

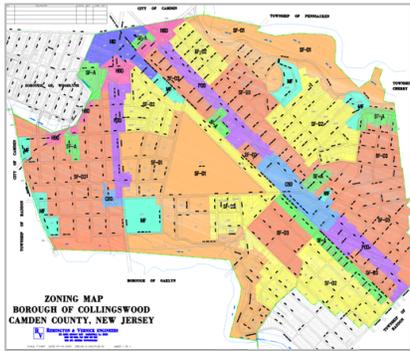
# **The Cumulative Effect of Zoning Variances on Stormwater Runoff**

## **A Case Study**

And a look at who really is in charge

Lorraine Prince  
Newton Creek Watershed Association

# Related definitions



## Zoning

Local regulations that govern how property can and cannot be used.

## Variance

An exception granted by a governing body to deviate from a zoning regulation.

## Mitigation

An action taken to offset the impact of something.



## Pervious surface

Allows fluids to pass through; permeable, porous. Examples: lawn, soil, sand, gravel

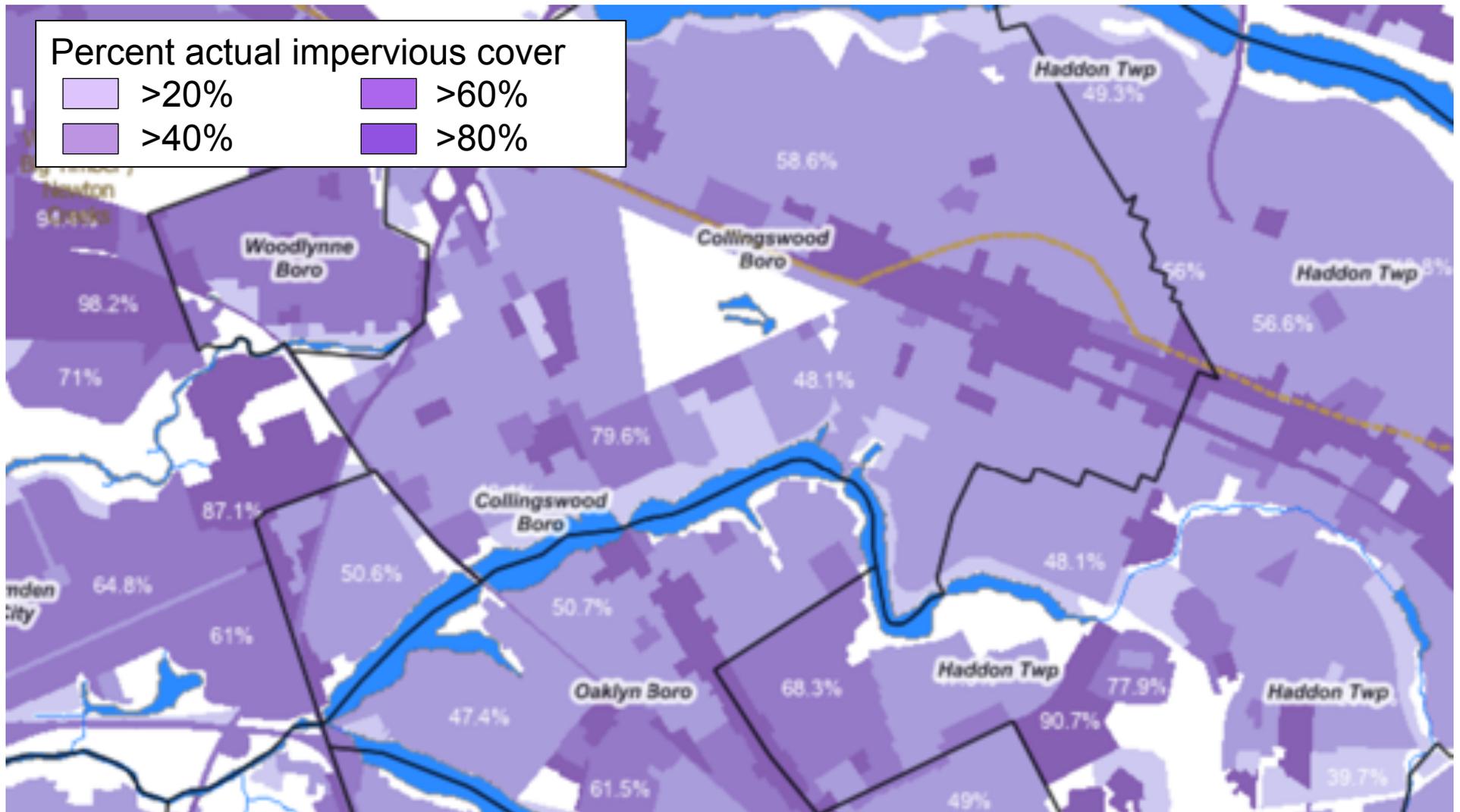
## Impervious surface

Prevents fluid from passing through, impermeable, non-porous.

