

Cluster Development In The Greater Williamsburg Area

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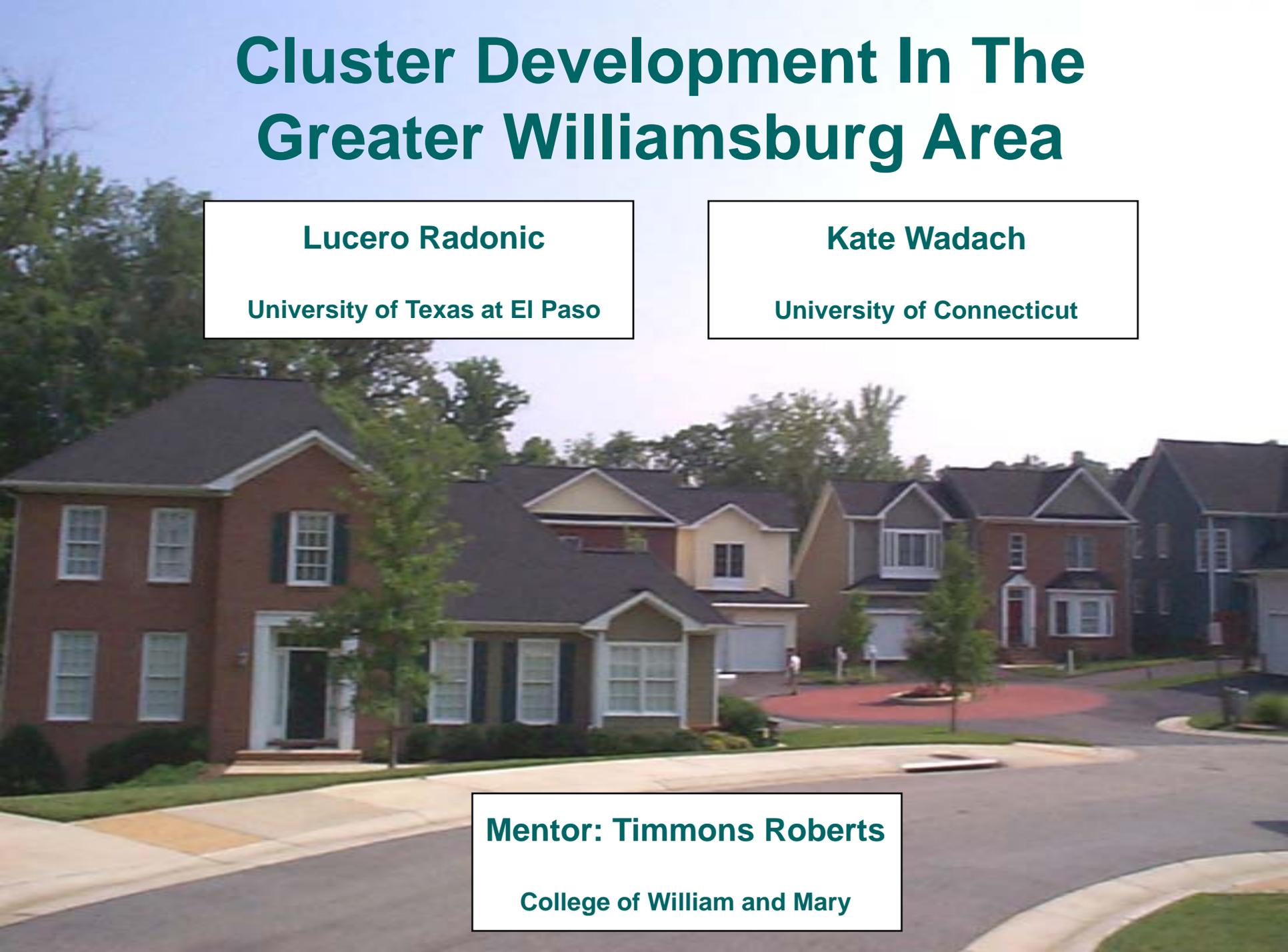
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Research Questions

- **Question # 1:** Is cluster development the most efficient way to control growth outside the Primary Service Area (PSA)?
- **Question # 2:** Should rural cluster development be supported?
- **Question # 3:** What is the most Appropriate form and function of open space?
- **Question # 4:** How to Promote and Ensure Long Term Preservation?

