

## Amy Johnson

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**From:** John Shepard <emailjcs@comcast.net>  
**Sent:** Monday, September 28, 2020 12:06 PM  
**To:** citycouncil; CityRecorder  
**Subject:** Testimony for 28 September City Council agenda item 7.2a  
**Attachments:** Amending Salem Revised Code Chapter 70 (Utilities), Chapter 71 (Stormwater), and Chapter 601 (Floodplain Overlay Zone) - Submission A.pdf; Amending Salem Revised Code Chapter 70 (Utilities), Chapter 71 (Stormwater), and Chapter 601 (Floodplain Overlay Zone) - Submission B 24HR Design Storm .pdf

I have requested to speak during the meeting to address the issues submitted in these documents.

I recognize that what is being submitted is an understanding of a complex subject. I will be limited to 3 minutes. I understand that the Councilors will need to digest the subjects herein to be able to render an objective decision that serves the best interests of Salem Residents.

I thank you for the difficult work you do in service to Salem and those who live here.

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**SUBJECT:**

Amending Salem Revised Code Chapters 70 (Utilities), 71 (Stormwater), and 601 (Floodplain Overlay Zone)

Revisions to the Salem Revised Code should be a positive act that improves the future of Salem. The code changes recommended by staff, in part are positive, and do conform to staff findings that the approval is in the best interest of the of the public health, safety and welfare of the city. I fully support the work accomplished by the Staff regarding Floodplain management and particularly the successful efforts to secure insurance premium savings through the FEMA Community Rating System program.

However, Staff Proposed Amendments to SRC 71.090(b) contain flaws that do not meet approval criteria of SCR 110.085(b).

**Sec. 110.085. - Amendments to the UDC.**

(b)*Criteria.* An amendment to the UDC may be made if:

- (1) The amendment is in the best interest of the public health, safety, and welfare of the City; and
- (2) The amendment conforms with the Salem Area Comprehensive Plan, applicable statewide planning goals, and applicable administrative rules adopted by the Department of Land Conservation and Development.

*Staff Proposed Amendment is to eliminate to SRC 71.090(b):*

~~(b) “Provide additional stormwater facilities or improve the public stormwater system to adequately accommodate the stormwater flows from the site if insufficient capacity exists in the public stormwater system to carry existing and anticipated discharge flows, including any flows from dewatering activities. The Director may require the developer to conduct analysis to ensure sufficient capacity exists downstream from the location where the drainage water is discharged from the site”.~~

**SRC71.095. - Flow control facilities.**

(b) Design.

- (4) The Director may allow construction of a flow control facility at a location other than the site if:
  - (B) The flow control facility constructed at a location other than the site will mitigate similar impacts that have been identified as a consequence of the project.

The reading of clauses of SRC 71.090 and SRC 71.095 shows they are interdependent. They are not an either-or construct. The two clauses work in tandem to provide the Director authority to regulate and manage the consequences of stormwater from the development of large projects.

How then can staff claim the amendment complies with SRC110.085(b)(1)?

SRC 70.095 (b) addresses Design of Storm Control Facilities.

Clause (4) identifies criteria to be used to “ allow the construction of a flow control facility at a location other than the site if:” Paragraph (B) “The flow control facility constructed at a location other than the site will mitigate similar impacts that have been identified as a consequence of the project” clarifies this criteria.

A proposal must be relevant and positive in order “mitigate similar impacts that have been identified”.

1. How can a project impact be identified **without analysis**?
2. What are we asking the project to do? Mitigate stormwater that is connected to a new “large project”.
3. What impacts are being considered? I can imagine the list must be long and involved, but at the top of the list should be:
  - a. Will this large project increase the volume of stormwater flow downstream from the project and flood current Salem residents out of their homes?

Analysis of downstream stormwater flows is important to safety.

Let’s go back to SRC71.090.

Paragraph (b) “Provide additional stormwater facilities or improve the public stormwater system to adequately accommodate the stormwater flows from the site if insufficient capacity exists in the public stormwater system to carry existing and anticipated discharge flows, including any flows from dewatering activities. The Director may require the developer to conduct analysis to **ensure sufficient capacity exists downstream** from the location where the drainage water is discharged from the site”.

This SRC71.090(b) language specifically provides for downstream analysis. This is proposed by staff to be deleted. This Analysis is required to ensure sufficient stream capacity exist downstream. The **sufficient capacity** is what determines if residents homes, downstream from a large project, are at risk of being flooded on Christmas day when it has been raining and the children are engaged in celebration.

From what I have heard, current large project managers have preferred to ignore analysis of downstream capacity. Instead, Public Works tells them how much detention to locate on site. If the developer does not like the detention requirement they negotiate.

How are these negotiations being conducted without analysis of the downstream impacts?