Examples: pavement, roofs, decks



# In most older towns, impervious cover exceeds zoning regulations



Source: <http://www.njmap2.org/development/stormwater>

# What is protecting our neighborhoods and waterways from flooding and pollution?



**Collingswood, April 2014**



**Newton Lake, late summer 2020**



**Haddonfield, June 2019**

# Is it the new NJ stormwater control rules?

**NO.**

New ordinances recently adopted by many municipalities DO NOT address the “minor development” that increases impervious cover such as:

- Home additions
- Patios
- Driveway extensions
- New swimming pools
- And more...

# Or is it our local Zoning Boards?

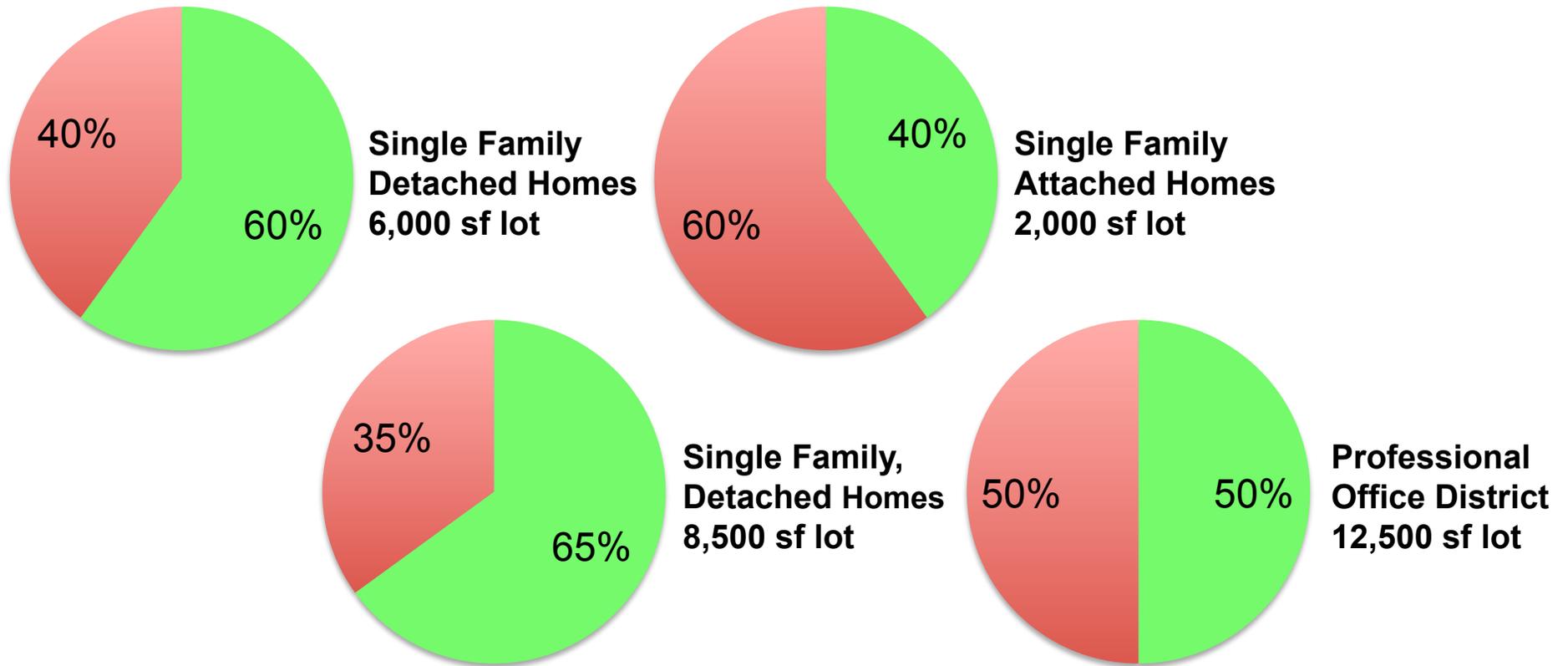


(Surprise! Yes it is, but they don't always know it)

