

### How do new urbanism and smart growth support the environment from the watershed's point of view?

- Prevents pollution through vertical density and compact design.
- Orchestrates the public and private elements of place-making to exploit shared amenities and efficient use of land.
- Promotes reuse and improvement of existing built-upon areas of a city, county or crossroads.
- Facilitates tripmaking by multiple modes of transportation.
- Responds to the interlinking aspects of place-making with mutually supportive policy bundles, economic development support and codes.



90 Seconds on what conventional codes and plans give us...

## Let's look at common green elements contained in plans and codes....

- If you just put Clustering in your codes...
- If you just put Impervious cover limits in your codes...
- If you just put Mixed Use in your codes...

### Clustering



University of Connecticut

## Clustering



## Clustering



### "Environmentally Sensitive Development"

**Qualifications:** houses that cover 15% or less of the site on at least two acres or clustered housing in subdivisions

Source – Note zoning code, but stormwater permit – grants credits against stormwater requirements.

## Impervious Cover Limits



[www.Sprawlaction.org](http://www.Sprawlaction.org)

## Planned Development Mixed Use

"It is further intended that PDMU development shall be in complexes with carefully located buildings, parking and service areas, open space and use mixtures which are scaled and balanced to reduce general traffic congestion, by providing interdependent uses and uses which are compatible with adjacent and surrounding land uses."

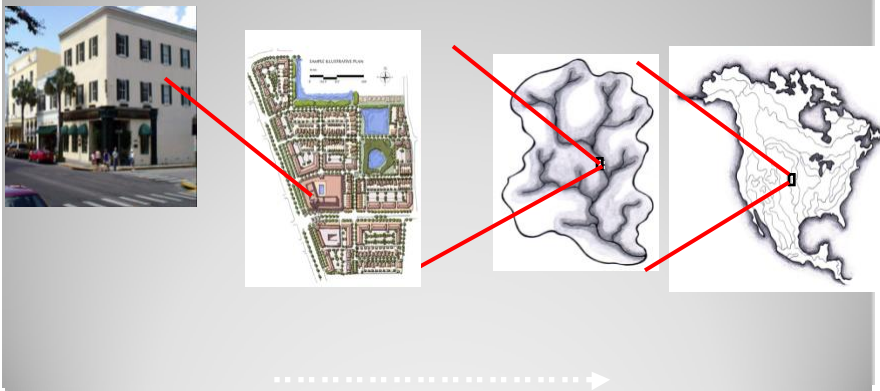


## Time Out

### Get Your Head out of the Codes for a minute

- What is all of this telling us?
- Reframe for the watershed
  - If low density isn't so great – how is higher density better?

