

2011 APA Florida Conference

The Breakers, Palm Beach

The Green Element

Presentation By: Henry Iler, AICP

Principal

ILER PLANNING

Doral's Journey to a Green Future

- Mayor Juan Carlos Bermudez signs U.S. Mayors Climate Protection Agreement in 2006
- 2007: Annual Doral Eco-Fair initiated
- City prepares and adopts (double) award-winning “Green Master Plan” in 2008-09
- 2010:
 - * “Silver Certification Level” under the Green City Program sponsored by the Florida Green Building Coalition
 - * Preparation of the Green Element to its Comprehensive Plan
 - * LEED Silver certification for new City Hall Complex





City of Doral

GREEN MASTER PLAN

Green Design for a Sustainable Future

2009

FAPA & FPZA
Award Winner

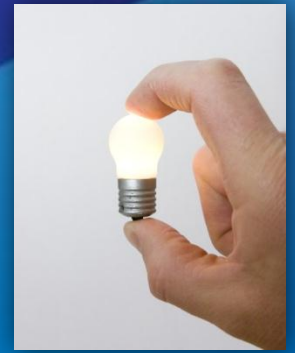


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PLANNING

ADOPTED FEBRUARY, 2009

The Green Element

Doral's Green Master Plan



Guiding Principles

- #1: Reduce vehicle miles traveled
- #2: Strengthen landscape and open space standards
- #3: Create aggressive energy efficiency goals
- #4: Incentivize alternative urban energy sources
- #5: Interconnect the City's places
- #6: Conserve water
- #7: Recycle and reuse
- #8: Bring back community agriculture
- #9: Carbon neutral city government
- #10: Education and outreach



- * **Action-oriented**
- * **Leadership and direction from the top**
- * **Annual feedback and adjustments**

Doral's Comprehensive Plan

The Green Element

- **2 Components:**

- I. Goals, Objective and Policies
- II. Data, Inventory and Analysis



- **1st Element**



- **Green = Sustainability**



Green Element

Goals, Objectives and Policies

Goal: To conserve our natural resources, minimize greenhouse gas emissions, enhance community health and education, nurture city neighborhoods, and promote carbon neutral business growth thereby ensuring that a rich green community legacy will be entrusted to future generations of Doral residents.

Objective 1: Sustainable Land Use and Design

- “Green Points System” for development review
- Revise Code to incorporate sustainable practices
- Place higher densities/intensities near transit

Objective 2: Expand Mobility and Connectivity

- Traffic signal timing study with State and County
- Prepare a Bicycle and Pedestrian Plan
- Implement FDOT’s “ 12 Steps Towards Walkable Communities”
- Measures: New bike path miles and increased transit ridership



Green Element

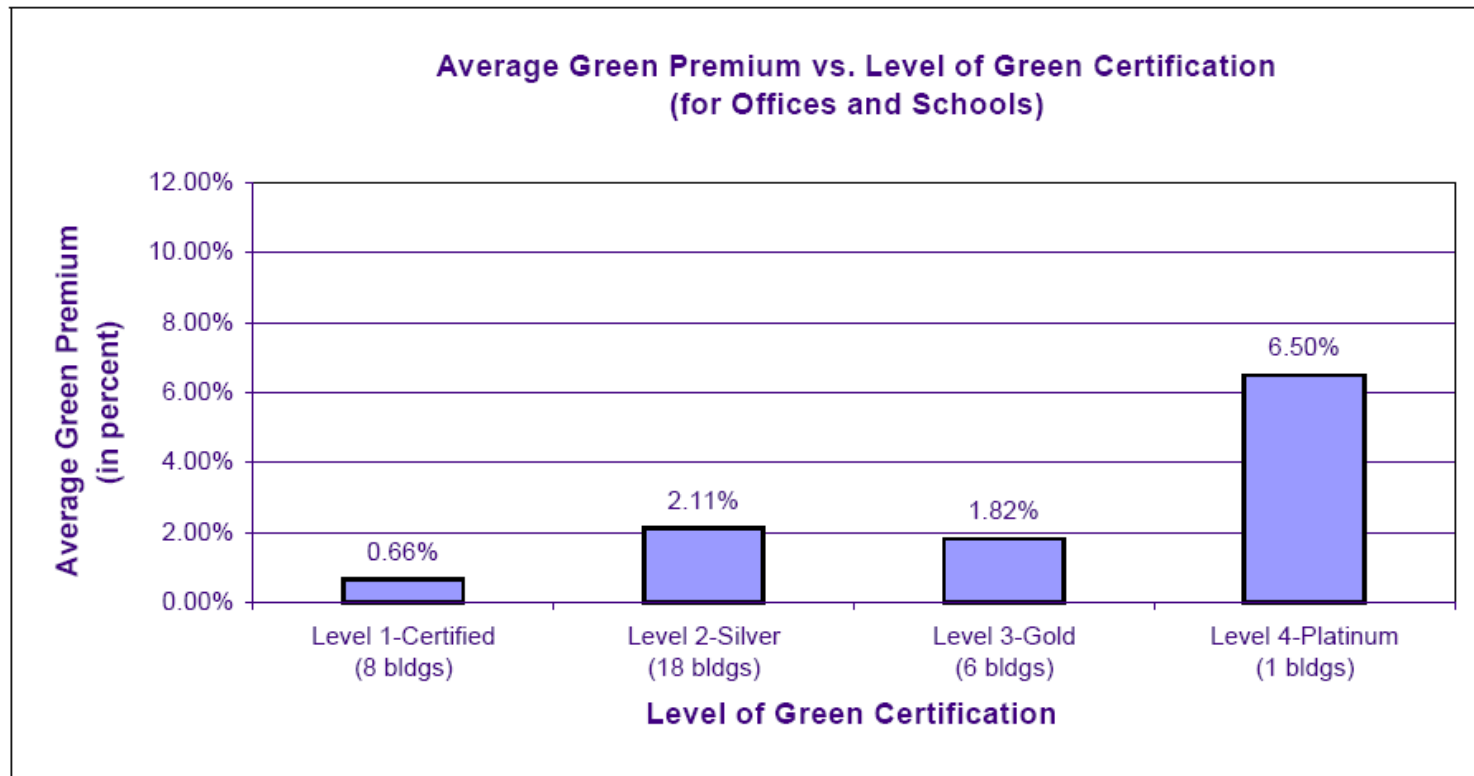
Goals, Objectives and Policies

Objective 3: Smart Buildings and Places

- Code \$ incentives for new/renovated buildings which attain LEED or other certification
- Solar orientation of homes and other buildings
- Measure: # of renewable energy systems installed



Figure III-2. Average Green Cost Premium vs. Level of Green Certification



Source: USGBC, Capital E Analysis

Financial Benefits of Green Buildings

Summary of Findings (per ft²)

Category	20-year Net Present Value
Energy Savings	\$5.80
Emissions Savings	\$1.20
Water Savings	\$0.50
Operations and Maintenance Savings	\$8.50
Productivity and Health Benefits	\$36.90 to \$55.30
Subtotal	\$52.90 to \$71.30
Average Extra Cost of Building Green	(-3.00 to -\$5.00)
Total 20-year Net Benefit	\$50 to \$65

Source: Capital E Analysis

Green Element GOPs

Objective 4: Enhance Natural Landscape and Open Space

- Preserve and enhance the City's tree canopy
- "Florida-Friendly" landscape code
- Sponsor annual tree give-a-way (2000 trees)



Objective 5: Conserve and Nurture Water Resources

- Reduce citywide per capita water use by 25% to 150 gallons by 2017
- Landscape irrigation systems with auto rain shut-off
- Maintain street sweeping program – 2,500 miles every 2 weeks



Green Element GOPs

Objective 6: Community Waste Recycling and Reuse

- Measure: Increase waste recycling by City government by 5%/year
- Increased citywide recycling bins
- Coordinate waste recycling program with business community



Objective 7: Green Capital Improvements

- Incorporate project sustainability criteria into Annual Budget process and 5-Year SCI
- Adopt LEED certification level for all future City buildings
- Build new City Hall to LEED Silver Standard

Objective 8: Community Learning and Outreach

- Use City website designate information on Doral's green programs and track progress
- Develop "Personal Mobility" website section for transit/carpooling info.
- Recognize "best" sustainable building at the Eco-Fair

Green Element GOPs



Objective 9: Promote Green Business and Job Growth

- Work with the Chamber to develop a strategic action plan for job growth
- Examine zoning and building regulations every 2 years for stream-lining

Objective 10: Lead by Example

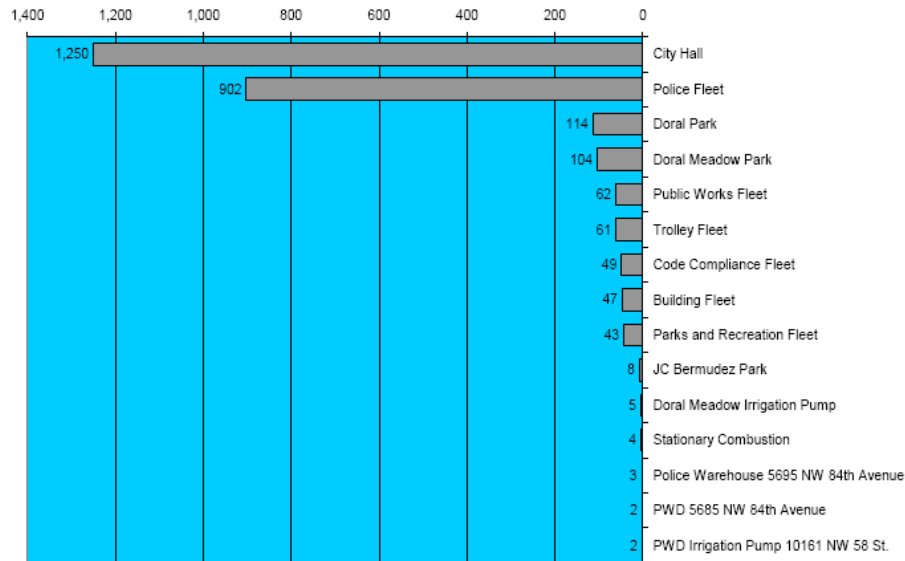
- Attain “Green City Certification” under FGBC at the “Silver” level or higher by 2012
- Designate and fund a “Sustainability Coordinator” position
- Implement an “Environmentally-preferred Purchasing Program”
- Monitor energy and water use



