

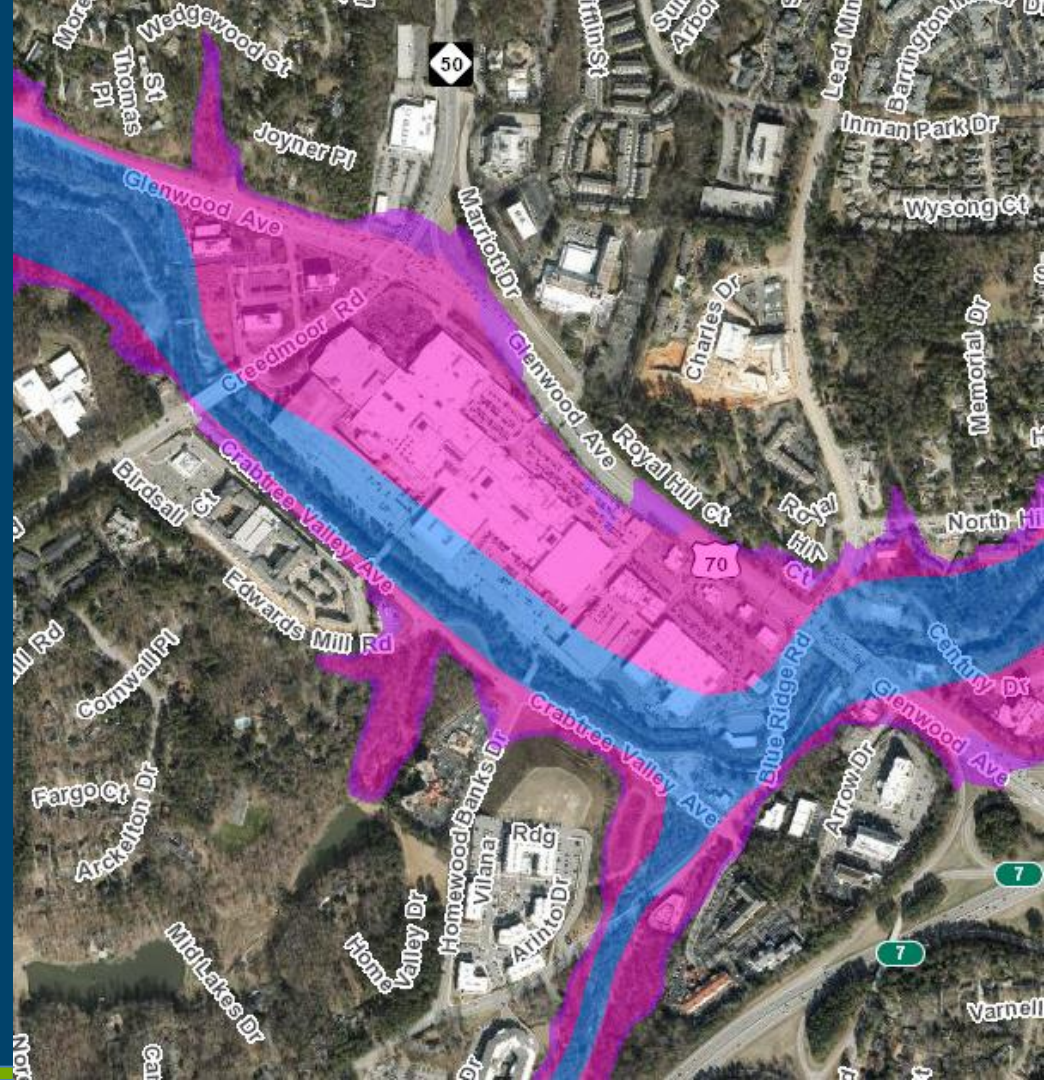
ENGINEERING SERVICES

FLOOD PRONE REGULATIONS BACKGROUND

Stakeholder Group
Meeting Number 1
April 11, 2019



Raleigh





Historical Background

- 1968 – National Flood Insurance Program (NFIP) started by US Congress
- 1973 – Mandatory flood insurance for federally backed loans
- 1977 – Inventory of affected communities
- 1978 – Raleigh officially adopt Flood Insurance Rate Maps



