Resources

HOW THIS PLAN WAS CREATED - APPENDIX A

PREVIOUS PLANNING STUDIES

One of the mandates for the designers of the Community Character plan was to create a plan that could move into the action phase missing in past efforts. The designers were also asked to build upon the consensus and goodwill that was created with many of these past planning efforts. The following is a summary of the most prominent of these efforts:

FoCuS - The Future of Collier Created by Us (1994-1999)

This grassroots initiative focused on seventeen goals that were addressed by five task forces. The task force charged with the most diverse scope was the Community Character Task Force, which looked at urban design, transportation, and greenspace in Collier County. This initiative and this particular task force laid the foundation for the Community Character Plan. Implementation of recommendations and citizen input were limited, however, despite widespread public involvement and support for its vision. Tools for implementation and physical change, necessary for the program's success, were incomplete. The Community Character Plan seeks to continue where FoCuS left off.

Davis Triangle (1999)

The Davis Triangle redevelopment study led by county staff and Landers-Atkins Planners outlines an initiative to redevelop a close-in neighborhood using tax increment financing. The intent is to create a town center and entertainment center in East Naples that will include a mix of uses, plus model projects that would stimulate future healthy development. One goal of the Community Character Plan is to highlight similar implementation opportunities in other close-in neighborhoods in Collier while promoting the overall character of the county.

Immokalee Master Plan (1997)

The Immokalee Area Master Plan and associated comprehensive plan amendments of 1997 identified Immokalee and its environs as a unique location in greater Collier County. The demographics and economics of Immokalee differ significantly from the rest of greater Collier County. This sector's economic base is largely dependent on agriculture and a transient workforce. The plan sought to enhance the quality of life in Immokalee through improving environmental quality and the strength of existing neighborhoods. The plan is further defined by the Immokalee Future Land Use Plan, which specifies residential, commercial, and industrial land use designations. Given the completeness of that plan, it was not necessary to create a separate character case study for Immokalee in the Character Plan. However, the Immokalee planning initiative reflected an approach that became a hallmark of the Community Character Plan, which is that different parts of Collier County should be addressed in customized ways, respecting the character of each individual place.

Golden Gate Area Master Plan (1991)

The Golden Gate Area Master Plan, begun by staff and a citizen steering committee and updated several times in the 1990s, is a detailed 'sector plan' for Golden Gate Estates as mandated by the official

growth management system. The staff and committee identified several issues calling for amendments to the county's Growth Management Plan, addressing provisional uses, commercial uses, corridor commercial, and land uses in Golden Gate City. Recommendations were devised through public workshops and surveys circulated to residents. The Character Plan takes into account these recommendations.

Collier County Comprehensive Pathway Plan (December 1994)

Citing a need for increased mobility connections as well as humanizing the transportation network, the report lists specific projects for 2020 that support walking and biking in Collier County. For the county jurisdiction, the plan lists greenways in rural areas and sidewalks and bike lanes in Immokalee.

Collier County Neighborhood Traffic Management Program (July 1995)

This report effectively describes the rationale behind traffic calming techniques, including each technique's advantages and disadvantages. The program does not identify funding, and installation is based solely on independent citizen complaints.

Collier County 1990 Model Validation and Long-Range Plan Update (June 1996)

The 2020 Needs Assessment costs $1.23 billion, compared to estimated revenues of $582 million. However, even with full funding of 2020 Needs Assessment, the traffic that the Collier County model predicts for 2020 cannot be accommodated. While 87 percent of 2020 Financially-Feasible Plan investments is to be spent on highway improvements, the report calls for a reconsideration of transit, bicycling, and pedestrian facilities.

FoCuS Roads and Pathways Report (1997)

As a citizen-based review of the 2020 Needs Assessment, the FoCuS group recommended a more integrated transportation network that incorporates non-motorized travel. The report describes typical sections that support integrated and human-scale transportation facilities.

Collier / Naplescape '90's (January 1997)

The landscaping recommendations of this report are based on character zones, with particular emphasis on gateways and highly traveled routes. The inclusion of xeriphytic and native Florida plant materials lowers maintenance expenses and improves environmental fit.

Collier County Growth Management Plan: Transportation Element (October 1997)

This element of the GMP describes the current performance of the transportation network and lists scheduled improvements through 2020. All improvements are the widening of existing roads, with the exception of Livingston Road. The Transportation Element defers to Comprehensive Pathway Plan for non-motorized transportation planning.

Collier County Public Transportation Development Plan (June 1999)

After a fairly thorough examination of 1990 census data and a 1997 update, the report recommends four deviated fixed-route services, a commuter assistance program, and a vanpool program. The demographic analysis points to a real need for public transportation in Immokalee, where the population is considerably younger and less wealthy and has less access to private automobiles.

Previous efforts can be separated by their concentration on solution sets. Two of these reports - the Growth Management Plan Transportation Element and the 1990 Model Validation and Long-Range Plan - concentrate on expanding the automobile-moving capacity of the network, primarily through road widening. The remainder looks to expand people-moving capacity of the network through the creation of transit, bicycle facilities, and walkable streets.

