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Future Webcasts



- Next Month's Sponsor – Utah Chapter
- Topic: Sustainability in Codes and Public Policy
- Date: March 6th 1-2:30 pm EST
- To Register: <http://www.utah-apa.org/webcasts.htm>



Planning For Energy Efficient Land Use

Sponsored By The APA Virginia Chapter

Glenn Larson, AICP
Assistant Director
Chesterfield County Planning Dept.
804/748-1970
AICP@apavirginia.org

Source Documents Available For Download

<http://apavirginia.org/member-resources/aicp>

- *Planning For Energy Efficient Land Use*
- Energy and Land Use Planning Reference Sources

<http://www.utah-apa.org/webcasts.htm>

Land Use Oriented Energy Planning

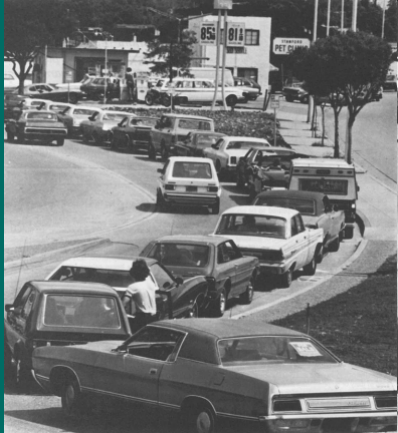
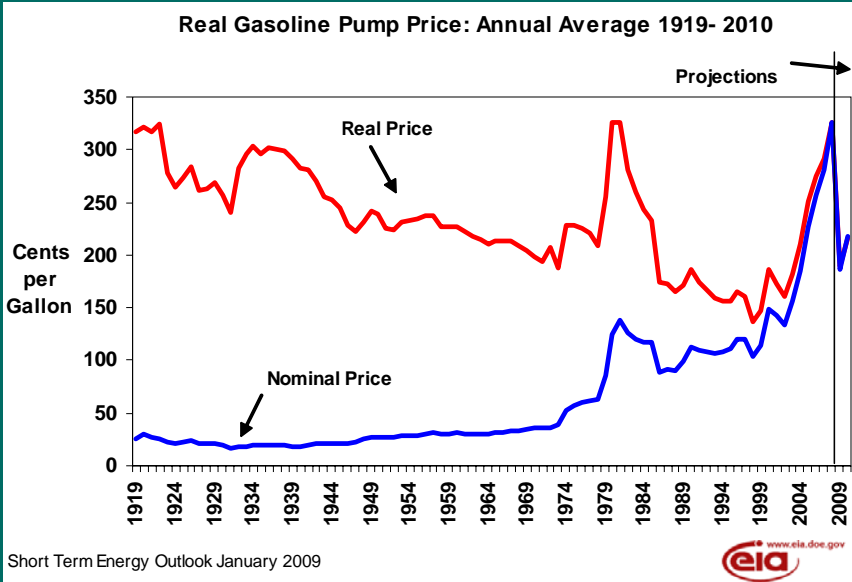
- Energy consumption and its relation to development
- The Chesterfield County experience
- Tools for energy planning
 - Comprehensive plan
 - Public facilities plan and capital improvements program
 - Zoning
 - Site and subdivision planning
- LEED - ND

“Those who cannot remember the past, are condemned to repeat it.”

George Santayana



-
- A photograph of a red gas pump nozzle. A \$20 bill and a \$100 bill are placed on the nozzle. The nozzle has a label that says 'UNLEADED FUEL ONLY 22'.
- “Teeth Gritted, Drivers Adjust to \$4 Gasoline”**
 - “High Cost of Gasoline Is Changing Life in America”**
 - “Motorists Turn to Carpool Sites as Gas Prices Rise”**
 - “Fuel Prices Create Tough Choices For Area Schools”**
 - “Drive 55 Campaign Gaining Speed”**



**Technology Oriented
Planning**



**Land Use
Oriented
Planning**



Why Is It Important To Plan For Energy Efficient Land Use?