Historical Background

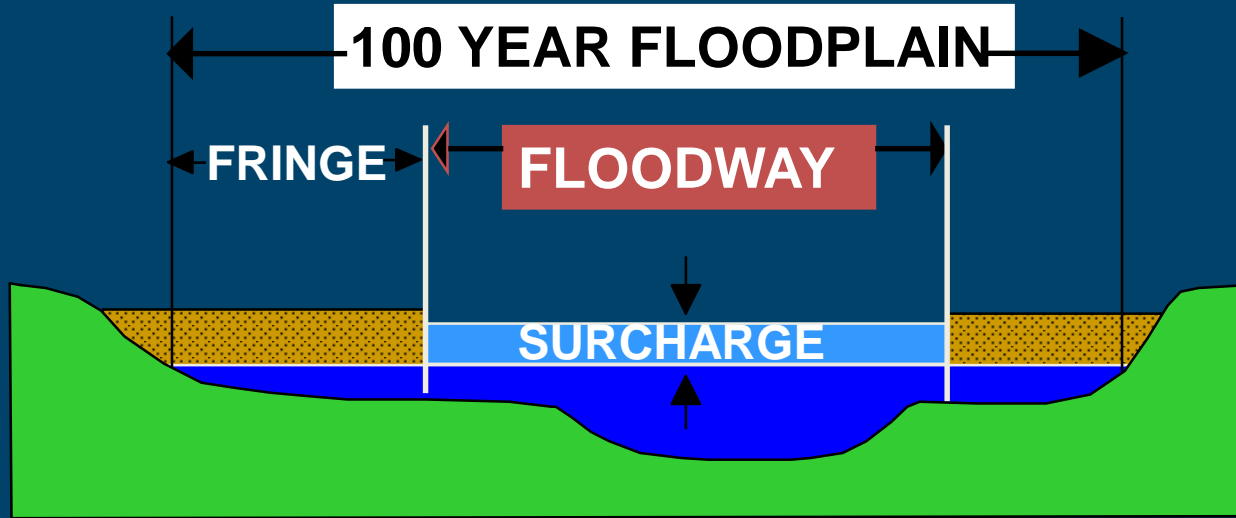
- Maps updated in;
 - 1981
 - 1987
 - 1992
 - 2006
- 2006 maps – 1st instance of ‘Future Conditions’



Definitions

- Floodway – innermost portion of the regulated floodplain, most restrictive section.
- Floodway Fringe – area outside the floodway but still regulated