Recent Park Projects

The Character Plan team reviewed the many parks initiatives underway. Recently, the county secured 208 acres near I-75 south of Immokalee Road to serve as the county's largest regional park. In addition, seven acres were added adjacent to Golden Gate Community Center. Max A. Hasse Jr. Community Park's community center is also in the design phase with a projected opening in June 2001. Finally, the county recently dedicated the new Eagle Lakes Community Park in East Naples.

Other Agency Efforts

Since Collier County's territory includes large tracts of state and federal public lands, there are numerous planning efforts being conducted by these agencies that affect the county. The National Park Service, Florida State Park Service, Florida State Forest Service, the National Estuary Program, and the National Fish and Wildlife Service all have a dominant presence in the county, and their planning efforts for public access and natural resource management was reviewed.

Marco Island Parks and Open Space System Master Plan

As the Character Plan was being created, Marco Island was in the process of identifying parks and open space needs and priorities for the island's residents.

HOW THIS PLAN WAS CREATED - APPENDIX B

Community Image Survey: list of images and scores

1  +5.7

2  -7.6

3  +1.6

4  -3.3

5  -4.7

6  +4.3

7  +5.7

8  +7.8

9  +1.1

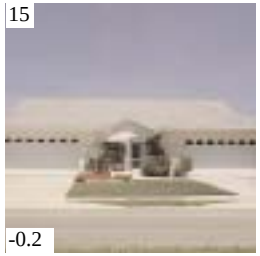
10  +0.5

11  +1.5

12  +5.4

13  +5.9

14  +5.2

15  -0.2

16  -1.3

17  +8.4

18  +5.9

19  +8.7

20  0

21  +4.6

22  +2.5

23  +3.6

24  -1.2

25  -1.9

26  +1.4

27  -2.2

28  +0.3

29  +6.8

30  +6.3

31  +5.4

32  +2.8

33  +6.5

34  -3.8

35  -3.2

36  +4.9

37  -1.0

38  +7.4

39  +5.9

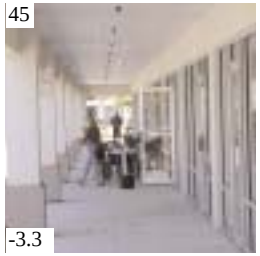
40  +6.7

41  +6.4

42  +1.5

43  +5.8

44  -3.2

45  -3.3

46  -4.6

47  +1.3

48  -2.7

49  +2.2

50  -3.3

51  +4.0

52  +6.3

53  +6.7

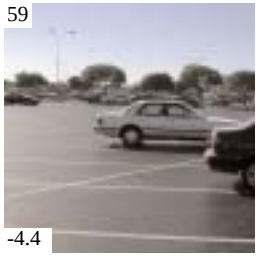
54  +5.0

55  +5.8

56  -0.8

57  +5.7

58  +8.6

59  -4.4

60  +0.2

MOBILITY - APPENDIX C

Components of Corridor Management Plans

1. **PHYSICAL MASTER PLAN -** The overall vision for a road corridor is presented in a professionally rendered master plan at a scale where it is possible to reference changes in land development patterns. For specific areas of concern within the corridor, eye-level perspectives can illustrate the relationship between existing conditions and the planned future. The illustrations communicate existing trends, needed first steps, and the potential for an "in our generation" (50-year) realization of the plan.
    - **(a) Vision Plan -** The vision plan is a complete summary of the corridor that locates and illustrates specific projects and actions, including existing buildings, property lines, roads, driveways, medians, sidewalks, and typical landscaping. Future development may be placed on the plan but is visually distinguishable.
    - **(b) Perspectives -** Bird's eye and eye-level perspectives aid in the visualization of proposed strategies and provide a "sense of place" that aids citizens in locating specific improvements.
    - **(c) Cross-sections -** Cross-section(s) illustrate the fully dimensioned roadway design and the placement of adjoining buildings.

2. **ACTION PLAN -** The Action Plan contains implementation strategies, which can include land development regulations, design guidelines, development incentives, capital improvement program suggestions, and a monitoring program to track achievement of the plan's vision. These strategies can address three general categories of related transportation and land-use activities: non-roadway improvements, including capital investments such as streetscape and lighting enhancements; roadway improvements, including roadway design guidelines; and land development actions, including access management and development regulations.
    - **(a) Roadway Design Guidelines -** The character of an area, the values of the community, and the needs of the highway users, are unique factors that designers must consider with each road project. Among the options available to achieve a balanced road design is a recognition that design expectations are more flexible than environmental constraints; decisions made during the planning phase may require adjustment prior to engineering design; lower design speeds than those initially anticipated may be appropriate; and alternate standards should be considered for scenic roads (U.S. Department of Transportation, Flexibility in Highway Design, 1997).
    - **(b) Land Development Guidelines and Regulations -** Land development regulations that are useful in the implementation of a corridor management strategy include sign guidelines, setback requirements, maximum parking requirements, minimum floor area ratios, architectural standards, landscape standards, and viewshed preservation guidelines.
    - **(c) Access Management Plans -** Each corridor management plan should include access management policies, implemented as needed through the county's land development code to ensure compliance by private development. Driveways, median openings, traffic signals, and their relative spacing should be balanced so that important roadways maintain an appropriate balance between local access and through trip capacity. A roadway's physical capacity can be increased through access management techniques such as driveway location and design, driveway spacing standards, corner clearance, joint and cross access, reverse frontage roads, frontage roads, and medians. See further details in Appendix B.