Green Element – Data, Inventory & Analysis

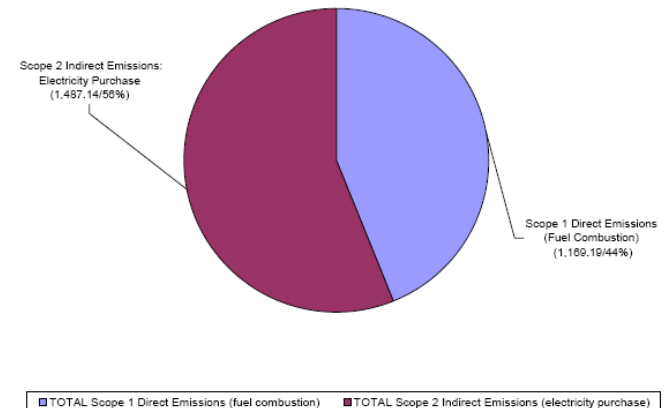
2008 Total Emissions by Source / Government Operation

(metric tons CO₂e)

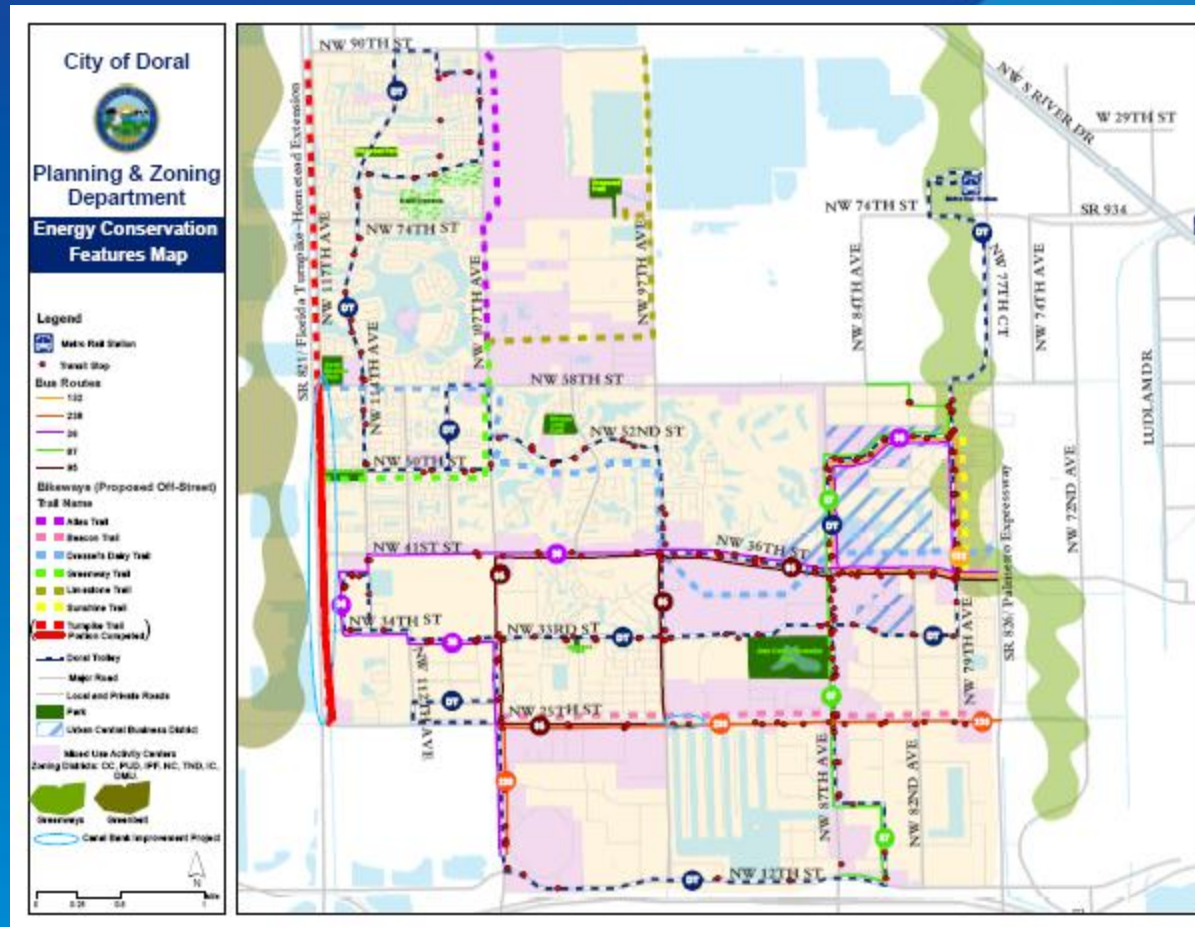


Total City Greenhouse Gas Emissions

Total Scope 1 and Scope 2 CO₂e Emissions (metric tons/%)
Total Emissions: 2,656 metric tons



Green Element – Data, Inventory & Analysis





Keys to Doral's Approach

- City mission = Sustainability
- Comprehensive
- Action-oriented
- Less emphasis on measurement and quantitative targets
- Also involves residents and businesses
- Coordination with Regional and State efforts



Effective Implementation

- Place program direction in Manager's Office
- Make Green Standards part of Annual Budget process
- Monitor accomplishments and savings
- Celebrate successes and give awards





Thank You!

www.ilerplanning.com



CITY OF DORAL

Green Practices

Florida APA

2011



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Doral History

- Incorporated in 2003
- 15 square miles
- Residential Population - approximately 45,000
- Workforce Population - approximately 150,000
- Dorris and Alfred Kaskel founded the Doral Resort in the 1950's, thus creating the name "Doral":



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Land Use

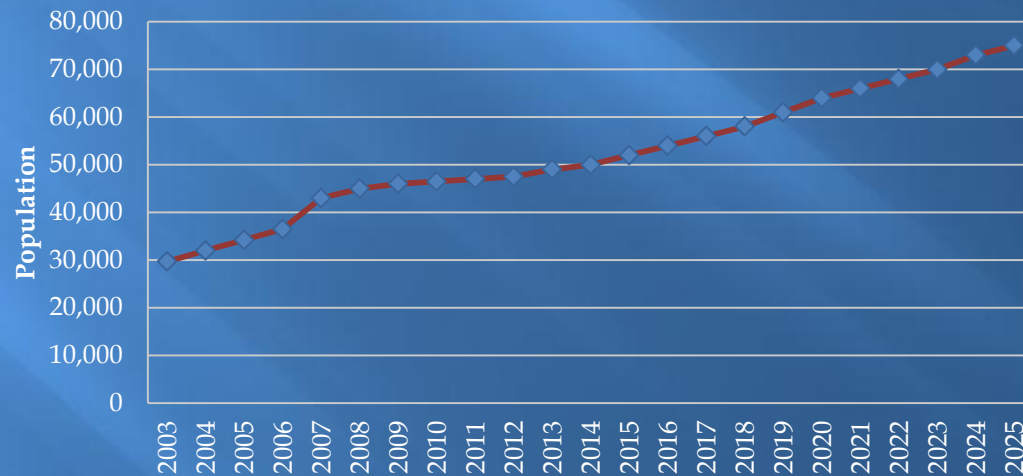
Land Use	Acres	Percent
Residential		
Single-Family (up to 6 D.U./acre)	492.04	4.97%
Low-Density Multi-Family (7 to 25 D.U./acre)	447.57	4.52%
High-Density Multi-Family (greater than 25 D.U./acre)	38.30	0.39%
<i>Sub-Total</i>	<i>977.91</i>	9.88%
Other		
Shopping Centers, Commercial, Stadiums, Tracks	385.92	3.90%
Office	401.62	4.06%
Transient-Residential (Hotels/Motels)	87.26	0.88%
Communications, Utilities, Terminals, Plants	648.32	6.55%
Industrial	1,459.87	14.75%
Industrial Extraction	127.34	1.29%
Institutional	165.19	1.67%
Parks (Including Preserves & Conservation)	918.61	9.28%
Agriculture	300.64	3.04%
Cemeteries	125.53	1.27%
Vacant Unprotected	1,861.15	18.80%
Vacant, Government Owned	84.81	0.86%
Streets*	1,430.10	14.45%
Water*	923.71	9.33%
<i>Sub-Total</i>	<i>8,920.09</i>	<i>90.12%</i>
Total	9,898.00	100.00%



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Population Growth

Population Projection City of Doral





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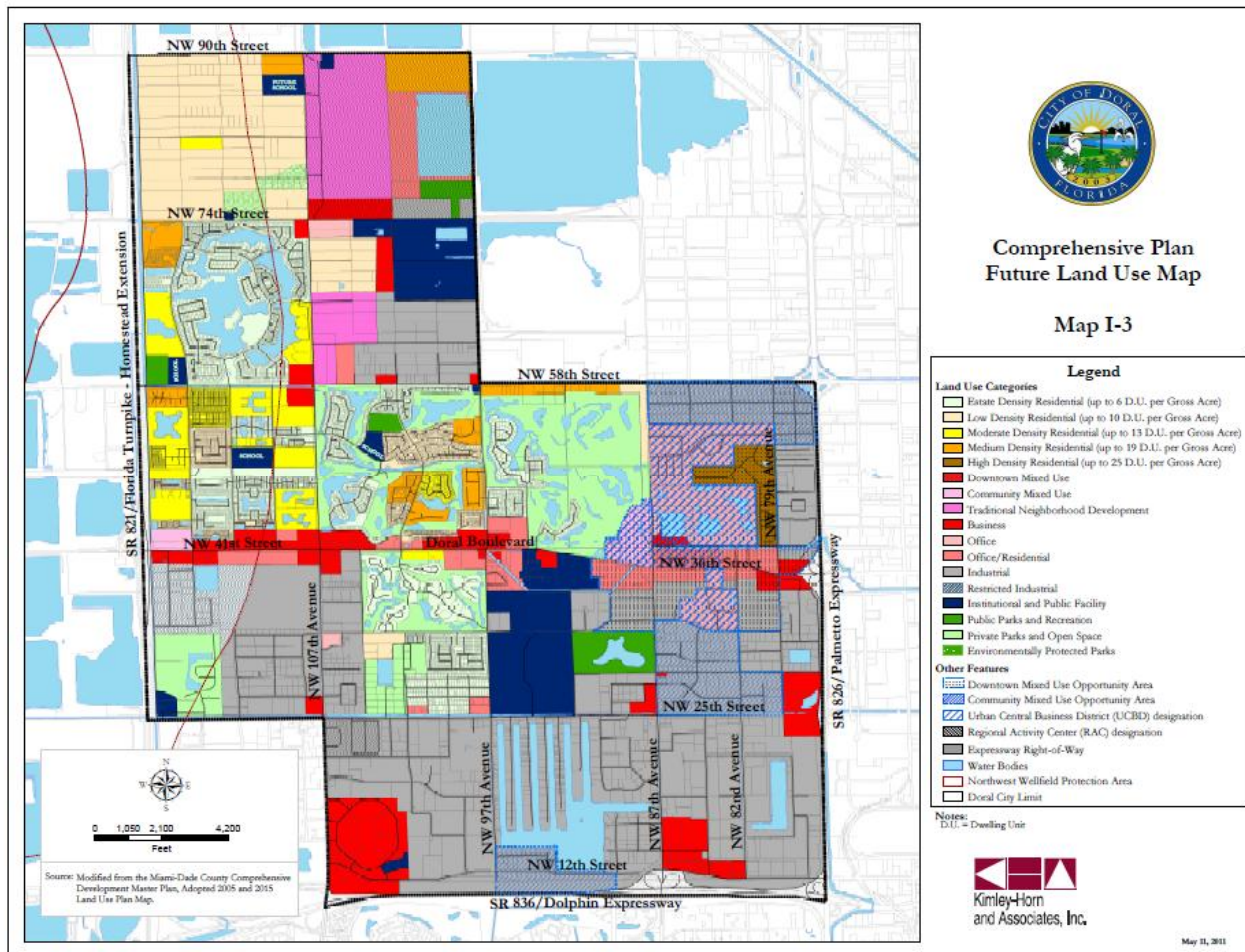
Holistic Approach





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Efficient Land Use





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Efficient Land Use : Urban Mixed Use

- Providing opportunity for downtown and community mixed use development
- Creating true downtown areas with the appropriate mix of commercial and residential
- Ensuring connectivity and public transportation
- Mostly urban infill
- Development is under way!



