Post by January 13, 2009

PLANNING SIGN PICKUP SHEET

LEE COUNTY LOCAL PLANNING AGENCY MEETING

January 26th 2009

DATE	SIGNATURE	PLANNER	CASE NUMBER	CASE NAME
1/14/09		Matt Noble	CPA2006-12	North River Village Map Amendment

Please return to Internal Services Secretary: Janet Miller

STAFF REPORT
FROM
DEPARTMENT OF COMMUNITY DEVELOPMENT
DIVISION OF ENVIRONMENTAL SCIENCES

Date: **January 14, 2009**

To: **Matt Noble, Principal Planner**

From: **Doug Griffith, Environmental Planner** DG
Phone: (239)533-8323
e-mail: dgriffith@leegov.com

Project: **North River Village, REVISED II**
Case: **CPA2006-00012**
STRAP: **17-43-26-00-00006.0000 et al**

APPLICANT'S PROPOSED POLICY CHANGES FOR RIVER VILLAGE LAND USE:
The applicant has submitted revised policy language for North River Village dated December 23, 2008 based on language revisions recommended by staff in the Staff Report dated September 26, 2008. The applicant has also revised the land use category to state: North River Village Land Use Category.

The applicant has revised a number of the policies to be consistent with staff's previous language or made further modifications. The following is ES Staff's analysis based on the December 23, 2008 submittal.

ES Staff agrees with the Applicants revised language specifically those policies dealing with the projects environmental issues: 1.1.10, 1.10, 1.10.1, 1.10.4, 1.10.6, 1.10.8, 1.10.18, 1.10.19, 1.10.21.
ES Staff recommends the revising the following policies:

- **Policy 1.10.2:** ~~All development utilizing in the~~ North River Village ~~Future Land Use Category will~~ must be rezoned to one or more Planned Development zoning districts. ~~None of the requirements of the North River Village or the Preservation Lands, Buffers and Special Treatment Areas Map may be imposed prior to the approval of a Planned Development.~~

ES Staff recommends deletion of the last sentence of Policy 1.10.2, Staff does not agree with this sentence. The applicant is proposing that the designation of Conservation Lands be delayed until the approval of a planned development rezoning. By delaying the adoption of the conservation lands, the applicant's effort to preserve environmentally sensitive lands will be unnecessarily delayed, potentially resulting in conflicts during the rezoning process. The Conservation Lands land use category should be done during the comprehensive land use amendment process and not delayed to a date uncertain. Staff and the applicant are in agreement with the areas designated for

conservation as originally agreed upon but not with the timing of the conservation lands designation. These conservation areas are critical components to the project and subsequent policies. Delaying the designation of conservation lands affects other commitments and proposed policies. For example, in Policy 1.10.11, the applicant proposes increased building heights in order to preserve areas of environmental sensitivity. Withholding the designation of Conservation Lands until the approval of the planned development could impede the progress of the project, placing undo restraints on both the County and the applicant. Amending these lands into Conservation Lands category at this time will provide assurances to the public as well as the County as to what lands will be preserved at a minimum in subsequent development processes. If the BoCC recommends transmitting the NRV land use category then ES staff recommends the simultaneous designation of Conservation Lands and the supporting maps.

- **Policy 1.10.6:** ~~Each~~ North River Village ~~developemnt that is adjacent to natural and navigable bodies of water~~ must provide public access to Trout Creek ~~the natural water body. Public access must be provided~~ through a canoe/kayak launch with parking facilities that connect to the Lee County Blue Way System. Additional public access may include any combination of 1) ~~provision of~~ passive recreational facilities, 2) development or redevelopment of a marina facility, 3) access to commercial or 4) ~~civic~~ uses open to the public, including ~~a boat launch,~~ docking facilities~~;~~ or a promenade along the ~~waterfront~~ Caloosahatchee River, Owl Creek or Trout Creek.

