

## **Boxelder Stormwater Authority Service Area Boundary Draft Recommendation**

The Intergovernmental Agreement which formed the Boxelder Authority is based on the concept of a “utility” wherein the customers within a defined Service Area are charged stormwater fees. For the Boxelder Stormwater Authority, the Service Area is intended to consist of all those properties from which runoff could flow into Boxelder Creek or its tributaries, theoretically adding to downstream flood potential.

The watershed of Boxelder Creek has many lakes and reservoirs. During intense rainstorms, some of the lakes and reservoirs store the flow and release it slowly, resulting in regional flood hazard mitigation. Some lakes and reservoirs provide effective flood hazard mitigation while, others do not. This means that runoff from some properties is mitigated before reaching Boxelder Creek or its tributaries, and thus runoff from those properties does not add to downstream flood potential. There are generally accepted engineering practices which measure the effectiveness of flood storage facilities.

***The Service Area is intended to include only those properties from which the stormwater runoff rate is not effectively mitigated by existing lakes or reservoirs before flowing into Boxelder Creek or one of its tributaries.***

In April, 2010, the Boxelder Basin Regional Stormwater Authority Board directed Ayres Associates (Ayres) to evaluate the flood mitigation effect of all the lakes and reservoirs in the watershed according to a common criterion. In addition, Ayres was asked to review the current Service Area Boundary in relationship to available topographic data.

The first step in updating the boundary was to identify all properties whose runoff would flow toward Boxelder Creek using the most accurate topographic information available. This resulted in the proposed addition of some areas northwest of the intersection of Highway 14 and I-25 which had previously been inadvertently omitted. It also resulted in some adjustments to the existing service area boundary in a number of areas including the Adriel Hills Subdivision. Finally, that part of the Boxelder watershed lying north, or upstream of County Road 70 as far upstream as the SCS dams would be added and made a part of the Service Area.

The next step was to determine which lakes and reservoirs provide effective downstream flood damage mitigation based on a common criterion. A release from a water body less than that generated by a small storm (2-year average frequency of occurrence) after a large rainfall (100 year average frequency of occurrence) from an upstream basin is an industry standard for identifying effective flood flow reduction by a water body. Ayres Associates reviewed the downstream flood hazard reduction effect of three categories of water bodies based on their ability to limit releases from large storms to less than that of a small storm. The categories were

- Soil Conservation Service (SCS) flood control dams,
- Irrigation reservoirs and
- local detention ponds

The Ayres Associates analysis showed that all of the SCS dams provide effective regional mitigation of flood flow, along with Boxelder Reservoirs #1,#2, #3, #4 and Wasson Reservoir. None of the other irrigation reservoirs or any of the local detention ponds that were analyzed met the criteria. ***Based on this analysis, the areas that drain to the SCS dams and irrigation Reservoirs #1, #2, #3, #4 and Wasson Reservoir, should not be included in the Service Area (see nearby map). Correspondingly, the area downstream of the SCS dams, and other irrigation Reservoirs should be included in the Service Area.***

The existing Service Area of the Authority is defined by the Intergovernmental Agreement (IGA) which formed the Authority, and thus changing its boundary will require changing the IGA.

*After review and comment by the Public, the Board of Directors of the Authority may recommend that the three member governments of the Authority adopt a revised Service Area.*

## **How will this affect Property Owners?**

If the boundary changes are adopted by the three member governments, owners of improved properties within the new area will be asked to pay a stormwater fee beginning in January, 2012. The current fees for single family houses range from about \$6 per month to \$7.50 per month. The fee is based on paying 3¢ per square foot of impervious area, which is the same for both residential and commercial impervious areas. The fee is charged annually for Larimer County Residents. Based on a preliminary review of the current rate, it appears that the rate may be going down.

## **Public Review and Comment:**

The Authority Board of Directors have directed that information about possible changes in the Service Area and fee base rates be made public and disseminated as widely as possible for review and comment before they make a recommendation to the three governing bodies for a possible change.

## **Public Involvement Process**

Press Releases

Thorough coverage on Authority web site

Mailed Newsletters sent to:

- owners of the 554 new homes to be newly included in the Service Area if it is adopted
- those whose structure is now split by the boundary
- those who attended previous meetings or filled out a form asking questions
- those who were previously given a waiver and would now be considered in the boundary if the boundary is adopted

### **Open House**

A drop-in style open house will be held on October 13<sup>th</sup> (3:30 to 6:00 pm) and October 14<sup>th</sup> (4:00 to 7:00 pm) in the Leeper Center - 3800 Wilson Avenue in Wellington and one evening in east Fort Collins (date and location will be posted on the web-site). Property owners will be encouraged to attend and comment.

- We will supply a form for them to fill out with comments.
- We will have maps and displays to help people understand the proposed boundary revisions and proposed policies
- Knowledgeable personnel will be on hand to explain technical aspects of the proposal

A Notice will also be mailed to all previous customers in unincorporated areas containing:

- Capsulated information on the proposed changes
- Reference to the web site for more information

Both Notices would Contain Contact Information

### **Public Comment Process**

There will be two ways for the public to comment on the proposed boundary adjustments and/or policy adoption. Public comments can be made on the form provided at the Open House or can be emailed to:

[boxeldercomments@ayresassociates.com](mailto:boxeldercomments@ayresassociates.com)

**Comments must be received by November 12, 2010 to be considered.**

## **What other Changes are contemplated?**

### **Lower Fee Base Rates**

The Intergovernmental Agreement for Stormwater Cooperation (IGA) defines how much each jurisdiction must pay to the Authority per square foot of impervious area. Each jurisdiction is free to apportion the fees among the properties as it sees fit.