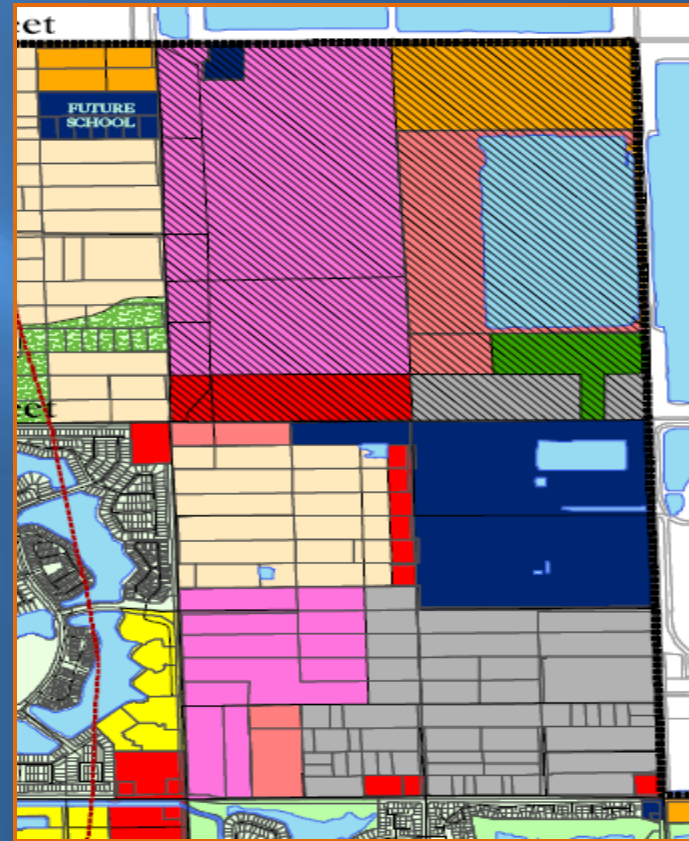
- Downtown Mixed Use Opportunity Area
- Community Mixed Use Opportunity Area
- Urban Central Business District (UCBD) designation



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Efficient Land Use: Traditional Neighborhoods

- Developing medium density traditional neighborhoods in the City's more suburban areas
- Communities are walkable and contain a wide range of residential units
- Contains on street retail components
- Includes a greater amount of park and civic space



Traditional Neighborhood Development

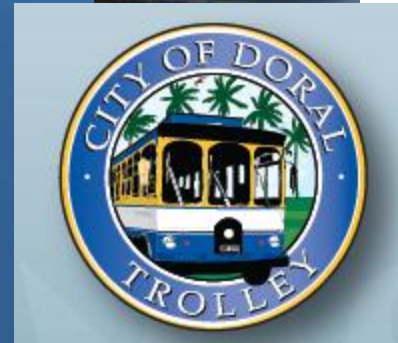


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Public Transportation

- The first Doral Trolley was launched February 1, 2008.
- Currently operating three routes with approximately 30 min headways.
- Rides are Free of Charge!
- As the City's downtown areas develop, new trolleys and routes will be added to the system.
- Larger developments must install trolley terminals as part of their development.

Doral Trolley





USGBC South Florida

Public Transportation

NORTHBOUND WEEKDAY A.M.

	NW 12 ST @ 8:15 AM	NW 107 AV @ 12:30	NW 33 ST @ 10:00 AM	NW 97 AV @ 4:15 PM	NW 52 ST @ 10:00 AM	NW 50 ST @ 11:00 AM	NW 114 AV @ 10:00 AM	NW 109 AV @ 10:00 AM	NW 88 ST @ 10:00 AM
DT01			7:00	7:06	7:10	7:15	7:20	7:24	
DT02			7:40	7:46	7:50	7:55	8:00	8:04	
DT01	8:02	8:05	8:12	8:18	8:25	8:28	8:33	8:38	8:42
DT02	8:42	8:45	8:52	8:58	9:05	9:08	9:13	9:18	9:22
DT01	9:21	9:23	9:31	9:36	9:43	9:46	9:51	9:57	10:01
DT02	10:01	10:03	10:11	10:16	10:23	10:26	10:31	10:37	10:41
DT01	10:39	10:42	10:49	10:55	11:02	11:05	11:10	11:15	11:19
DT02	11:19	11:22	11:29	11:35	11:42	11:45	11:50	11:55	11:59

NORTHBOUND WEEKDAY P.M.

	NW 12 ST @ 8:15 AM	NW 107 AV @ 12:30	NW 33 ST @ 10:00 AM	NW 97 AV @ 4:15 PM	NW 52 ST @ 10:00 AM	NW 50 ST @ 11:00 AM	NW 114 AV @ 10:00 AM	NW 109 AV @ 10:00 AM	NW 88 ST @ 10:00 AM
DT01	2:38	2:40	2:48	2:53	3:00	3:03	3:08	3:14	3:18
DT02	3:23	3:25	3:33	3:38	3:45	3:48	3:53	3:59	4:03
DT01	3:56	3:59	4:06	4:12	4:19	4:22	4:27	4:32	4:36
DT02	4:41	4:44	4:51	4:57	5:04	5:07	5:12	5:17	5:21
DT01	5:15	5:17	5:25	5:30	5:37	5:40	5:45	5:50	5:55
DT02	6:00	6:02	6:10	6:15	6:22	6:25	6:30	6:35	6:40
DT01	6:33	6:36	6:43	6:49	6:55	6:59			
DT02	7:18	7:21	7:28	7:35					

NORTHBOUND SATURDAY

	NW 12 ST @ 8:15 AM	NW 107 AV @ 12:30	NW 33 ST @ 10:00 AM	NW 97 AV @ 4:15 PM	NW 52 ST @ 10:00 AM	NW 50 ST @ 11:00 AM	NW 114 AV @ 10:00 AM	NW 109 AV @ 10:00 AM	NW 88 ST @ 10:00 AM
DT01		7:00	7:05	7:10	7:17	7:20	7:26	7:29	7:32
DT01	8:05	8:10	8:15	8:20	8:26	8:31	8:36	8:39	8:42
DT01	9:16	9:21	9:26	9:31	9:38	9:41	9:47	9:50	9:53
DT01	10:26	10:32	10:36	10:41	10:48	10:51	10:57	11:00	11:03
DT02	10:55	11:00	11:05	11:10	11:17	11:20	11:26	11:29	11:32
DT02	12:05	12:11	12:15	12:20	12:27	12:31	12:36	12:39	12:42
DT01	12:36	12:41	12:46	12:51	12:58	1:01	1:06	1:10	1:12
DT02	1:16	1:21	1:25	1:31	1:38	1:41	1:46	1:49	1:52
DT01	1:46	1:51	1:56	2:01	2:08	2:11	2:17	2:20	2:23
DT01	2:56	3:02	3:06	3:11	3:19	3:22	3:27	3:30	3:33
DT02	3:25	3:31	3:35	3:40	3:47	3:51	3:56	3:59	4:02
DT02	4:36	4:41	4:46	4:51	4:48	5:01	5:06	5:10	5:12
DT02	5:46	5:51	5:56	6:01	6:08	6:11	6:17	6:20	6:23

Doral Trolley No. 1 (DT01) has breaks from 11:50 AM to 12:05 and 2:00 PM to 2:30 PM.
DT01 is on the Lunch Route from 12:05 to 2:00 PM.
Doral Trolley No. 2 (DT02) has breaks from 12:30 to 12:45 PM and 2:45 PM to 3:15 PM.
DT02 is on the Lunch Route from 12:45 PM to 2:45 PM.

Weekday & Saturday Route



SOUTHBOUND WEEKDAY A.M.

	NW 107 AV @ 12:30	NW 114 AV @ 12:30	NW 50 ST @ 10:00 AM	NW 52 ST @ 10:00 AM	NW 97 AV @ 4:15 PM	NW 36 ST @ 10:00 AM	NW 17 ST @ 10:00 AM	NW 84 AV @ 10:00 AM
DT01	7:26	7:30	7:36	7:40	7:44	7:49	7:52	8:00
DT02	8:06	8:10	8:16	8:20	8:24	8:29	8:32	8:40
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DT01	10:03	10:07	10:13	10:17	10:21	10:26	10:29	10:31
DT02	10:43	10:47	10:53	10:57	11:01	11:06	11:09	11:11
DT01	11:22	11:26	11:32	11:36	11:39	11:44	11:47	11:49
DT02	12:02	12:06	12:12	12:16	12:19	12:24	12:27	12:30

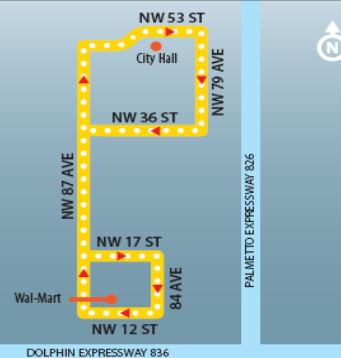
SOUTHBOUND WEEKDAY P.M.