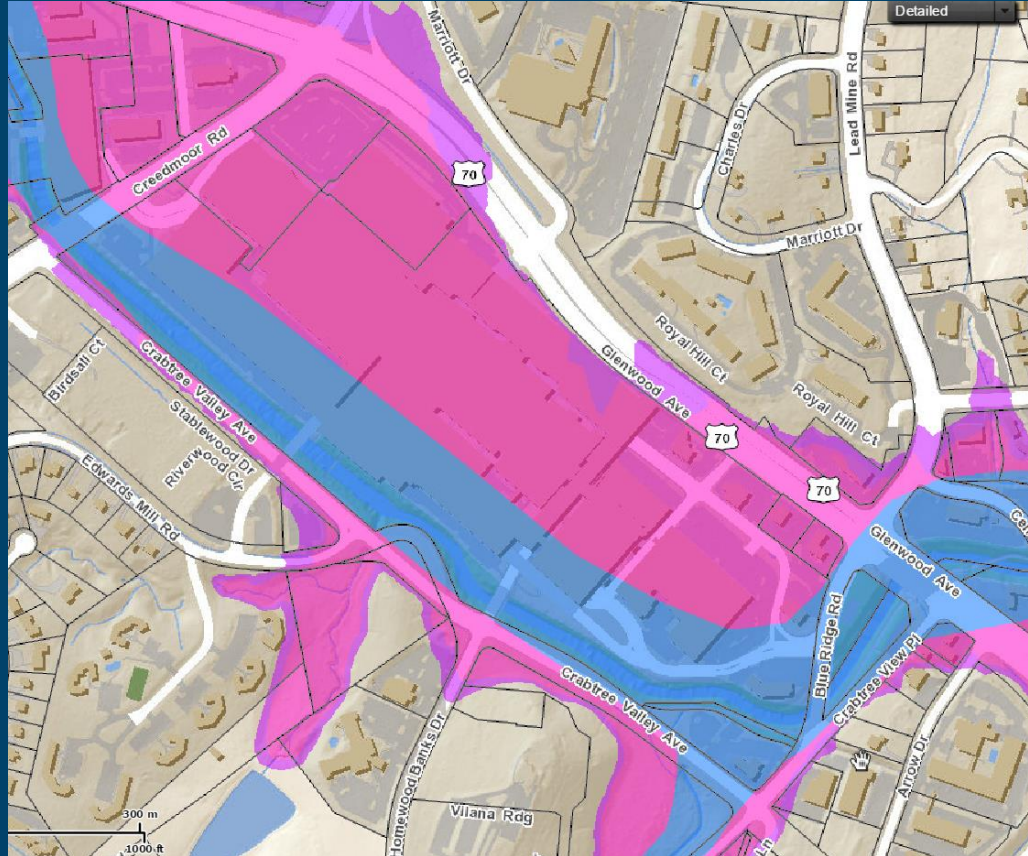
Floodway Schematic



**FLOODWAY + FLOODWAY FRINGE = 100
YEAR FLOODPLAIN
SURCHARGE NOT TO EXCEED 1.0 FOOT**

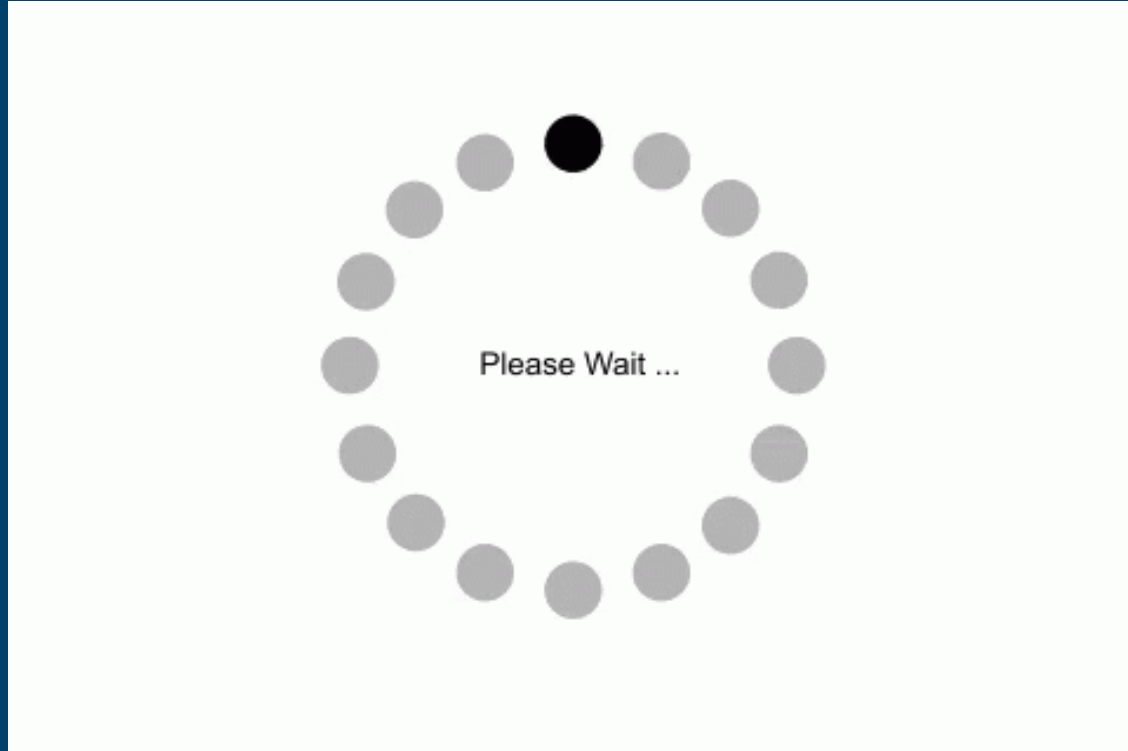


Raleigh's Current Mapping





NEW FLOOD MAPS.....





Raleigh's Current Regulations

- No fill or obstruction allowed in the floodway (FEMA Standard)
- For residential structures, finish floor must be 2 ft above the 100 year flood elevation (all plumbing, electrical and mechanical must be above this elevation as well)
- Only 50% of the floodway fringe can be filled or obstructed**
- Last Major Update was 2006



Raleigh's Current Regulations





Raleigh's Current Regulations

- Commercial structures can be elevated as with residential structures or they can be floodproofed to 2 feet above 100 year flood elevation
- All buildings must comply with International Building Code with regards to building in a floodplain



Raleigh's Current Regulations





Last time we updated the Flood Rules! (photo credit; Ben Brown 2006)





Raleigh's Current Regulations (the other 50%)

- 50% Substantial Improvement or Substantial Damage
 - Any building renovations that exceed 50% of the building value, entire structure **MUST** comply with current flood regulations
 - 5 year rolling calendar
 - Covers improvement or repairs



Raleigh's Current Regulations





Raleigh's Current Regulations

- THIS





Raleigh's Current Regulations

- TO THIS IS COSTLY....



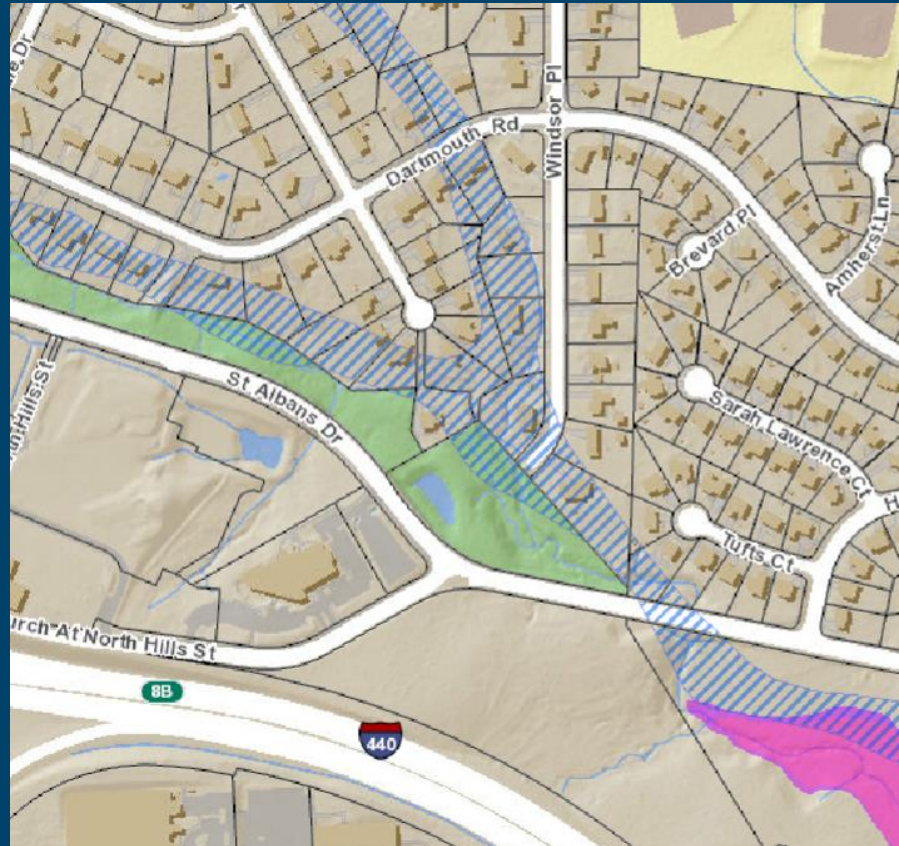


Raleigh's Current Regulations

- Beyond FEMA floodplain boundaries, Raleigh enforces flood prone soils areas and floodprone areas identified in watershed studies
- Upon Development, require detailed flood studies for streams draining > 100 acres