MOBILITY - APPENDIX D

Model Access Management Standards

Access management is a technique for balancing a roadway's dual role in serving both traveling motorists and adjacent land uses. It seeks to preserve a roadway's ability to provide through travel without decreasing the viability of the shops, places of business and neighborhoods fronting the street. With access management, a roadway's physical capacity can serve more vehicles without additional travel lanes, therefore maximizing the value of a community's infrastructure.

The following model access management standards are provided as a general guide.

Corner Clearance

1. Corner clearance for connections shall meet or exceed the minimum connection spacing requirements for that roadway.

2. New connections shall not be permitted within the functional area of an intersection or interchange as defined by the connection spacing standards of this code, unless:
    a. No other reasonable access to the property is available, and
    b. The connection does not create a safety or operational problem.

3. Where no other alternatives exist, construction of an access connection along the property line will be allowed farthest from the intersection. In such cases, directional connections (i.e. right in/out, right in only, or right out only) may be required.

Joint and Cross Access

1. Adjacent commercial or office properties classified as major traffic generators (e.g. shopping plazas and office parks) shall provide a cross access drive and pedestrian access to allow circulation between sites.

2. A system of joint use driveways and cross access easements shall be established wherever feasible and the building site shall incorporate the following:
    a. A continuous service drive or cross access corridor extending the entire length of each block served to provide for driveway separation consistent with the access management classification system and standards.
    b. A design speed of 10 MPH and sufficient width to accommodate two-way travel aisles designed to accommodate automobiles, service vehicles, and loading vehicles;
    c. Stub-outs and other design features to make it visually obvious that the abutting properties may be tied in to provide cross-access via a service drive;
    d. A unified access and circulation system plan that includes coordinated or shared parking areas wherever feasible.

Source: City of Orlando, Florida

Reverse Frontage

1. Access to double frontage lots shall be required on the street with the lower functional classification.

2. When a residential subdivision is proposed that would abut an arterial, it shall be designed to provide through lots along the arterial with access from a frontage road or interior local road. Access rights of these lots to the arterial shall be dedicated to the public and recorded with the deed. A berm or buffer yard may be required at the rear of through lots to buffer residences from traffic on the arterial but shall not be located within the public right-of-way.

Access Connections and Driveway Design

1. Driveway approaches must be designed and located to provide an exiting vehicle with an unobstructed view. Construction of driveways along acceleration or deceleration lanes and tapers is discouraged due to the potential for vehicular weaving conflicts.

2. Driveway width and flair shall be adequate to serve the volume of traffic and provide for rapid movement of vehicles off of the major thoroughfare, but standards shall not be so excessive as to pose safety hazards for pedestrians, bicycles, or other vehicles.

3. Commercial subdivisions shall be designed with shared access points to and from the highway.

Connectivity

1. The street system of a proposed subdivision shall be designed to coordinate with existing, proposed, and planned streets outside of the subdivision.

2. Wherever a proposed development abuts unplatted land or a future development phase of the same development, street stubs shall be provided as deemed necessary by the county to provide access to abutting properties or to logically extend the street system into the surrounding area.

3. Collector streets shall intersect with collector or arterial streets at safe and convenient locations.

4. Sub-collector and local residential access streets shall connect with surrounding streets to permit the convenient movement of traffic between residential neighborhoods or facilitate emergency access.

Source: Model Land Development and Subdivision Regulations that Support Access Management for Florida Cities and Counties, 1994, Center for Urban Transportation Research / Florida Department of Transportation

GREENSPACE - APPENDIX E
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- U. S. Department of the Interior National Park Service. *Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors, A Resource Book*. 1995. Rivers, Trails and Conservation Assistance, National Park Service.

GREENSPACE - APPENDIX F
Additional Funding Sources

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- Florida Department of Environmental Protection. Thinking Green, A guide to the Benefits and Costs of Greenways and Trails. 1998. Office of Greenways and Trails

The following list provides potential sources for greenspace funding.

Pay as You Go
- Property Taxes
- Income Taxes
- Sales and Use Tax
- Real Estate Transfer Tax
- Special Assessments Districts
- Business Improvement District
- Benefit Assessment District
- User Charges
- Reserves
- Mitigation Financing
- Negotiated Exactions or Impact Fees (hookups, systems development or capital fees)
- Grants (*see list of Florida grants on following pages)
- Public-Private Ventures

Borrowing
- General Obligation Bonds -- Limited or Unlimited Tax
- Revenue Bonds (or "rate-supported" bonds)
- Taxable Bonds
- Tax Increment Financing Bonds
- Lease Purchase and Certificates
- Revolving Loans
- Bond Bank

GRANTS

Recreation:

Name	Agency
Artificial Fishing Reef Program	Department of Environmental Protection
Beach Erosion Control Program	Department of Environmental Protection
Conservation and Recreation Lands Acquisition	Department of Environmental Protection
Community Services Block Grant Program	Department of Community Affairs
Derelict Vessel Removal Grant Program	Department of Environmental Protection
Florida Coastal Management Grants Program	Department of Community Affairs
Florida Communities Trust Program	Department of Community Affairs
Florida Greenways and Trails Program	Department of Environmental Protection
Fl. Inland Navigation District Waterways Program	Department of Environmental Protection
Fl. Inland Navigation District - Cooperative Asst.	Department of Environmental Protection
Florida Recreation Development Assistance Prgm.	Department of Environmental Protection
Land and Water Conservation Fund Program	Department of Environmental Protection
Transportation Enhancements Program	Department of Transportation
West Coast Inland Navigation District Project	Department of Environmental Protection

