



BOXELDER STORMWATER AUTHORITY

Newsletter

boxelderauthority.org

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Who are we? Three local governments, Fort Collins, Larimer County, and the Town of Wellington have cooperated to form *the Boxelder Stormwater Authority*.

What do we do? The Authority was formed to finance and construct three improvements which act as a system to lessen possible damages from flooding along a 20 mile reach of Boxelder Creek and its tributaries.

Coal Creek Mitigation Project

The Coal Creek Mitigation Project is progressing with about one third of the sediment having been removed from the bottom of Clark Reservoir. The sediment removal by dredging is a process where by sediments and water at the bottom of the reservoir are agitated to create a suspension of the sediments in water, and then the sediment water mixture is pumped through a pipe about one mile long to a series of dewatering cells located at the southeast corner of I-25 Frontage Road and Larimer County Road 70. The slurry flows through the dewatering cells at a slow rate to allow the sediment to sink. The water is then decanted and returned to the inlet canal for the Reservoir.

Currently, the dredge pump is being turned off for a day every three days. Larimer County Construction Supervisor Todd Juergens said "The dredge moves so much material so quickly that every 3-4 days it starts to overwhelm the dewatering system and it needs a break".

Authority Fees

The Authority is charged with reviewing its fees every two years. The time has come for a review of fees. The general formula for assessment of fees by the Authority and many other stormwater utilities is:

Fee= Impervious Area times the Base Rate.

In this formula, the base rate governs how much revenue the Authority will collect, and the impervious area governs the apportionment of the fees from property to property. Commercial, industrial and multi family properties are assessed based on the actual impervious area on each property. Since it is not practical to determine the impervious area of all single family lots within the Service Area, Local Government Solutions, LLC determined the impervious area for a random sampling of about 10 percent of the single family lots within the Service Area, with the intent of using that information to establish groups of similar lots based on lot area. At their August 11 work session, the Authority Board of Directors

discussed a structure for the fees which will have several tiers or groupings of lot sizes. It was noted that the larger lots within the Service Area have a less direct connection to the downstream conveyance system and thus runoff from those properties has a smaller effect than runoff from those lots whose runoff goes into a curb and gutter system. The Board then discussed adding a Reduced Connection to Runoff System

(RCRS) factor so that the formula becomes

***Fee= Impervious Area times the Base Rate
times RCRS factor.***

This fee structure will allow fees for larger lots without curb and gutter to be adjusted to take into account the less direct connection to the downstream conveyance system.

Why would Timnath interested in the Authority when the natural course of Boxelder Creek flows into the Cache La Poudre River north and west of Timnath?



Dredge on Clark Reservoir

FEMA floodplain maps show that flood flows do not all follow the natural path of the creek across I-25, then southwest into the Cache La Poudre River. Instead, about half of the flows continue south and east through Timnath, inundating homes and businesses south of Prospect on the east side of I-25. At some additional cost, Authority improvements could considerably lessen peak flood flows from Boxelder Creek through the Town of Timnath.

About Flood Hydrology.....

Many people have said that the Authority is too involved with studies. There are hydrological studies, hydraulic studies, design studies and master planning studies. Then there is conceptual design, preliminary design and final design. Certainly, there are lots of studies. Stormwater management seems to require a lot of studies. Why is this?

Let's examine what the studies are for: Hydrological studies determine how much water will flow past a given point in so much time, whereas hydraulic studies determine how deep it will get. Hydrologic studies take into account the shape of the watershed or basin that directs flow toward a common watercourse. Hydraulic studies take into account the shape of the creek and the adjacent land. Each type of study is done by computer modeling.

Stormwater Master Plans are plans that are prepared by engineers using hydraulic and hydrologic modeling to identify places that stormwater will cause damages. The studies are then used to identify improvements or management practices that will mitigate or avoid flood damages. The objective is to identify those improvements and practices which are most cost efficient.

To determine the cost efficiency of master planned improvements studies are done to determine the economic value of damages averted by proposed improvements. This is done by comparing the floor level of a structure with the flood level to determine the depth of flooding. The damages are then determined from FEMA standard tables.