- **Policy 1.10.7:** ~~Connection to existing public blue ways and pedestrian trails will must be provided.~~

ES Staff agrees with deletion of the above policy 1.10.7. Policy language for connection to blue ways is provided for in Policy 1.10.6

- **Policy 1.10.~~15~~ 13:** Water conservation measures will be implemented utilizing the following mechanisms:

1. Accepting reuse water, if available, and
2. Using 70% drought tolerant landscape material and 70% native plants for required landscaping in common areas.
3. Limiting the amount of irrigated turf to 50% for all single family residential lots.
4. ~~Required~~ Requiring common area landscaping ~~will~~ to be clustered to separate non-drought tolerant plants from drought tolerant plants to limit areas requiring full permanent irrigation.
5. Use of ~~D~~drip irrigation ~~will be used~~ on all common area trees and palms ~~in order too more efficiently use irrigation water.~~

ES Staff recommends the following language revisions to item 2, Policy 1.10.13 (2)as indicated below:

2) Using 70% drought tolerant landscape material and ~~70%~~ 75% native plants for required landscaping in common areas

ES Staff does not agree with the addition of single family to Policy 1.10.13(3). Policy 1.10.13 (3) will apply to all areas of development and not just the single family.

ES Staff agrees with all other revisions to language in Policy 1.10.13

- **Policy 1.10.16:** Low impact development techniques will be incorporated into the required surface and storm water management facilities. These facilities will be designed to provide open space or a planted visual amenity that resembles natural areas.

- **Policy 1.10.17:** Enhanced Best Management Practices for surface water management will include on of the following: treatment trains, created flowways, reduced impervious area, and other Low Impact Development Design techniques.

The applicant proposes incorporating Policies 1.10.16 and 1.10.17 into one policy, Policy 1.10.14. ES Staff approves the incorporation of the policies into Policy 1.10.14.

- **Policy 1.10.~~17~~ 14:** Low impact development techniques will be incorporated into the required surface and storm water management facilities. These facilities will be designed to provide open space or a planted visual amenity that resembles natural areas. Enhanced best management practices for surface water management will include one or more of the following; treatment trains, creative flow-ways, reduced impervious area, and other Low Impact Development design techniques.

- **Policy 1.10.~~18~~ 16:** Development within ~~the~~ North River Village will provide a minimum of a 50' wide ~~foot~~ buffer along ~~natural waterways~~ both sides of Owl and Trout Creeks. Buffer areas may contain passive recreational uses, including boardwalks, and river oriented recreational uses such as a canoe/kayak launch with an ancillary building, and necessary community infrastructure crossing points. This policy is not intended to apply to the construction of marina facilities and uses within the Marina Village located on Trout/Owl Creeks or the Caloosahatchee River or the expansion of any marina facility that is identified on the Lee County Water Dependant Overlay Map Series. Residential dwelling units ~~must~~ may not be constructed within 50 feet of the MHWL of natural water bodies. However, ancillary uses such as ~~except for~~ docks, observation decks and boardwalks are allowed.

ES Staff does not agree with the deletion of the word ~~must~~ and the addition of the word may and recommends the use of the original language. Staff recommends the addition of natural waterway to ensure the area remains with existing native vegetation and is not cleared or impacted. Staff does not agree with the addition of the following phrase: "~~and uses within the Marina Village located on Trout/Owl Creeks or~~" and recommends this be deleted. All other changes meet with ES Staff's approval.

ES Staff recommends the following language revisions to Policy 1.10.16 as indicated below:

Development within ~~the~~ North River Village will provide a minimum of a 50' wide natural waterway ~~foot~~ buffer along ~~natural waterways~~ both sides of Owl and Trout Creeks. Buffer areas may contain passive recreational uses, including boardwalks, and river oriented recreational uses such as a canoe/kayak launch with an ancillary building, and necessary community infrastructure crossing points. This policy is not intended to apply to the construction of marina facilities ~~and uses within the Marina Village located on Trout/Owl Creeks or~~ the Caloosahatchee River or the expansion of any marina facility that is identified on the Lee County Water Dependant Overlay Map Series. Residential dwelling units ~~must~~ may not be constructed within 50 feet of the MHWL of natural water bodies. However, ancillary uses such as ~~except for~~ docks, observation decks and boardwalks are allowed.