Environment and Natural Resources:

Name	Agency
Aid to Water Management Districts	Department of Environmental Protection
Artificial Fishing Reef Program	Department of Environmental Protection
Beach Erosion Control Program	Department of Environmental Protection
Conservation and Recreation Lands Acquisition	Department of Environmental Protection
Derelict Vessel Removal Grant Program	Department of Environmental Protection

Ecotourism/Heritage Tourism	Department of Environmental Protection
Florida Advisory Council on Environmental Educ.	Department of Environmental Protection
Florida Coastal Management Grants Program	Department of Community Affairs
Florida Communities Trust Program	Department of Community Affairs
Florida Forests & Environmental Education	Dept. of Agriculture and Consumer Services
Florida Greenways and Trails Program	Department of Environmental Protection
Fl. Inland Navigation District Waterways Program	Department of Environmental Protection
Fl. Inland Navigation District - Cooperative Asst.	Department of Environmental Protection
Florida Recreation Development Assistance Prgm.	Department of Environmental Protection
Highway Beautification Grants Program	Department of Transportation
Institutional Conservation Program	Department of Community Affairs
Land and Water Conservation Fund Program	Department of Environmental Protection
Marine Resources Grants Program	Department of Environmental Protection
Nongame Wildlife Contracts Program	Game and Freshwater Fish Commission
Science Museum Program	Department of State
Urban and Community Forestry Matching Grant	Dept. of Agriculture and Consumer Svcs
Water Management District	Water Management Districts
West Coast Inland Navigation District Project	Department of Environmental Protection

The following tables summarizes additional general funding strategies:

LOCAL

FINANCING SOURCE	DEFINITION	PROVIDES FUNDS	REPAYMENT	ADVANTAGES	DISADVANTAGES
General Obligation Bonds -- Limited or Unlimited Tax	Loan taken out by a city or county against the value of taxable property	Immediately	By all taxpayers over 10-30 years	Makes funds available immediately; distributes cost of acquisition; ties payment to benefits received; potentially lowers interest costs	Increases taxes; competes with other local services for limited resources; separates payment from benefit; involves finance charges, so may be politically difficult; constrained by debt ceilings
Revenue Bonds (or "rate-supported" bonds)	Loan paid from the proceeds of a tax levied for the use of a specific public project, or with the proceeds of fees charged to those who use the facility that the bonds finance	Immediately	By rate payers over 10-30 years	Makes funds available immediately; ties payment to benefits received; may not need voter approval; not constrained by debt ceilings	Increases rates or fees; interest costs potentially higher than GO bonds
Taxable Bonds		Immediately	By all taxpayers over 10-30 years	Not subject to requirements of Tax Reform Act;	Highest interest rates of all bond types

FINANCING SOURCE	DEFINITION	PROVIDES FUNDS	REPAYMENT	ADVANTAGES	DISADVANTAGES
Property Taxes	Tax on real property	Immediately	Commercial and residential property owners	Steady source of revenue, less affected by changes in the economy than other taxes; relatively easily administered; revenues easily predictable; tax burden is fairly equitably distributed	Least popular tax since it is paid in a large lump sum check as opposed to small additions to purchases; may not relate payment to benefits received
Income Taxes	Tax on individual income	Immediately	Individual taxpayers	Preserves borrowing capacity; saves interest cost	Funds may be insufficient; may not relate payment to benefits received; earmarked for general fund, causing parks to compete with other public services
Sales and Use Tax (including school sales tax)	Tax on sales of goods or services	Immediately	Purchaser of goods or services	Easy to collect; reporting costs are low; a small percentage can generate substantial revenue; most popular tax among taxpayers	Funds may be insufficient; may not relate payment to benefits received

FINANCING SOURCE	DEFINITION	PROVIDES FUNDS	REPAYMENT	ADVANTAGES	DISADVANTAGES
Tax Increment Financing Bonds	Financing mechanism used to stimulate economic development in a blighted area – assessed valuation of real property within the redevelopment area is frozen – taxes are paid at this base level while improvements are made-any increase in the assessed value of the property or additional sales tax revenues makes up the tax increment, which is used to pay project costs or repay the bonds or other obligations that helped finance the project	Immediately	By all taxpayers within subarea of county	Ties payment to benefit received within subarea	Revenues dependent upon growth in assessed value within subarea
Lease Purchase and Certificates	Lease-purchase arrangements that allow a government to pay over time	Immediate use of property or facility while being purchased	By all taxpayers over 5-10 years	Provides a means of buying on credit without issuing debt	High interest rates; may not relate payment to benefits received
Revolving Loans	Loan that is automatically renewed upon maturity	Immediately	By rate payers over 10-20 years	Makes funds available immediately; ties payment to benefits received; potentially lower interest costs	Increase rates; reporting and administration may be burdensome; may not be in accordance with county priorities
Bond Banks		Varies	By taxpayers or rate payers over 10-30 years	Particularly helpful for small communities; lowers cost of issuance	Issuance of bonds may be delayed while sufficient number of communities apply

