

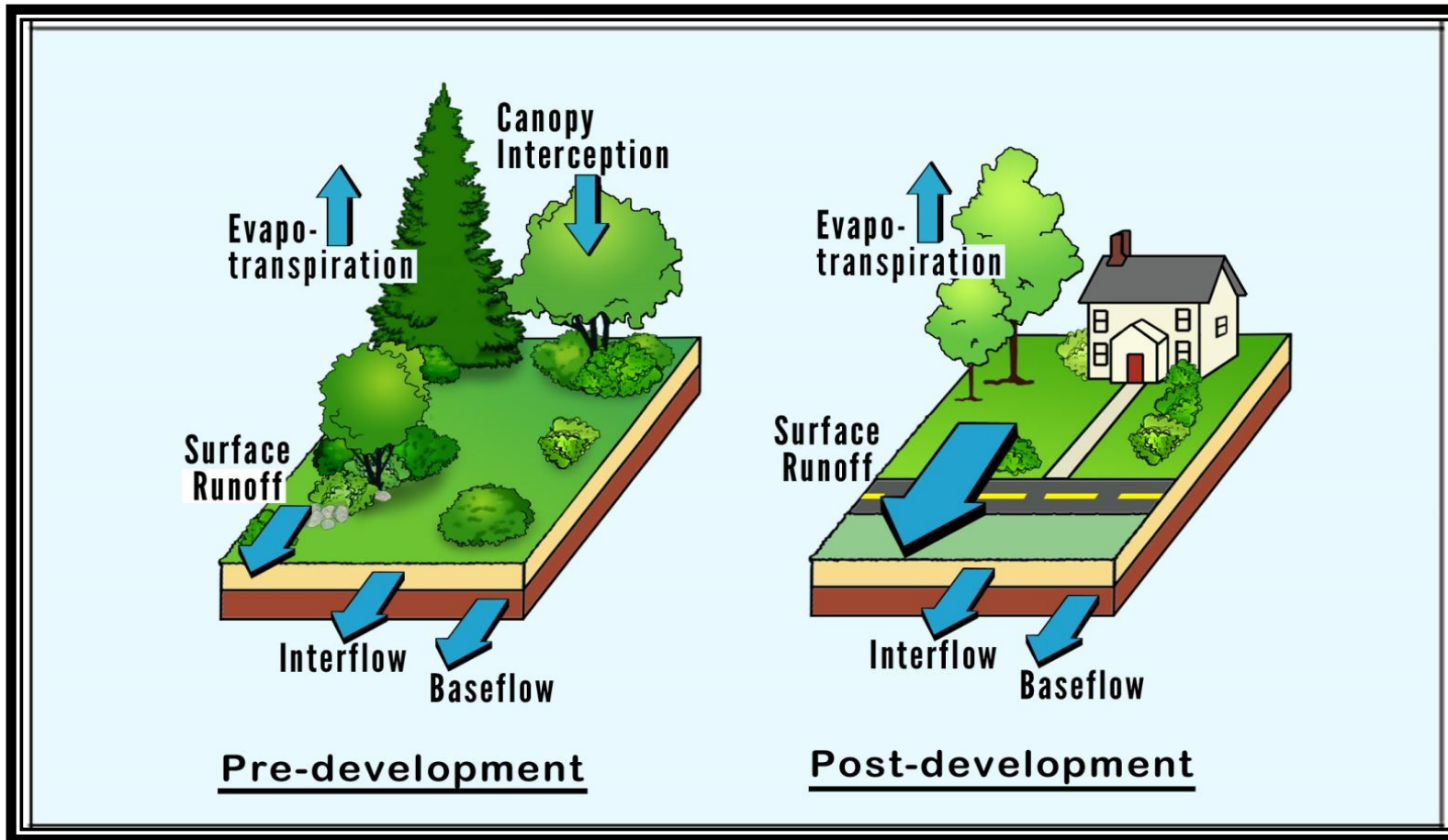
# The Environmental Sustainable Prevention of Urban Flooding

Stormwater - City of Edmonton mature neighborhoods

“ Urban Flooding will be one of the top issues facing Municipalities over the next few years due to Climate change ”

It is the responsibility of the Municipal Government to ensure all new developments within its jurisdictions do not cause overland flooding to neighboring properties due to stormwater runoff.

