

# Flood Damage Reduction Task Force

Presentation to Buncombe County Commissioners

September 4, 2007



Asheville – Buncombe Flood Damage  
Reduction Task Force



# What Is The Problem?



**Flooding in Asheville, 2004 Hurricanes**

# Background

- Nine major floods have occurred in the past 100 years. The most serious were in 1916 and 2004, but there have been damaging floods on an average of every 20 years.
- Building has occurred first along the river because that is the accessible land and the most easily traversed.
- Census data indicates that there will be an additional 30,000 people in Buncombe County over the next 20 years, putting continued pressure to build along the river in the floodplain.



# Task Force Mission

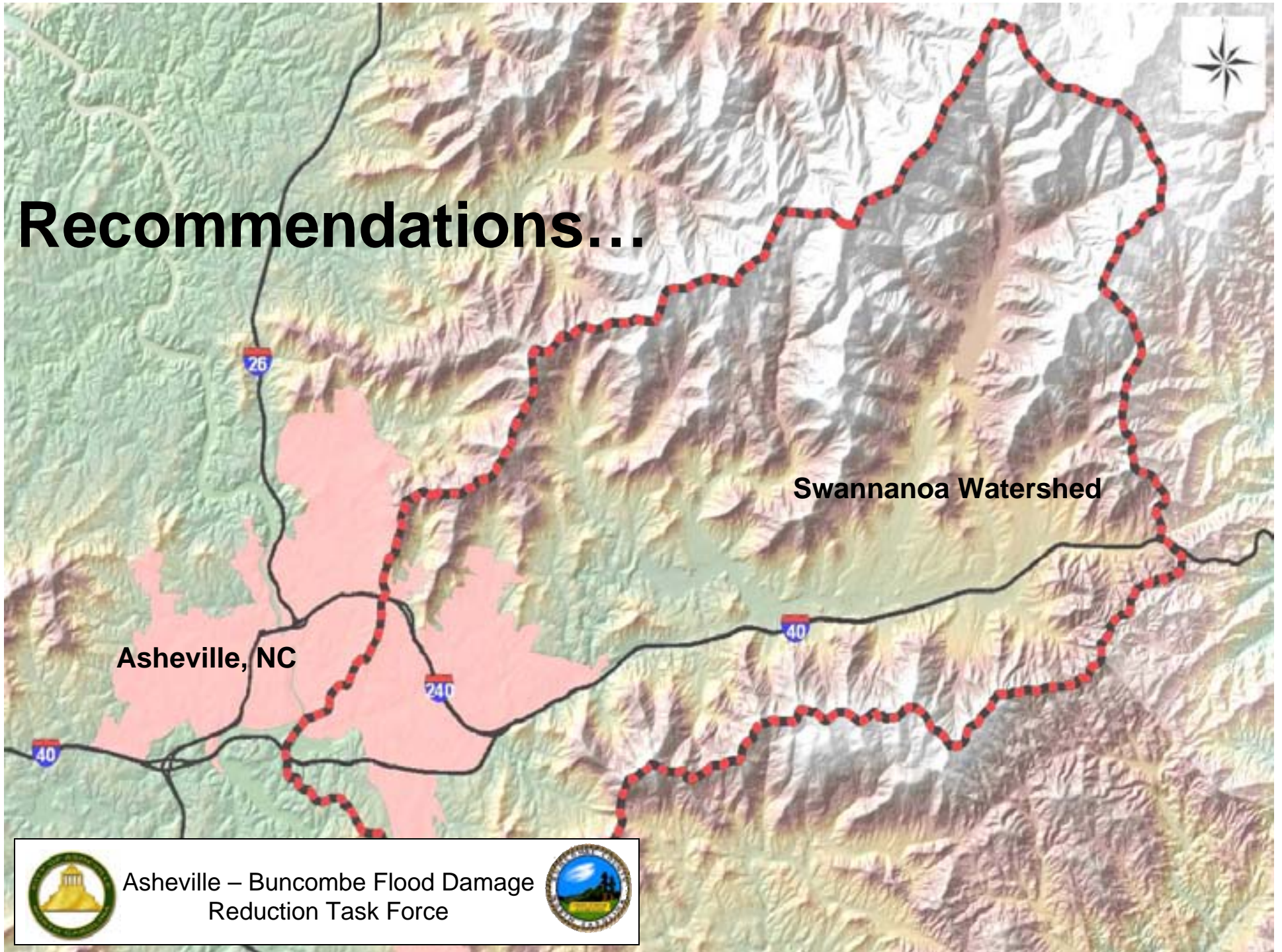
Establish a regional approach and long-range plan for flood damage reduction, floodplain protection and watershed management. Base the approach and plan on best management models, which integrate objectives of flood control, transportation, economic development, land use and community planning, recreation and environmental preservation.

## Approach

- Gather information from subject matter experts on a broad spectrum of topics including flooding, development, transportation, etc.
- Analyze strategies to reduce the impacts of future flooding
- Analyze current development patterns and the impact on future flooding



# Recommendations...



Asheville, NC

Swannanoa Watershed



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# Recommendations to Reduce Flood Damage

- **Plan and implement physical measures to reduce flooding**
  - Keep it out! Slow it down! Get out of the way!
  - Act now to save lives, property and money
  - Plan based on a future regional build-out scenario
- **Education**
  - Decision makers
  - Builders and Developers
  - General Public
- **Communication between and across communities**
  - Electronic communication from rain and stream gauges widely and easily available
  - Ongoing regional meetings of planning agencies for emergency
  - Expand Flood Warning System, especially below North Fork dam



# To plan and implement physical measures to reduce flooding ...

- **Keep it Out**
  - Initiate incentives or requirements to ensure low impact development
  - Stormwater management
  - Reduction in impervious surface and steep slope development
- **Slow it Down**
  - Retention, reservoir, impoundments
  - Channel and conveyance Improvements
  - Other Engineered and Structural Improvements
- **Get Out of the Way**
  - “Smart” Development, both public and private, in flood hazard zone
  - Encourage removal of flood-prone structures
  - Education and Outreach
  - Emergency Response and Warning System