- Quality of Life
- Economic Impact – Public and Private Sector
- Provision of Public Services
- Economic Development
- Community Vitality and Revitalization
- Sustainability



Strategic Points

- Cost
- Environmental impact
- Support other important planning initiatives

National Energy Planning Issues

- Density and sprawl
- Regulations
- Facilities Location decisions
- Tax policy
- Complacency



Local officials, builders and developers, financial institutions, and the public decide how land is used in the community. Many of these decisionmakers believe that energy can be saved through better land use. However, they are reluctant to accept and use energy-efficient land use concepts such as site and building design, locational planning, and higher density development. The major barriers include the cost of implementing the concepts, the lack of hard data that clearly demonstrate the energy savings and costs, and a strong community resistance to higher densities. (See ch. 3.)

Source: "Report To The Congress – Greater Efficiency Can Be Achieved Through Land Use Management" US GAO, 1981

Development Patterns Matter To Our Energy Future

1982 to 1997:

- US population grew 17 percent
- Land consumption grew 47 percent
- Vehicle miles traveled grew by 63 percent
- 60 percent of VMT increase attributed to sprawl



Sources: Brookings Institution and US EPA

Community Warning Signs

- Automobile dependency
- Long commuting times
- Densities that have difficulties supporting transportation options
- High public sector fuel consumption
- Disconnect between dependent uses
- Development patterns that waste energy
- Increasing house sizes

U.S. House Sizes

Year	Sq. Feet
1950:	983
1970:	1,500
1990:	2,080
2004:	2,349



Source: National Association of Home Builders

Triple Whammy?

- **Gasoline Costs**
- **Heating/Cooling Costs**
- **Lending Volatility**



The Greatest Impact? The Bad Side

- Suburban fringe development where “cheap” housing previously outweighed the length and cost of the commute
- Development isolated from supporting goods and services
- Localities with an infrastructure heavily dependent on inexpensive energy



The Greatest Impact? The Good Side

- Localities less dependent on automobiles with more transit options.
- Communities where jobs are close to homes
- Localities with a broad mix of land uses
- Communities that incorporate energy conservation principles at all levels
- Localities that have been planning for energy related impacts



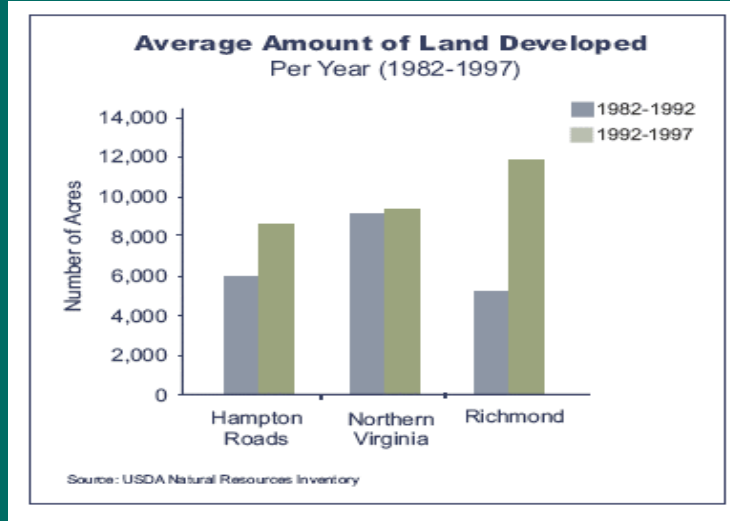
Where and How We Build

- **Developing areas in or near city centers and public transportation**
- **Locating residential development near commercial development and other services**
- **Directing development away from remote locations**
- **Siting schools in an efficient location**
- **Integrating land use and energy planning**
- **Solar street and building orientation**
- **Increased use of shade trees and green space**
- **Narrower streets and reduced parking requirements**
- **Prevention oriented land use and design decisions**
- **Greenspace expansion and the preservation of rural and urban forests**

http://www.fundersnetwork.org/info-url_nocat2778/info-url_nocat_show.htm?doc_id=229179