Policy 1.10.~~23~~ 20: In order to protect valuable upland and wetland areas, designation of ~~a~~ the North River Village ~~area will~~ includes ~~simultaneous~~ designation of indigenous areas as Conservation on the Future Land Use Map. ~~The intent is to provide certainty for the county and the developer on the location of preserve areas when the property undergoes rezoning to a planned development designation.~~

1. ~~Areas labeled as Conservation within a River Village will allow for density, to be clustered on the adjacent River village areas at the same underlying density as the River Village through the planned development process. Conservation lands will be defined as "indigenous," if restored where restoration is needed and~~, Native indigenous vegetative communities will qualify as Conservation Lands; if impacted or exotic vegetative communities are restored to indigenous status then these areas will be counted toward ~~a~~ the North River Village's overall open space and indigenous preservation requirements through the planned development process. Buildings and other impervious surface for passive recreational uses such as parking areas, docks, decks and boardwalks, as well as essential services will be allowed in Conservation areas. Road crossings of Conservation lands will be allowed in accordance with the general alignments shown on the Future Land Use Map. Conservation areas will be maintained in perpetuity by an entity such as a homeowner association or other appropriate entity.

   ES Staff recommends the addition to the above policy language: by an entity such as a homeowner association or other appropriate entity. This will ensure long term maintenance of the preserve areas.

2. Special Treatment areas ~~have been~~ are depicted on map X. The Special Treatment Areas are intended for development, recreation and water management facilities. The goal of these areas is to incorporate indigenous vegetation and native trees into the development areas. ~~The indigenous vegetation and tree preservation regulations in the Lee County LDC as well as Policy 1.10.20 will apply.~~ Special treatment areas will limit lot coverage to 50% on single family lots and multi-family parcels. All residential parcels in Special Treatment Areas ~~shall~~ will utilize stemwall or stilt home construction in order to retain existing vegetative communities. Any water management facilities in special treatment areas on single family lots will be designed to incorporate existing

vegetative communities through the use of dry detention or low impact development techniques. Live Oak trees on the single family lots or multifamily parcels with a DBH of 15" or more that can to be relocated mus be replaced with like species with a height of 15' or greater. Heritage trees must be replaced with trees 20' in height or greater at time of planting. The replacement trees may be located either within the lots or common areas in the special treatment areas.

ES Staff recommends replacing ~~shall~~ with will as indicated above.

3 The Historical Flowways as depicted on the Preservation Lands, Buffers and Special Treatment Areas Map ~~Historical flowways~~ will be ~~restored~~ incorporated into the water management system. ~~If found to be hydrologically significant and capable of restoration (Consistent with Policy 40.1.3 and 40.1.4)~~

ES Staff does not agree with the above revisions and recommends the use of the original language below.

3 Historical flow-ways will be restored if found to be hydrologically significant and capable of restoration (Consistent with Policy 40.1.3 and 40.1.4).

- **Policy 1.10.23:** Any project within 660 feet of an active, inactive or alternative bald eagle nest must prepare a bald eagle management plan which is reviewed by the Eagle Technical Advisory Committee (ETAC). The bald eagle management plan must be consistent with the recommended guidelines per Florida Fish and Wildlife Conservation Commission (FWC) and ~~Florida~~ United States Fish and Wildlife Services (FWS) guidelines. The management plan must be developed utilizing existing conditions as outlines in the FWC Bald Eagle Management Plan dated April 2008.

ES Staff recommends the above policy language changes: deletion of the word ~~Florida~~ and addition of United States Fish and Wildlife Services.

CONCLUSION:
With the applicant's revision to Policy 1.10.2, ES Staff can no longer support a recommendation of approval for the project. The applicants' proposal to withhold the conservation lands until approval of the planned development jeopardizes the entire comprehensive plan amendment. The applicant is proposing increased height, density and commercial uses based on the argument that unique features and environmentally sensitive areas will be preserved. However, the designation to Conservation Lands is absent and no binding assurance is given The Comprehensive Plan Amendment, if approved, will grant the increased height, density and commercial development. Comprehensive Plan Amendments are designed to change the designation of the future land use map and cannot be designated at a later stage of the project. To ensure that the conservation lands are placed on the future land use map, ES Staff recommends that the Conservation Lands Buffers and Special Treatment Area Map be designated on the future land use map at the time of the Comprehensive Plan Amendment.

