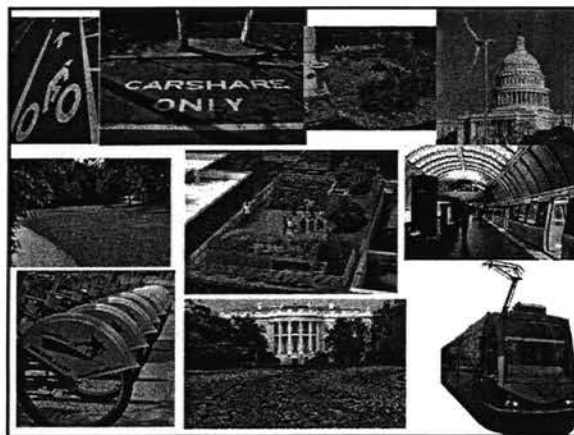


ZONING REVIEW: SUSTAINABILITY RECOMMENDATIONS

Zoning Commission Public Hearing: May 21, 2009

Planning/Policy Background

- A. Harriet Tregoning, Director, OP
- B. Brendan Shane, Director, DDOE Office of Policy and Sustainability
- C. Karina Ricks, DDOT Deputy Director



Sustainability Recommendations

- A. Integrating Land Use and Mobility
- B. Energy Conservation and Renewable Energy
- C. Water and Sensitive Resource Protection
- D. Food Security
- E. Green Jobs
- F. Large Area Development

Sustainability Recommendations

A. Integrating Land Use and Mobility

A. Integrating Land Use & Mobility

Major Issues

- Transportation Demand Management (TDM)
- Accessory Dwelling Units (ADU)
- Mixed Use
- Transit-Oriented Development (TOD)

ZONING COMMISSION
District of Columbia

CASE NO. 08-06-9

EXHIBIT NO. 22

ZONING COMMISSION 1
District of Columbia
CASE NO. 08-06-9
EXHIBIT NO. 22

Integrating Land Use and Mobility: Facts

- In 2005, 66% of oil used in U.S. was for transportation.
- Transportation = 33% of U.S. CO2 emissions in 2006.
- NIH lists car dependence as factor in obesity epidemic.
- For residential uses, built environment determines 90% of vehicle trips and TDM determines up to 8%.
- For non-residential uses, built environment determines 35% of vehicle trips and TDM determines up to 32%.
- Intensity, form and configuration of the built environment regulated by zoning, TDM can be too

Integrating Land Use and Mobility: DC Facts

- In 2005, D.C. citizens averaged 6,745 highway miles per capita – only 27% of the U.S. average.
- Metro D.C. Climate Change Steering Committee: "total emissions from transportation will increase 38% by 2030 and 47% by 2050."
- Most money spent on driving leaves the DC economy
- WMATA: 3 Metrorail lines "highly congested" by 2020
- DDOT plans more streetcars and buses (rapid transit, metro extra, and circulator) to meet growing demand.

Integrating Land Use and Mobility

Comprehensive Plan Policies

- Design to Encourage Transit Use, LU-1.3.4
- TOD Overlay Zone, LU-1.3.8
- TDM Programs, T-3.1.1

No DC incentives/programs

- TOD and TDM often achieved through PUD

Zoning Regulations

- Mixed-Use Districts
- Accessory dwelling & Home occupation

A.1: Transportation Demand Management

Citywide Management and Amenities

- Require large new developments to address trip generation
- Require large new developments to provide support amenities for walking, biking, and transit
- Require pedestrian/bike-friendly design as part of general design requirements
- Coordinate TDM implementation with DDOT



Trolley and bikes in Toronto, CA



A.1: Transportation Demand Management

Potential TDM Requirements could include...

- Carpool/Vanpool parking
- Free carshare parking spaces
- On-site business center for use by residents
- Free residential membership in car sharing program
- Complementary Metro fare for initial residents/employees
- Display of alternative travel information (i.e. bus/train maps & timetables)
- SmartBike station



Trolley and bikes in Toronto, CA

A.2: Accessory Dwelling Units

□ CURRENT ZONING PROVISIONS

	R-1	R-2	R-3	Location on Site	How
Domestics' Dwelling (2500.9)	X			External	Matter-of-Right
Accessory Apartment (202.10)	X	X	X	Internal	Special Exception
2 Boarders (202.6)	X	X	X	Internal	Matter-of-Right