Translation Paper #15: Energy and Smart Growth – "It's about How and Where We Build." Funder's Network for Smart Growth and Livable Communities

Richmond, Virginia Area Trends



Source: "Where Are We Growing? Land Use and Transportation in Virginia"

Chesterfield County, VA

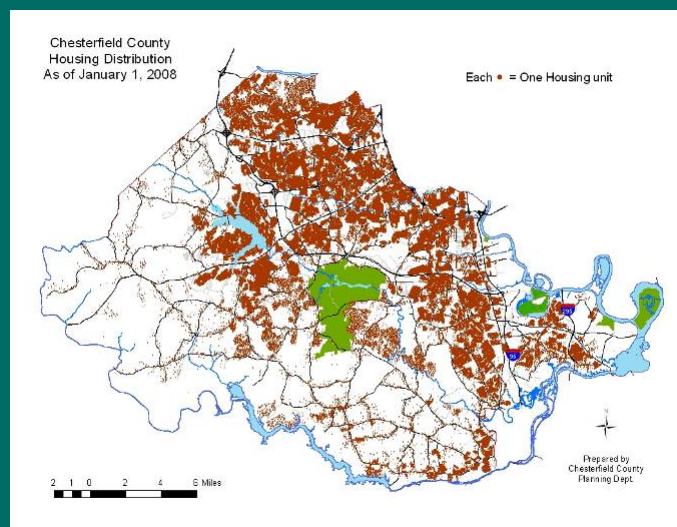


- 447 square miles
- 314,000 population
- \$595,000,000 annual budget
- AAA Bond Rating
- 58,000 students in Chesterfield schools
- No incorporated areas in Chesterfield County

Chesterfield County's Energy Scorecard

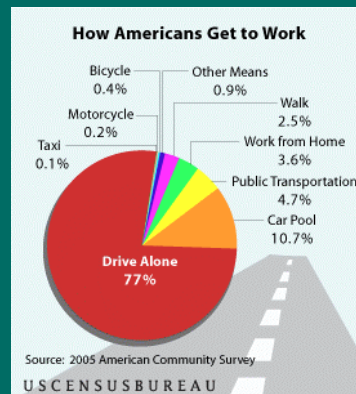
- Development pattern and density
- Commuting: Where we live vs. where we work
- Transportation options
- Public infrastructure

Chesterfield County's Energy Scorecard Development Pattern



Chesterfield County's Energy Scorecard Commuting

- 51,000+ commute more than 30 minutes to work
- 53 percent work outside Chesterfield County



Chesterfield County's Energy Scorecard Housing

- Average sq. footage of a new Chesterfield County house built in 2007: 3,061
- Average 2008 sales price of a newly constructed home: \$407,088
- Average sales price of existing homes: \$266,170



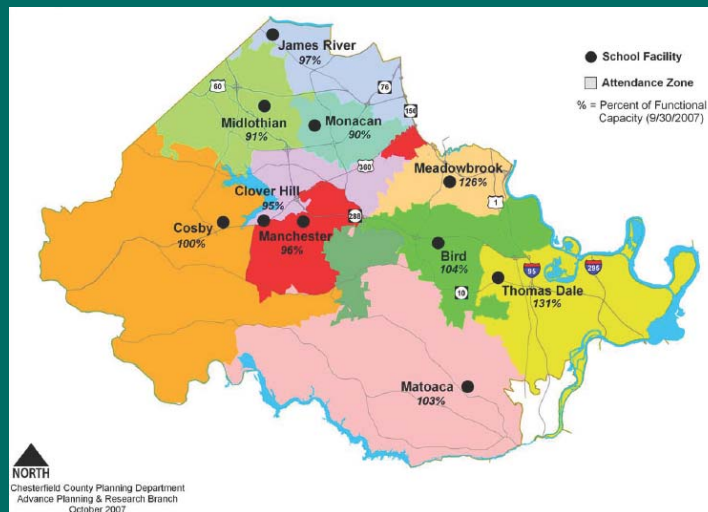
Chesterfield County's Energy Scorecard Facilities Location and Energy Cost