I ask that council modify the code changes being requested by Staff.

Preserve SRC 71.090 REQUIREMENTS FOR LARGE PROJECTS paragraph (b) in its entirety. It does not detract from the Salem Revised Code; it enhances safety, the criteria set out in SCR 110.085.

SUBJECT:

Amending Salem Revised Code Chapters 70 (Utilities), 71 (Stormwater), and 601 (Floodplain Overlay Zone)

Staff Proposed Amendments to SRC 71.095(c). contain flaws that do not meet approval criteria of SCR 110.085.

**Sec. 110.085. - Amendments to the UDC.**

(b)*Criteria.* An amendment to the UDC may be made if:

- (1) The amendment is in the best interest of the public health, safety, and welfare of the City; and
- (2) The amendment conforms with the Salem Area Comprehensive Plan, applicable statewide planning goals, and applicable administrative rules adopted by the Department of Land Conservation and Development.

*Staff Proposed Amendments to SRC 71.095(c):*

**SRC71.095 (c) Flow control facility performance standard.**

(1) The post-development peak runoff rates from design storm events equal to or less than one-half the two-year, 24-hour design storm event shall not exceed the predevelopment peak runoff rate for one-half the two-year, 24-hour design storm event;

(2) The post-development peak runoff rates from design storm events equal to or less than the ten-year, 24-hour design storm event shall not exceed the predevelopment peak runoff rate for the ten-year, 24-hour design storm event; and

~~(3) If a volume-based stormwater flow control facility is used, the detention volume shall be sufficient to detain a 100-year design storm event without overflow. The post- development peak runoff rates from design storm events equal to or less than the twenty- five-year, 24-hour design storm event shall not exceed the predevelopment peak runoff rate for the twenty-five-year, 24-hour design storm event; and~~

(4) The post-development peak runoff rates from design storm events equal to or less than the one-hundred-year, 24-hour design storm event shall not exceed the predevelopment peak runoff rate for the one-hundred-year, 24-hour design storm event.

Staff affirms the proposed changes “ensures that peak flows from a large project do not exceed existing flows during large storms”.

The FLOW CONTROL FACILITY PERFORMANCE STANDARD of SRC 71.095(c) in both current and the proposed language rely on use of a “24-Hour Design Storm”. Staff identifies this “a standard practice for many municipalities across the U.S. and has been the practice since at least 2013 when Council adopted SRC 71 (Stormwater). “

To support the argument, staff states: “Further, this definition meets the requirements for the Community Rating System of the Federal Emergency Management Agency (FEMA)”

This claim contradicts conversations I conducted with FEMA representatives. During my discussion with FEMA staff regarding the utility of a 24-hour design storm in connection with CRS, I learned that such a standard is not specified. Any and all methodologies are considered that can be shown to have positive impact on the control of pre and post development stormwater runoff. FEMA’s intent is to limit and reduce the risk of flooding. If a “Standard” has been shown to be not effective it is up to the community to develop methods that demonstrate results, and then clearly show FEMA how the solution will work. Certainly, in some jurisdictions a 24-hour Design Storm works. Where it does not, it cannot be relied upon. **Salem is one of those communities where the 24-hour design storm does not work.**

A Design Storm as stated in SRC 70.005 Definitions

*Design storm event* means the size of the storm event used to calculate runoff volumes and peak rates of discharge when designing stormwater facilities. The design storm event is the total inches of rainfall, distributed during a 24-hour period using a standard synthetic rainfall distribution identified as Type I-A by the Natural Resources Conservation Service.