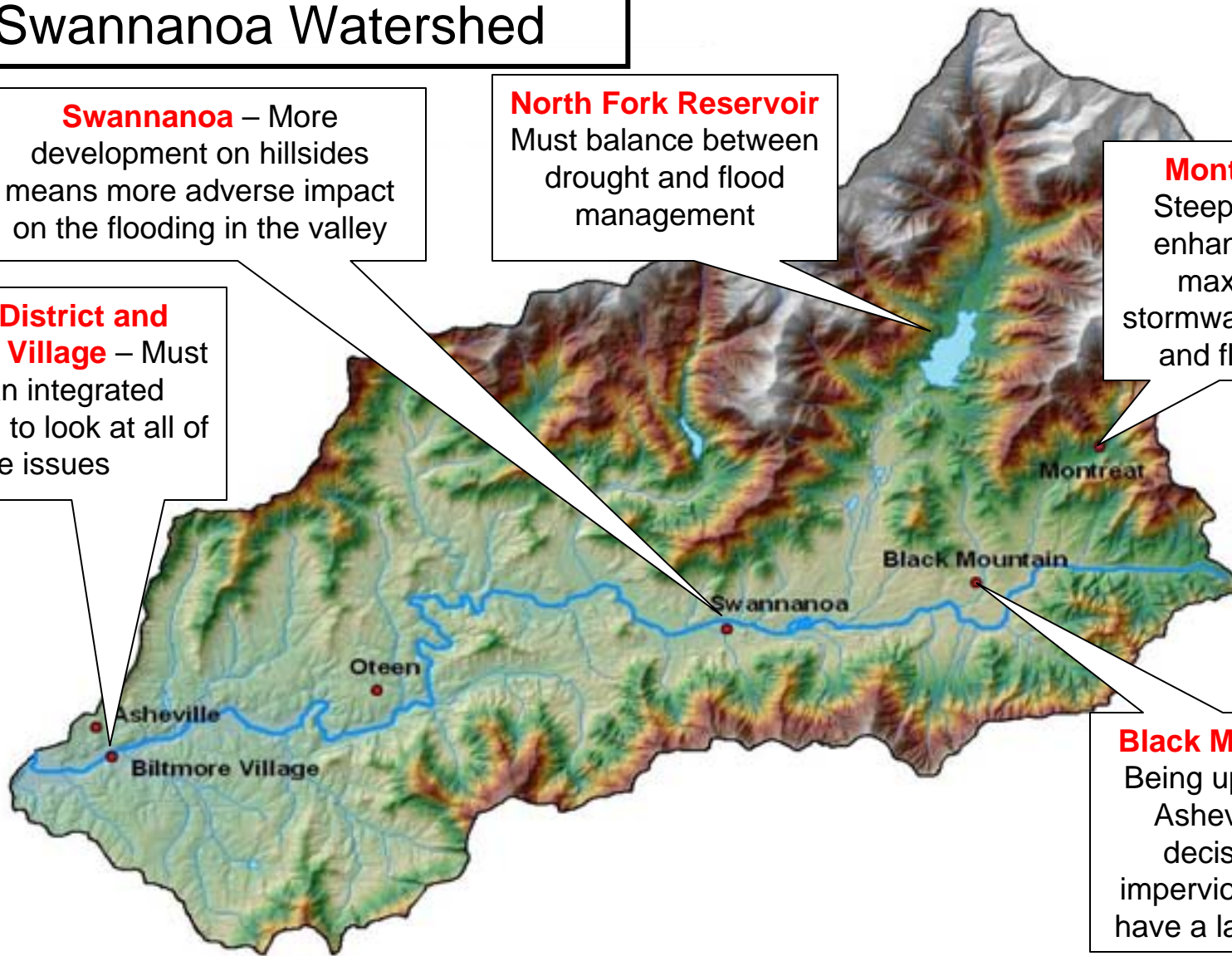
# The Swannanoa Watershed

**Swannanoa** – More development on hillsides means more adverse impact on the flooding in the valley

**North Fork Reservoir**  
Must balance between drought and flood management

**Montreat** – Steep slopes enhance and maximize stormwater runoff and flooding

**River District and Biltmore Village** – Must take an integrated approach to look at all of the issues



**Black Mountain** – Being upstream of Asheville, any decisions on impervious surface have a large impact

**We are all connected by the watershed and need to “share in the pain” and the solution. For this reason, we need a regional approach.**