The citizens of Edmonton need City Council to take the necessary steps to prevent overland flooding in mature neighborhoods!



New development in mature neighborhoods increases the amount of runoff to the existing stormwater infrastructure.

# RECOMMENDATIONS:

Epcor Water Rate Application (2022 - 2026)

- ▶ **Fairness**
- ▶ **Enforcement**
- ▶ **Transparency**

# Fairness

- ▶ Utility rates and applicable charges to customers classes should reflect the cost of providing that essential service with minimum subsidization.
- ▶ It is the responsibility of the Utility Regulator (Edmonton City Council) to ensure that Epcor customers are being charged fairly and equitability for the services they receive.

# Fairness

## Stormwater Utility Charge = $A \times I \times R \times \text{rate}$

A, area of property (lot) metres squared (m<sup>2</sup>)

I, Intensity factor = 1.0

R, runoff coefficient = 0.50 (RF1)

The runoff coefficient “R”, the permeability of a lot’s surface (grass vs. concrete) for all residential customers (RF1), uses a coefficient of 0.50.

Infill homes and garages are larger in size with less permeable ground creating more surface area runoff compared to the previous homes and garages with the existing stormwater infrastructure.

A conservative estimate of runoff volume that is commonly used correlates to a 1 to 1 ratio, or simply speaking for every 1% increase in surface area there is a 1% increase in runoff volume.

A conservative change in surface area from an existing or older home(1,000 sqft) to an infill home(1,280 sqft.) would be approximately 28%, which based on the 1 to 1 ratio, would increase the runoff by 28%.

### ***Recommendation:***

Increase the R coefficient for new and existing infill properties from 0.50 to 0.65. This change in R value is fairer to all residential customers and represents more of a user pay charge. Although the change in R value is very conservative, it will help offset the cost to replace and upgrade the existing stormwater infrastructure, which should allow for implementation effective January 1, 2022.

# Fairness

Construction projects contribute large amounts of debris into catch basins.

***Recommendation :***

Charge an Environmental levy to contractors to offset the costs of maintaining stormwater drains. This levy could be implemented by January 1, 2022.

When water-main breaks are caused by damage attributed to construction issues...

***Recommendation:***

Those costs should be charged back to the contractor or company rather than the ratepayers. These changes should be implemented by January 1, 2022.

# Enforcement

The first step to mitigating overland flooding in mature neighborhoods is the approved lot grading of infill properties to ensure stormwater runoff reaches stormwater drains.

***Recommendation:***

The City of Edmonton lot grading bylaw must be enforced to all new and existing infill properties effective immediately.

Failure to enforce the lot grading bylaw, will result in overland flooding, which causes damage to both private and public property. This raises property insurance rates and property taxes, and could lead to a class action lawsuit against the City of Edmonton.