## Program Planning at Various Scales



## Unmet Smart Growth Demand

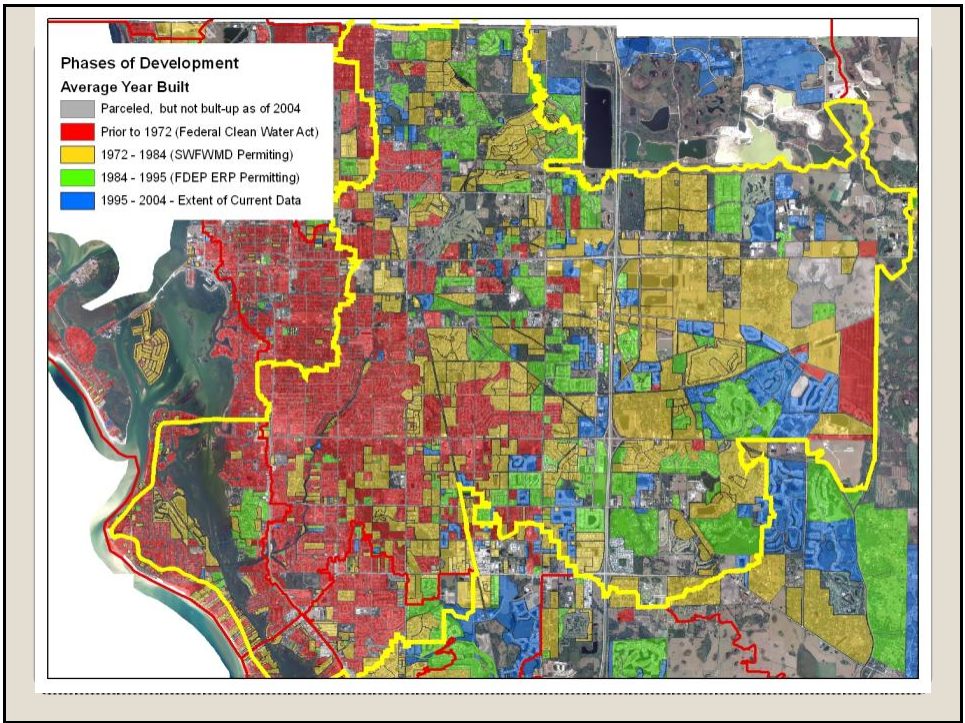
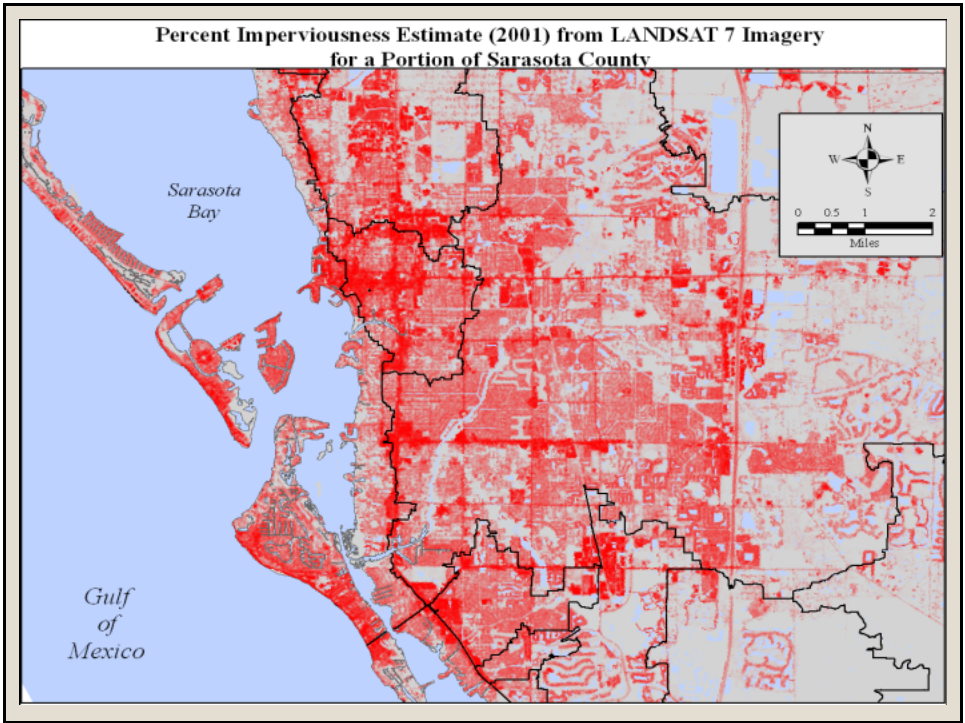
One-third of households want smart growth<sup>a</sup>  
165M households in 2040 @ 33% = 55M  
New housing demand 2000-2040 = 50M units  
If all new dwelling units were "smart growth" new  
supply would not meet demand.  
Next 100 million = 33% smart growth demand

<sup>a</sup>Gregg Logan, EPA Large-Production Builders Conference,  
January 31, 2007.

## UnUsed Impervious Supply Sarasota County Parking Lot Building Capacity

Calculation	Result
Commercial Acres <i>Ripe</i> for Redevelopment Acres by 2040	6,600
Average 25 dwellings @ 1,500sq.ft. Average 40 jobs @ 500sq.ft.	1.3FAR
<i>[With "smart parking" policies &amp; design]</i>	
Percent Residential Absorption	100%
Percent Employment Absorption	100%

Dr. Chris Nelson, U. of Utah



## What about Density?

**Scenario A:**  
1 unit/acre



Impervious cover = 20%  
Runoff/acre = 18,700 ft<sup>3</sup>/yr  
Runoff/unit = 18,700 ft<sup>3</sup>/yr

**Scenario B:**  
4 units/acre



Impervious cover = 38%  
Runoff/acre = 24,800 ft<sup>3</sup>/yr  
Runoff/unit = 6,200 ft<sup>3</sup>/yr