ES Staff
EXHIBIT "B"

ES Staff's Proposed
Conservation Lands

N
W E
S

N RIVER RD

SR 31

SERENGA ST

UNNAMED A

DUKE H

BAYSHORE RD

RIVERSIDE T

MARILYN LN

IBIS WAY

ISLAND RD

MINI WAY

SLEEPY HOLLOW LN

OX BOW RD

Proposed Conservation
Lands Flow-way/Eagle Habiat

LEE COUNTY
SOUTHWEST FLORIDA

BOARD OF COUNTY COMMISSIONERS

Hearing Date:	January 26, 2009
Case Number:	CPA2006-00012
Case Name:	North River Village Comprehensive Plan Amendment
Request:	This amendment affects two separate areas. The first request is to amend the Future Land Use Map Series; Map 1 to change 1,232 acres of land designated "Rural" and "Outer Islands" to the "River Village," "Inner Islands," and "Conservation Lands" future land use categories. The second request is to amend 1,456 acres of land designated Suburban to the Sub-Outlying Suburban future land use category.
Location:	The 1,232-acre property in the first request is located in Sections 16, 17, 18, 19, and 20 of Township 43 South Range 26 East. The property is generally located east of State Road 31 south of North River Road and north of the Caloosahatchee River. The 1,456-acre property in the second request is in the residential development known as Verandah, bordered by State Road 80 on the north, Buckingham Road on the east and the Orange River on the southwest. It is located in sections 28, 29, 30, 31, and 32 of Township 43 South Range 26 East.
APPLICANT:	North River, LLC
APPLICANT'S REPRESENTATIVE:	DeLisi Fitzgerald, Inc. 1500 Royal Palm Square Blvd., Suite 101 Fort Myers, FL 33919
Lee County Planner:	Matthew Noble (239) 533-8548

The file may be reviewed Monday through Friday between the hours of 8:00 am and 4:30 pm at the Lee County, Planning Division, 1500 Monroe St., Fort Myers, FL 33901. Call (239) 533-8585 for additional information. This is a courtesy notice. Please review the New-Press for Local Planning Agency meeting notices. This case is anticipated to be reviewed by the Local Planning Agency on: January 26, 2009

CPA 2006-12
NORTH RIVER VILLAGE AMENDMENT TO THE

LEE COUNTY COMPREHENSIVE PLAN

THE LEE PLAN

Privately Sponsored Application and Staff Analysis

LPA Public Hearing Document
for the
January 26th, 2009 Public Hearing

Lee County Planning Division
1500 Monroe Street
P.O. Box 398
Fort Myers, FL 33902-0398
(239) 479-8585

January 16, 2009

LEE COUNTY
DIVISION OF PLANNING
STAFF REPORT FOR
COMPREHENSIVE PLAN AMENDMENT
CPA 2006-12

☑ **Text Amendment** ☑ **Map Amendment**

✓	This Document Contains the Following Reviews:
✓	**Staff Review**
	Local Planning Agency Review and Recommendation
	Board of County Commissioners Hearing for Transmittal
	Staff Response to the DCA Objections, Recommendations, and Comments (ORC) Report
	Board of County Commissioners Hearing for Adoption

STAFF REPORT PREPARATION DATE: September 26, 2008, and January 16, 2009

PART I - BACKGROUND AND STAFF RECOMMENDATION

A. SUMMARY OF APPLICATION

1. APPLICANT/REPRESENTATIVE:

North River, LLC/Daniel DeLisi, AICP, DeLisi Fitzgerald, Inc.

2. REQUEST:

This amendment affects two separate properties. The first request is to amend the Future Land Use Map Series; Map 1 to change 1,232± acres of land (known as North River Village) designated "Rural" and "Outer Islands" to the "River Village," "Inner Islands," and "Conservation Lands" future land use categories. Amend existing Policy 36.1.1 to reflect applicant transportation improvement commitments. Incorporate 2 new Future Land Use categories as well as a new Objective and Policies guiding development in these areas. Add 2 footnotes to Table 1(a). Amend Table 1(b) to incorporate the new Future Land Use Categories. Amend Map 6, Lee County Utilities Future Water Service Areas, by adding the property to the Future Water Service Areas.

The second request is to amend 1,456± acres of land (known as Verandah) designated "Suburban" to the "Sub-Outlying Suburban" future land use category.

The 1,232-acre property in the North River Village request is generally located east of State Road 31 south of North River Road and north of the Caloosahatchee River.

The 1,456-acre property in the Verandah request is in the residential development known as Verandah, bordered by State Road 80 on the north, Buckingham Road on the east and the Orange River on the southwest.

3. CURRENTLY REQUESTED LEE PLAN TEXT AMENDMENT:

See Attached proposed applicant language, stamp received December 23, 2008.

B. STAFF RECOMMENDATION AND FINDINGS OF FACT SUMMARY

1. RECOMMENDATION:

Staff recommends that the Board of County Commissioners **not** transmit the proposed plan amendment.