FINANCING SOURCE	DEFINITION	PROVIDES FUNDS	REPAYMENT	ADVANTAGES	DISADVANTAGES
Real Estate Transfer Tax	Tax on the sale of property – increases with the size of the property being sold	Immediately	Sometimes the seller, sometimes the buyer	Proceeds often deposited into land banks; Florida has led the way in requiring that a portion of the funds be used for land conservation; can create substantial funds particularly in fast growing communities	Can Inflate real estate values and slow the market; since revenues from the tax fluctuate with the market, income can be difficult to predict; politically difficult
Special Assessments Districts	Separate units of government that manage specific resources within defined boundaries	Immediately	By assessed customers at time of construction. If bonded, over 10-30 years	Makes funds available immediately; matches payments and benefit; predictable stream of money	Requires legislative approval; may seriously impact assessed customers
Business Improvement District	Assess residents within set boundaries for additional services – establish a partnership between property owners and businesses in downtown or commercial areas for the purpose of improving the business climate in a defined area.	Immediately	Assessed residents or business owners	Created and funded with the approval of residents – gives a sense of ownership, responsibility and accountability; matches payments and benefits	Politically difficult if residents feel services should already be provided by existing government structure; no dedicated city or county-wide funding stream for park facilities (doesn't address the needs of the entire system); inequitable financing method (not found in poorer neighborhoods).

FINANCING SOURCE	DEFINITION	PROVIDES FUNDS	REPAYMENT	ADVANTAGES	DISADVANTAGES
Benefit Assessment District	Assessment and provision of benefits to a defined community – not a separate unit of government – levy on property	Immediately	By assessed customers	Matches benefits to assessment; makes funds available immediately	No partnership, structure or separate government body which may make administration more difficult
User Charges	Fee that covers the cost of a service	Immediately	By rate payers immediately	Eliminates need for borrowing or reserves; exempt from tax limitation laws	Impractical for large projects; may make rates erratic from year to year; seldom covers entire cost of service
Reserves	Funds reserved/set-aside for specific use	In future	By rate payers each year until reserve is adequate	Eliminates need for borrowing; improves financial stability of system	Can be politically difficult; difficult to "protect" reserves for intended use; impractical for large projects
Mitigation Financing	Developer set-aside of land on or off-site	In future	Developers of a project	Eliminates need for borrowing; protects sensitive natural areas and has application for redevelopment including parks; one-time cost; gives local governments flexibility in their land use decisions; can protect larger areas rather than small scattered areas	Can be politically difficult due to unwillingness of private developer; may be seen as "anti-development"

FINANCING SOURCE	DEFINITION	PROVIDES FUNDS	REPAYMENT	ADVANTAGES	DISADVANTAGES
Negotiated Exactions or Impact Fees (hookups, systems development or capital fees)	One-time fee to offset costs of infrastructure caused by new development	Immediately	By developers or customers immediately	Requires new customers to pay for impacts they place on system	Political problems (viewed as "anti-development"); ineffective where there is little or no growth; affects housing affordability
Public-Private Ventures	Partnership between private investor and public sector to provide a service on public land	Varies	By private investors and by taxpayers	Total costs to county government are reduced	Coordination can be complicated and time-consuming
County Road Program	Funding for bicycle/pedestrian facilities and trails	Varies	Taxpayers	Coordinated effort to provide alternative transportation and recreation facilities	Coordination can be complicated and time-consuming

STATE

Florida Forever	Funding for acquiring Florida's natural and historic areas, water resources and wildlife habitat	Immediately	No repayment needed	Source of free money
Florida Communities Trust	Funding to local governments for various parks and recreation development and acquisition projects	Immediately	No repayment needed	Source of free money
Florida Recreation Development Assistance Program	Funding to local governments for various parks and recreation development and renovation projects	Immediately	No repayment needed	Source of free money

FEDERAL (Grant Funding Sources)

Funding Source	Matching Requirements	Purpose
Recreational Trails Program (TEA 21)	50% State/ 50% Local	Development and maintenance of recreational trails
Land and Water Conservation Fund	50% State/ 50% Local – (No funding currently available)	Acquisition, development & rehabilitation
Urban Parks and Recreation Recovery Program	70% Federal/ 30% Local	Rehabilitation of recreation facilities in lower income areas
Community Development Block Grants	100% Federal	Acquisition, development & rehabilitation of recreation facilities in lower income areas.

PRIVATE

Foundations
Individuals
Corporations
Real Estate Developers

Source: "Building Together: Investing in Community Infrastructure" by the National Association of Counties, the National Association of Homebuilders, the Government Finance Officers Association, and the Urban Land Institute and supplemented by information from the Trust for Public Land "Park Financing Techniques."