Raleigh's Current Regulations



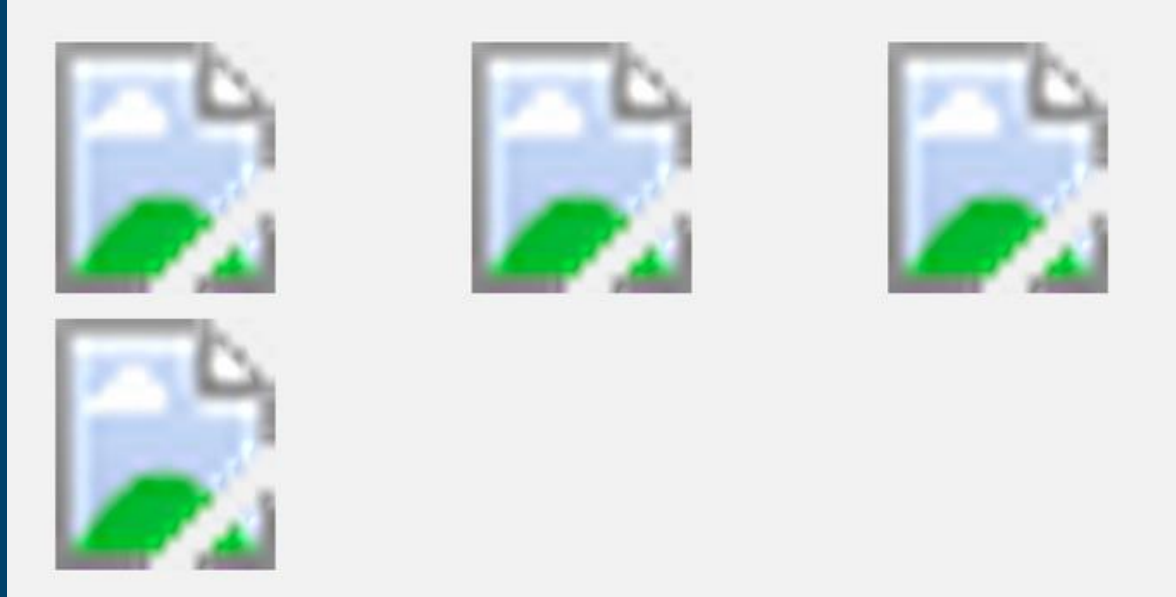


Raleigh's Current Regulations

- Streets or driveways crossing watercourses in flood prone areas;
 - Over 10 acres of Drainage Area BUT not in a FEMA floodplain, MUST pass all storms without increase.
 - In FEMA floodplain, there is one foot of increase allowed**
 - Street in regulated discharge floodplain (downstream of Falls Lake Dam) must be at or above the 100 year storm elevation.

****must comply with any other federal procedures for such an increase**

Brace Yourselves.....



**Picture broken for copyright reasons

STATISTICS ARE COMING.....