- County vehicles used 2.5 million gallons of fuel in FY 08
- County vehicles traveled 26.5 million miles in FY 08
- School Board vehicles: Approximately 8.9 million miles (\$485 per student)



<http://www.saferoutesinfo.org/>

Chesterfield County's Energy Scorecard Facilities Location and Energy Cost



Opportunities for Chesterfield

- Promote compact form
- Build at densities that support public transit
- Provide transportation options
- Encourage mixed use projects
- Promote residential development near commercial development
- Consider both public and private sector energy implications when locating public facilities
- Promote redevelopment and infill - Reuse and recycle land

Energy and Redevelopment

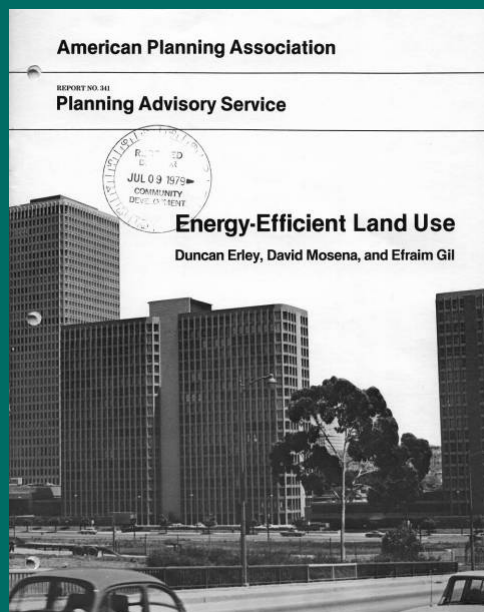
“When redevelopment projects combine both elements (VMT reduction and energy-efficient buildings), the energy savings can be estimated to be 30 to 35 percent of the total energy demands attributable to the development, relative to conventional construction in suburban auto-dependent locations.”

<http://www.smartgrowth.org/library/articles.asp?art=3820&res=1680>

“Energy Benefits Of Urban Infill, Brownfields, And Sustainable Urban Redevelopment, A Working Paper.”

Tools

- Comprehensive Plan
- Capital Improvements Program
- Zoning
- Site and Subdivision Planning



Comprehensive Planning

- **APA Policy Guide on Energy** Initiative 1: “Reduce energy consumption through comprehensive planning and urban design that incorporates strategies for both mobile and non-mobile energy efficiency”
- Incorporate energy efficient planning principles either by:
 - An free standing energy element
 - Incorporation into other comprehensive plan elements (i.e. public facilities, environment, transportation, etc.)
- Comprehensive plan examples:
 - Danville, Vermont (Population 2247)
<http://www.danvillevt.com/EnergyCons.htm>
 - Marion County Oregon (Population 306,000)
<http://www.co.marion.or.us/PW/Planning/zoning/comprehensiveplan/>



Public Facilities Planning and the CIP

- Energy evaluation and public facilities location
- Use of technology to better site public facilities
- Facility life cycle energy cost evaluation
- Energy criteria checklists
- Energy operational impact on both facility operators and users

Public Facilities Planning and the CIP

- ICMA IQ Report #40 – Local Governments and Schools: A Community-Oriented Approach
- “School location and use impacts transportation, infrastructure, service costs, and, in turn, tax rates”



Zoning

- “First, do no harm”
- Adaptability, both for new energy conservation based land use initiatives and new technology
- Transportation linkage
- Full range of housing types
- Mixed uses
- Flexible lot requirements
- Home business

“Saving the World Through Zoning”

“So what is wrong with the existing zoning models? While each type has its strengths, all have glaring weaknesses when it comes to sustainability. Euclidean zoning can protect neighborhoods by keeping out incompatible uses, but it can also stifle mixed use developments that may help reduce auto traffic and air pollution. At the same time, it can contribute to sprawl by forcing uses apart and limiting density.”