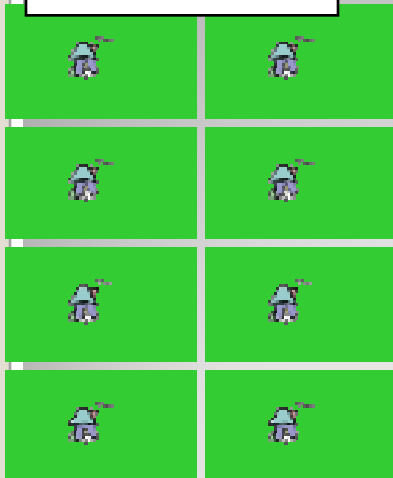
**Scenario C:**  
8 units/acre



Impervious cover = 65%  
Runoff/acre = 39,600 ft<sup>3</sup>/yr  
Runoff/unit = 4,950 ft<sup>3</sup>/yr

## Another view – 8 units at varying densities

**Scenario A: 1 unit/acre**



Impervious cover = 20%  
Total runoff = 149,600 ft<sup>3</sup>/yr  
Runoff/house = 18,700 ft<sup>3</sup>/yr

**Scenario B: 4 units/acre**



Impervious cover = 38%  
Total runoff = 49,600 ft<sup>3</sup>/yr  
Runoff/house = 6,200 ft<sup>3</sup>/yr

**Scenario C: 8 units/acre**



Impervious cover = 65%  
Total runoff = 39,600 ft<sup>3</sup>/yr  
Runoff/house = 4,950 ft<sup>3</sup>/yr

**But Planners are not dealing with 8 houses....**

Scenario A	Scenario B	Scenario C
<p>10,000 houses built on 10,000 acres produce:                      10,000 acres x 1 house x 18,700 ft<sup>3</sup>/yr of runoff =  <b>187 million ft<sup>3</sup>/yr of stormwater runoff</b>                      Site: 20% impervious cover                      Watershed: 20% impervious cover</p>	<p>10,000 houses built on 2,500 acres produce:                      2,500 acres x 4 houses x 6,200 ft<sup>3</sup>/yr of runoff =  <b>62 million ft<sup>3</sup>/yr of stormwater runoff</b>                      Site: 38% impervious cover                      Watershed: 9.5% impervious cover</p>	<p>10,000 houses built on 1,250 acres produce:                      1,250 acres x 8 houses x 4,950 ft<sup>3</sup>/yr of runoff =  <b>49.5 million ft<sup>3</sup>/yr of stormwater runoff</b>                      Site: 65% impervious cover                      Watershed: 8.1% impervious cover</p>

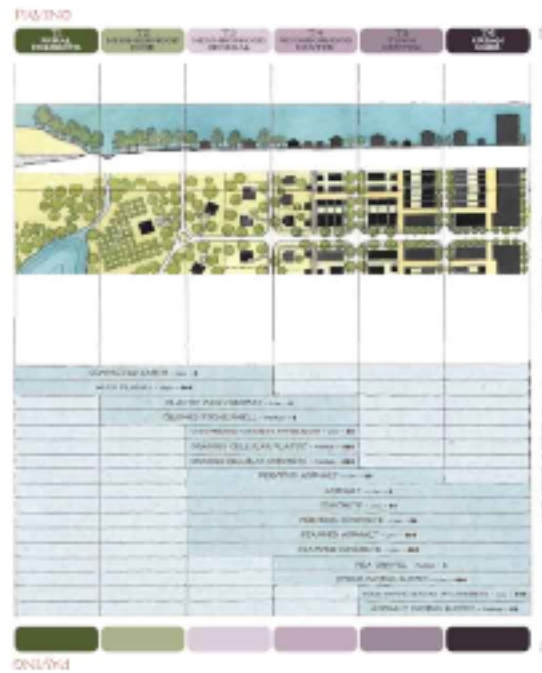
The lower density scenario creates more runoff and consumes 2/3 more land than the higher density scenario.

**In 20 years, they have doubled their populations...**

**So by 2026, they might look like...**

Scenario A	Scenario B	Scenario C
<p>20,000 houses accommodated on 20,000 acres at a density of 1 house per acre will consume 2 watersheds.</p>	<p>20,000 houses accommodated on 5,000 acres at a density of 4 houses per acre will consume 1/2 of 1 watershed.</p>	<p>20,000 houses accommodated on 2,500 acres at a density of eight houses per acre will consume 1/4 of 1 watershed.</p>

**What if..  
Density +  
Light Imprint**



## **What Needs to Be in Florida's new permit?**

- We MUST get away from permits that issue requirements site by site.
  - Options for shared solutions in sub-basins
  - This State needs to elevate small area planning
- We MUST have several menus of BMPs for higher density development projects
- We MUST have experts in Water Management Districts who understand these concepts.
- We must have Steve.....

## More Information?

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