2. BASIS AND RECOMMENDED FINDINGS OF FACT:

- The North River Village property is located within the Rural, Outer Island, and Wetlands Future Land Use Categories. The Verandah property is located in the Suburban and Wetland Future Land Use Categories.

- The proposed amendment promotes urban sprawl.

- Changing the designation of the North River Village property from Rural to an Urban category sets a precedent for the conversion of additional Rural lands.

- The existing Future Land Use Categories provide economically viable uses for the subject site.

- The North River Village identified archaeological sites, wetlands, edge protection areas, habitat areas, flowway restoration area, are located in areas included in the proposed "Preservation Lands, Buffers and Special Treatment Areas." However the applicant proposed language delays implementation of this map to some unspecified point in the future after a planned development rezoning application is approved for the project, thus not providing any protection thru the plan amendment request.

- The proposed amendment will increase the allowable residential development on the Lee Plan's Future Land Use Map.

- The reduction of density from the proposed reclassification of the Verandah property is a paper exercise as the existing density in the Verandah has been included in the EAR Population Analysis.

- Multiple National Register eligible sites exist on the North River Village site.

- The proposed amendment will have no affect on the School Board's plans to accommodate growth in the County.

- The proposed amendment will have minimal impacts on parks, recreation and open space.

- The Lee County Solid Waste Disposal System will have sufficient capacity to manage and dispose of the (Class I Municipal Solid Waste) materials anticipated to be generated by the North River Village development.

- The Lee County Utilities system has capacity to provide potable water.

- North Fort Myers Utility has capacity to accommodate the sanitary sewer need of the proposal.

- Large portions of the site are included in the Coastal High Hazard Area as depicted on Lee Plan Map 5. Almost the entire site is located within the "Area Flooded by Tidal Surge (100 Year Storm)" as depicted on Lee Plan Map 9. Large portions of the property are depicted by FEMA on the FIRM maps as being located in a Floodway.

C. BACKGROUND INFORMATION

1. EXISTING CONDITIONS:

SIZE OF PROPERTY: North River Village property is 1,232± Acres; Verandah property is 1,456± Acres.

PROPERTY LOCATION: The North River Village is generally located north of the Caloosahatchee River, east of S.R. 31, and south of North River Road. The Verandah property is generally located north of the Orange River, south of Palm Beach Boulevard, and west of Buckingham Road.

EXISTING USE OF LAND: North River Village contains an active marina facility, a dwelling unit, as well as agricultural uses. Verandah contains a variety of dwelling unit types, amenities, and vacant land

CURRENT ZONING: The North River Village property is zoned AG-2 and IM; the Verandah property is zoned MPD.

CURRENT FUTURE LAND USE CATEGORY: The North River Village property has three Future Land Use designations: Rural, Outer Islands, and Wetlands. The Verandah property has two Future Land Use designations: Suburban and Wetlands.

2. BACKGROUND DISCUSSION:

The applicant, North River, LLC, originally submitted the amendment request on September 29, 2006. The application at that time only dealt with the North River Village property. In August of 2008, the applicant expanded the request to include the Verandah property. The case was scheduled and public hearings were conducted by the LPA in September 2008. On October 6, 2008, the applicant requested that the proposed amendment be continued to the 2008/2009 Comprehensive Plan Amendment Cycle.

The applicant believes that the North River Village is located "in an emerging growth corridor in Lee County." The applicant justifies this statement by citing the Babcock Ranch property which is located directly north of the subject site. Staff is currently working with representatives of Kitson & Partners to assess the impacts associated with the development of Babcock Ranch. Concerning the location of the North River Village property the application provides the following:

> *North River Village encompasses approximately 1,253 acres in Northeast Lee County. The northern boundary of the community is North River Road (CR 78) and then the boundary moves southeast and south along the west side of the North River Oaks subdivision. It reaches eastward almost to North Olga Road. The southern boundary turns west and follows a stairstep fashion along Duke Highway and the north side of the Caloosahatchee until it reaches the southwest corner of the property just south of the Trout Creek connection to the river. The boundary then goes north along an irregular path including along SR 31 for a portion of the west boundary until it reaches North River Road.*

Verandah is located on the south side of SR 80, opposite the Fort Myers Shores community. The application provides the following summary concerning the request:

> *Change the Future Land Use Designation of the subject property from Rural to "River Village" and Conservation. Propose a corresponding text amendment, to guide the growth in the River Village land use category. A Simultaneous amendment is being proposed to change the Future Land Use Category for Verandah from Suburban to Sub-Outlying Suburban. Amendments are being proposed to the Capital Improvements Element to provide funding for the road network, to the Utility Service Area maps and to the 2030 Population Allocation Table (1a).*

The applicant is also seeking to amend Map 6, Lee County Utilities Future Water Service Areas, by adding the property to the Future Water Service Areas. The applicant is also seeking to add a map to the Future Land Use Map series that depicts Preservation lands, restoration and special treatment areas, buffers, and gopher tortoise preserve. Proposed Policy 1.10.2, however, states that none of these requirements "may be imposed prior to the approval of a Planned Development."

PART II - STAFF ANALYSIS

A. STAFF DISCUSSION

INTRODUCTION

The application provides the following summary concerning the proposed change for the subject property:

The request of this application is to change the designation of the subject property on the Lee County Future Land Use map from Rural to proposed new category called "River Village". The proposed amendment would allow for a maximum of 2,500 dwelling units and 150,000 square feet of commercial floor area. It is structured as both a map amendment and a text amendment in order to provide for performance standards on the proposed development. The policies associated with the "River Village" land use category have been crafted to provide for certainty in how this property develops and the structure for how development may occur. The intent of the request is to work with Lee County and the surrounding community to implement county goals through the development of this property - to provide a community that will benefit surrounding areas. The text amendment will also include a change to the Lee County 2030 Overlay to include the River Village land use category and the projection of acres necessary to account for this development.

Lee County staff recognizes and appreciates the outreach effort that the application has undertaken with this proposed amendment. The application contains a section that documents this "Community Outreach." This section provides that the Bonita Bay Group initiated this "visioning" process in February 2007 as "part of a dedicated effort to seek input from neighbors, community leaders, government officials, environmental organizations and interested stakeholders." This section provides that Bonita Bay has held 38 community meetings involving more than 120 citizens. This section of the application summarizes meetings held with: Duke Highway residents, Olga residents, Alva residents, and the North Fort Myers Community Planning Panel.

COMPREHENSIVE PLAN BACKGROUND

The North River Village subject property was designated "Rural" by the original Lee County Future Land Use Map, adopted in 1984. "Resource Protection and Transition Zones" were mapped countywide through the late 1980s EAR effort. This category was converted to a new "Wetlands" category through the mid 1990s EAR effort. The Outer Island Future Land Use category was also added to the Lee Plan during this time. Currently the North River Village site is designated with the Rural, Wetlands, and Outer Island Future Land Use Categories. Williams Island is the portion of the subject site that is designated Outer Island.

The Verandah property was designated "Suburban" by the original Lee County Future Land Use Map, adopted in 1984. Subsequently, Wetlands were also designated through the processes noted above.

SURROUNDING ZONING, LAND USES, AND FUTURE LAND USE DESIGNATIONS

The application materials include an extensive discussion of surrounding zoning and land uses. A portion of this discussion is reproduced below:

The North River Village property is located in an emerging corridor in Lee County. The property is located near the intersection of two arterial roads, State Road 31 and County Road 78, on the North side of the Caloosahatchee River. To the West of the property is a major destination point for Lee County, the Lee County Civic Center. Residential neighborhoods line County Road 78 going West to I-75. The South side of the river has long been developed with residential uses. The neighborhood of Fort Myers Shores was platted in the early 1970s and has gradually built out over time. Although the Future Land Use Map would allow for up to 6 dwelling units per acre, the area is built out at approximately 3-4 dwelling units per acre.

To the East of the North River Village is the Olga Community. Once closely related to the Olga Community on the South side of the River, with the removal of the Old Olga Bridge in the 1960s, the community has been bisected. North Olga contains a series of low density residential neighborhoods along County Road 78 and Duke Highway to the South and East of the North River Village.

Last year Lee County entered into a four party agreement with Charlotte County, the State of Florida and Kitson & Partners to entitle portions of the Babcock Ranch property. The development area on Babcock Ranch will be located directly to the North and East of the North River Village. The North River Village property currently contains the Owl Creek Marina, an active marina that is part of the Water Dependant Overlay in the Lee Plan (Map 12, page 3 of 12). The existing marina, in conjunction with the Sweetwater Landing marina (Marina 31 in the Water Dependant Overlay) and the properties owned by the applicant on Williams Island between the two marinas creates an opportunity for water access and use that is unparalleled in Lee County. The proposed North River Village will create a unique destination that will benefit the county's existing and future residents.