A.2: Accessory Dwelling Units

Allow ADUs Broadly

- Allow both internal and external (free-standing) units for single-family dwellings
 - Subject to impact & design conditions
- Develop standards to address size, design, height, etc.
- External ADU's subject to accessory building regulations



English basement apartment, DC



Capitol Hill Alley Dwelling

A 2: Accessory Dwelling Units

Allow ADUs Broadly

- Conditions for External Units Could Include...
 - Location restrictions
 - Number
 - Density/Intensity
 - Size & subordination
 - Setbacks
 - Height
 - Entrances
 - Parking
- Occupancy
- Approval
- No Separate Sale
- Incentives
- Illegal Units & Amnesty



Kenyon St basement apartment, DC

A.3: Transit Oriented Development

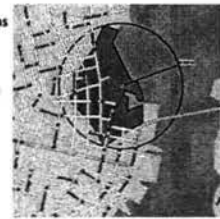
Three basic tasks:

1. Define transit accessible areas
2. Identify land use strategies that are desired and appropriate in all transit accessible areas
3. Determine densities and use mixes that are desired and appropriate for each individual transit accessible area

A.3. Transit Oriented Development

Define Transit Walksheds

- Identify TOD areas based on Comprehensive Plan, Small Area Plans and DC Transit Alternatives Analysis
- Map mixed-use TOD areas based on defined transit walksheds:
 - Metro Rail stations: within 1/2 mile
 - Streetcar line: within 1/4 mile
 - High-service bus: within 1/4 mile
- Will not apply to low density residential areas at this time



A.3. Transit Oriented Development

TOD Standards in All Transit Accessible Areas

- All TOD areas will have the same requirements for:
 - Parking limitations
 - Street activating design guidelines
 - Access/orientation to transit
 - Permitted mixed-use



Columbia Heights Metro

A.3: Transit Oriented Development

Variable TOD Standards

- Each individual TOD area will have customizable standards for:
 - Min/max bulk and form
 - Step-downs to surrounding neighborhoods
 - Use mix requirements
- Tailored to transit type, service levels and scale of neighborhood
- Recognize local characteristics (e.g. historic designation)



DOOT's DCTAA

Sustainability Recommendations



B. Energy Conservation & Renewable Energy Generation

B. Energy

Major Issues

- Increase energy efficiency in new development/ redevelopment
- Mitigate "heat island effects"
- Encourage renewable energy generation

B. Energy Use and Production: DC Facts

- DC 2005 per capita energy use was 327 Million Btus, slightly < the US average of 339
- Projected DC energy emissions increase 35% by 2030
- Buildings account for 75% of DC's GHG emissions
- 202 sunny days per year -66% of all daylight hours are sunny (solar potential)

B. Energy Use and Production through Zoning

- Top DC Priority: Remove impediments to Green Building
- Remove unintended zoning barriers to efficiency and renewals
- Require energy efficiencies
- Permit renewable and green technologies and systems

B.4: Increase Efficiency

Adopt Energy Performance Requirements

- Consider requiring 2030 Architecture Challenge standards for PUD-scale projects exceeding matter of right permission
- Monitor actual consumption and require action if targets unmet



Sidwell Friends, LEED ® Platinum

B.4: Architecture 2030 Program

- The energy efficiency increases reduction standard for all new buildings shall be increased to:
 - 60% in 2010
 - 70% in 2015
 - 80% in 2020
 - 90% in 2025
 - Carbon-neutral in 2030



B.5: Increase Efficiency

Outdoor Lighting

- Adopt the standards of a Model Lighting Ordinance (such as the NELPAG or IDSA), to reduce energy consumption
- Consult with DDOE Energy Office



© Henry Center

B.6: Sustainable Energy Features

Setback Projections

- Allow light shelves and photovoltaic panels to project into setbacks in all districts with a minimum vertical clearance from the ground
- Refer ROW issues to Public Space Committee



National Asian American Leadership Building



Sudwell Friends, LEED @ Platinum

B.7: Renewable Energy Generation

Solar & Wind Technologies

- Permit wind and solar equipment accessory to all development
- Except where inconsistent with historic districts, national monuments



Solar panels in Maryland

B.7: Renewable Energy Generation

Solar & Wind Technologies

- Permit wind and solar as primary uses in industrial, high density, and government areas
- Limits for protecting historic districts & national monuments



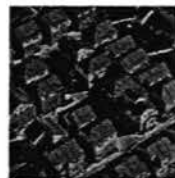
US Botanic Garden



B.8: Solar Access Protection

Managing solar access

- Bonus density above matter-of-right (e.g. PUD) restricted when impacting previously-installed solar systems on adjacent properties