GREENSPACE - APPENDIX G

The Florida Panther

Panther Corridor Criteria

"Within the core of panther range or potential panther habitat, about dozen ranches in south Florida hold the key to the panther's future. In Collier and Hendry counties there may be as few as six. How can we explain the presence of reproducing panthers? Clearly the ownership of an area itself is insufficient when examined alone. Many of south Florida's small preserves or private ranches, 30,000 acres or less, exhibit excellent habitat quality Those that support panthers are adjacent to a larger preserve or form part a complex of privately owned panther habitat. Good habitat patches without panthers are generally islands of forest that are isolated from larger forest. Thus habitat quality alone does not tell us a lot. Even property size is not particularly helpful ? especially when we consider that panthers on the large preserve, Everglades National Park, are effectively extinct and that the second largest, Big Cypress National Preserve, has fewer panthers per unit area than anywhere else in occupied range.

There is only one factor that appears to explain consistent panther presence and steady reproduction in south Florida proximity to the habitat core. The boundaries of this area encircle a zone of forest that supports the majority of panthers. This large habitat island, or "meta-preserve," has not experienced wide fluctuations in panther demographics like lands farther south and east where local populations have gone extinct or the land is too poor to support more than a handful of individuals. Panthers denied access to this core experience a more variable environment, exhibit irregular reproduction, have much larger home ranges, and often lead shorter lives. If a forested area falls within the core boundary, then panthers live and breed there regardless of the human activities that go on. The kind of forest that

makes up the core seems of much less importance than its context and connection to more forest. Panthers seem reluctant to traverse large tracts of treeless terrain - so the further an area is from this core and the more fragmented its forest becomes, the less likely are reproducing panthers to be found. Thus our largest public preserves cannot be expected to make significant contributions to panther recovery because these lands are mostly far from the habitat core and are themselves highly fragmented. Such lands are much more valuable for recreation, water conservation, and preservation of non-terrestrial wildlife species such as river otters, limpkins, and round-tailed muskrats. This is why the Fakahatchee Strand State Preserve, which consists mostly of avoided or tolerated wetland habitats, has continually supported panthers. Despite poor-quality habitat, it is an integral part of the habitat core." The Florida Panther, Life and Death of a Vanishing Carnivore. Maehr, David S., Island Press, Washington, D.C., 1997. (p. 210-211)

From the telemetry data it is apparent that panthers frequent the two

stretches of wetland that extend northward through Collier County. Panthers evidently use these wetland strands as movement corridors connecting to upland areas, public lands and the Big Cypress National Preserve in Lee and Hendry Counties. These corridors should be preserved in order to protect and preserve the range of the panther, and to ensure species viability. In view of the findings of Dr. Larry Harris as well as the research conducted in conjunction with this report it is recommended that a movement corridor that extends one-half mile from the center line of each of the two linear stretches of the wetland areas within the north-easterly portions of the County be purchased and retained as panther habitat preserve. Upland areas within this core area should remain as an undisturbed sanctuary, with minimal management activity. It is further recommended that a buffer area be designated that extends an additional 1,000 feet from the eastly and westly boundaries of these panther movement corridors. These buffer zones should be replanted with palmettos and live oak and managed as preserve. A secondary buffer zone should be established through zoning limitations. Land use within this buffer zone would be limited to low density single-family residential development or agricultural use . It is further recommended that any agricultural use be restricted to activities and engage in cultivation practices that will not degrade the quality of adjacent wetland areas.

NOTES from The Florida Panther, Life and Death of a Vanishing Carnivore, David S. Maehr, Island Press, Washington, DC, 1977

- Panther (Felis concolor coryi, or the currently preferred genus Puma (instead of Felis)) is a subspecies of cougar (or puma or mountain lion) and remains one of the thirty recognized subspecies within a species that enjoys the widest distribution of any mammal in the Western Hemisphere. Conditions tolerated by America's native lion range from deserts to rain forests to mountains (p 39-40)

- Bobcat (body size only about 15% that of the panther) is cousin to the panther. Bobcats, which share panther habitat but no interactions have been documented, have a home range which is tiny compared to the Florida Panther, males typically used 20 square miles, females used as little as 5 square miles (p.18)

- Panther habitat typically consists of either pine/palmetto forest or oak hammocks. Wetlands were distinctive feature of home range (p. 22)

- Everglades have never been an important panther habitat (p.24)

- Two common threads link all populations of cougar throughout their range: an abundance of remote, wild terrain and an abundance of large prey on which to feed (p.40).

- Solitary females had home ranges of between 40 and 50 square miles. When they give birth their home ranges shrink, often by as much as 80%, to less than 10 square miles to enable close supervision of kittens. As kittens grow, home ranges increase. But the size of the range tends to be directly related to foraging options and the availability and quantity of food resources and resource distribution (p.66)

- A prerequisite for permanent occupation is the availability of large herbivores, which, in Florida, tend to be white-tailed deer. These animals tend to be abundant on more fertile soils and more upland vegetation. (p.66)

- Estimated panther density at one per 42 square miles. Extrapolating this figure for the entire south west Florida range of 1,945 square miles suggests an adult population of 46, (give or take a few). Accounting for kittens, the total population is likely to be 74 (p.77-78)

- Panther activity tends to be highest around sunrise, tapers off during the day then increases toward sunset. (p.78)

- Panthers avoid certain landscape features regardless of cover, they don't like to swim. Males cross roads, females avoid them, they will occasionally cross large expanses of cattle pasture to reach other forested tracts or to pursue prey. (p.78-80)