Hypothesis

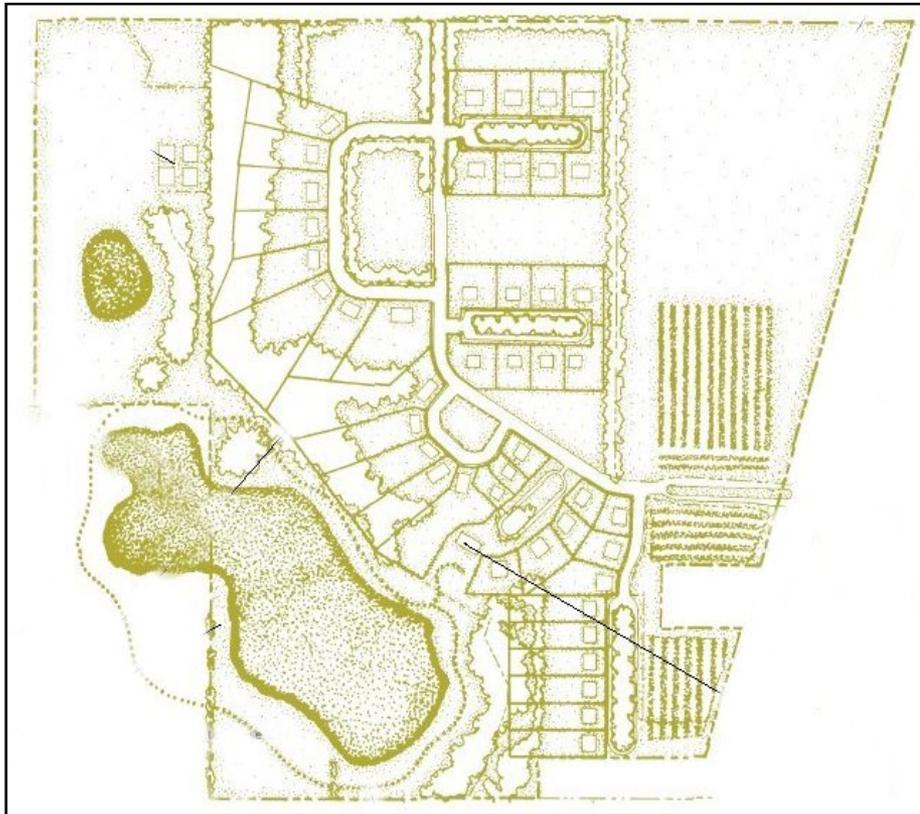
General Hypothesis

- Cluster development is an effective strategy for development outside the Primary Service Area (PSA) in the Greater Williamsburg area.



Introduction:

What is Cluster Development?



- **Focuses on** developing less sensitive areas, while preserving valuable open space.
- **A design principle** that concentrates the density of a residential development on one portion of the site.

Introduction

What is Cluster Development?

- The desire to preserve open space, sensitive lands, and historic sites has driven many localities to adopt growth control policies.
- There is widespread support by citizens of local government's planning, managing, and limiting growth in their communities.
- Achievement of smart growth goals is more reliant on a community's ability to control its own expansion with respect to a variety of other elements.





Introduction:

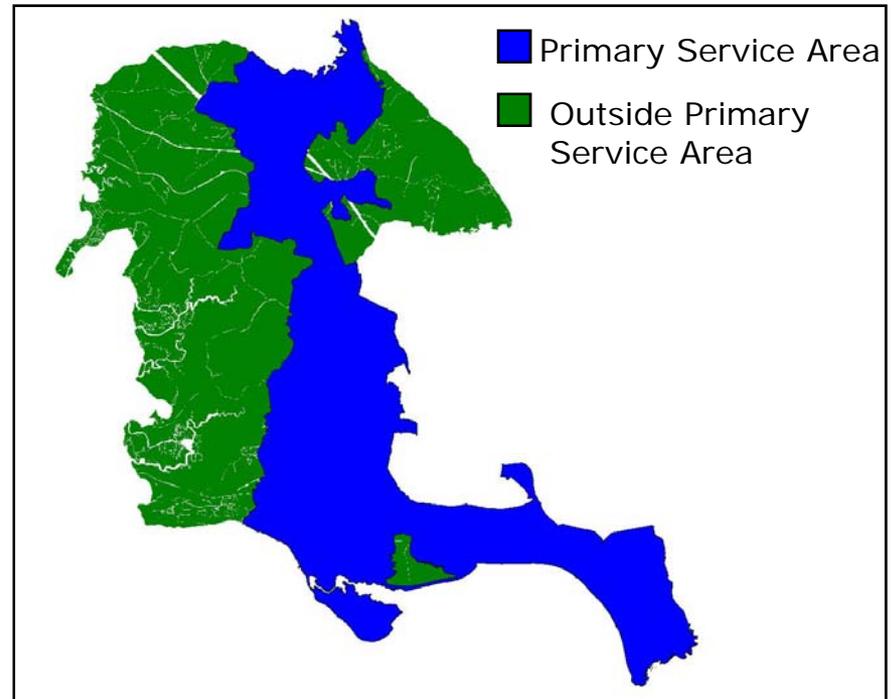
Analysis of Growth in the Area

- **Current pressure to develop** land and support an increasing population is problematic.
- **“Dillon Rule” state:** Localities have no authority to manage or pace development.
- **43% of Virginians** attributed their lower quality of life to growth management issues.
- **The Primary Service Area (PSA)** is the main tool for growth control in James City County.
- The PSA has the **capacity to last for another 20-30 years.**
- **Intended to encourage** new development within the service area.

Question # 1:

Is Cluster Development the Most Efficient Way to Control Growth Outside the PSA?

- Localities may provide in its zoning or subdivision ordinance standards and criteria for clustering of single-family dwellings
- **Prince William County:**
 - “Development area”
 - “Rural area”Promoting growth options in already developed areas



JCC Primary Service Area



Question # 1:

Is Cluster Development the Most Efficient Way to Control Growth Outside the PSA?

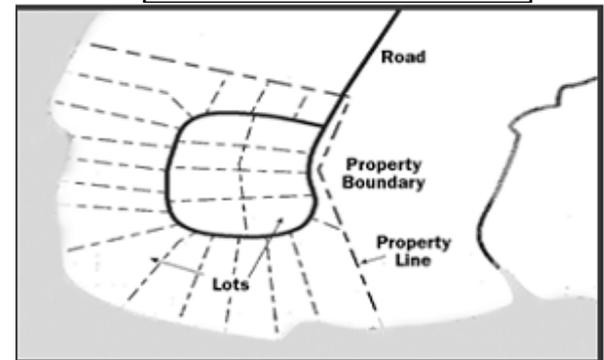
- **Boundaries** intended to control growth only present basic alleviation to the problem of sprawl.
- **“Planned sprawl”** is often the result of conventional zoning regulations which includes cluster in rural areas.
- **Despite open space use regulations**, not much specifies what is placed on the lot itself.
- **Externalities** such as public transportation, total area used for development, and lot size must be regulated to effectively control growth along with the boundaries of the PSA.

Question # 2:

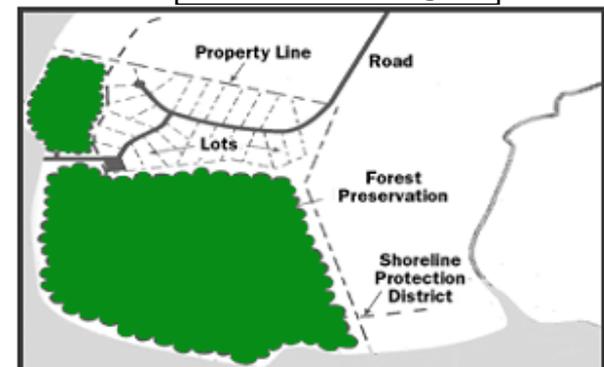
Should Rural Cluster Development be Supported?

- **It should be supported** as an effective land conservation design layout.
- **Achieves preservation** of open space and meets development desire of the housing market.

Standard Subdivision



Cluster Design





Question # 2:

Positive Aspects of Cluster Housing Outside the PSA

- **Environmental:**
 - Higher density permits a larger amount of open space to be preserved
 - Reduces impervious surfaces
 - Less overall pressure on the water table

- **Economic:**
 - More cost-effective than lower density housing
 - Additional lot incentives
 - Proffers to localities

- **Social:**
 - Safety and seclusion from popular traffic routes
 - Mixed use lots: decrease reliance on private transportation



Question # 2:

Negative Aspects of Cluster Housing Outside the PSA

- **Environmental:**
 - Major traffic problems and additional atmospheric emissions
 - Current density minimum requirements may detract from the rural character of the land

- **Economic:**
 - Greater short and long term design effort

- **Social:**
 - Less desirable to buyers than lots promising privately controlled land and an independent lifestyle

Question # 3:

What is the Most Appropriate Form and Function of Open Space?