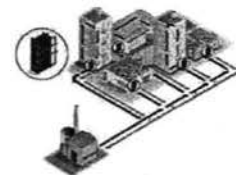


Rockefeller Center, New York


B.9: District Energy Systems

District Energy

- Continue to allow "district energy facilities" as a permitted use in all districts
- Ex: Congressional district energy system



Sustainability Recommendations



C. Water Conservation & Sensitive Resource Protection

C. Water and Sensitive Resources



Major Issues

- Promote Water Conservation
- Protect and Enhance Tree Cover
- Provide Buffers for Environmentally Sensitive Areas
- Reduce Runoff and Soil Erosion
- Protect Floodplains

Water Issues

Water Conservation


- Washington gets nearly 90 percent of its fresh water from the Potomac River -- augmented by many other local surface and groundwater sources.
- June 2007 = 50 percent of average rainfall.
- Three Comprehensive Plan Policies
 - Landscaping, CP Policy E-1.1
 - Promoting Water Conservation, CP Policy E-2.1.1
 - Sustainable Landscaping, CP Policy E-5.1.4
- "WaterWise" and "Water Supply and Drought Awareness and Response Plan"
- No regulations

Environmentally Sensitive Resources

Tree Cover


- Preserving existing trees and planting new trees can increase sequestration of carbon dioxide, thereby cleaning the air of GHG emissions.
- Shading reduces "heat island" effects and reduces energy consumption for air conditioning.
- Three Comprehensive Plan Policies
 - Street Tree Planting and Maintenance, CP Policy E-1.1.1.1.
 - Tree Requirements in New Development, CP Policy E-1.1.2.
 - Building Green and Healthy Communities: Guiding Principles, Framework 2-27.



Environmentally Sensitive Resources

Tree Cover


- In 2002, Casey Trees documented 106,000 street trees and 25,000 potential planting spaces
- No incentives to enhance /replace tree cover
- Four regulations in place
 - Urban Forest Preservation Program, DC ST §8-651.03
 - Tree Removal Limitations (TSP), § 1514 (overlay district)
 - Air Quality Related Regulations, District Department of the Environment, Title 20, Chapters 3, 4, 6, 8, 9.
 - Zoning Code, Parking Lots, § 2303.2 (5% area)



Environmentally Sensitive Resource

Slopes, Streams, and Stormwater

- Managing runoff and erosion helps protect water quality and tree cover
- 18 Comprehensive Plan Policies
 - Preventing Erosion, CP Policy E-1.3.1
 - Grading and Vegetation Removal, CP Policy E-1.3.2
 - Conservation of Steep Slopes, CP Policy E-1.4.1
 - Green Engineering, CP Policy E-3.1.3
 - Low Impact Development Criteria, CP Action E-3.1.A
 - Flood Plains, CP Policy E-4.7.4
- Three incentives and programs
 - DDOE Low-Impact Development (Biocapacity) program
 - DDOE Low-Impact Water Infrastructure program
 - Anacostia Waterfront Initiative



Environmentally Sensitive Resource

Slopes, Streams, and Stormwater

- Numerous Regulations in Place for Erosion
 - Tree and Slope Protection Overlay District, §§1511 et. seq.
 - Waterfront District, Floodplain and Waterfront, Prohibited Uses, § 902
 - Run-off Reduction, §2403
 - Drainage of Lots, Chapter 2
- Few Regulations on
 - Buffers for steep slopes in general
 - Preventing vulnerable populations in floodplains
 - Preventing potential pollution in floodplains



C.10: Water Conservation

Rain Harvesting Devices

- Such as
 - Rain barrels
 - Rain gardens
 - Cisterns
- Explicitly permit
- Allow in yard setbacks, underground and on rooftops



2000 14th St NW, Reeves Center green roof

C.11: Environmental Buffers

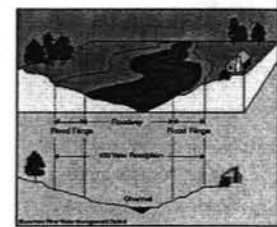
- Map and protect steep slopes (>25 %) with buffer requirements
- Map and protect streams and rivers with buffer requirements
- Map and protect wetlands with buffer requirements
- Coordinate mapping and buffer requirements with DDOE



This photo of the River Flange shows the need for planning. After the bridge, the river flange, the river, and the river flange.