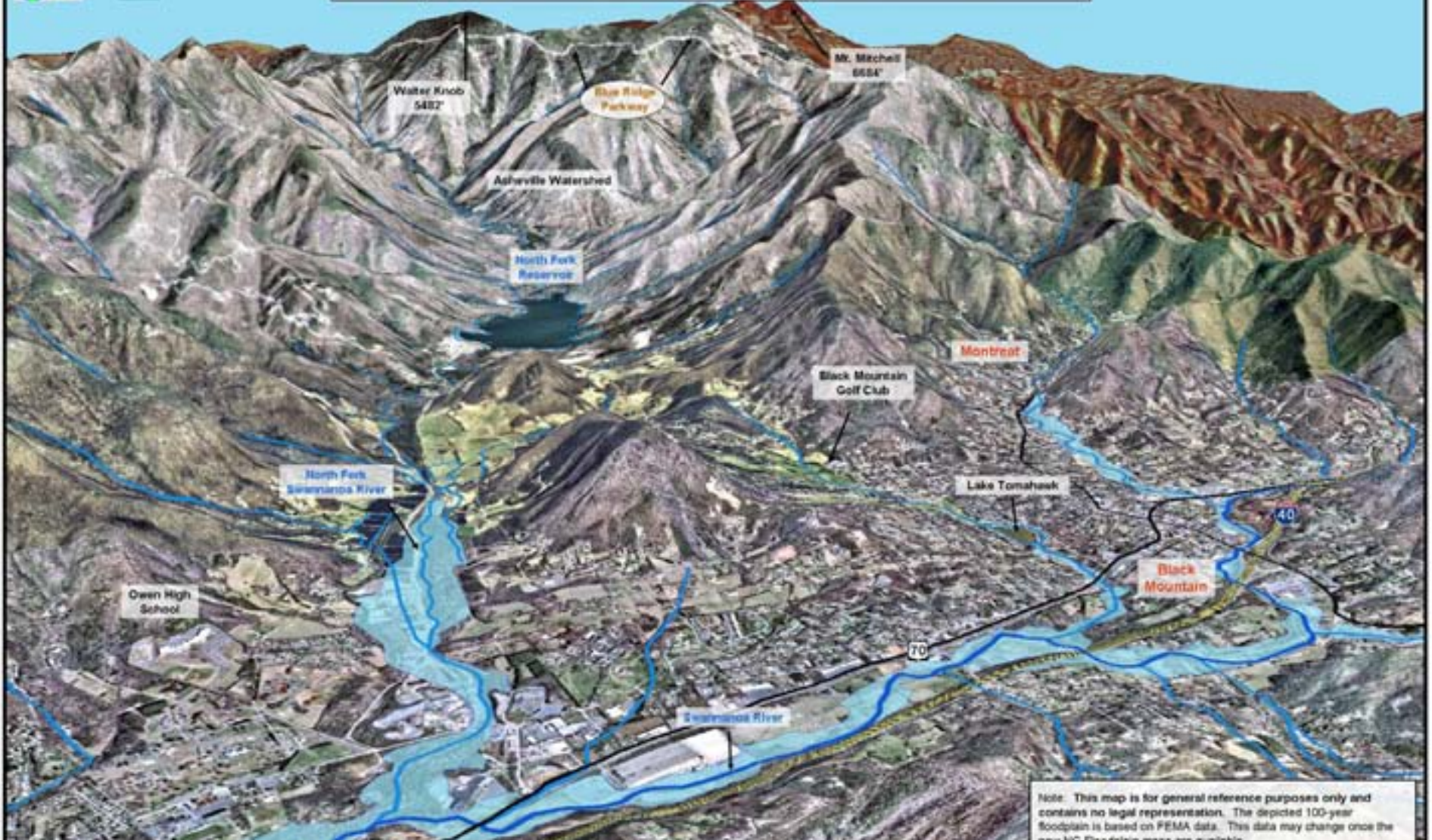
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### 3D Perspective of Black Mountain and the Upper Swannanoa Watershed



Note: This map is for general reference purposes only and contains no legal representation. The depicted 100-year floodplain is based on FEMA data. This data may change once the new NC Floodplain maps are available.

Date Source: Buncombe County GIS, FEMA, NC CGIA, USGS

Main Background Imagery is 2002 Color Orthophotography

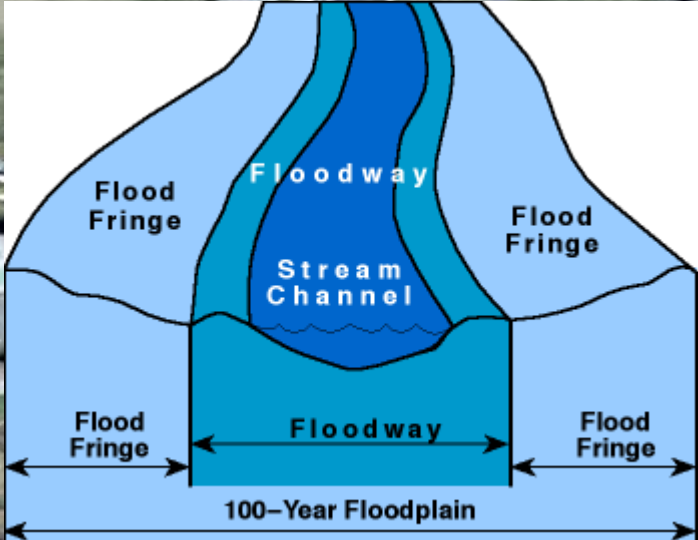
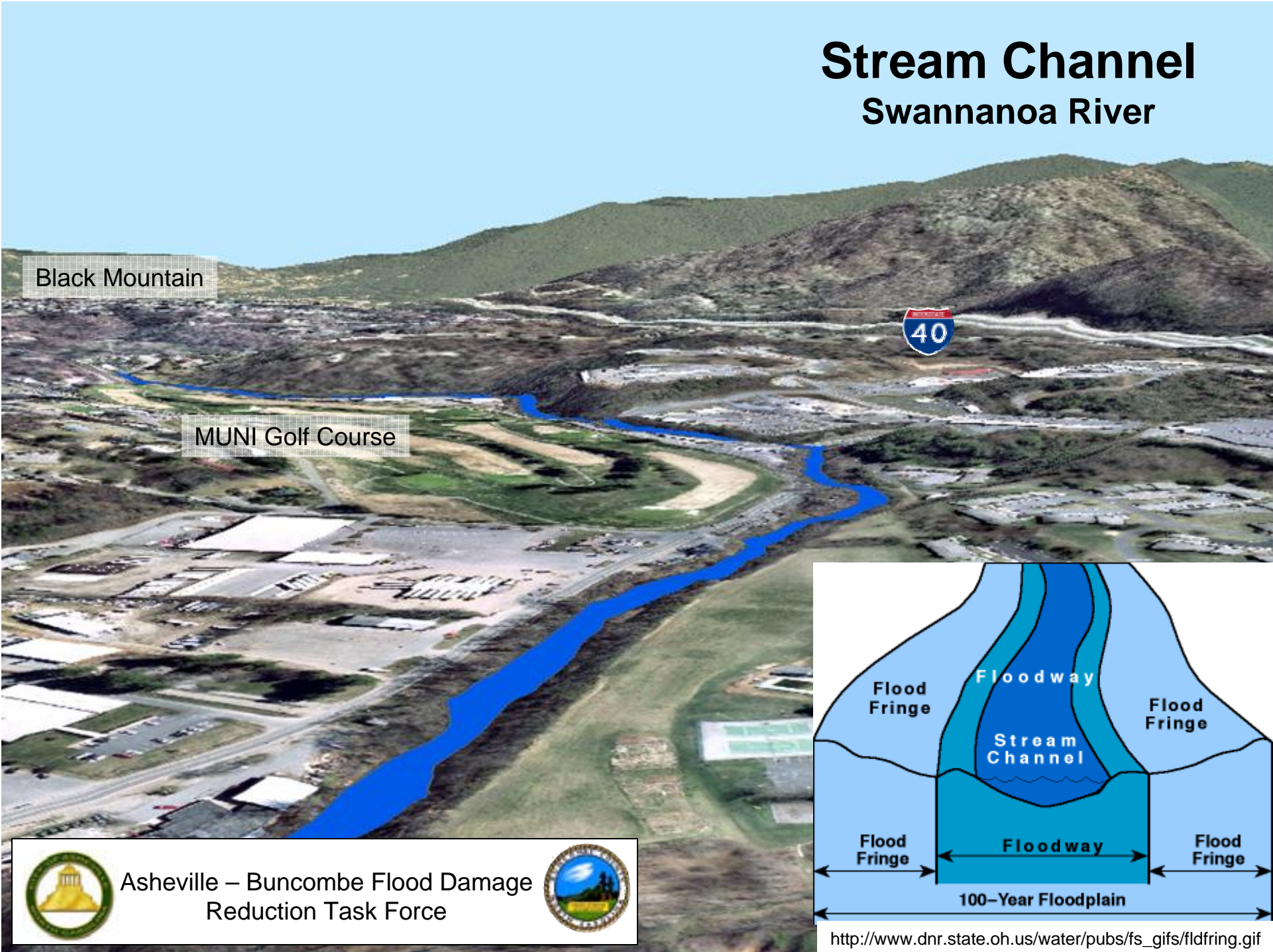
Map Not-to-Scale



