

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

Installation of sheet piling was begun on the North Poudre Canal just west of Interstate Highway 25. Coal Creek floodwaters will be redirected in the north Poudre Canal to the east across Interstate 25, and then into an enlarged Clark Reservoir. As of this writing, trees have been removed along the Canal, and the Canal is being widened to allow floodwater to flow through the Canal and into Clark Reservoir. Expansion of storage capacity in Clark Reservoir is being achieved by dredging, or pumping a slurry of sediments mixed with water into dewatering ponds.

Authority Financial Studies

The Authority is reviewing financial alternatives for construction of its two remaining projects. These are the **Eastside Storage Project** to be constructed in the vicinity of County Roads 54 and 56 east of Interstate Highway 25, and the **Middle Basin Project**, a flow redirection facility to be constructed on and near the natural channel of Boxelder Creek from County Road 54 south nearly to County Road 48. The objective of the financial planning is to determine how long fees will last and what are the comparative revenue requirements for various combinations of grants, participants, and funding alternatives.

A draft Report by Local Government Solutions, LLC shows that the projects may be completed in as short a time as ten years or as long a time as 26 years, depending on annual revenue to the Authority and whether debt is issued. The report states several advantages of debt financing over pay as you go financing. One main advantage is greater certainty as to the costs of a project.

Using Floodwater Storage to Reduce Flood Peaks

Two out of the three projects authorized for construction by the Boxelder Basin Regional Stormwater Authority will store floodwater for the purpose of reducing downstream flood peaks. How does this process work?

Flood studies are based on the volume of water that passes a given point per unit of time. In the United States, this is expressed as the number of cubic feet per second, and is referred to as the “discharge” of a flood. Engineers use computer hydrologic models to compute the discharge of a flood at a given point as it varies over time. This is called the hydrograph. A flood inundates the greatest area when it is at peak discharge. By storing floodwater, the peak, or highest part of the hydrograph can be reduced, since the stored water is not allowed to pass downstream until the peak has passed.

The amount of reduction in downstream flood flows depends on the volume of storage available in the detention pond. The downstream flow could be reduced to zero if the pond were large enough to store the entire flood of a given size.

The sizing of storage for the Coal Creek Flood is sufficient to store the entire 100 year flood generated above the North Poudre Canal. The Eastside Floodwater Storage Project is not planned to capture or store the entire 100 year flood. The intent of the Boxelder Creek Regional Master plan was for the Eastside Project to reduce the flood flow on Boxelder Creek sufficiently so that the westerly flood flowpath could be eliminated, curtailing flow from the east side to the west side of Interstate Highway 25 in the reach between County Road 48 and 50.

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

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 in an overflow. The flow would go 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, also eliminating flood damages to existing structures along the overflow path.