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DT01							2:30	2:35
DT02							3:15	3:20
DT01	3:19	3:24	3:30	3:34	3:38	3:43	3:46	3:54
DT02	4:04	4:09	4:15	4:19	4:23	4:28	4:31	4:39
DT01	4:37	4:43	4:48	4:53	4:56	5:01	5:04	5:12
DT02	5:22	5:28	5:33	5:38	5:41	5:46	5:49	5:57
DT01	5:56	6:01	6:07	6:11	6:15	6:19	6:23	6:31
DT02	6:41	6:46	6:52	6:56	7:00	7:04	7:08	7:16

SOUTHBOUND SATURDAY

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DT01	8:44	8:47	8:55	9:00	9:04	9:07	9:11	9:14
DT01	9:55	9:58	10:05	10:10	10:14	10:17	10:21	10:25
DT02	10:23	10:26	10:34	10:39	10:43	10:46	10:50	10:53
DT01	11:05	11:08	11:15	11:21	11:24	11:27		
DT02	11:34	11:37	11:44	11:49	11:53	11:56	12:00	12:04
DT01							12:31	12:34
DT02	12:44	12:47	12:54	1:00	1:03	1:06	1:10	1:14
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DT02	6:25	6:28	6:35	6:40	6:44	6:47	6:51	6:55

Weekday Lunch Route



To obtain real-time information or detailed schedules please visit the Public Works page at www.cityofdoral.com



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Public Transportation

City of Doral

Bikeway Network Plan

alta **Kimley-Horn and Associates, Inc.**

City of Doral Phase I: Early Win Projects

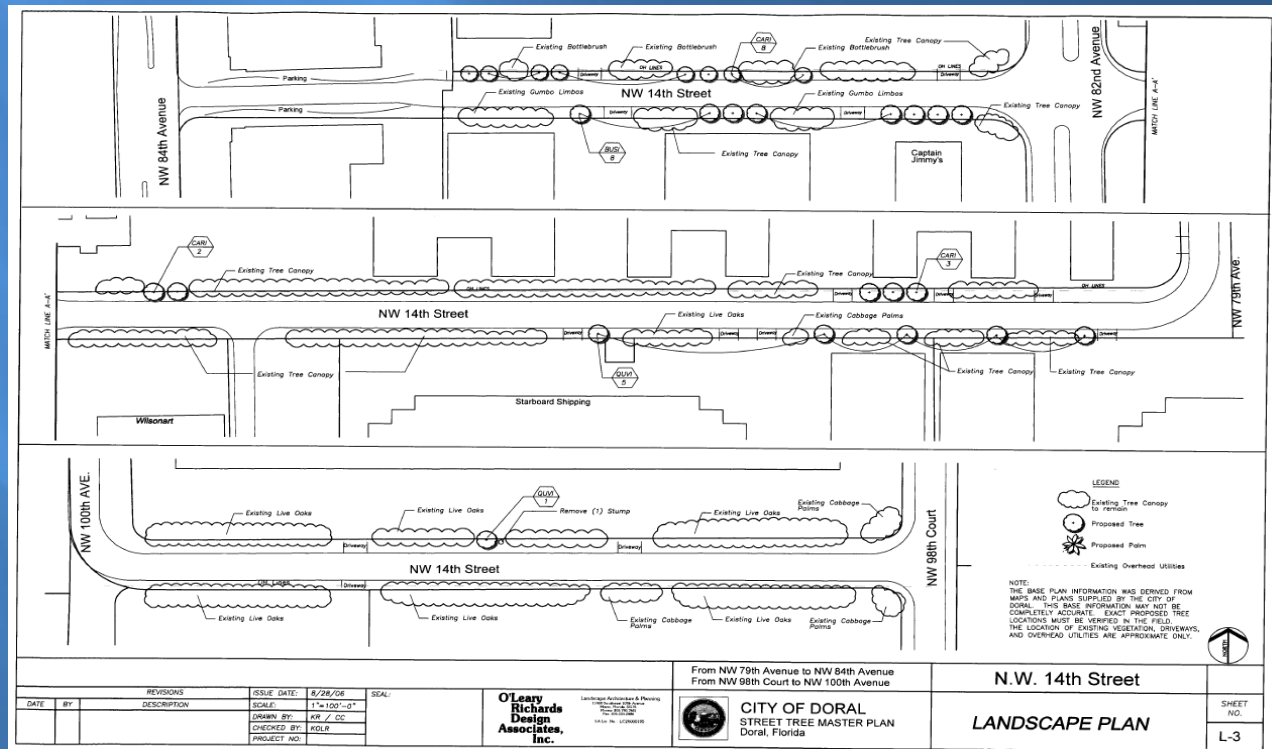




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Natural Environment

City of Doral Street Tree Master Plan





City of Doral

GREEN MASTER PLAN

Green Design for a Sustainable Future



GUIDING GREEN PRINCIPLES

- 1) Reduce vehicle travel miles
- 2) Strengthen landscape and open space standards
- 3) Create strong energy efficiency standards
- 4) Incentivize alternative urban energy sources
- 5) Interconnect the City's places
- 6) Conserve water
- 7) Reuse and recycle
- 8) Bring back community agriculture
- 9) Strive to be a "carbon-neutral" City government
- 10) Initiate education and outreach





City of Doral

GREEN MASTER PLAN

Green Design for a Sustainable Future



City of Doral Green Master Plan

ENERGY EFFICIENCY STANDARDS

Action Strategies

- Require a percentage of homes in new subdivisions to be oriented to minimize solar exposure.
- Encourage windows to be placed on opposite sides of homes to optimize natural ventilation.
- Require shading for south and west facing buildings.
- Encourage new developments to include breezeways and courtyards to increase natural ventilation.
- Encourage natural lighting whenever possible.
- Require "cool roofs" for all rooftops which are not planned for a green roof or solar panels.
- Actively encourage green roofs or solar panels
- Require all developments over 50,000 square feet to provide a minimum percentage of solar power.
- Count green roofs as open space.

ENERGY EFFICIENCY RESOURCES

- **Case studies of green roof regulations in North America 2004**
http://commons.bc.ca/greenroof/publications/2006_regulations.pdf
- **Miami Dade County**
www.miamidade.gov/building/popupdatareader.asp?blobtopop=188

Energy Efficient Design



South Florida's climate is one of the hottest in the country and efficient cooling is an essential consideration for all buildings. By designing to the local climate, landscape and architecture can be utilized to naturally cool surrounding properties. Tree placement, light colors, the location of windows and doors, reflective roofing, building orientation, shading and cross ventilation offer opportunities for natural cooling. Buildings should be positioned to maximize insulating and cooling capacities, ultimately reducing energy usage and greenhouse gas emissions.

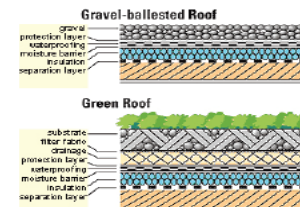
Buildings should be designed with the longest side on an **east-west axis**, and with a large percentage of the windows on the north side, so that the house minimizes solar exposure. **Shading devices** such as awnings, overhangs, porches and trellises can both provide aesthetically pleasing architectural features while saving energy and reducing costs. Solar orientation may not be necessary for infill sites as the adjacent buildings serve to block sun and naturally cool buildings. A recent study in the San Jose area concluded that proper solar orientation of new homes produced an 11% to 16% savings in total energy and up to a 40% savings in space cooling.

Rooftop Design

According to the EPA over 90% of the roofs in the United States are dark-colored. Dark colored roofs can reach temperatures of 150 to 190°F (66 to 88°C) and contribute to higher cooling costs, increased energy use and increased contribution to the heat island effect.

A **cool roof** reflects and emits the sun's heat back to the sky instead of transferring it to the building below. The effectiveness of a cool roof is measured by a roof's albedo (the natural ability to reflect light) and thermal emittance. Reflective roofs reflect sunlight away the same way the polar caps do. Painting roofs and buildings with white, light or reflective materials can increase the albedo of a roof to provide a simple solution that create a large impact. The EPA claims that a cool roof can reduce annual cooling energy use between 20–70% in California and Florida.

Green roofs or ecoroofs have a waterproofing and root repellent system, a drainage system, filter cloth, a lightweight growing medium and plants. These roofs offer extensive insulation for buildings and can also cool the urban environment, reducing the presence of heat islands.



Environmental Protection Agency

Solar Panels harvest or collect the sun's rays to convert it to electricity. Solar Cells, or photovoltaic cells, are arranged in a grid-like pattern on the surface of the solar panel. Individual cells are used for powering small devices such as calculators.

BEST PRACTICES

- NYC provide tax abatements to encourage construction and maintenance of green roofs in the City
- In 1994, Georgia passed the "Georgia White Roof Amendment"
- The Utah City Olympic Oval utilizes cool roof technology.
- Chicago and Austin offer Floor Area Ratio (FAR) bonuses for Green Roofs.
- Orange County offers "Green Carpet Service" to developers who build green.
- Charlie Crist recently passed Executive Order 07-126, declaring that the State will strive for Platinum Level certification for any new building constructed for or by the State of Florida.
- Miami-Dade County and Miami both require LEED Silver certification for government construction.





City of Doral

GREEN MASTER PLAN

Green Design for a Sustainable Future



City of Doral Green Master Plan

ALTERNATIVE URBAN ENERGY SOURCES

Action Strategies

- Create goals, objectives and policies in the Conservation Element to address factors affecting energy conservation
- Create a technical advisory committee to ensure that existing codes are green friendly and to eliminate any conflicting regulations between codes. The committee will be comprised of members from departments such as Planning and Zoning, Building, Finance and Public Works. The committee will identify and remove regulatory obstacles that restrict green building practices.
- Add solar energy systems as permitted accessory uses in all zoning districts.
- Allow small wind turbines in all commercial, industrial and multi-family areas, subject to noise specifications.
- Allow modest encroachments into building setback areas to facilitate placement of solar facilities.
- Create a special building permit fee for solar panels that only covers the estimated cost of staff time and is not based on the cost of the expensive solar panels.
- Require all developments over 50,000 square feet to provide a minimum percentage of solar power.



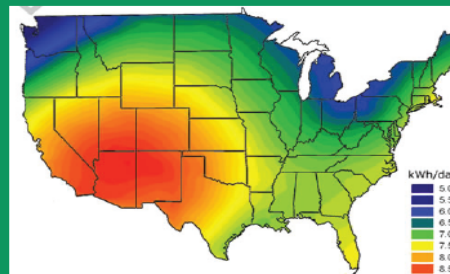
Alternative Energy in South Florida

Largely due to the year round hot weather, Florida's energy use per household is one of the highest in the United States. As fuel prices such as coal, oil and gas continue to rise, leaders are turning to alternative energy sources to harness the power of the sun. Investments in alternative energy will save dollars, reduce emissions of greenhouse gases, and reduce dependency on foreign oil.