- **Key benefit:** availability of potentially usable open space
- **Important Factors:**
 - Open space should contain a functioning ecosystem
 - Good guidance and evaluation of the site prior to development
 - Size: Should fragmentation be tolerated?
- At least **50 %** of the total available land should be preserved in perpetuity

Question # 3:

Open Space: Various Uses

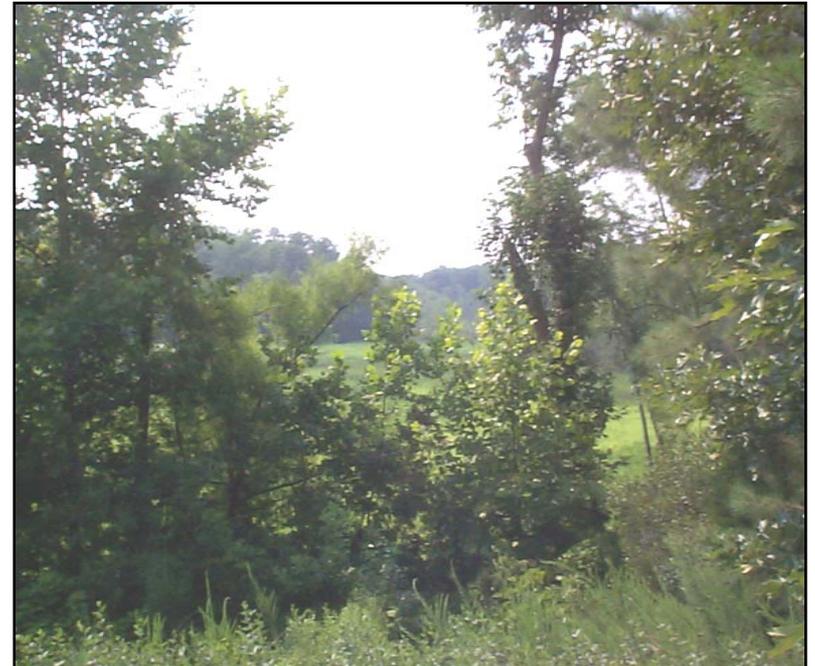
Only 10 % of open space requirements specify that this land should be maintained and managed in a natural state.



Question # 3

Open Space: Suggestions

- Open space should not be completely shielded from human activity
 - Passive, non-invasive recreation
 - Hiking trails
 - Picnic areas
 - Vistas



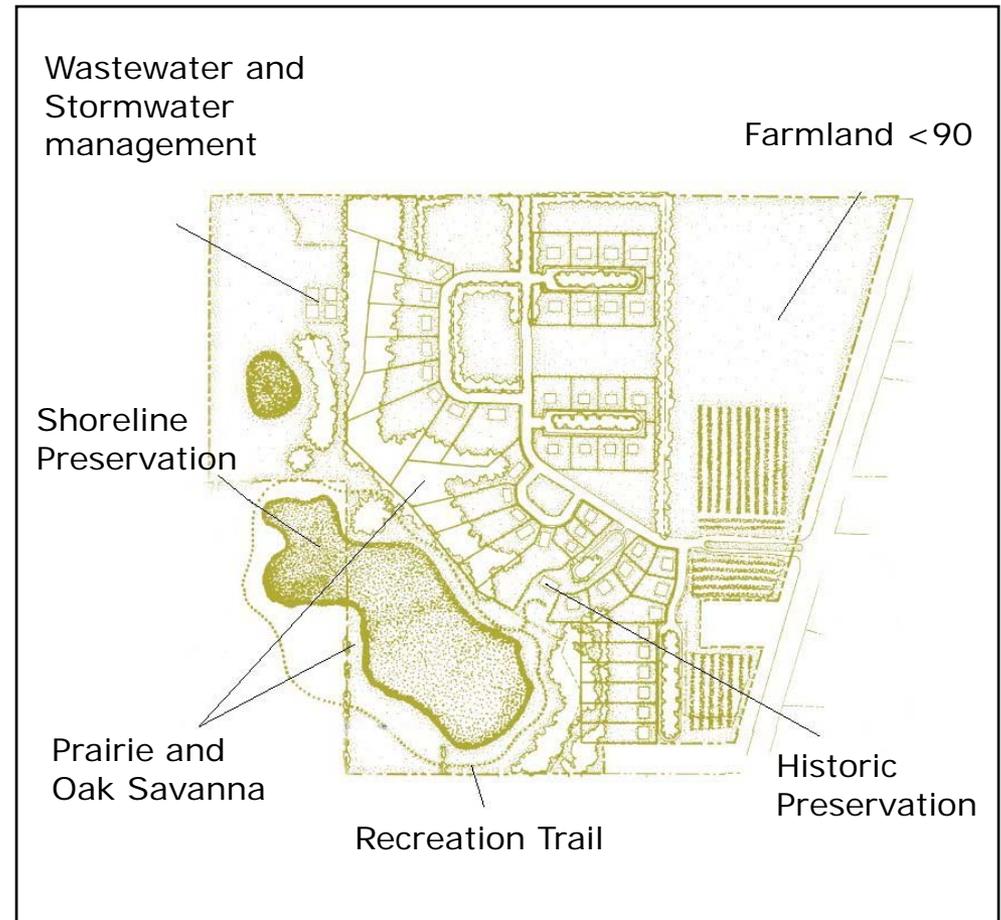
Port Anne (South Henry St.)