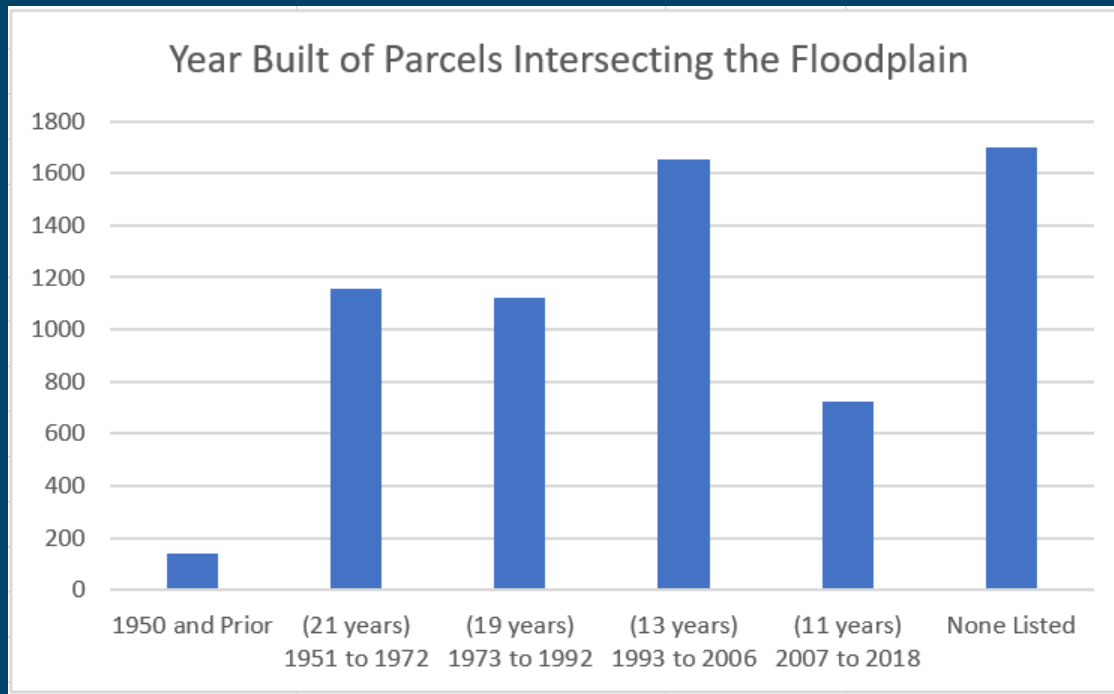
Raleigh's Current Demographics

- In FEMA Floodplain
 - 3,179 buildings or 1.9% of all buildings
 - 6,490 parcels or 4.4% of all parcels
 - Total Acreage in FEMA Floodplain – 21,897 ac
 - 548 parcels are completely in the floodplain

If your parcel is intersected by floodplain, on average it is taking up 36.3% of that parcel



Raleigh's Current Demographics



*based on Wake County Tax Data



Raleigh's Current Demographics

Amount of Floodplain per Zone Class

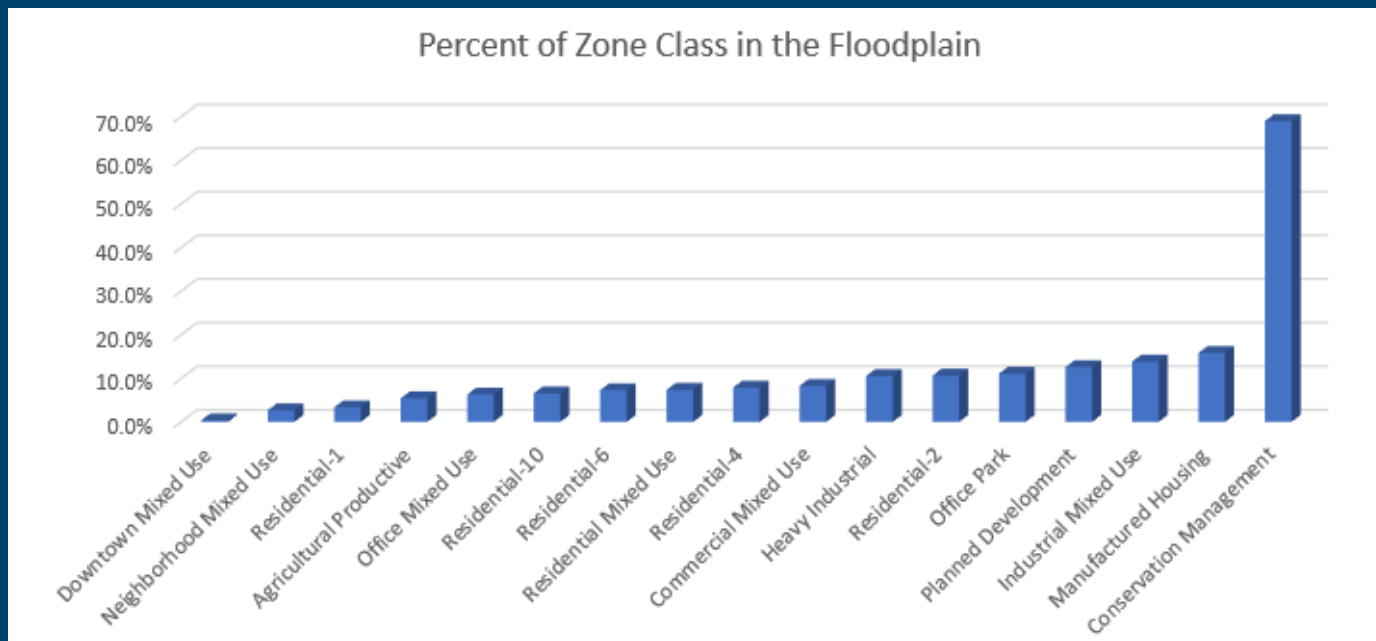
*All Calculations are Approximate

<u>All Zone Types</u>	<u>Acreage of Floodplain within Each Zone Class</u>	<u>Total Acreage of Each Zone Class</u>	<u>Percent of Zone Class in the Floodplain</u>
Downtown Mixed Use	2.1	582.0	0.4%
Neighborhood Mixed Use	20.2	762.2	2.6%
Residential-1	162.8	4,854.4	3.4%
Agricultural Productive	105.7	1,957.2	5.4%
Office Mixed Use	499.7	7,961.1	6.3%
Residential-10	654.0	10,020.0	6.5%
Residential-6	1,258.8	17,306.3	7.3%
Residential Mixed Use	285.1	3,884.9	7.3%
Residential-4	3,156.8	40,119.1	7.9%
Commercial Mixed Use	475.4	5,765.4	8.2%
Heavy Industrial	345.0	3,280.6	10.5%
Residential-2	217.1	2,044.2	10.6%
Office Park	59.8	540.4	11.1%
Planned Development	556.9	4,429.9	12.6%
Industrial Mixed Use	1,345.2	9,741.7	13.8%
Manufactured Housing	129.4	818.8	15.8%
Conservation Management	1,406.7	2,039.8	69.0%
Total Acreage	10,680.9	116,108.3	