The Florida Energy Center conducted a study measuring the performance of 2-kWh photovoltaic systems across the country. The research showed that Florida has 85% of the maximum photovoltaic (PV) resource available (7.2 kWh/day out of a maximum of 8.5 kWh/day) making Florida a cost effective location for solar energy.

Wind is another option for alternative energy in Florida. There may be some wind capability along the coasts of Florida, however currently solar energy is the more efficient option. For more information on wind resources in Florida, contact the U.S. Department of Energy

SOLAR CAPABILITIES IN THE SUNSHINE STATE



Source: Florida Energy Center

INCENTIVES

- Reduced permit fees and expedited permits for developments that utilize alternative energy.
- Reduced building permit fee for solar panels
- Energy Efficiency & Conservation Block Grant (EECBG) to fund green initiatives
- Department of Energy - Renewable Energy Loan for alternative energy projects
- Florida Renewable Energy Technologies and Energy Efficiency Act - partial reimbursements for new solar energy systems. Funding for FY 2008-2009 is exhausted, but applications are still being accepted and placed on a waiting list until funding is approved.



City of Doral

GREEN MASTER PLAN

Green Design for a Sustainable Future



Guiding Green Principles

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- Interconnect the City's places
- Conserve water
- Reuse and recycle
- Bring back community agriculture
- Strive to be a "carbon-neutral" City government
- Initiate education and outreach



ACTION ITEMS	REFERENCE PAGE	LAND DEVELOPMENT CODE	COMPREHENSIVE PLAN	INTERDEPARTMENTAL COORDINATION	INTER-AGENCY COORDINATION	PUBLIC/PRIVATE/NON-PROFIT PARTNERSHIP	ORDINANCE	RESOLUTION	WEBSITE	RECOGNITION PROGRAM	CITY BUDGET	GRANT	RECOMMENDED LEAD DEPARTMENT
DEVELOPMENT REGULATIONS AND GUIDELINES													
• Amend the DIA and the GOPs of the Comprehensive Plan outlined in this plan	See summary table p 34		•	•	•		•				•		PZ/CC
• Update the Land Development Code to include the changes outlined in this plan	See summary table p 36	•		•			•				•		PZ/CC
• Establish a Green Building Program	15			•					•		•	•	CC
• Adopt a tree preservation ordinance	12	•	•		•		•						CC/PZ
PUBLIC REALM													
• Replace traffic lights and crossing signals with LED lights	27			•							•	•	PW
• Use energy efficient light bulbs with timers and auto-shut off for street lights	27			•							•	•	PW
• Examine traffic signal timing and coordinate where inefficient	27			•									PW
• Place recycle bins in the City's parks and downtown areas	22										•	•	PW
• Place large dumpsters for recycling near a public building	22				•						•	•	PW
• Provide "wayfinding" in the downtown areas	18					•					•	•	PZ/PW
• Create a public arts program	18					•	•				•	•	PZ/PW
• Actively encourage and facilitate the formation of a farmers' market	24		•	•					•		•	•	CC/PZ
• Continue to build bicycle trails	18			•		•					•	•	PW/PZ
• Establish a hierarchy of sidewalks	18	•	•										PZ
• Conduct a transportation study	19											•	PZ
• Install bike racks in downtown and mixed use districts	18					•					•	•	PW
• Survey large exposed paved surfaces	12				•	•		•				•	PW
• Start a public/private partnership to plant trees	12			•	•	•					•	•	CC/PZ
• Examine the feasibility of using reclaimed water	20		•		•			•			•	•	PW



Florida APA

Florida Green Building Coalition City Certification

- The FGBC's City Certification is a similar process for a building to achieve a LEED Certification.
- The City, in conjunction with Iler Planning, created a Green Action Committee (GAC) made up of representatives from all City Departments.
- The GAC identified all possible City activities, regulations and practices that would obtain possible points in order to seek Certification.
- The City is already doing a lot with respects to sustainability, but this exercise pointed out more that we can do.
- The City is in the process of creating new ordinances and policy to implement new activities.



Florida APA

Green Element

- Amending the City's CDMP in response to Senate Bill #697 utilizing the City's Green Master Plan to generate policy. 2nd Reading Next Week!
- Instead of adding Goals Objectives and Policies to the existing Elements, a new Element "Green Element" was created.
- The Green Element will be the first Element, placed before the Future Land Use Element.
- The Element has one Goal and Ten Objectives.



Florida APA

Green Element

- Goal: To conserve our natural resources, minimize greenhouse gas emissions, enhance community health and education, nurture city neighborhoods, and promote carbon-neutral business growth to ensure that a lush green sustainable legacy will be left for future generations of Doral residents.

- Objective Titles:

- Sustainable Land Use and Design
- Mobility and Connectivity
- Smart Buildings and Places
- Enhance natural open space and landscape
- Conserve and nurture healthy water resources
- Community waste recycling and reuse
- Green capital improvements
- Community learning and outreach
- Promote green business and job growth
- Lead by example



Florida APA

What's Next ?

- Complete the FGBC City Certification Process.
- Creation of a "Green" Land Development Code.
- Establish a monitoring system for energy and water usage, and waste generation/recycling.

For more information, please feel free to contact me at
nathan.kogon@cityofdoral.com

SUSTAINABLE DEVELOPMENT CODES



Presented By:

Benjamin A Herman, FAICP

bherman@clarionassociates.com

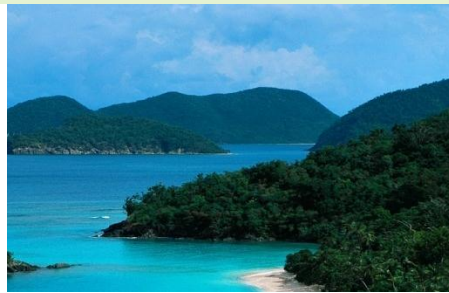
C L A R I O N



Florida APA Conference

September 2011

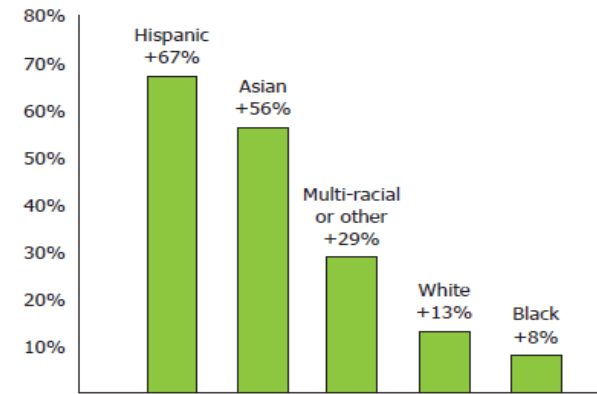
A Sustainable World???



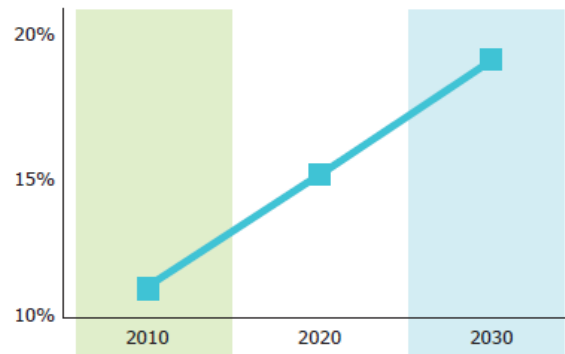
- **Fuel:** Oil production to peak in next 5-10 years...while world oil consumption increases by 50% by 2030.
- **Food:** China will demand more food in 2030 than the entire world produces today.
- **Health:** 34% of U.S. population obese. Obesity in children has tripled in last 3 decades. Costs the nation \$147 billion in weight-related hospital bills.
- **Climate:** Last decade--hottest on record; 99% of glaciers in Alaska in retreat; 5-foot sea level rise; weather extremes predicted...violent storms, drought..
- **Biodiversity:** Habitat destruction...ocean acidification = 6TH major species extinction event looming??

A Changing Nation

- Changing household makeup
- Aging population
- Increasing fuel costs (peak oil)
- Water shortages/increasing costs
- Local government financial strain

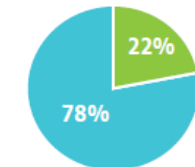


GROWING DIVERSITY: The percentage change by race from 2000–2009 illustrates the growth of minority populations in the region.



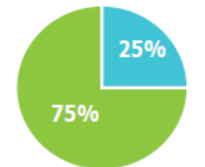
AGING POPULATION: The number of people aged 65 and over is expected to grow from 11 percent in 2010 to 19 percent in 2030.

HOUSEHOLDS BY TYPE 2008



 Married couples with children
 Other households

BUILDING PERMITS SINCE 2000

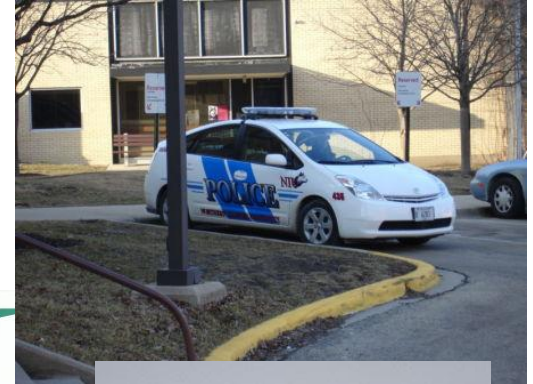


 Single-family housing
 Multifamily housing

CHANGING FAMILY DYNAMICS: Families with children make up less than one-fourth of all households, but three-fourths of new homes are designed for single families.