C.12: Protect Floodplains

- Limit uses allowed in the floodplain through zoning
 - Potential contaminants (dry cleaner, auto repair, photo lab)
 - Vulnerable populations (child day care, senior housing)



C.13: Tree Cover Protection

Expand tree cover protection

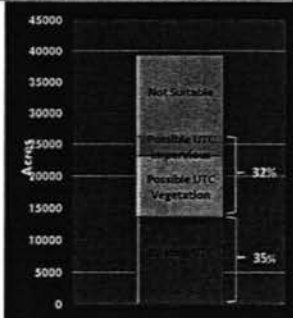
- Study applying TSP overlay to residential zones citywide
- Potential Guides
 - Lower trigger to 25" circumference (or equivalent dbh)
 - Allow tree removal subject to replacement of equivalent carbon absorption
 - Consult with Urban Forestry Administration (UFA)



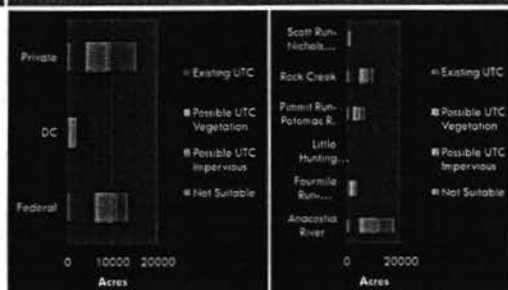
Tree Protection Zone

C.13: Tree Cover Protection

Washington, D.C. Urban Forest Data 2000		
1. Total trees	1,928,000	
2. Percentage of trees < 4" dbh	56.3%	
3. Pollution removed	240 tons/year (\$2.5 million/year)	
4. Carbon storage	270,000 tons (\$9.7 million/year)	
5. Carbon sequestration	14,300 tons/year (\$299,000/year)	
6. Building energy reduction	\$2.443 million/year	
7. Avoided carbon emissions	\$96,000/year	
8. Structural value	\$3.6 billion	
9. Tax - short term (3.5%) (\$1,000/ha)		



C.13. Protecting Private Trees will help our waterways.....



C.14: Vegetated ('Green') Roofs

Vegetated roofs

- Exempt from rooftop setbacks, up to 4 ft.
- Encourage through site design requirements
- Updated building code likely to require "cool" roofs



2000 14th St NW, Reeves Center green roof

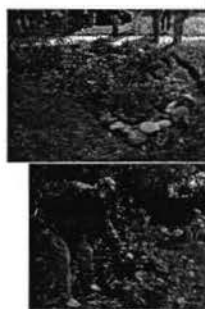


Georgetown residential green roof

C.15: Water Conserving Landscaping

Low-Water Use Landscaping

- Specify native and low-water demand species and encourage their use
- Encourage through site design requirements
- Work with DDOE to reference U.S. Fish & Wildlife Service's guide



Back garden Silver Spring, MD

C.16: Reduce Runoff/Erosion

Parking Lot Landscaping

- Require design and distribution of landscaped areas to reduce/filter runoff (e.g., minimum planting bed size)
- Encourage pervious pavement through site design requirements



C.17: Pavement Runoff Reduction

- Reduce of runoff from paved areas by encouraging pervious surfaces.
- Correlate with DDOE initiatives



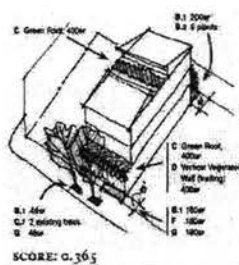
Pervious paving U.S. EPA building, DC

C.18: Encouraging Green Site Design

- Earlier Recommendations Encouraged:
 - Green/cool roofs
 - Pervious surfaces
 - Native/water conserving landscaping
 - Tree planting/preservation
- These can be addressed comprehensively through site design requirements
- Green Area Ratio provides flexible, consistent regulation of environmental site design

C.18: GAR: How Does it Work?

- Provides a menu of landscape elements and establishes a minimum score for new development.
- In addition to conventional landscape elements, menu includes green roofs, vegetated walls, pervious paving, and bonuses for public visibility
- Increases the amount of landscaping required, while also increasing design flexibility



C.18: Green Area Ratio

Recommendation

- Adopt a point threshold system to set requirements for green site design to meet goals for stormwater runoff, air quality, and urban heat island mitigation in an integrated way. The system would apply to low and moderate density zones, specifically properties not covered by new DDOE stormwater management requirements.

Implementation

- Set environmental performance rankings
- Set levels for requirements by zone or building types
-

C.18: Green Area Ratio

Applicable Areas

- limit GAR requirements to neighborhood-serving commercial areas and low and moderate-density residential areas

Examples may include...