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# Stream Channel Swannanoa River

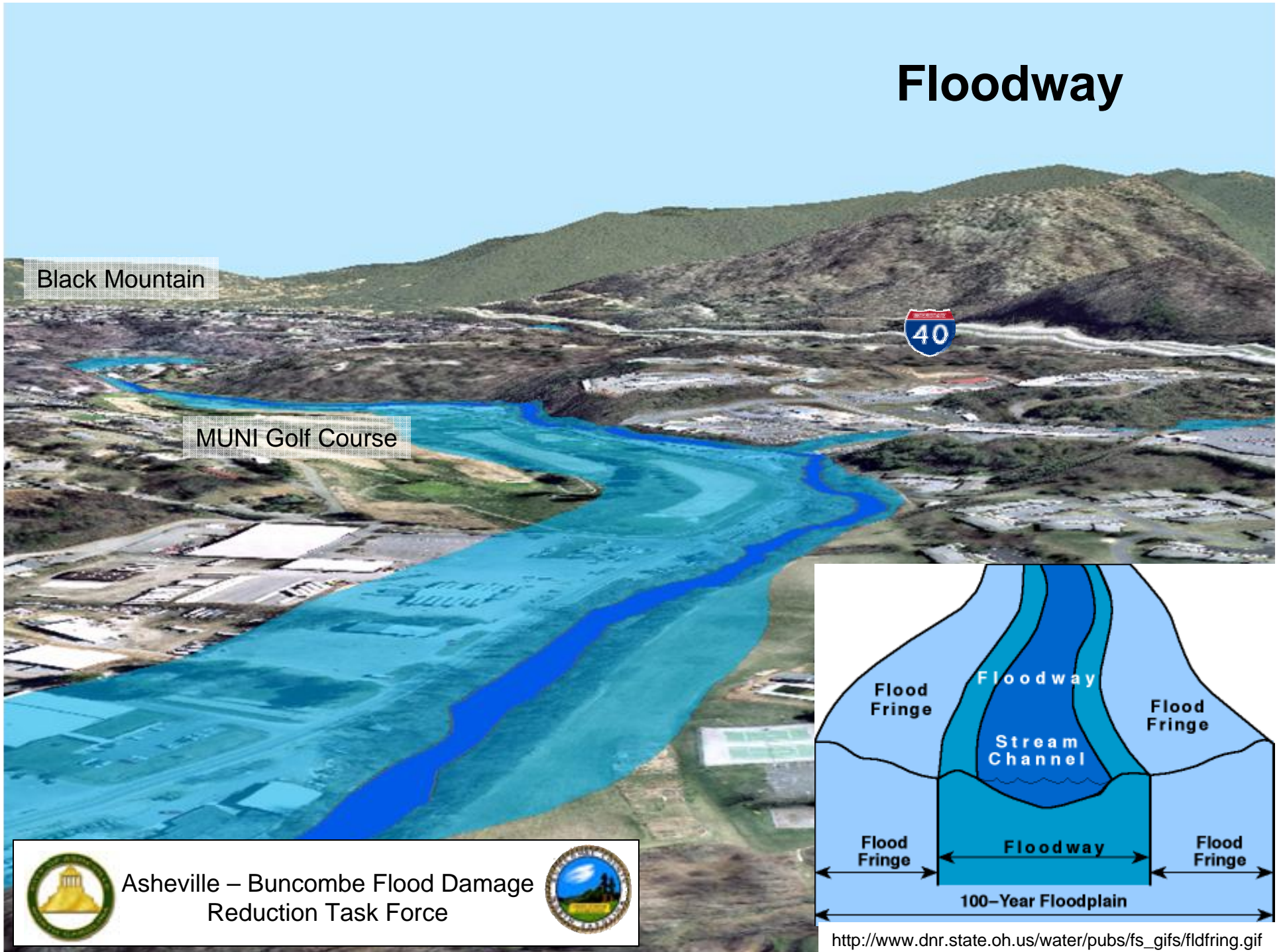


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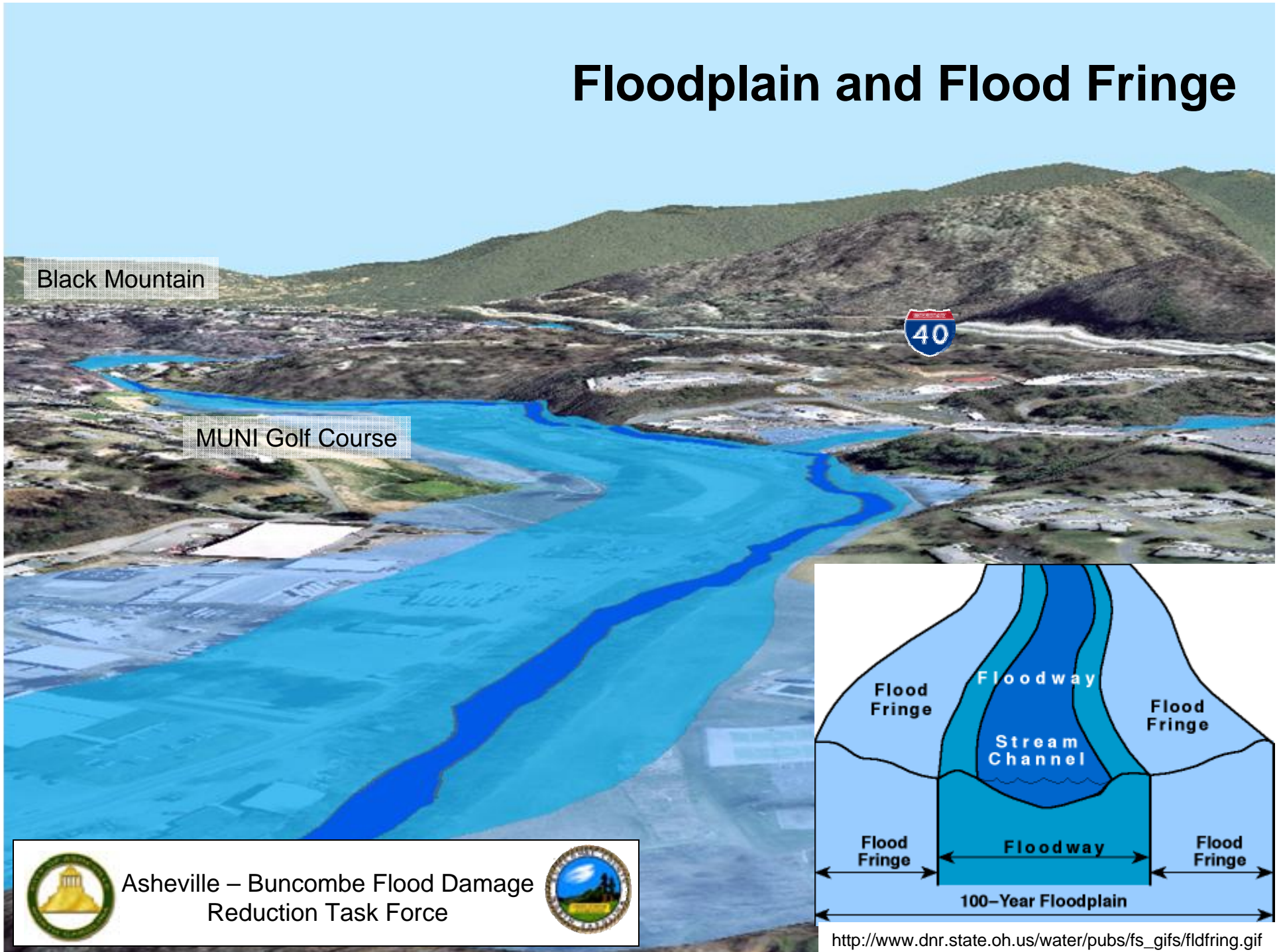


[http://www.dnr.state.oh.us/water/pubs/fs\\_gifs/fldfring.gif](http://www.dnr.state.oh.us/water/pubs/fs_gifs/fldfring.gif)

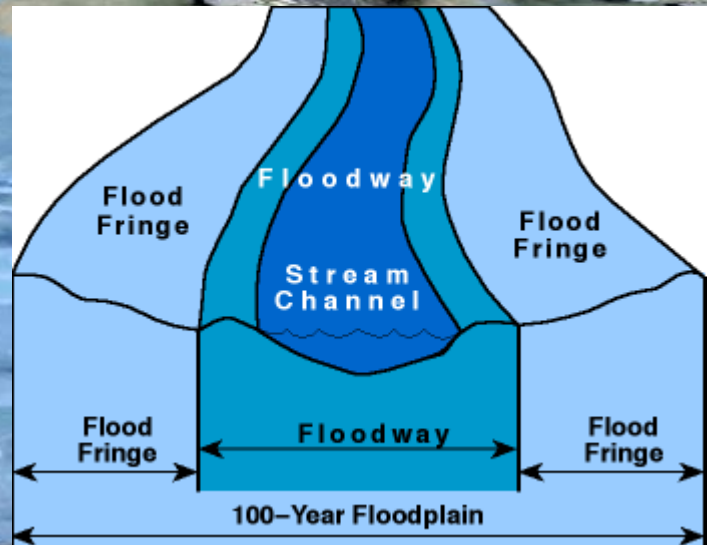
# Floodway



# Floodplain and Flood Fringe



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[http://www.dnr.state.oh.us/water/pubs/fs\\_gifs/fldfriing.gif](http://www.dnr.state.oh.us/water/pubs/fs_gifs/fldfriing.gif)

# Floodway Issues

- **No new structures in the floodway**
  - Current regulations allow buildings with a no rise certificate, but this should not be allowed along the main channel
  - Greenways allowed
  - Parking lots allowed (this is a water quality issue, not flow constriction)
- **Don't constrict channel with bridges, sewer lines, buildings**
  - New bridge on US 25 in Biltmore Village should have larger "throat"
- **Purchase key properties in floodway**
- **Better upkeep of floodway**
  - Keep it cleaned up (debris removal in the floodway in addition to stream channel)
  - Improve conveyance of streams