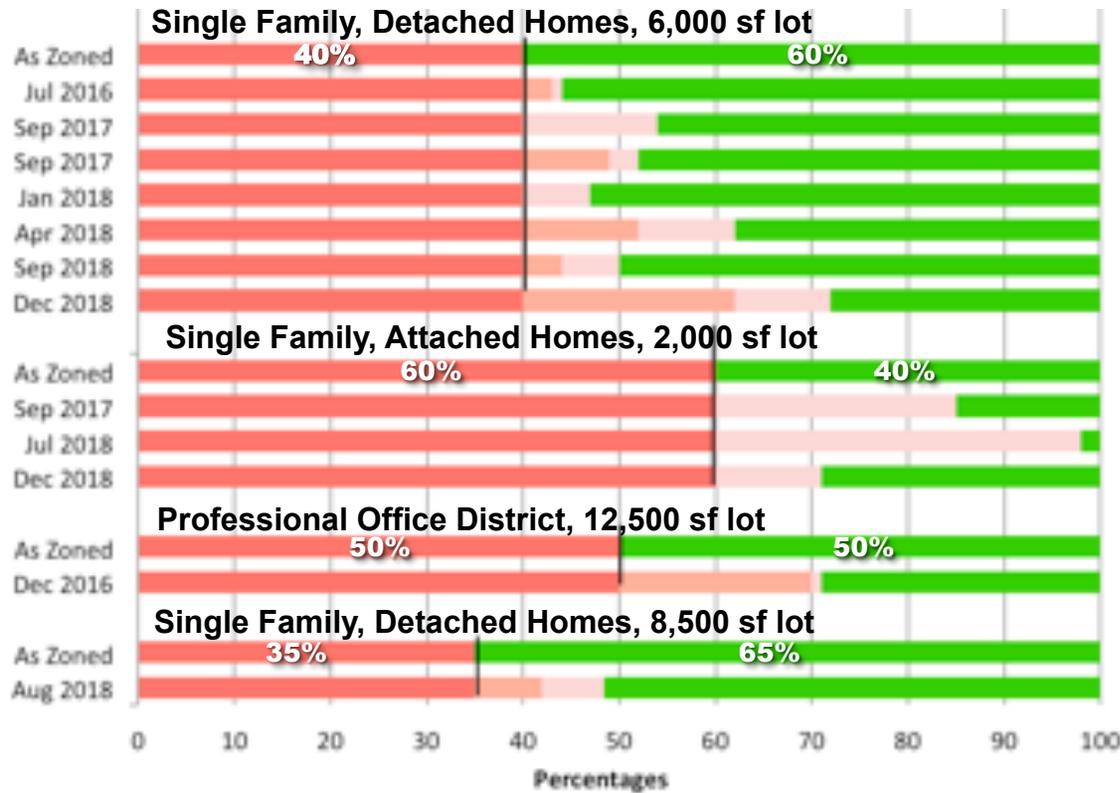
# CASE STUDY

# Typical zoning regulations for property coverage

Impervious Pervious



# Case study: variances requested August 2016 to December 2018



- Impervious cover as zoned
- Increased impervious cover: Earlier Variances
- Increased impervious cover: Latest Variances
- Pervious cover