Local Government Sustainability Programs

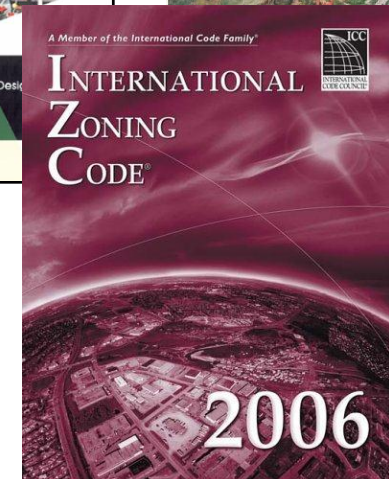
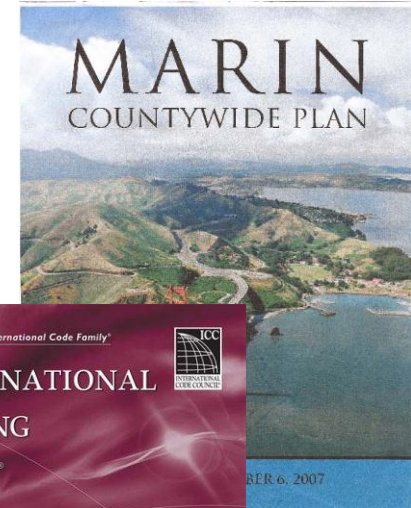
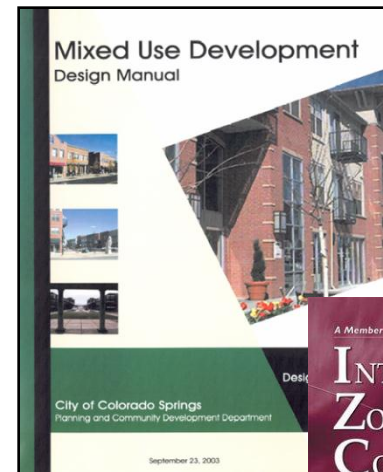
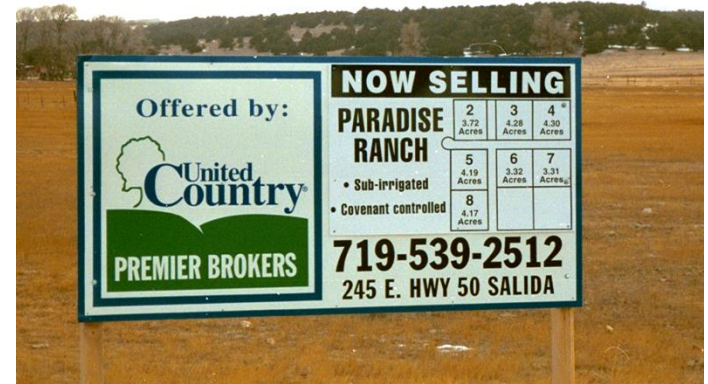
- Hybrid fleets
- Compact fluorescent bulbs
- Plant street trees
- Green city buildings
- Purchase renewable power
- Recycling programs



What's Missing?

Little focus on:

- Development patterns/
private development
- Development code
barriers to “green”
projects
- Incentives



How Can a Development Code Support Sustainability?

- Development codes CAN help address critical issues:
 - CLIMATE CHANGE/CARBON EMISSIONS
 - RENEWABLE ENERGY
 - FOOD SUPPLY
 - HEALTH
 - WATER CONSERVATION
 - MOBILITY
 - HOUSING CHOICES
 - AND OTHERS



Key Features of a Sustainable Code

1. Covers **new topics**: energy, health, food security, climate change, recycling—and relationships among them
2. **Not just reactive or prescriptive**: removes barriers, creates incentives
3. **Balanced approach** to environment, economics, social aspects of development
4. **Tailored** regionally to local climate and ecology



Three Paths to Sustainability

THINK B-I-G!!

- **BARRIERS**

- > Allow mixed-use development by right without special hearings or conditions

- **INCENTIVES**

- > Offer more flexible development standards for infill development.

- **GAPS**

- > Fill regulatory gaps ~ address what is missing



Example: Miami-Dade County

- Funded by DOE EECBG Grant
- Incorporate sustainability provisions into development regulations and building code
- Focus areas:
 - Energy Efficiency
 - Greenhouse Gas Reduction
 - Renewable Energy Systems



Example: Miami-Dade County

Energy Efficiency & Conservation Focus Areas:

Remove barriers to green roofs (lack of standards)

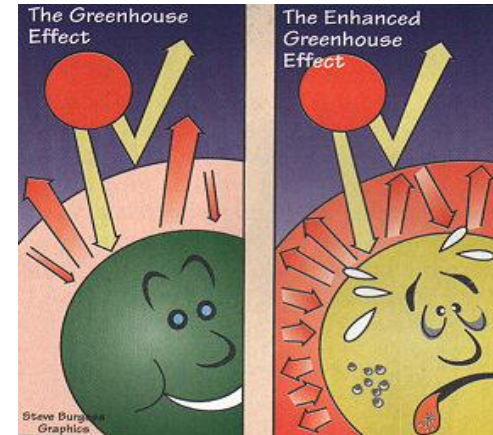
- Energy-efficient outdoor lighting
 - Water budgets for all uses
 - Allow non-conforming uses to add green features without triggering conformity
 - Shade structure requirements
 - Expedited permitting for green buildings
- Major Barrier= FL State Building Code restriction on adopting more stringent standards



Example: Miami-Dade County

Greenhouse Gas Reduction Focus Areas:

- Promoting compact, mixed-use development patterns
- Recycling & composting
- Tree protection strategies (landscape credit)
- Provisions for ADUs
- Standards to increase MXD (incentives, parking reductions, etc)



The greenhouse effect – greenhouse gases trap heat and are linked to the leading cause of global warming.

WWW.LAW.DU.EDU/RMLUI



Sustainable Community Development Code

A Code for the 21st Century

Beta Version 1.1



CLARION

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K. ECONOMIC HARDSHIP ARGUMENTS

Typical Ordinance Provision:

DISTRICT OF COLUMBIA:

No permit shall be issued unless the Mayor finds that such issuance is necessary in the public interest or that a failure to issue a permit will result in unreasonable economic hardship to the owner. (District of Columbia Historic Landmark and Historic District Protection Act of 1978, D.C. Law 2-144, Section 6(f))

Annotation:

Though many property owners have made hardship arguments when applying for certificates of appropriateness, few court decisions have yet turned on or involved a hardship issue. Future cases involving preservation commissions are likely to focus increasingly on hardship issues. Some owners will argue that designation forces them to continue or institute expensive maintenance procedures, and others will argue that designation so burdens their property or inhibits its usefulness that a constitutional "taking" has occurred.

A Louisiana court held that the location of property within a historic district would not automatically make a case for hardship:

And here the hardship referred to, the requirement of conformity to two separate and sometimes conflicting standards of construction, is neither "unusual" nor "particular" to Mercier. It is common to all property owners in the zoning district in which Mercier's lot is located and therefore is not a hardship which justifies the granting of a variance. To hold otherwise would have the effect of destroying the zoning district. *Phillips v. Board of Zoning Adjustments of City of New Orleans*, 197 So.2d 916, 920 (La. 1967).

Property owners making a hardship argument have often ignored alternatives open to them. The court in *Phillips* noted that though the property owner wished to violate a local ordinance prohibiting the construction of a second main building on his lot, alternatives were open to him:

According to its own architect, Mercier could have accomplished its purpose by construction which did not violate the prohibition against two main buildings on one lot. Therefore, in the absence of a showing that approval of such non-violative construction could not have been obtained from the Vieux Carré Commission, we cannot hold appellant suffered financial loss in being denied an opportunity to obtain an increased return from its property. Even if financial

OLD-STYLE MODEL CODE



ABA APPROVED

Current Topics

- Climate Change
- Low-Impact Development/Green Infrastructure
- Wildlife Habitat And Biodiversity Protection
- Water Conservation
- Wildfires
- Transit-Oriented Development
- Complete Streets
- Bicycle Mobility Systems
- Pedestrian Mobility Systems
- Public Transit
- Parking
- Public Participation
- Affordable Housing
- Housing Diversity and Accessibility
- Food Production and Security
- Renewable Energy: Wind
- Renewable Energy: Solar
- Visual Elements



Climate Change and Greenhouse Gas Reduction

INTRODUCTION

Global warming is being accepted as a fact of life in most quarters. Tangible evidence seems to be accumulating on an almost daily basis—shorter winters, melting polar ice caps, rising sea levels, and deeper droughts. Greenhouse gases are increasingly linked to global warming and are seen as a primary culprit.

Greenhouse gases are made up of carbon dioxide, methane, and nitrous oxides. They contribute to global warming by trapping radiation from the sun. The bulk of greenhouse gases emitted in the United States is associated with transportation (e.g., cars) and energy generation and usage.

IMPLICATIONS OF NOT ADDRESSING THE ISSUE

If current low-density, "sprawl" development patterns in many communities continue and expand, the ability to reduce VMTs in the future will be seriously hampered. Once development patterns are set, it is exceedingly difficult to affect travel patterns and preferences. Low-density development makes cost-effective mass transit nearly impossible.

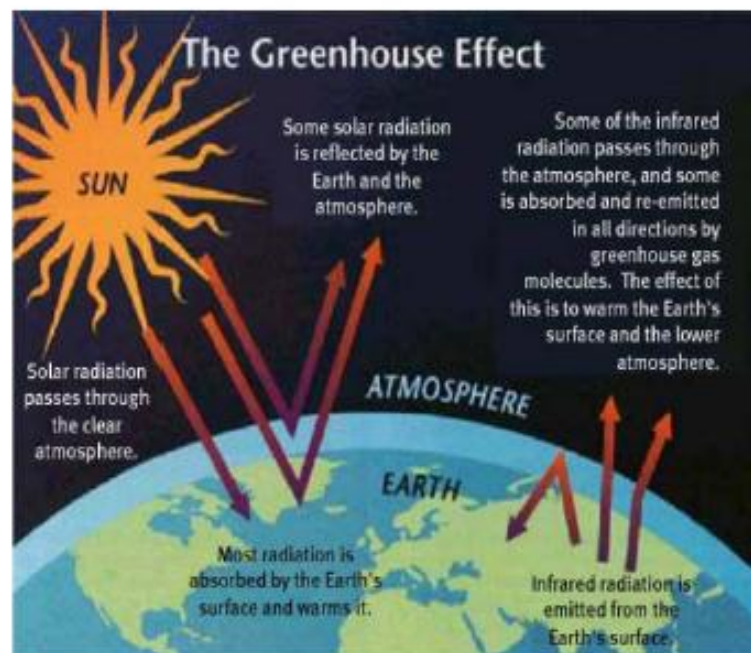
The same is true with preservation of mature trees that absorb huge quantities of greenhouse gases and sequester them for many years. If mature trees are needlessly cut to accommodate new development rather than new development being shaped to preserve these trees whenever possible, their destruction will actually release stored greenhouse gases (through burning or rotting), and it will take decades to replace them with smaller trees that absorb much less carbon dioxide in their early years.

Additionally, if communities do not take steps to accommodate and encourage alternative energy sources such as wind and solar, development patterns may be set that prohibit retrofitting in the future.

THE ROLE OF LAND USE REGULATIONS IN CONTROLLING GREENHOUSE GAS GENERATION

Land-use and zoning regulations can thus play an important role in helping to reduce greenhouse gas emissions through:

- Encouraging development patterns that allow less reliance on autos for mobility and result in reduction in vehicle miles traveled and corresponding greenhouse gas emissions.
- Preserving existing trees that can sequester carbon dioxide and require the planting of new trees.
- Promoting alternative energy generation such as solar and wind power that do not generate greenhouse gases as do oil, gas, and coal-fired power plants.