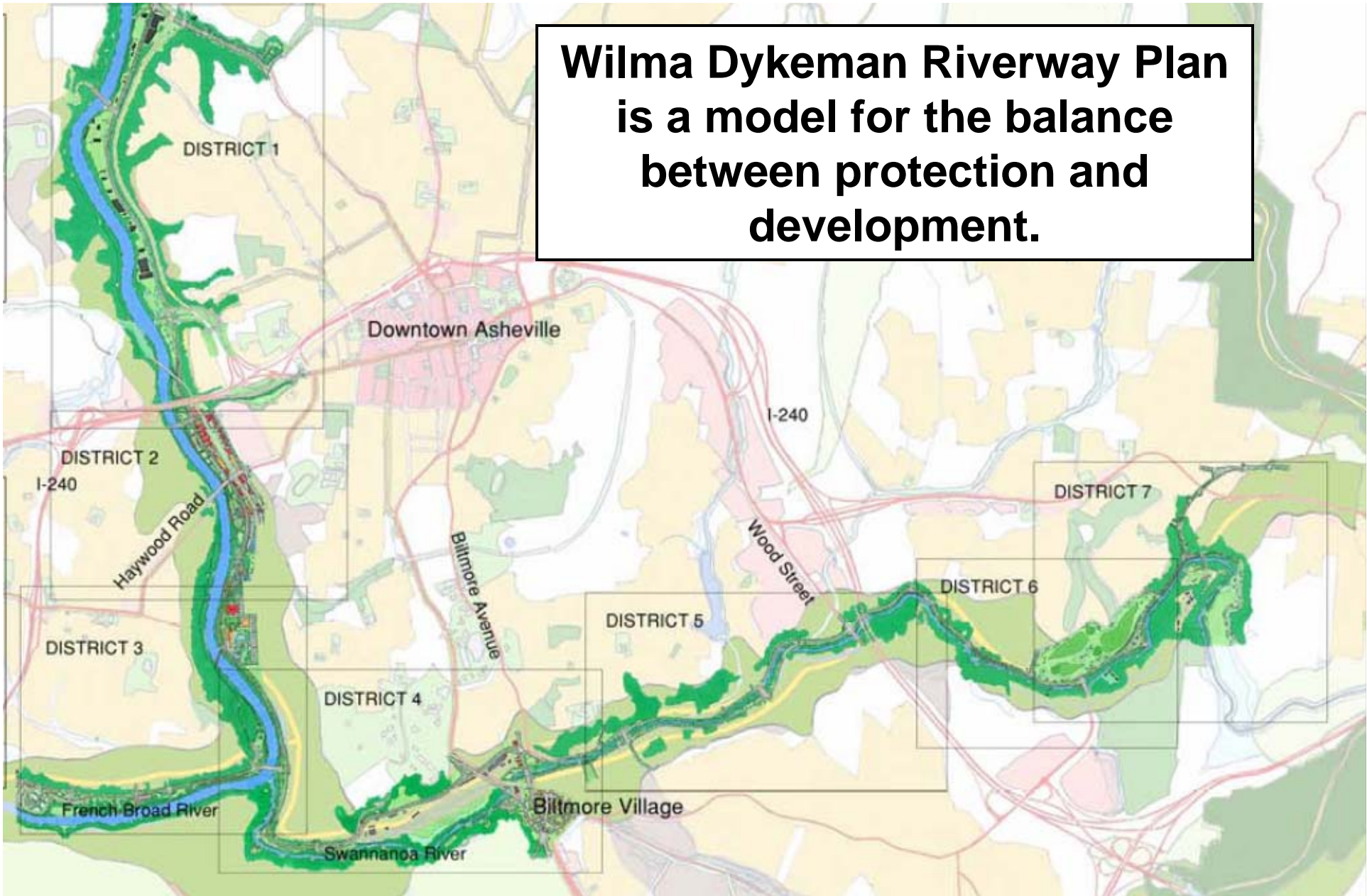


# Floodplain and Flood Fringe Issues

- **No Net Fill in the Flood Fringe**
  - **Minimum buffer (top of bank) on all streams unless a variance is granted (for example, hardship reasons on single family lots).**
    - 100 ft minimum buffer along Swannanoa and French Broad River
    - 50 ft on primary tributaries
    - 35 ft on secondary tributaries
  - **Proof of no rise studies**
- **Close the 50% improvement rule loophole by using the latest tax valuation of the structure in the floodplain**
- **Cooperate regionally to map future floodplain scenarios**
  - **Base planning and regulation on build out scenarios - the current model will soon be outdated**
  - **Require a certain amount of open space be set aside for every acre that is developed in the floodplain.**
  - **Reward developers who meet high environmental standards with a higher density development**
  - **Ensure that there is a balance between flood mitigation and economic development**