- Impermeable pavement
- Impermeable roof
- Turf grass
- Un-vegetated permeable pavement
- Vegetated permeable pavement
- Green roofs
- Natural ground cover
- Rain gardens
- Trees & shrubs
- Green facades

C.18: Green Area Ratio Benefits

- Increase the amount and quality of urban landscaping in dense urban areas while allowing increased flexibility for developers and designers to efficiently use their properties:
- Builds on DDOE stormwater requirements
- Applicable to low & moderate density zones
- Flexible
- Consistent
- Higher environmental value
- Provides targets based on relative level of urbanism

C.18: Seattle's Green Factor


- A landscape requirement that values both the aesthetic and ecological functions of planted areas.
- Raises the bar for total landscaped area, but awards credit to new types of features.
- Adopted for Commercial zones as part of the Neighborhood Business District Strategy, implemented January, 2007



C.18: Seattle's Green Factor



Sustainability Recommendations




D. Food Security

Food Security

Baseline Facts

- Average U.S. food item travels 1,400 miles from source to table.
- In 2005 U.S. became a net food importer for the first time in history.
- 60% of America's 10 million vegetable producers are in urban census tracts.
- 14% of Londoners produce 18% of city's food supply.
- U.S. food prices expected to continue rising as costs of fuel to transport them rises.
- DC already has 37 community gardens



Food Security

Two Comprehensive Plan Policies



- Capacity Building for Community Gardening and Garden Club Groups, CP Policy E-3.3.2
- Domestic Gardening, CP Policy E-3.3.3

No DC incentives/programs

- But residents have access to national initiatives like Active Living by Design

Zoning Regulations


- Allow food production in some zones (R-1, R-2, R-3, R-4, R-5/R5A)
- Many opportunities to expand farmers markets, community gardening, and home gardening

D.19: Local Food Production

Removing Barriers



- Allow urban gardens, food production and composting as a permitted use in residential, mixed use, and commercial areas
- Allow community gardens, private gardens, roof-top gardens (without changing maximum lot coverage limits).



Fort Stevens Community Garden, DC

D.20: Individual Food Sales


- Allow produce sales stands in residential and mixed use districts as a temporary use.

D.21: Farmers' Markets

Farmers Markets and Food Sales

- Allow produce sales stands in residential and mixed use districts (subject to location and size standards)
- Define farmer's markets, provide standards, and clarify permitted locations
- Ensure that definitions support new technology, recycling, urban gardening, reprocessing, etc.



Dupont Circle Farmer's Market

Sustainability Recommendations



E. Green Jobs

Green Jobs

DC Definition

"Career-track employment opportunities in emerging environmental industries as well as conventional businesses and trades, created by a shift to more sustainable practices, materials, and performance. The definition includes both lower and higher skilled employment opportunities that minimize the carbon footprint of all necessary inputs and directly result in the restoration of the environment, the generation of clean energy and improved energy efficiency, the creation of high performing buildings, and the conservation of natural resources."



Green Jobs

No Comprehensive Plan Policies Numerous Programs and Incentives

- Green Collar Job Initiative.
- The Sustainable Business Network of Washington.

Two Zoning Regulations

- Zone District Uses § 802.3 permits intermediate materials recycling facility.
- Zone District Uses allow businesses that D.C. defines as green businesses.
- No provisions allowing flexible location for startup, small-scale incubator businesses.



E.22: Incubator Space for Sustainable Businesses

Prepare for New Types of Jobs

- Ensure that new, broader land use categories include all types of anticipated businesses in support of environmental programs and technologies
- Enable incubator-sized light industrial uses in compatible commercial & mixed-use zones through strict performance standards



City Bikes in Adams Morgan



Sustainability Recommendations



F. Large Area Development

F.23: Large Area Development

- New Methods of Land Regulation, Policy LU-1.2.4: Recognize the opportunity afforded by the District's large sites for innovative land regulation (such as form-based zoning) and the application of sustainable design principles (green building and low impact development) on a large scale.
- LEED-Neighborhood Development is a newly developed standard for sustainable land developments
- 9 DC projects in LEED-ND pilot program
- Urban sites "score" best under LEED-ND

F.23: LEED-ND for Large Area Development

- When zoning changes are requested for Large Tract Review size developments, ensure that the development meets the standards of LEED-ND



The Yards proposed development



Solea Coedoe LEED-ND pilot, DC

ZONING REVIEW 2009

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