Question # 3:

Cases of Study: Lake Elmo, Minnesota

St. Croix: Lake Elmo, Minnesota.

- Requires at least 50 % of the land to be permanently protected as open space
- Developed Area: 40%
- Open Space: 60%
- Low impact and productive uses of open space



Question # 3:

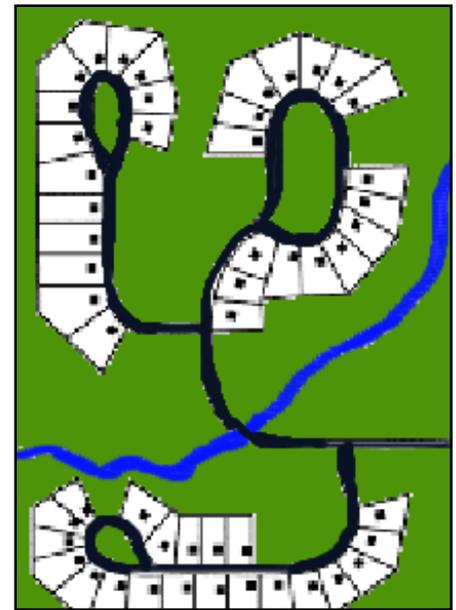
Cases of Study: Larimer, Colorado

- **Larimer, Colorado.**

- **Conservation of 80%** open space and farmland
- Developed area: 20%
- Number of lots remained the same



Standard Subdivision



Cluster Development



Question # 4:

How to Promote and Ensure Long Term Preservation?

- **Loudoun County, VA – Clustered Density Bonus**
 - AR-1 zoning: 20 acres per lot
Density Bonus: 10 acres per lot
 - AR-2 zoning: 50 acres per lot
Density Bonus: 20 acres per lot
- **Howard County, MD – Extra Open Space Density Bonus**
 - Cluster subdivision regulations: 1 unit per 4.25 gross acres.
Density Bonus: If preservation parcel >25 acres, 1 extra dwelling unit is permitted.

Question # 4:

Suggestion for James City County A-1 District

- **Current Standard Subdivision**
 - 48 acres @ 3 acres per lot
 - 16 houses
- **Suggested Cluster Subdivision**
 - 48 acres @ 2 acres per lot
 - 24 houses



Question # 4

Ways to Enforce Open Space Preservation

- Community Association
- Conservation Easement
- Purchase of Development Rights (PDR)



Conclusions

1. **Enforce and maintain** control mechanisms using applicable resources to curb the exponential growth rate.
2. Clustering effectively **conserves land** while **allowing for development**.
3. Clustering is **only a design principle** which preserves open space, through higher density housing.
4. Clustering is **not a growth control mechanism** and does not combat the problem of sprawl.
5. **Externalities** such as public transportation, zoning, and the boundaries of the PSA must be regulated.
6. **Long-term protection** of natural areas demands careful design provision and continuous monitoring.



Recommendations

1. **Support the PSA** as an efficient method to controlling growth in JCC
2. **Short term:** Promote infill development inside the PSA
3. **Long term:** Support cluster developments outside the PSA
4. **Establish** a minimum requirement of **50 %** of the development to be set aside as permanent open space
5. **Implement** specific open space regulations which maintain and manage the land under its original intent



Follow-Up Study:

Effects Of Cluster On Water Quality

- **Objective:** To determine the effects of housing density and lot sizes on water quality.
- **Hypothesis:** Higher housing density will have greater negative effects on water quality.
- **Null hypothesis:** Housing density will have no effect on water quality.



Acknowledgements

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