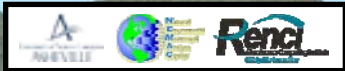


**Wilma Dykeman Riverway Plan  
is a model for the balance  
between protection and  
development.**

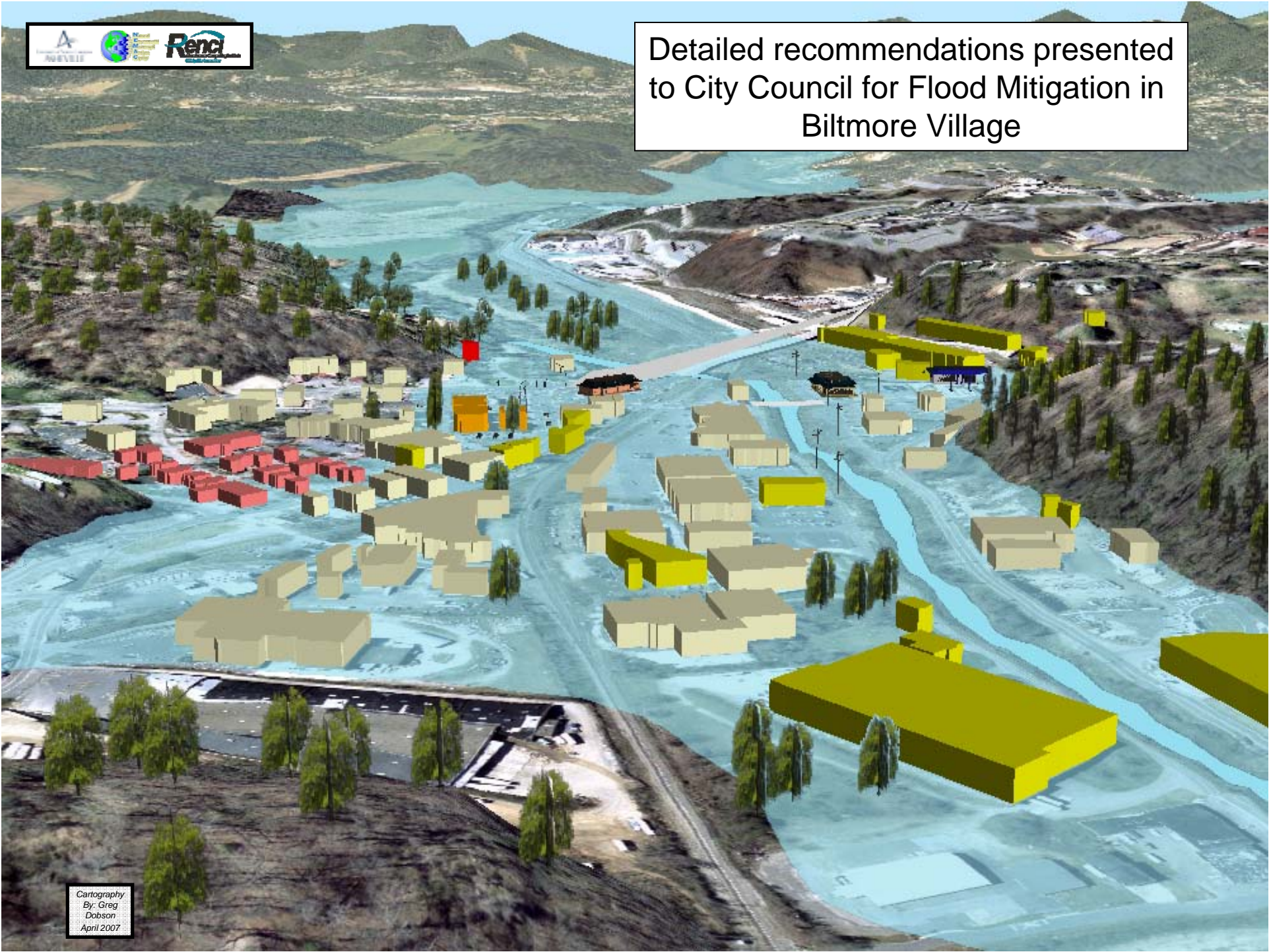


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Detailed recommendations presented to City Council for Flood Mitigation in Biltmore Village

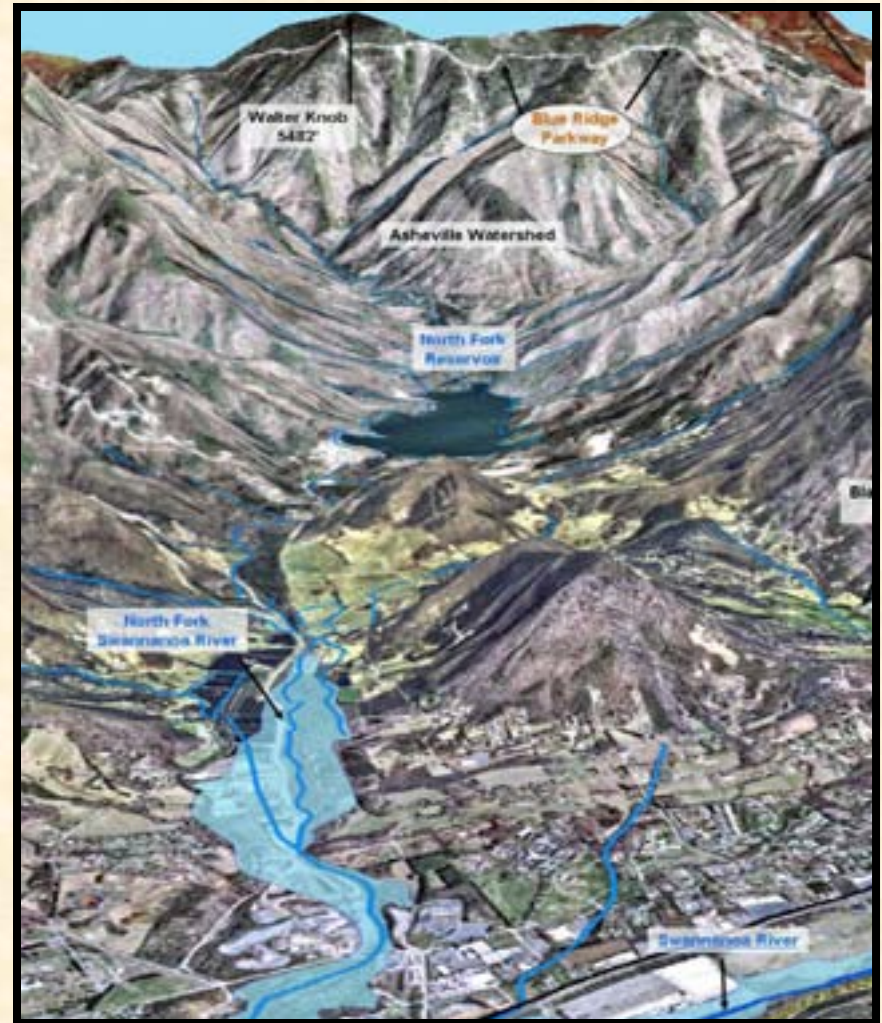


Cartography  
By: Greg  
Dobson  
April 2007



# Implement Management Plan for North Fork Reservoir

- Flood Operations Plan
  - Operate Reservoir to provide flood storage and reduce flood levels
  - Maintain drought response plan
- Emergency Action Plan
  - Protect the dam and water supply from extreme events
- Advanced Flood Warning System
  - Notify Emergency Management and Citizens