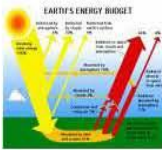
DRAFT Sustainable Community Development Code Framework

CLIMATE CHANGE AND GREENHOUSE GAS REDUCTION

KEY STATISTICS AND FACTS:

- Greenhouse gases include carbon dioxide, methane, and nitrous oxides.
- The United States, with 4% of the world's population, emits almost 25% of global carbon dioxide each year—second only to China. Carbon emissions in the U.S. have increased about 20% since 1990.
- In the U.S., each person's direct emissions amount to 40% of this total—mostly from household energy and transportation. Total per person carbon emissions are about 16.5 metric tons (11.0 home; 5.00 auto; .5 air travel). 60% of transportation emissions come from fueling and driving autos.
- The average mid-size car emits 9,500 pounds of carbon dioxide annually.
- In the U.S., development is becoming more spread out—land consumed for development has increased at a rate of twice that of population growth between 1982 and 2002. During that period, per capita vehicle miles traveled (VMT) increased three times population growth.
- According to a study of 83 metro areas by Reid Ewing, residents in compact regions (Boston, Portland) drove about 25% less than those in sprawling regions (Atlanta, Raleigh).
- Residents in the most walkable neighborhoods drive 26 fewer miles per day than those in the most sprawling areas according to a report conducted in King County, Washington, by Larry Frank. A study for the City of Sacramento, CA, reported that a compact growth scenario would result in a 25% reduction in VMT/house/day.
- According to a study by Ewing, a doubling of development density can reduce VMTs by 5%. Other studies report a 5-15% reduction in VMT associated with mixed-use projects.
- According to the Dept. of Energy, a 30-year old hardwood tree can sequester the equivalent of 136 pounds of carbon dioxide annually. About 70 such trees would offset the carbon dioxide emissions from one medium-size car.
- Planting a hectare of riparian forest can over the next 100 years offset the carbon emissions caused by 54,000 gallons of gasoline.
- Net carbon sequestration by forests, urban trees, and agriculture can offset 15% of total U.S. carbon dioxide emissions annually.

CLIMATE CHANGE AND GREENHOUSE GAS REDUCTION

		ACHIEVEMENT LEVELS			References/Commentary	Code Examples/Citations
		Bronze (Good)	Silver (Better)	Gold (Best)		
 	Remove Obstacles	- Allow mixed-use development by right in selected zone districts - Permit solar and small wind turbines by right in selected zone districts (See Renewable Energy Section (solar access and wind power) of Model Code for citations.) - Allow accessory units and live/work units by right in residential zone districts - Allow live-work units in commercial and mixed-use districts to reduce VMT - Permit small-scale recycling facilities in residential zone districts	- Allow larger recycling facilities in appropriate industrial and commercial zone districts - Reduce parking requirements for mixed-use developments/in mixed-use districts - Tailor development standards (e.g., landscaping, open space, parking) to encourage infill and mixed-use development (e.g., alternative open space such as plazas, community gardens, green roofs; reduced landscaped buffers with enhanced ornamental fencing) - Reduce overly restrict height/setback requirements for small-scale wind turbines	- Require all single-family developments to include minimum % of accessory units - Prohibit single-use developments/buildings in commercial zone districts (e.g., downtown) - Prohibit urban level development (e.g., more than 1 unit/acre) outside defined urban service areas	- See treeools.org for tools for protecting trees and urban forests. T. Litman, Parking Management Best Practices, American Planning Assn. 2006. - See Smart Code mixed-use (transsect) districts at http://www.smartcodecentral.org/ - US Department of Energy methodology for calculating carbon sequestration by trees: http://ftp.eia.doe.gov/pub/oiaf/1805/cdr/omvpdf/sequester.pdf	- Colorado Springs Mixed-Use Development Manual, http://www.springs.gov.com/units/planning/Currentorv/CompPlan/MixedUseDev/1.pdf - Santa Cruz, CA – accessory dwelling unit program http://www.ci.santa-cruz.ca.us/pl/hcd/ADUadu.html. See Housing Affordability Section of Model Code for additional citations regarding accessory dwelling units. - State of Oregon urban growth boundary regulations. http://www.oregon.gov/LCD/ruraldev.shtml
	Create Incentives	- Offer density/height bonuses for green roofs - Give bonus points for green/cool roofs in commercial design standard point systems	- Reduce transportation impact fees for mixed-use and infill projects to reflect lower traffic generation - Create density bonus and expedited processing incentives for infill and	Encourage low-energy maintenance landscaping by giving additional landscaping credit.	Chesapeake Bay Program urban tree canopy program http://www.dnr.state.md.us/forests/orc/ams/urban/urban/treecanopygoals.asp	Portland, OR, FAR bonuses for ecoroofs (City zoning code 33.510: http://www.epa.gov/hri/resources/pdf/EcoroofsandGreenCityStrategies.pdf

DRAFT Sustainable Community Development Code Framework

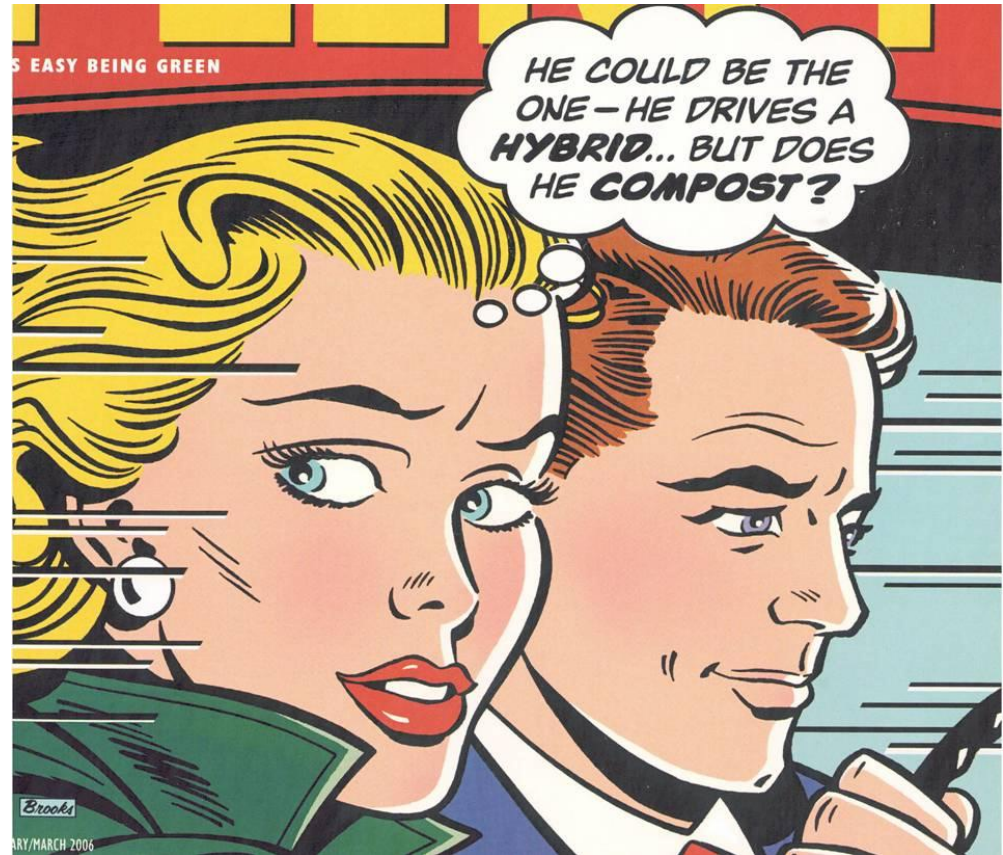
CLIMATE CHANGE AND GREENHOUSE GAS REDUCTION

		- Allow and encourage shared parking arrangements - Give priority parking for vans, hybrid vehicles in parking standards - Give increased landscaping credit for preserving existing trees	- mixed-use developments - Allow green roofs to qualify for open space credits - Offer height increases, density bonuses, and flexibility regarding non-conforming use regulations for projects that remove impermeable surfaces from existing developments or reduce during redevelopment or use permeable pavement		For general information on permeable pavement, see http://www.epa.gov/owow/nps/pavements.pdf and http://www.en.wikipedia.org/wiki/permeable_paving	- Landscaping credit for preserving existing trees: http://www.collerville.com/files/Ch.%2004%20Landscaping%20and%20Buffering.pdf; http://www.ewgateway.org/pdf/files/library/wrc/TB-LandscapingReqs.pdf - Austin, Texas, Development Code: Subchapter E: Design Standards and Mixed-Use, available online at http://www.ci.austin.tx.us/development/downloads/final.pdf
 	Enact Standards	- Require sidewalks in all developments and connections with adjacent sites - Adopt historic preservation standards to protect existing structures (and energy they represent) - Limit trees on southern sides of buildings in northern climates to preserve solar access - Adopt regulations to protect larger trees - Require provision of bicycle racks in all multifamily and commercial developments	- Require replacement of all trees removed during development on an inch/vinch diameter basis or contribution to offsite tree fund - Enact minimum density/intensity standards to encourage compact development - Adopt pedestrian connectivity standards to reduce vehicle use - Enact solar access ordinance (See Renewable Energy/solar access section.) - Require bicycle fleets for all hotels, resorts - Limit number of garages allowed on each residential lot (1-2 vs. 3-4) - Limit impermeable surface areas and require use of permeable pavement in appropriate areas	- Require green roofs on all commercial and multifamily developments. - Require low-energy landscaping. - Enact limitations on house size - Adopt minimum reforestation requirements for sites without vegetation. - Establish mandatory carbon budgets/limits for new developments (emissions from added traffic, energy used in construction materials, future energy requirements) and offsets/impact fees - Require minimum % of homes in subdivisions to be oriented for passive solar access (on an east/west axis) (See Renewable Energy/solar access section.) - Require outdoor signage to be turned off when business is closed - Require new developments to be carbon neutral	- American Planning Assn. PAS Report 446, Tree Conservation Ordinances, Zoning Practice July 2006, <i>Tree Preservation</i> - For a good discussion of a carbon offset measurement methodology, see Forest Guardians Carbon Offset Program Description: http://www.forestguardians.org/support_documents/document_carbon-calculation-methodology_2-07.pdf - US EPA Personal Emissions Calculator: http://www.epa.gov/climatechange/emissions/ind_calculator.html - U.S. Green Building Council, LEED for Neighborhood Rating System (See Green Construction and Technology chapter.), available online at http://www.usgbc.org/DisplayPage.aspx?CMSPageID=222	- Aspen/Pitkin County Renewable Energy Mitigation Program: http://www.aspenrc.org/sitepages/pid31.php; http://www.greenpowernews.org/Solar4aspencode.html - Boulder, Colorado, Solar Access Regulations, available online at http://www.boulder.colorado.gov/files/PDS/codes/solarshad.pdf - Maryland Forest Conservation Act/Regulations: http://www.dnr.state.md.us/forests/programaps/newfca.asp - Franklin, TN, connectivity 5.10.4 and tree protection regulations (5.3): http://www.franklin.gov.com/pdf/Franklin%20Zoning%20Ordinance-%20Effective%201-1-08.pdf - Bicycle Level of Service Standards: http://sf-now.com/sf-bike/SFBC_LOS_Research.pdf; Florida DOT: http://www.dot.state.fl.us/planning/svstems/srnl/os/pdfs/blos-art.pdf - Fort Collins, CO, minimum density requirements in medium-density mixed-use zone district: http://www.ci.fortcollins.co.us/cityclerk/codes.php