Raleigh

Raleigh's Current Demographics





Raleigh's Current Demographics

Amount of Floodplain Per Residential Zone Class

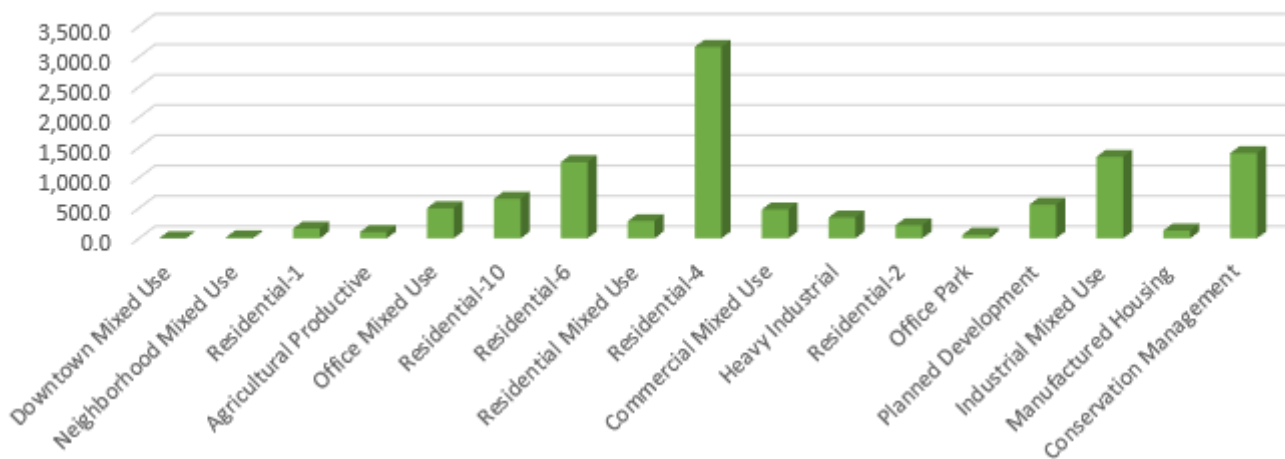
*All Calculations are Approximate

<u>Residential Zone Types</u>	<u>Acreege of Floodplain within Each Residential Zone Class</u>	<u>Total Acreege of Each Residential Zone Class</u>	<u>Percent of Zone Class in the Floodplain (Residential)</u>
Residential-1	162.8	4,854.4	3.4%
Residential-2	217.1	2,044.2	10.6%
Residential-4	3,156.8	40,119.1	7.9%
Residential-6	1,258.8	17,306.3	7.3%
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Neighborhood Mixed Use	20.2	762.2	2.6%
Commercial Mixed Use	475.4	5,765.4	8.2%
Office Mixed Use	499.7	7,961.1	6.3%
Total Acreege	6,859.5	93,536.6	



Raleigh's Current Demographics

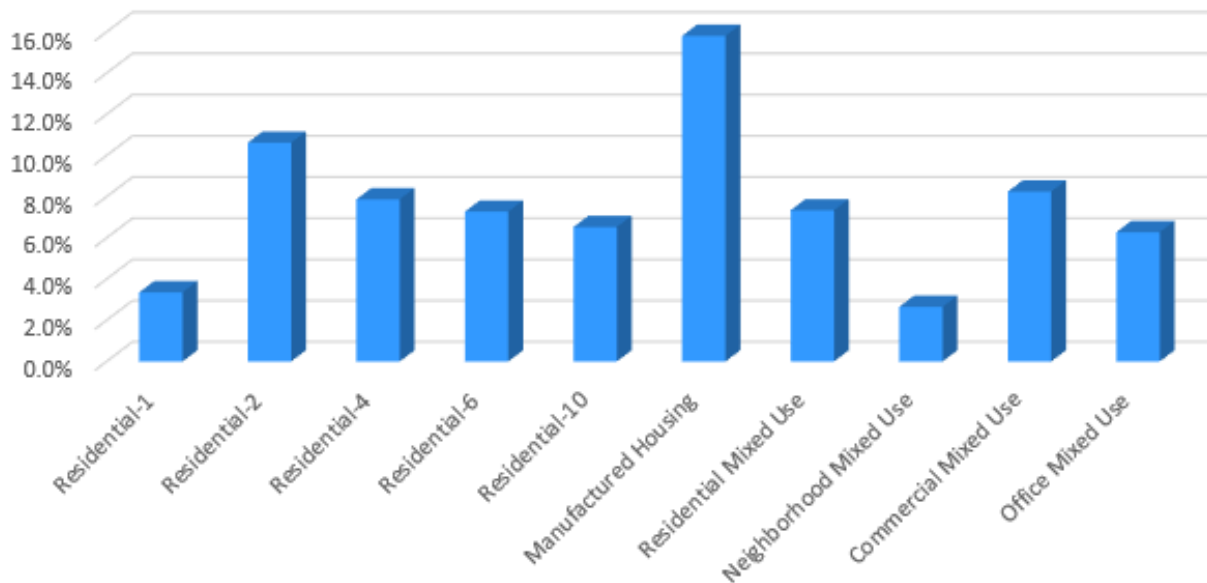
Acreage of Floodplain within Each Zone Class