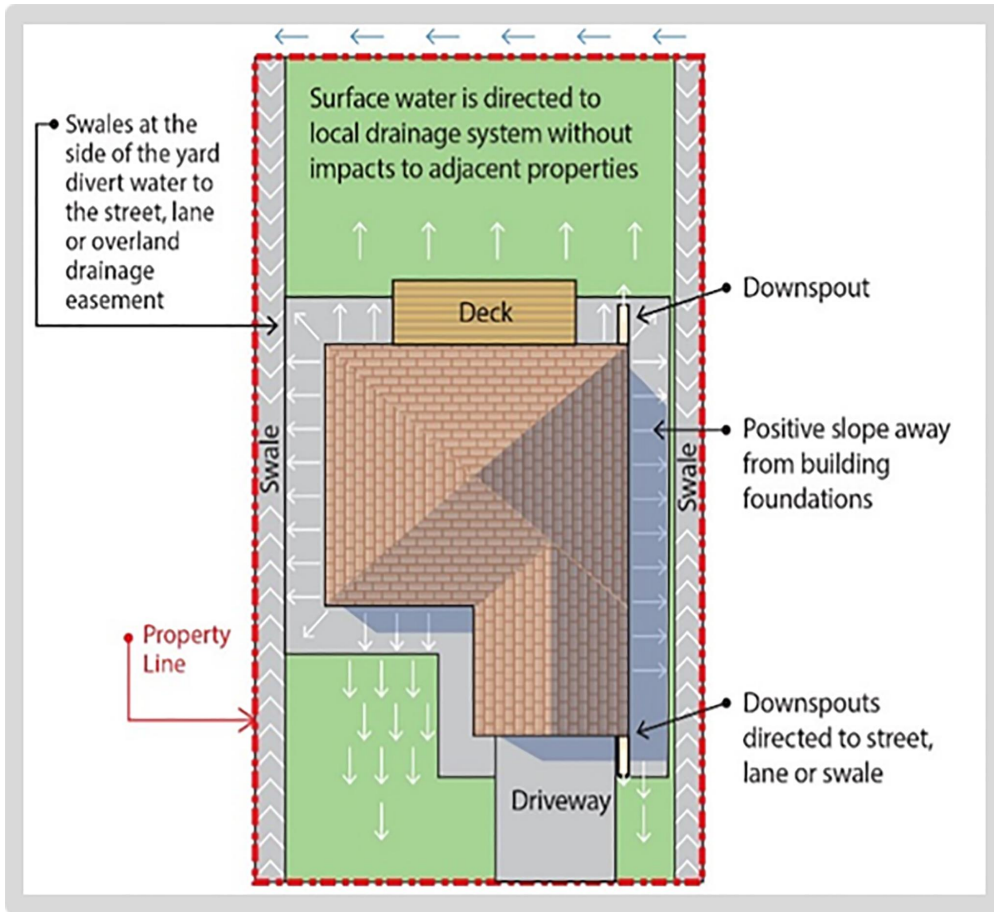
***Recommendation:***

City Council must provide the necessary support to the employees of Epcor and the City of Edmonton to ensure compliance through supporting enforcement to everyone and implementing stronger enforcement measures effective January 1, 2022.

Note: Other municipalities have stronger enforcement measures including:

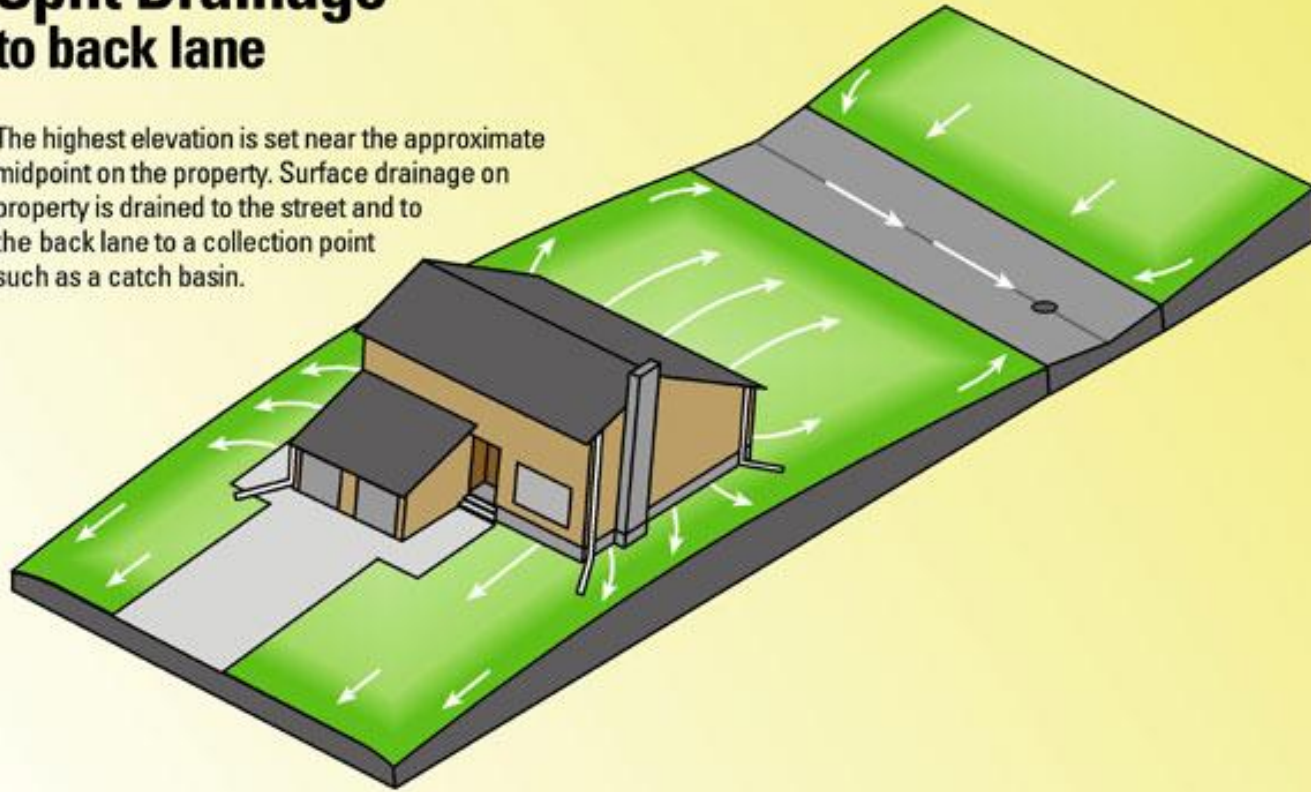
- ▶ \$10,000 fine for non-compliance;
- ▶ Caveat being placed onto the land title certificate stating the non-compliance.





## Example of Split Drainage to back lane

The highest elevation is set near the approximate midpoint on the property. Surface drainage on property is drained to the street and to the back lane to a collection point such as a catch basin.



# Transparency

Research compiled for this presentation uncovered two (2) infill properties on the same street built in 2014 and 2015 respectively had not yet received lot grading approval. This represented approximately 20% of the infill properties on that street. FOIP requests regarding this matter were submitted to the Corporate Access and Privacy Office with the City of Edmonton in November 2020. Responses were received 6 months later (May 2021) and both came back completely redacted. The citizens (taxpayers) of Edmonton deserve better.

## *Recommendation:*

Allow the release of the lot grading status and related information to the surrounding homeowners, community members and potential homebuyers, without having to go through a FOIP request. Lot grading should not be a privacy issue! The City should post all outstanding non compliance issues on Edmonton Slim maps until compliance is met.

This recommendation should be implemented on or before January 1, 2022.

# Closing Remarks

- ▶ Water is a necessity, the rates charged to customers should be fair and equitable.
- ▶ Sustainable salary and wages for Epcor employees along with no management bonuses for the next 5 years, to lower customer charges, considering the current Economic environment in Edmonton.
- ▶ City Councillors must commit to ensuring all outstanding lot grading approvals for infill properties be enforced to mitigate, and prevent, overland flooding in mature neighborhoods.
- ▶ The City of Edmonton lot grading bylaw must be enforced. This is the first step to ensure stormwater runoff flows into stormwater drains, rather than adjacent private properties.
- ▶ Compared to infill homes, mature homes typically have less surface area, more permeable land, and are more environmentally sustainable with less emissions.