<http://law.du.edu/index.php/rmlui/rmlui-practice/code-framework/model-code>

Sustainable Code: Other Issues

- Transportation
- Natural area protection
- Urban agriculture
- Community health

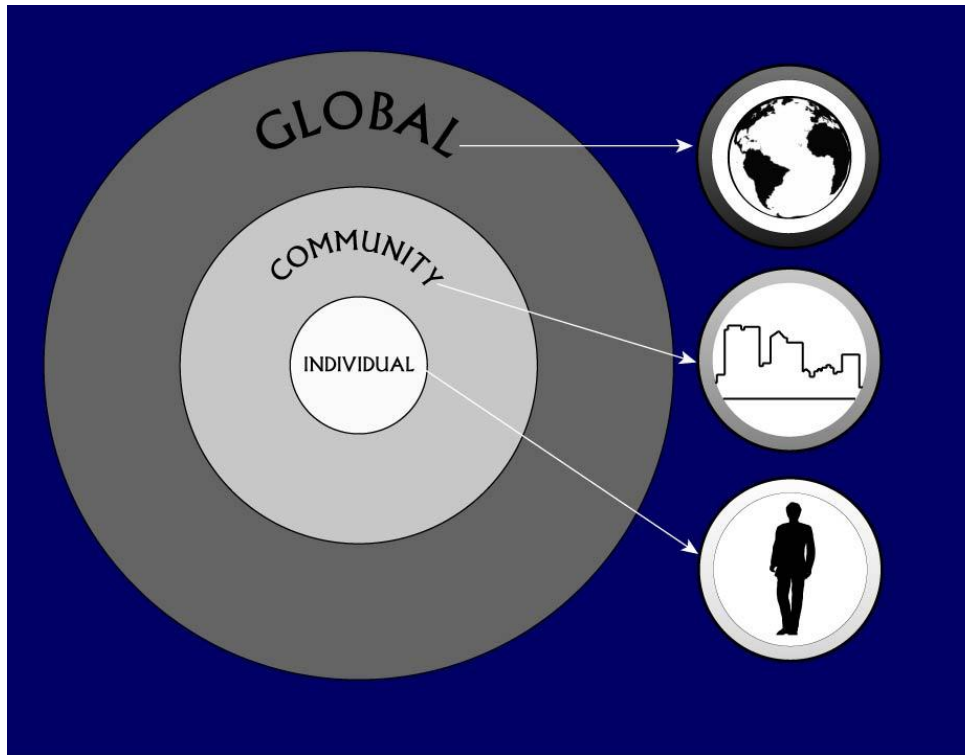


Other Examples

- Tucson, Arizona
 - Food production
 - Water quality and conservation
 - Urban heat island
- Omaha, Nebraska
 - Building design and construction
 - Affordable housing/diversity
- Salt Lake City, Utah
 - Open space
 - Community health and safety



Code Green: Dollars and Sense



- Individual:
 - How will I benefit?
- Community:
 - How will my neighborhood/community benefit?
- Global:
 - How will this benefit my country/the planet?

Example: Water (individual)



- Indoor:
 - Retail cost \$236
 - \$56/year savings



- Outdoor:
 - Xeric landscape savings of \$400-1,000 yr. in water costs & lower maintenance, lower initial capital cost

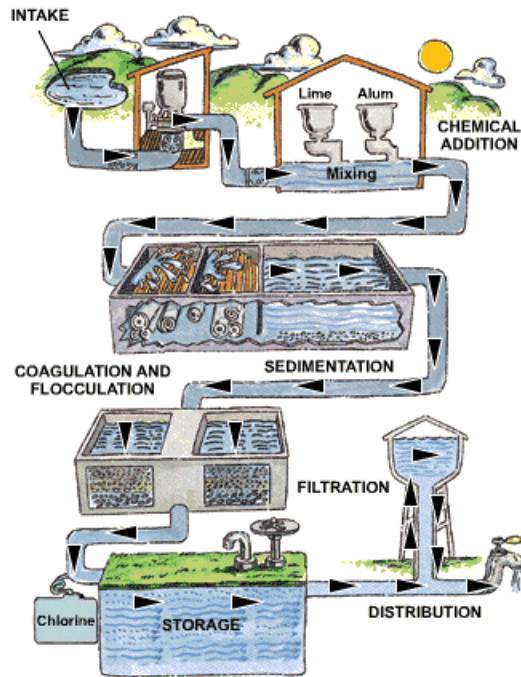
Example: Water (Community)



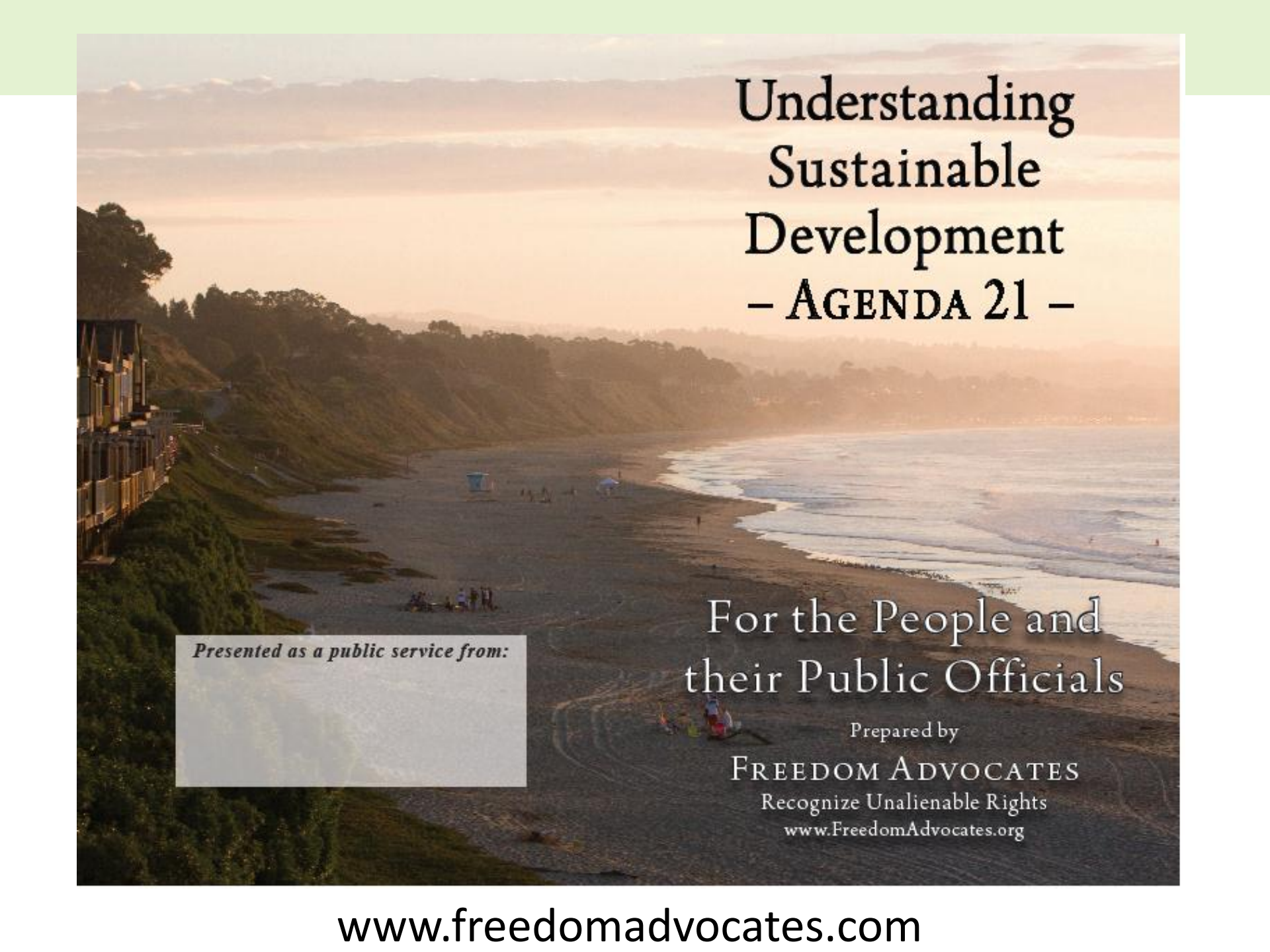
East Bay, CA, Municipal Utilities District

- *Best method to meet district-wide water demands by 2040?*
- Water conservation method...\$1,655 per AF of water.
- Facility/infrastructure expansion method...\$2,086 per AF, not including ongoing operations, maintenance, & environmental costs.

Example: Water (global)



- Water supply and treatment systems are biggest users of electricity in the nation—estimated at 4% of nation's total!!
- Conservation could cut demand by 50%, saving fuel and money and reducing GHG emissions



Understanding Sustainable Development – AGENDA 21 –

Presented as a public service from:

For the People and
their Public Officials

Prepared by

FREEDOM ADVOCATES

Recognize Unalienable Rights

www.FreedomAdvocates.org

www.freedomadvocates.com

Closing Thoughts

“I’m a simple guy – a cleaner planet is better for everyone. So I don’t care whether its automobiles making it dirty or smokestacks in Ohio or it’s the natural cycle of the universe...it doesn’t matter.”

“When we have a cleaner planet
its better for everyone – so lets
work together to get the planet
healthy. That’s all.”

Bill O'Reilly – Fox News

**“When we have a cleaner planet
its better for everyone – so lets
work together to get the planet
healthy. That’s all.”**

SUSTAINABLE DEVELOPMENT CODES



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C L A R I O N

Florida APA Conference

September 2011