**12**  
requests for variances were submitted and approved

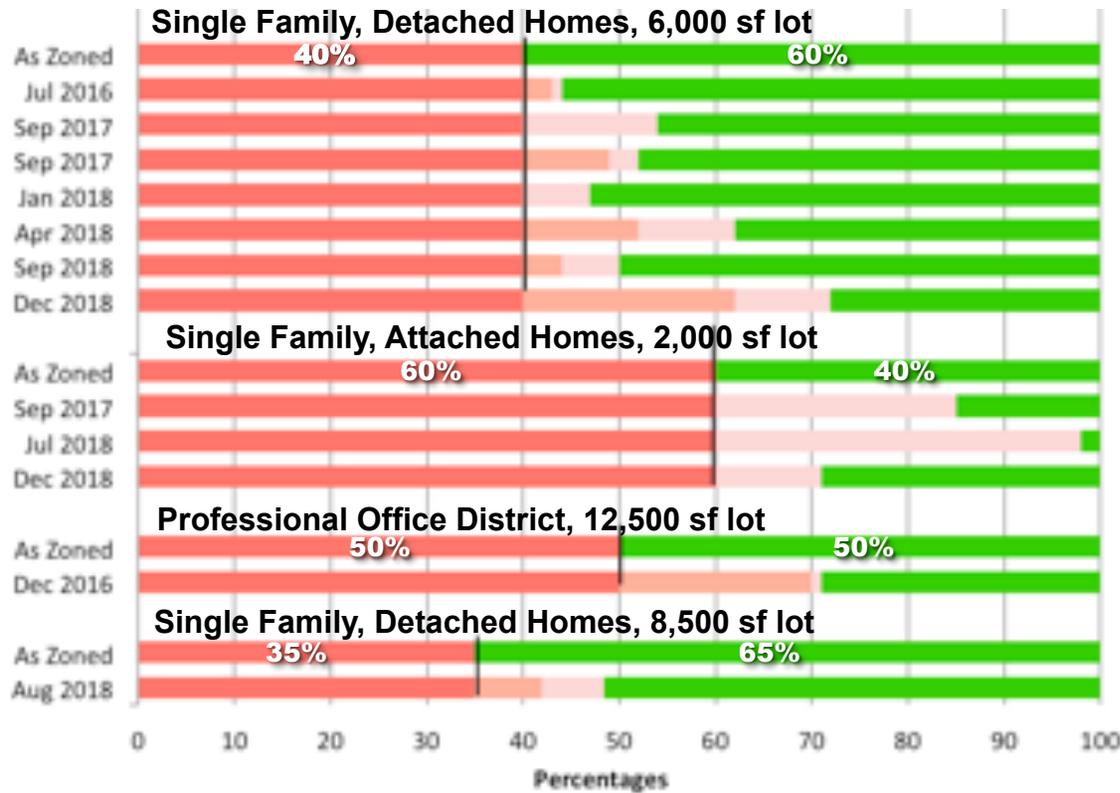
**7** out of **12**  
requests already exceeded the zoned percentages

**1**  
variance was granted with mitigating conditions

■■■  
average increase in impervious cover for the 12 properties that were granted a variance

Source: Borough of Collingswood, NJ

# Case study: variances requested August 2016 to December 2018



- Impervious cover as zoned
- Increased impervious cover: Earlier Variances
- Increased impervious cover: Latest Variances
- Pervious cover

**12**  
requests for variances were submitted and approved

**7** out of **12**  
requests already exceeded the zoned percentages

**1**  
variance was granted with mitigating conditions

**11%**  
average increase in impervious cover for the 12 properties that were granted a variance

Source: Borough of Collingswood, NJ

# Effects of a **1 percentage point** increase of impervious cover for a 6,000 sq ft property

Impervious surface is increased by;

**60 sq ft**

**Equivalent to 1/4 of a driveway (approx)**



Every 1-inch rainfall produces runoff equaling:

**36 gallons**

**Equivalent to two-thirds of a steel drum**



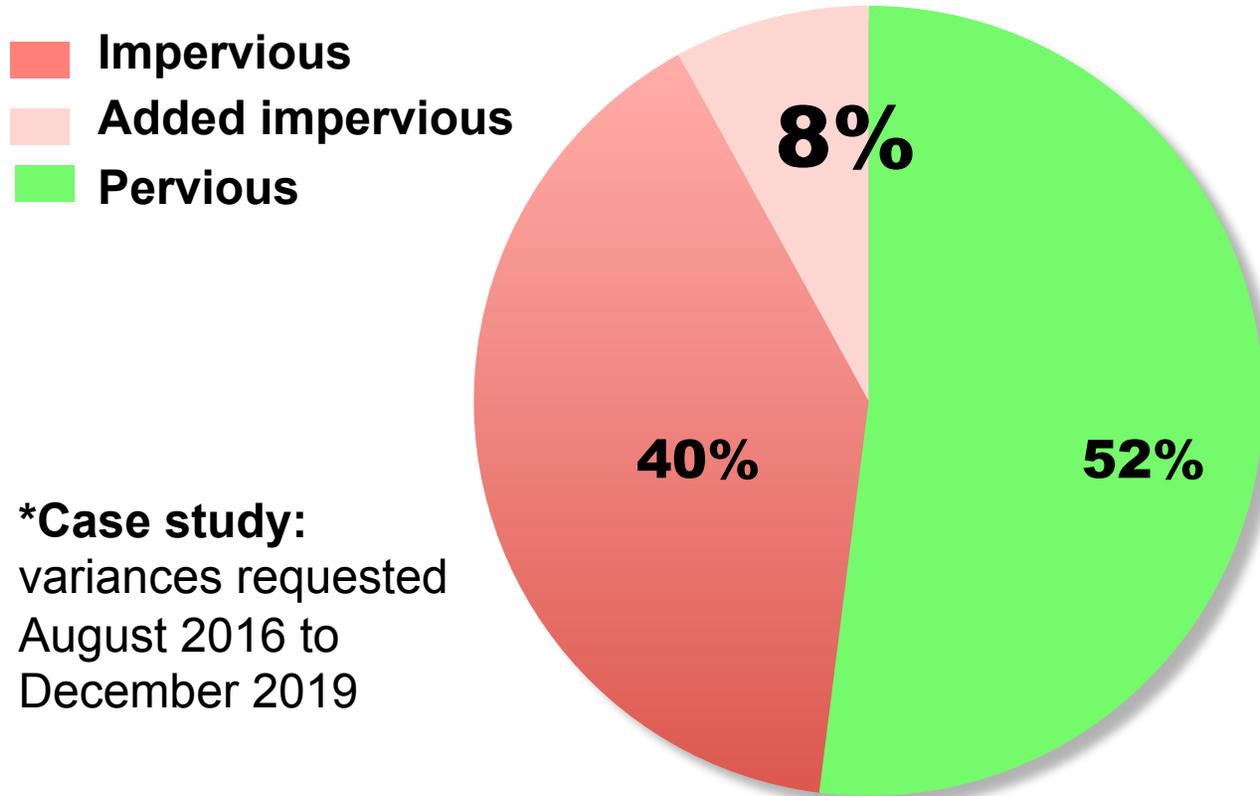
Average yearly rainfall in Camden County is 45 inches per year -so- rainwater runoff in one year is increased by:

**1,620 gallons**

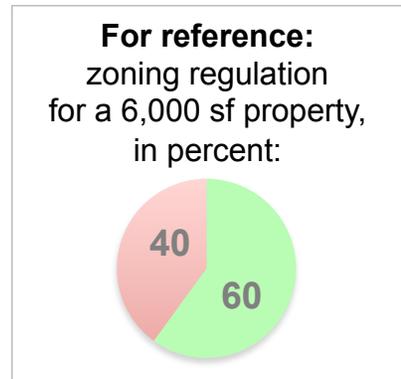
**Equivalent to approximately 29 steel drums or 6 kiddie pools (approx)**



For each of the seven 6,000 square foot properties, impervious cover increased, on average, **8 percentage points** beyond zoning regulation



**\*Case study:**  
variances requested  
August 2016 to  
December 2019



# Results of an **8 percentage point** increase of impervious cover for each 6,000 sq ft property

Impervious surface is increased by:

## **480 sq ft**

**Equivalent to 2 driveways or 1 medium-size home addition**



Every 1-inch rainfall produces runoff equaling:

## **288 gallons**

**Equivalent to 5 steel drums (approx)**



Average yearly rainfall in Camden County is 45 inches per year -so- rainwater runoff in one year is increased by:

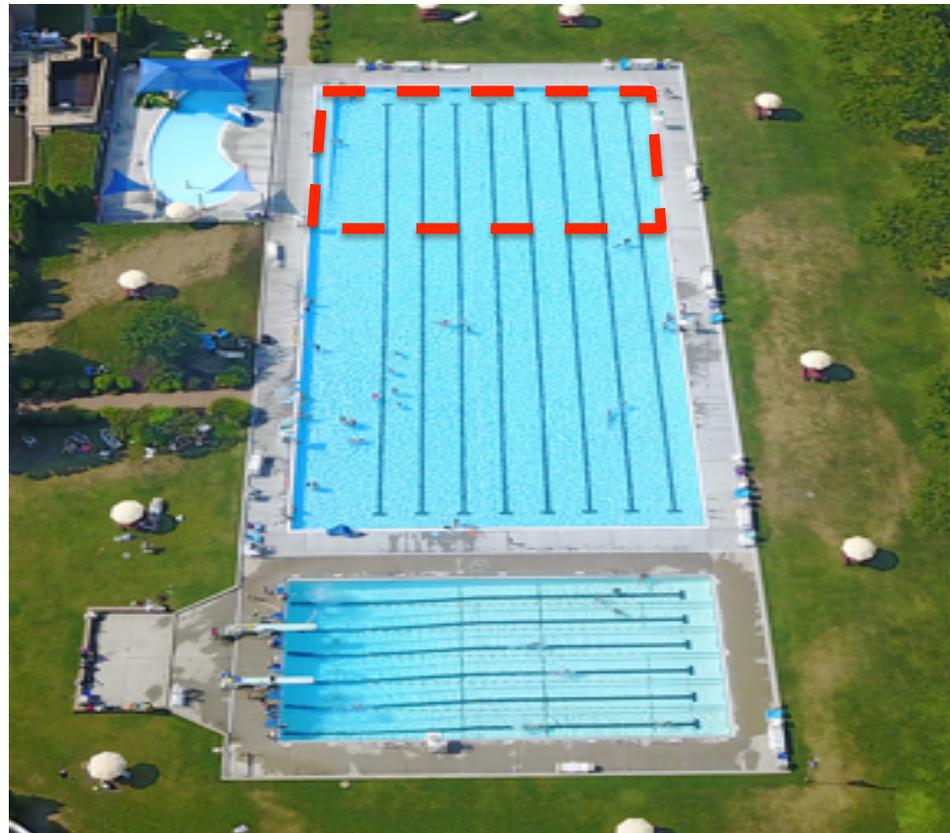
## **12,960 gallons**

**Equivalent to approximately 236 steel drums or 1 swimming pool**



Because of increased impervious cover on these\* seven properties, stormwater run-off will be increased by **90,720 gallons** every year

**Equivalent to nearly 1/3 of a municipal swimming pool**



\*Case study: 7 of the 12 variances requested August 2016 to December 2018

## Case study: comments from the local Zoning Board regarding approved variances

“The variance relief requested can be granted **without substantial detriment** to the public good and **without substantial impairment** to the intent and purpose of the zone plan and zoning ordinance”

“The benefit to be obtained from the proposed improvement will substantially **outweigh any detriment** that may be deemed to result from same.”

It's time “**detriment**” was re-defined by zoning officials to consider the effects of excess stormwater.

Source: Borough of Collingswood, NJ

Granting a variance that allows for the increase of impervious cover without requiring mitigating conditions is inviting a flood of problems

**Most Zoning Boards do not require mitigations**

(Impervious cover is **FOREVER**)

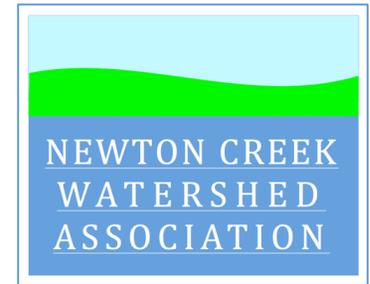
Nevertheless, zoning boards should not be the de-facto regulators of impervious cover.

Municipal governments need to address the minor development part of the new stormwater rules.

**The takeaway:**

- 1.** Make sure your zoning board considers increased impervious cover to be a detriment to your community.
- 2.** Advocate for mitigating conditions when variances that increase impervious cover are granted.
- 3.** Advocate for the inclusion of the “minor development” clauses in your town’s new stormwater ordinances.

Let's continue this dialogue



**Thank you!**

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