The revised Service Area, if adopted by the three governments would add 554 additional residential properties. This change, in addition to other changes that have occurred since formation of the Authority, is expected to result in lower fees being assessed by each of the three governments. Lowering the fee brackets would require approval by the three governments.

The one time capital fee base rate for new construction will be reexamined and possibly raised to reflect the amount already paid to the Authority by existing property owners

### **Proposed Policies**

As stated previously, a stormwater utility is based on the concept that stormwater fees are charged for all properties having impervious surfaces from which runoff could flow into Boxelder Creek or its tributaries without effective mitigation. There are several conditions that complicate this definition such as when the boundary passes through a structure, or when an area within the boundary drains to a pond/lake etc. that has no discharge during a 100-year event (non-tributary area), or what affect irrigation ditches have. In order to clarify some of these conditions, the Authority is considering several policy adoptions which are explained in more detail below.

#### Irrigation Ditches.

While it is commonly thought that irrigation ditches solve stormwater problems, in reality they are commonly full during times of flood, and pass the water on downstream wherever there is a low point on the ditch bank. For that reason engineers generally disregard irrigation ditches when doing flood studies. The only exception to this assumption in the Boxelder Basin is where a ditch has been designated as a storm water conduit with legal agreements and appropriate facilities in place to handle the stormwater in addition to the irrigation water it normally carries during the flood season.

#### **Proposed Policy on Irrigation Ditches:**

***When determining the service area boundary, all irrigation ditches are assumed to be full unless there is a specific agreement in place for stormwater operation of the ditch. The only known example of this within the Boxelder Basin is the Larimer and Weld canal spill adjacent to Adriel Hills. The result of this policy is the irrigation ditches have no affect on the delineation of the Boxelder Service Area Boundary.***

#### Boundary line passes through structure.

Because the service area boundary is based on topographic data there are a number of areas where the boundary is drawn through a residential dwelling. For this reason the board is considering the following policy when the boundary bisects a residential dwelling.

**Proposed Policy on Boundary line passing through a structure:**

***If the service area boundary intersects any portion of a residential (dwelling) structure then the structure owner is required to pay 50% of the applicable Boxelder stormwater fee.***

Non-tributary properties.

The Board recognizes that some properties, due to their drainage configuration, do not contribute runoff to the downstream drainage system. For that reason, they have proposed guidelines for determining whether a property is non-tributary to the downstream drainage system.

**Proposed Policy for Non-Tributary Sub-Basin:**

***If a residential (dwelling) or commercial structure lies within a Sub-Basin area that drains to a lake, pond and/or a depressed feature that can be shown to not contribute runoff to the Boxelder Basin during a 100-year storm, then the Sub-Basin will be considered to be a Non-Tributary Sub-Basin and the owner of the residential (dwelling) or commercial structure will be given a full credit on the Boxelder stormwater fee, as long as the conditions don't change.***

***Option A: The following method can be used to determine if the Sub-Basin area in question is a Non-Tributary Sub-Basin:***

***Step 1: Determine the entire drainage area for the basin, using the best available topographic data. If nothing else is available then USGS quad sheets are acceptable.***

***Step 2: Determine the percent impervious area for the entire drainage area based on best available aerial imagery. Using Table RO-5 in Volume 1 of the Urban Storm Drainage Criteria Manual determine the associated 'C' value for Type C and D soils.***

***Step 3: Using the Rational Method Formula:  $Q=ciA$  Determine the volume of runoff for the closed basin area assuming a 2-hour design storm with a total depth of 3.67 inches. Multiply the volume by 2 to account for prior rainfall events.***

***Step 4: Determine the volume of storage available within the pond, lake or depressed area being sure to account for the normal water surface elevation if there is one.***

***Step 5: Compare the volume of runoff with the volume of storage available. If the volume of runoff is less than the volume of storage then the basin is a Non-Tributary Sub-Basin.***

***Option B: The property owner can hire an engineer to prepare a ModSWMM computer model of the basin and storage area and prove through modeling that the basin is Non-Tributary.***

***The final requirement for being classified as a Non-Tributary Sub-Basin is a legal easement which dedicates the storage volume to be permanently available for stormwater management purposes.***

## **Schedule**

After obtaining and digesting the public response and comments from the newsletters, Open Houses and dissemination of information on the web-site the Board will determine if any further adjustments are needed to the boundary or policies. The current schedule is to finalize any revisions to the boundary or policies during the week of November 15<sup>th</sup>, 2010. The Board can then consider adopting the proposed boundary and policies during their November meeting. Following this the Board would immediately make a recommendation to the three entities to revise the IGA to incorporate the changes. At the same time it is likely the Board will make a recommendation to the three entities to lower the minimum rate being charged to something less than 3¢ per square foot of impervious area.