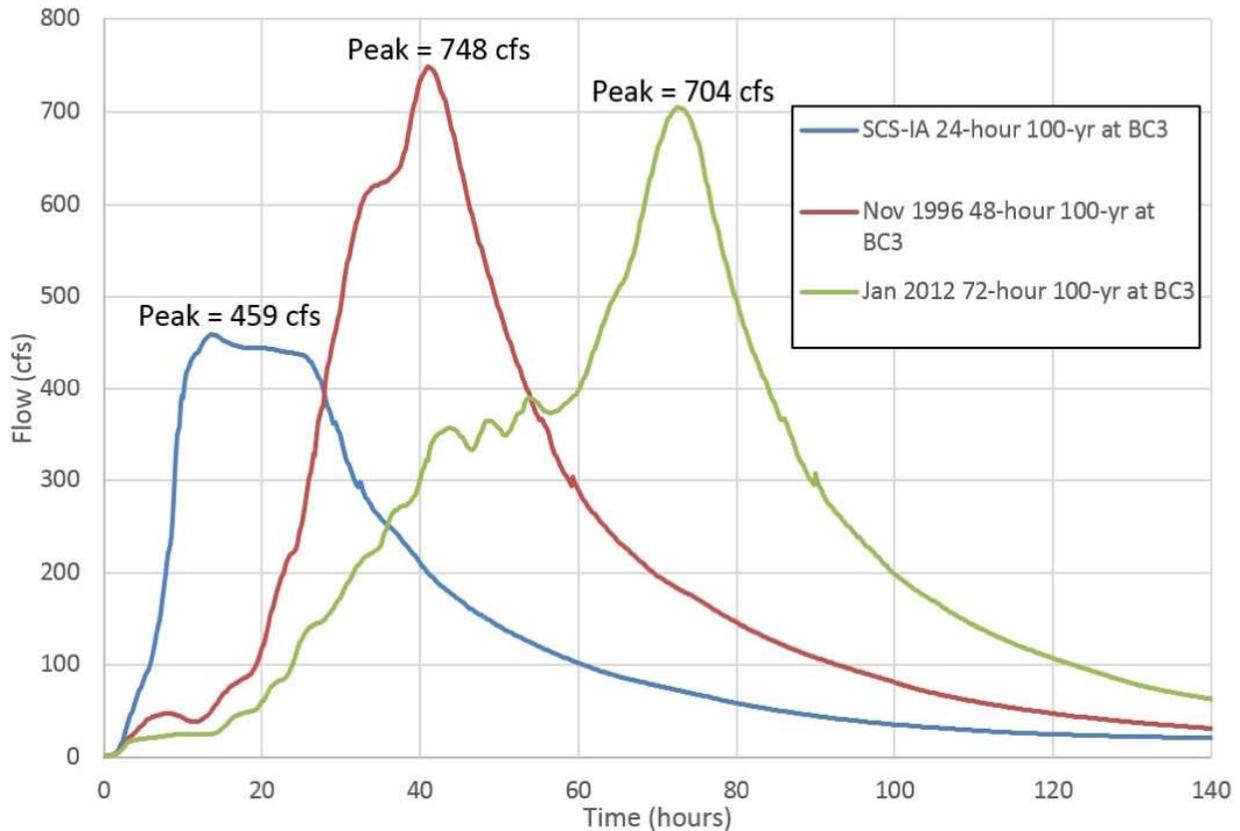
A “synthetic rainfall distribution” has been used in Salem well before the Councils approval of SRC 71. It has been used as a tool to help engineers identify a metric for “synthetic” rainfall and to help calculate the volume of stormwater in a given place for a defined amount of time.

The problem: The 24-hour design storm standard is not the tool to be used in the Pacific NW, nor in Salem Oregon.

The State of Washington has learned that the 24-hour design storm does not provide a safe metric. Washington has directed communities to review their use of the tool. The City of Seattle and King County have already moved into the 21<sup>st</sup> century and are now using “continuous flow modeling”. Our State of Oregon has this same issue under review. Salem has pursued own efforts to understand why homes along the streams of Battlecreek, Mill Creek and the other 10 Salem Stormwater basins flood during winter storm events.

The investment by Public Works has yielded valuable information. The engineering data and modeling was used to prepare Salem’s 2020 Stormwater Master Plan (SWMP). The pending SWMP update is perceived as “State of the art, Best Practice” information. It should be considered when addressing changes to the SRC. **Why then is the possibility of this Best Practice being arbitrarily excluded in the pending revisions to SRC Chapter 71?**

Specifically, the results of these Salem studies conclude, the 24-hour Design Storm method failed to adequately identify flood peaks and flow volumes in the Battlecreek Basin.



Residents have said since 2007, when we have a storm in the Pacific NW the timing and duration of the storm rainfall has not been adequately considered when approving development activity in the hills of the basin. The tool (24-hour Design Storm) used by Public works and engineers serving development does not meet the requirements of UDC Sec 110.085 (b)

Engineers have relied on 24-hour Design Storm “Standard” to help them value stream flow volume.

Salem needs a different metric. With gauges in the creeks and analysis of the impact of “Flow Volume”, a short cut to resolve the complexity is for the City to regulate “Stream Flow Volume”.

Using a “new standard” of “Flow Volume at say 300 cf/s” identifies a specific limit that all parties must adhere. New Projects would need to limit their flow to assure that stormwater runoff would not increase the peak flows beyond the “Flow Volume” limit. Existing flow

volumes can be reviewed, and Public Work requirements can be selected based on best results to meeting stormwater runoff flow volume in the basins.

Such regulation can be applied scientifically to each basin using a common Salem based standard.

When floods happen and your regulatory actions fail, insurance claims will occur. Repetitive claims will cause the loss of CRS points and discounts will evaporate.

The 24-hour design storm is a flawed standard for Salem. I ask that the council preserve SRC71.090(b) until a better solution is adopted.