- Human activity, increased road density, altered prey density, and removal of stalking cover may reduce range. In Golden Glades Estates a crisscrossing of roads and canals, out-of-town lot owners, unrestricted access, minimal enforcement of game laws and round-the-clock human activities have seriously degraded panther habitat, and may have caused panthers to abandon their established home ranges in this area (p.81)

- Panthers will use underpass road crossings as constructed along Alligator Alley (p.81)

- Average straight-line travel range for males is 3.4 miles and 1.4 miles for females. Maximum travel range is 24 miles for males and 15 miles for females. (p.83)

- Panthers move twice as far during the evening than during the day. (p.83)

- Because loss of resident adults is slow, there are few opportunities for young to establish home ranges (related to lack of habitat?) (p.96)
- Panthers posses high reproductive rates, their population growth is limited only by habitat quality and availability (p.96)

- Panthers have good reproductive rates and are able to increase their number rapidly (p.98)

- Ample reproduction, early female maturity and longevity all suggest a strong capability to replace and increase if and when new habitat is available (p.99)

- "Home Range" is defined as that area traversed by the individual in its normal activities of food gathering, mating and caring for young. Habitat is an aspect of home range that includes the environmental variables, such as vegetation, and topography, within which panthers interact, feed, rest and reproduce. (p.101)

- Home range areas vary from 20 to 456 square miles, with an average of 240 square miles for transient males and 67 square miles for sub-adult females. (p.102)

- Females tolerate home range overlap males do not. (p. 102-103)

- Females exhibit great stability in home range use, only death tends to wrest a female from her home, when they do shift it is apparently to avoid undue pressure on local deer populations. Males maintain a relatively larger home range and their range tends to shift frequently, typically precipitated by the presence of a neighboring male. Permanent home range shifts in adult panthers were usually related to the death of the resident. (p.104-105)

- Home tenure system, the "fabric" of home range dynamics, seems to have evolved to encourage the occasional shuffling of individuals while maintaining an overall pattern of order. The land tenure system for panthers is characterized by extensive home range overlap among females and minimal home range overlap for males. (p.105)

- Native upland forests, especially hardwood hammocks were sought out by panthers to the exclusion of all other vegetative communities. Pine, flatwood, cypress swamps and cabbage palm woodlands were also used, but not nearly to the degree of hammocks. Agricultural lands, freshwater marshes, thicket swamps and mixed swamps were usually avoided. (p106)

- The most frequented parts of panther range are associated with large, distinctive forest systems, where soil fertility, dense forest cover and habitat diversity increase, panther abundance increases (p.106-107)

- Habitat conditions in eastern Collier county and the Everglades are not capable of supporting permanent reproducing populations of panthers, forests and prey are too scattered (p.107)

- Panthers seek concealing vertical and horizontal screens such as fern beds, cabbage palms, fluted tree trunks, limestone solutions holes for daytime cover. But the single most important plant species is saw palmetto which is associated with pine flatwoods and hardwood hammocks and which is found in well drained, sandy soils (p.108)

- **The suitability of panther habitat is directly proportional to the distribution and abundance of saw palmetto** (p.109)

- Soil texture, moisture and elevation are directly responsible for the patterns of plant distribution. These same factors influence lushness, productivity and palatability of plants and how they are used by herbivores. This system of interdependence is the thread that defines panther viability. Working less for more allows panthers to have a smaller home range and reproduce at higher rates. More food and less work equals larger body size and more progeny (p.109-110)

- Dense vegetation offers day beds and denning opportunities as well as stalking cover. (p110)

- Because of Florida heat food spoils quickly requiring panthers to kill more frequently than their western relatives. (p.110)

- Based on energy demands, a panther needs to kill the equivalent of one adult deer per week (p.112)

- Panthers are more abundant and have smaller home ranges where

larger prey (deer) is abundant (p.113)

- Panthers prefer wild prey to large domestic animals (such as cows) so they don't tend to be a threat to Florida ranchers (p.113)

- Maehr discovered one panther that delivered and raised kittens in a den that was located within 50 yards of a heavily used swamp buggy trail, which suggests great adaptability and a capability for coexistence. However, he points out that human activity along the trail was primarily confined to daytime hours whereas the panther tended to forage at night. The panther managed to adjust to the human activity patterns. So the issue is that human activity levels need to be compatible with panthers to ensure viability. (p.150)

- Florida Panthers make excellent wildlife creatures but they do not require wilderness for their survival…a broad range of human activity is endured by panthers so long as food and cover are adequate. (p. 161)

- In order to minimize environmental impacts on wetlands and wildlife, including panthers, U.S. Army Corps would require developer to leave significant areas of forest on the property that would adjoin neighboring conservation lands. (p. 186)

- Sunniland Farms, in northern Collier County, was a panther Eden where more kittens were reared than on any other comparable parcel, perhaps in the U.S. 50% of the property had been used for intensive land use since before 1943. However, current development on the parcel has intensified, consuming vast portions of habitat. (p. 195)
- Loss of forest cover is a primary cause for localized panther abandonments. Government agencies can be good at preserving isolated tracts of preserve. However, panthers require large home ranges. Nearly every panther ever captured used private land - some nearly to the exclusion of public property. The key is to look for large patches of forest and the most logical connections between them. (P. 198)

- From the perspective of panther conservation, public lands need private lands as much as the reverse. (p. 199)