Raleigh's Current Demographics

Percent of Zone Class In Floodplain (Residential Zone Classes)

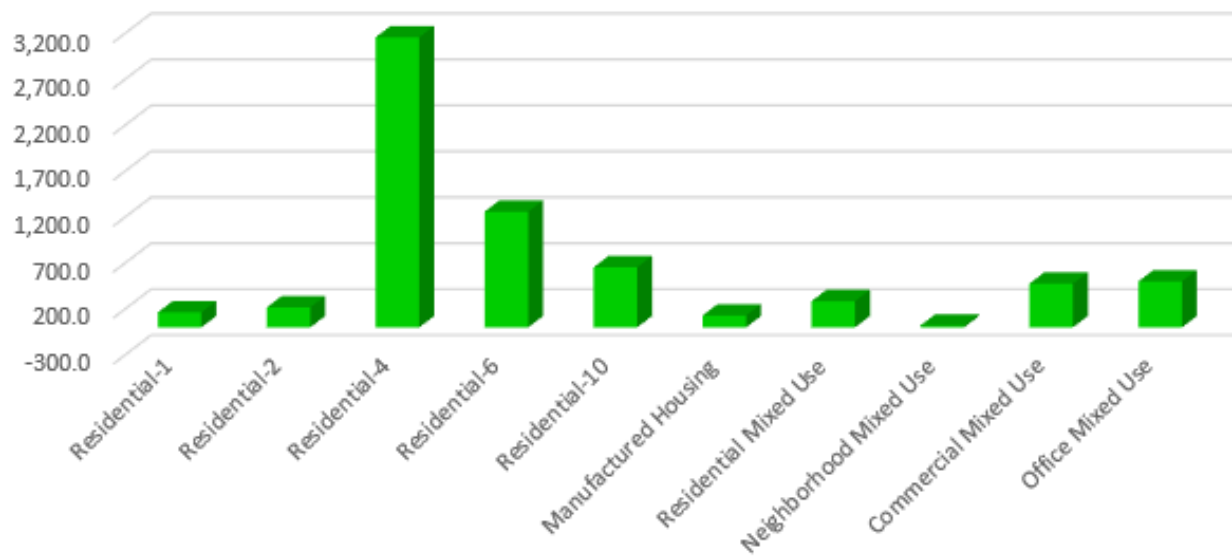




Raleigh

Raleigh's Current Demographics

Acreeage of Floodplain within Each Residential Zone Class





Raleigh

Flood Statistics

- 548 parcels are 100% within regulatory floodplain:
 - 132 parcels were developed since 2006
 - 47 are vacant
 - 348 are residential
 - 39 of these properties had loss claims since 2006 (110 citywide)
 - 408 properties are less than 0.5 acres
 - 4% of these properties are government owned
 - Map (separate)



Flood Statistics

- 110 parcels are on the repetitive loss list
- 39 of which are 100% in the floodplain
- 45 parcels haven't had a claim since 2006
- 71% of repetitive loss parcels are 75% + in the floodplain



Commission Recommendations

- No development would be allowed in the floodway fringe
- Change current 50% Substantial Building Value restriction to 30% of the building value over 5 years
- Use 2 vertical foot building restriction line for newly platted residential lots
- Maintain dry access to all habitable structures during the 100-year flood event for all new roadways
- Require local detailed flood studies for all unstudied streams draining 25 acres or more