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North Fork Reservoir

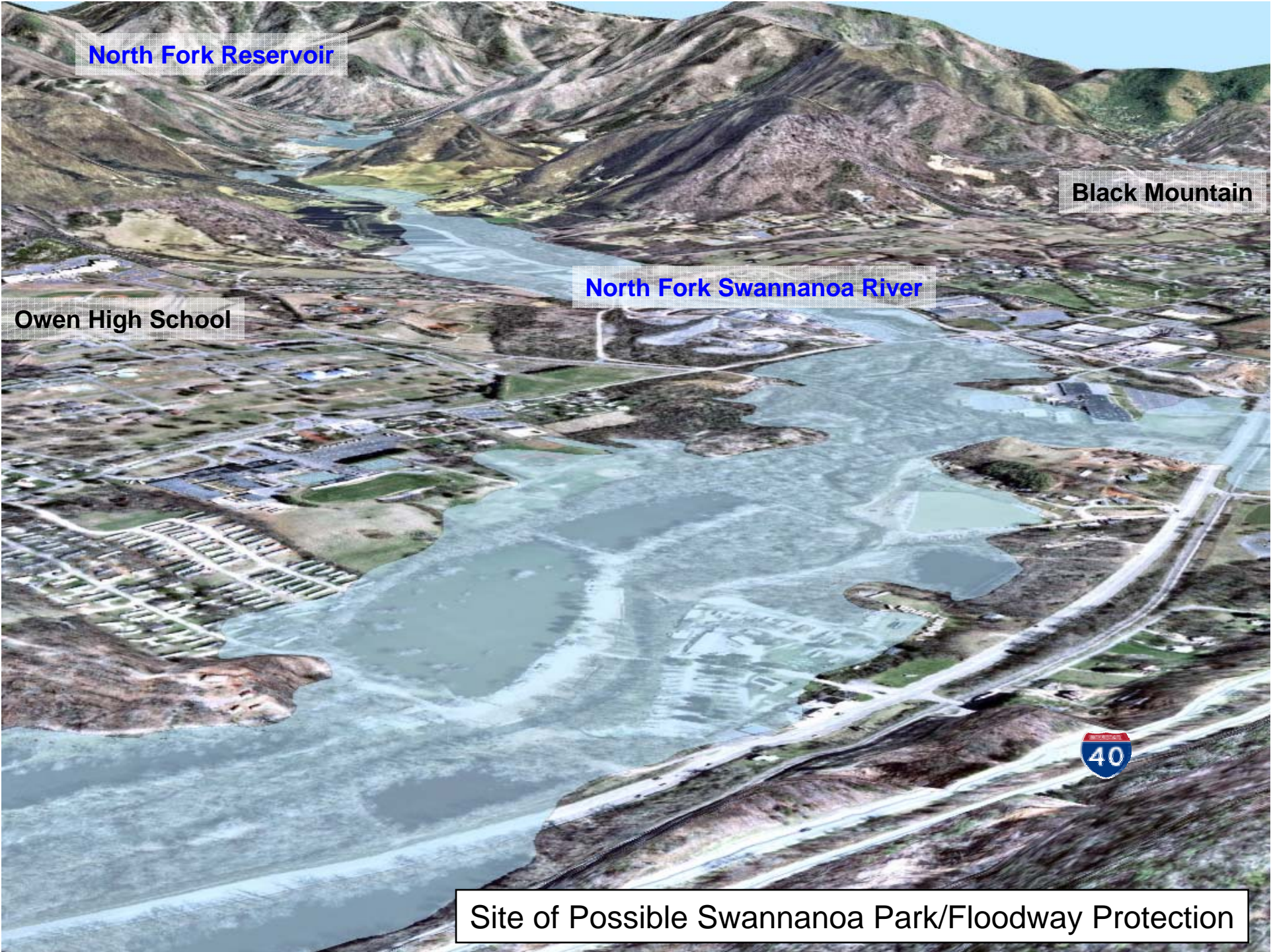
Black Mountain

North Fork Swannanoa River

Owen High School



Site of Possible Swannanoa Park/Floodway Protection



# Summary

- Working together, we can reduce the impact of flooding “inch by inch”
- We are all connected by the watershed and need to “share the pain” and the solution through a regional approach.
- We must be proactive now
  - Projections show County growing by 30,000 people in next 20 years, putting even more people and property in harm’s way
  - Severity of climate change will increase chance of severe flooding in our area
  - We cannot continue with current development plan
- There is a cost/benefit - Research has shown that for every one dollar that is spent on mitigation approximately four dollars are saved from monies that are eventually spent on correcting damages



# Thank You!

## for Buncombe County Support

- HUB support of the RENCI at UNC Asheville engagement center
- Full access to GIS information and technical support
- Active participation by many County Staff Members



# Task Force Members

Barber Melton - Coalition of Asheville Neighborhoods (CAN)  
Buzzy Cannady – City of Asheville Planning and Zoning Commission  
Carol Groben – Swannanoa Pride Community Coalition  
Chuck Tessier – Sustainable Economic Development Advisory Council  
Chuck Pickering – Biltmore Estate  
Doris Loomis - Town of Biltmore Forest  
Hartwell Carson - Riverlink  
James Fox (Vice Chair) – RENCI @ UNC Asheville, NEMAC  
Joe McKinney - Land Of Sky Regional Council  
John Cram - Biltmore Village  
Mary Leonard White (Chair) - Alderwoman, Town of Black Mountain  
McCray Coates - North Carolina Dept. Of Transportation  
Mike Goodson – Buncombe County Planning  
O’Neil Tate - Commissioner, Town of Montreat  
Starr Silvis - North Carolina Division of Water Quality

