, culverts, and storm pipes systems. Concept-level costs to construct these measures are estimated at \$3,328,000 (\$2,901,000 for high priority measures and \$166,000 for medium priority measures, and \$261,000 for low priority measures).
- Regional controls to mitigate drainage impacts resulting from future development based on the assumption that regional controls are more reliable and efficient than on-site, privately maintained controls. Controls include storm water detention and water quality ponds, native wetland storm water detention and quality facilities, roadside ditches, and culverts. Concept-level construction costs for these measures are estimated to be \$5,634,000.

The recommendations represented in this plan together with the creation of a new service area or district utility and development of a rate study to collect fees provides a new management approach for the Hillside Districts. This new management approach provides a watershed-wide, systematic way to manage drainage from the very top of the watershed on through to the bottom. It would upgrade existing systems to eliminate existing drainage-related problems and require runoff controls on new development and implement regional controls to ensure that runoff from new development is adequately conveyed through the watershed. It would collect fees in an equitable manner from those living within the watershed and provide management framework capable of efficiently implementing these measures and dealing with ongoing drainage-related issues and unforeseen, localized problems.