Questions



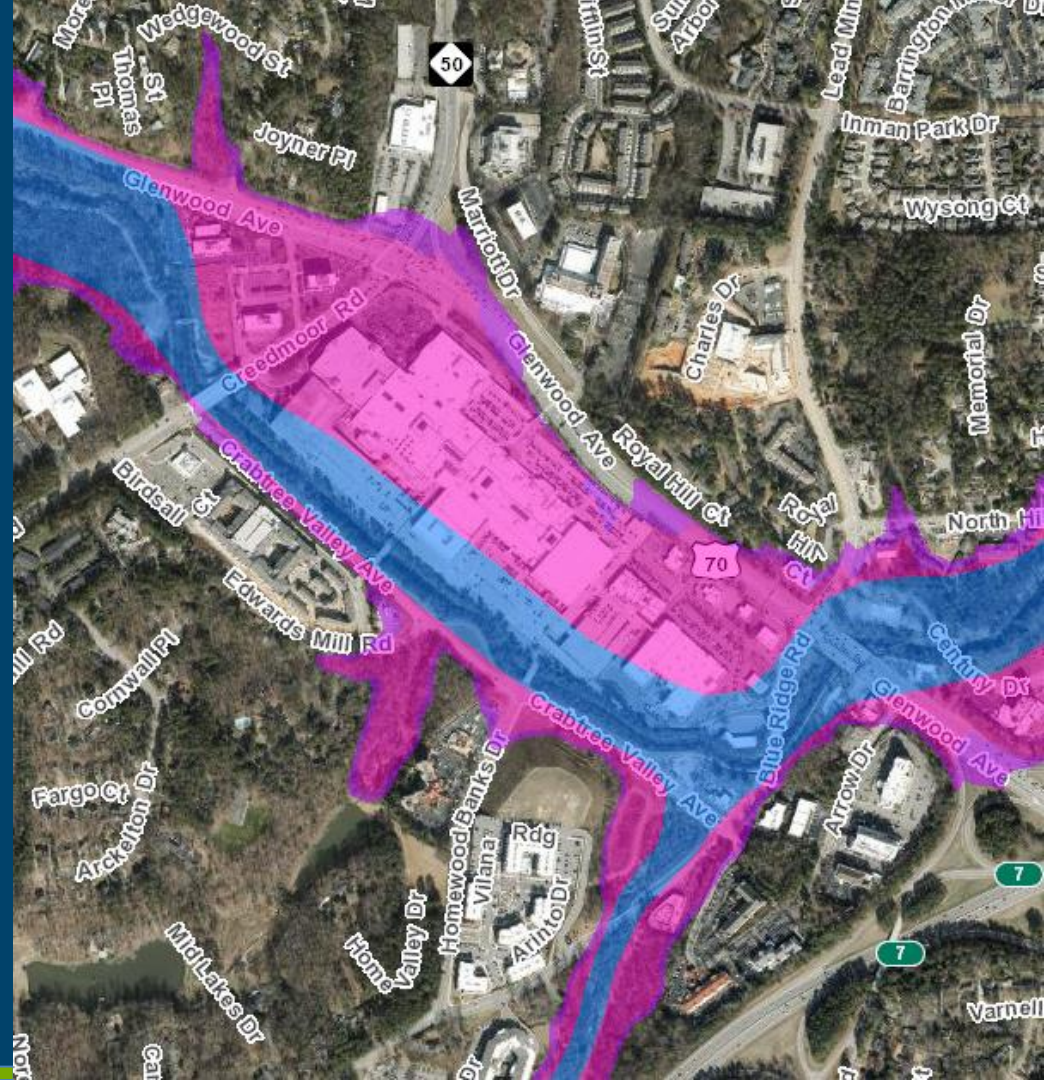
ENGINEERING SERVICES

FLOOD PRONE REGULATIONS

Stakeholder Group
Meeting Number 1
April 11, 2019



Raleigh





Purpose of Assembling Stakeholders

- Motion made by Council Member Stewart and approved by City Council (October 16, 2018): “...direct the Stormwater Management Advisory Commission to review the city’s current floodprone area regulations and recommend possible changes that would improve protection for existing and future development for large flooding events. Specifically included is the direction to consider a prohibition on new development in the 100-year floodplain.”
- In addressing this motion, the Stormwater Management Advisory Commission (SMAC) desires to seek input from a full range of community representatives and interests who are involved with or impacted by changes in the floodprone area regulations.



Since the Motion Was Made

- **November 2018 Stormwater Management Advisory Commission (SMAC) Meeting:** Review of Current City Regulations
- **December 2018 SMAC Meeting:** Review of Raleigh Floodplain Demographics and Other Community Regulations
- **January 2019 SMAC Meeting:** Review of Raleigh Data on Properties in Floodplain and Potential Regulatory Changes to Consider
- **February 2019 SMAC Meeting:** Confirmation of Regulatory Changes to be Considered, and Recommendations of Stakeholders Group Process, including Proposed Representation



Stakeholder Group Representation

- Environmental Groups
- Commercial Property Owners
- Residential Property Owners
- State Insurance/Floodplain Representatives
- Private Attorneys
- Private Engineers
 - Land Development
 - Flood Engineers
- Home Builders
- Outside Municipal Staff
- Real Estate Agents

Is Any Group or
Interest Missing?



Objectives of Stakeholder's Process

- Develop recommendations to SMAC for changes in the City of Raleigh Floodprone Area Regulations to “improve protection for existing and future development for large flooding events;”
- Gain consensus on recommendations to the degree possible;
- Acknowledge areas where consensus was not possible;
- SMAC will review, comment on, and/or endorse recommendations as appropriate and bring them to City Council



Roles and Responsibilities

- Wayne Miles, Stormwater Program Manager – Lead Facilitator, Guide Process, Keep time
- Ben Brown, Stormwater Administrator -- City Subject Matter Expert
- Jennipher Lubik -- City Administrative Lead
- Stakeholders – Express opinions, provide ideas, debate pros & cons, vote
- SMAC Members: Provide context, commentary (please acknowledge if speaking on behalf of SMAC or as an individual)
- Other Observers: may speak at end of meeting if signed up



Proposed Timeline/Process

- Process is expected to take 4 to 5 months
- Meetings proposed to be every 2 weeks to begin, may change to monthly if possible;
- We will revisit this at the end of the meeting when we discuss scheduling subsequent meetings;
- This can be modified if needed as we proceed.



Ground Rules for Discussion*

- Listen respectfully, without interrupting.
- Listen actively and with an ear to understanding others' views. (Don't just think about what you are going to say while someone else is talking.)
- Criticize ideas, not individuals.
- Commit to learning, not debating. Comment in order to share information, not to persuade.
- Avoid blame, speculation, and inflammatory language.
- Allow everyone the chance to speak.

** from U of Michigan, Center for Research on Learning and Teaching*

Questions