- Extinction will result, not from poaching or roadkills or inbreeding or disease or competition with hunters, but from habitat loss. Given the pattern of landownership in Florida, it is clear that the private sector holds all the keys to panther recovery. The inexorable chipping away at habitat by private landowners and the inaction of natural resource agencies are a dangerous combination. (p. 200)

[see Ken Alvarez "Twilight of the Panther"]

- Many landowners may want to help in the recovery of the Florida panther but few can afford to participate unless they are compensated for the use of their lands or programs that may take portions of their property out of productive use. (pp. 200, 210)

- Mitigation programs that merely permit substitution of un-developable lands for developable parcels are clearly unacceptable. The primary reason why the National Park Service administers two of the largest tracts of land in south Florida is that their previous owners could not profitably grow tomatoes. Bad soils for vegetables will not grow productive forest cover and Florida panthers. The ultimate in south Florida wildlife mitigation would be to physically reunite

the known range of the panther with the forests of Charlotte, Glades and Highlands counties. We know that underpasses have successfully mitigated some of the influence of highway impacts in Collier County, so why not a Caloosahatchee River over-pass spanning this barrier. Plant it with palmettos and live oaks, link it with existing forest on both sides of the rive, and suddenly the envelop would open and ease the pressure within the panther habitat core. (pp. 206-207)

- The most common causes of extinctions, in descending order of importance, are "contraction and modification of habitat; increased predation or hunting; competition for resources with species new to that habitat; a poison in the environment; and a disease, particularly one new to the environment" (A.R.E. Sinclair/Graeme Caughley). As far as panthers are concerned, poisons and disease seem to have little influence, they are no longer intentionally hunted, and the only new predator in the area, the coyote, has not been shown to compete. (p. 209)

From "Florida Forever Advisory Council Conservation Needs Assessment, Ranking of Strategic Habitat Conservation Areas and Lands Needed for Florida Black Bear and Florida Panther", Randy S. Kautz, Florida Fish and Wildlife Conservations Commission, June 27,2000

- "Maehr estimated panther densities at one panther per 110 km2 (1/27,000 acres) of habitat. Priority one lands include 268,562 acres, enough to support about 10 panthers….Priority two lands include 87,667 acres, enough to support 3 panthers…"

GREENSPACE - APPENDIX H

Comparison to State and National Standards

Table 1

Population Guidelines for User-Oriented Outdoor Recreation Activities

1997 Collier County Population

165,608

	Median Population Served	=	Needed Facilities		Existing Facilities	=	Surplus/ Deficiency
Tennis (court)	2,000		83		37		-46
Baseball/softball (field)	5,000		33		29		-4
Football/soccer (field)	6,000		28		14		-14
Handball/racquetball (court)	10,000		17		22		5
Basketball (court)	5,000		33		20		-13
Swimming (pool)	25,000		7		4		-3
Shuffleboard (court)	3,600		46		18		-28
Volleyball (court)	6,000		28		8		-20
Jogging/hiking (trails)	15,000		11		3		-8
Play area	10,000		17		23		6

Source: Level of Service Guidelines - State of Florida Comprehensive Outdoor Recreation Plan, 1994

Table 2

Population Guidelines for User-Oriented Outdoor Recreation Activities

1997 Naples Population

21,202

	Median Population Served	=	Needed Facilities	City of Naples	=	Surplus/ Deficiency
Tennis (court)	2,000		11	20		9
Baseball/softball (field)	5,000		4	7		3
Football/soccer (field)	6,000		4	4		0
Handball/racquetball (court)	10,000		2	8		6
Basketball (court)	5,000		4	8		4
Swimming (pool)	25,000		1	1		0
Shuffleboard (court)	3,600		6	6		0
Volleyball (court)	6,000		4	11		7
Jogging/hiking (trails)	15,000		1	5		4
Play area	10,000		2	6		4

Source: Level of Service Guidelines - State of Florida Comprehensive Outdoor Recreation Plan, 1994

Table 3

CITY OF MARCO ISLAND

Population Guidelines for User-Oriented Outdoor Recreation Activities

2000 Marco Island Population (Off-Peak)

12,670

	Median Population Served	=	Needed Facilities	City of Marco Island	=	Surplus/ Deficiency
Tennis (court)***	2,000		6	19		7
Baseball/softball (field)***	5,000		3	3		0
Football/soccer (field)	6,000		2	2		0
Handball/racquetball (court)	10,000		1	2		1
Basketball (court)***	5,000		3	3		0
Swimming (pool)***	25,000		1	1		0
Shuffleboard (court)	3,600		4	4		0
Volleyball (court)	6,000		2	0		-2
Jogging/hiking (trails)	15,000		1	2		1
Play area***	10,000		1	2		1
Multipurpose field	3,750		3	0		-3
Multipurpose court	3,500		4	0		-4

*2000 Population - Bureau of Economic and Business Research, University of Florida

** = Based on median population guidelines, except tennis and shuffleboard which are based on high or "minimum served" guidelines

** = Include YMCA facilities (9 tennis courts, 1 basketball court, 1 baseball court, 1 play area, 1 swimming pool)

Source: Level of Service Guidelines - State of Florida Comprehensive Outdoor Recreation Plan, 1994