<http://law.du.edu/documents/rmlui/saving-the-world-through-zoning.pdf>

Source: Saving the World Through Zoning” Planning Magazine, January, 2008

Site and Subdivision Planning

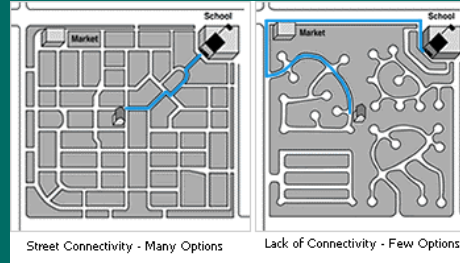
- Street and building orientation
- Shade trees and green space
- Narrower streets and reduced parking requirements
- Sidewalks
- Street lighting
- Connectivity



Specific Examples

Street design that:

- Encourages pedestrian and bike use and discourages high speed traffic
- Supports/enhances neighborhood connection to other neighborhoods and commercial developments



Graphics Source: "Transportation and Growth Management Oregon Guide for Reducing Street Widths"

VDOT Secondary Street Acceptance Requirements

- Reduce vehicle miles traveled through direct routes
- Reduce congestion through alternative routes that reduce reliance on arterial roadways
- Alternative routes to local destinations to provide redundancy during road closures and accidents
- Reduce emergency response times due to alternative and direct access for fire, police and EMS vehicles
- Alternative transportation options (driving, transit, bicycling or walking)
- Increased capacity of the local and regional transportation network
- Opportunities for community interaction by connecting developments
- Improved access to community facilities and shopping centers
- More effective use of transportation infrastructure
- Promotes energy conservation



LEED-ND

Leadership In Energy and Environmental Design for Neighborhood Development

LEED-ND

- Pilot program began in 2007
- Nearly 240 projects across the country tested
- Project Checklist
 - School proximity
 - Walkable streets
 - Compact development
 - Transit



<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=148>

LEED-ND

Public Benefits

- Reduce Urban Sprawl
- Encourage healthy living
- Protect threatened species
- Increase transportation choice and decrease automobile dependence

LEED-ND

Developer Benefits

- Potentially reduced fees or waiting periods
- A good impression on your neighbors
- Higher tenancy rates

Stapleton

Stapleton, CO

Stapleton has nearly 10,000 residents, six schools and more than 200 shops, restaurants and services. There are 24 parks here, including the 80-acre Central Park, which is Denver's third largest. And more than 26,000 trees...



Belvedere

Charlottesville, VA



Where Do We Go From Here?

- Awareness
- Policy development
- Networking
- Education

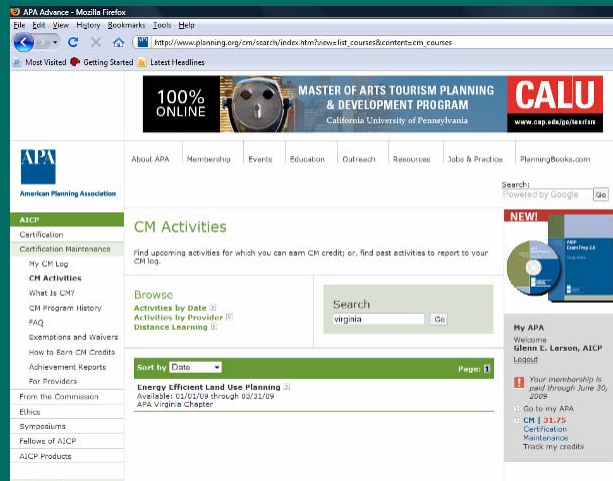


<http://www.planning.org/research/energy/resources.htm>

<http://www.eesi.org/apa>

Questions?

Logging CM Credits For This Presentation



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<http://www.utah-apa.org/webcasts.htm>

Contact Glenn At:

AICP@apavirginia.org

(Please put APA or AICP in subject header)

Thanks!