An examination of the surrounding land uses (north of the Caloosahatchee River) of the North River Village property shows that the area surrounding the property is rural in nature, with the exception of the Lee Civic Center. Parcels along the westside of S.R. 31 near the intersection of North River Road have historically been used for community serving uses such as the C & C Feed Store (zoned C-1A), Temple Baptist Church (zoned AG-2), or the convenience gas station (zoned CC). These lands are all designated Rural. North of North River Road, opposite the North River Village subject site, the land is designated Density Reduction/Groundwater Resource (zoned AG-2).

South of the Calooshatchee River is the Fort Myers Shores community and then the Verandah site. These lands are designated Suburban on the Future Land Use Map. South of the Orange River is land located in the Buckingham Rural Preserve.

PROPOSED INNER ISLANDS LAND USE CATEGORY

The applicant is proposing a new land use category, Inner Islands, to accommodate resort type development that includes lodging facilities, restaurants, spas, specialty boutique style retail shops, and recreational uses. This type of facility is permittable in the category depending on intensity. Grady's Lodge is an example of this use that was approved in an Outer Islands setting. Staff is concerned with the proliferation of land use categories and since the desired use could be accommodated, depending on intensity of use and design, staff recommends that the Board of County Commissioners not include this part of the request even if the Board desires to transmit the River Village land use category:

~~Policy 1.4.8: The Inner Islands are located along the Caloosahatchee River, have reasonable access to available utility infrastructure, and are in close proximity to urban development. The intent of the Inner Islands land use category is to provide for a mix of uses that add to the character of the Caloosahatchee River. The primary focus is on resort uses and public access developed as part of an Inner Island development where the primary uses consist of lodging facilities, bed and breakfasts, restaurants, spas, boutique retailers, recreation and similar uses that would be associated with a resort environment. Although residential uses are allowed in the Inner Island land use~~

~~category primary home ownership is discouraged. The maximum residential density is one dwelling unit per acre (1 du/acre). The maximum Floor Area Ratio for non residential uses is 1.0.~~

TRANSPORTATION/TRAFFIC CIRCULATION IMPACTS

The North River Village property currently has access from S.R. 31 and North River Road. The Lee Plan amendment application requires a traffic circulation analysis to determine the proposed effect of the amendment on Map 3A, the Financially Feasible Transportation Plan Map, and on the Capital Improvements Element. Applicants must identify the traffic analysis zone (TAZ) and the socio-economic forecasts for that zone or zones. The required analysis includes determining whether or not the requested amendment requires modification to the socio-economic data forecasts for the TAZ or zones.

The applicant submitted the required traffic circulation analysis. This analysis was prepared by David Plummer & Associates. This analysis includes an Executive Summary that contains the following conclusions:

- *Under the proposed Comprehensive Plan Amendment (CPA), the CPA would include 2,500 residential units, with 1,500 single-family units and 1,000 multifamily units, 100 hotel rooms, 150,000 sq. ft of commercial space, the existing marina and extensive social and recreational facilities and activities.*

- *The CPA will have direct access to both SR 31 and CR 78.*

- *There are only two scheduled improvements in the study area: (1)bridge repair and rehabilitation is scheduled for the Wilson Pigott Draw Bridge on SR 31 over the Caloosahatchee River in FY 2009; and (2) design and installation of traffic signals at the intersection of SR 31 and SR 78 is scheduled through FY 2009.*

- *Although the MPO 2030 LRTP Highway Element does not include any planned road improvements in the study area that are considered financially feasible, there are two projects in the adopted 2030 Plan that are Contingent Upon Additional Funds: (1) the six-laning of SR 80 between SR 31 and Buckinghan Road; and (2) the two-lane extension of Nalle Grade Road east to SR 31.*

- *Projected 2030 Traffic Conditions Without the CPA indicate that the four-lane segments of SR 80 between SR 31 and Tropic Avenue are expected to exceed the adopted LOS standard in 2030. This deficiency has been addressed in the 2030 Plan through the inclusion of the widening of SR 80 between SR 31 and Buckingham Road as a needed project that is Contingent Upon Additional Funding.*

- *Only one additional road segment is expected to exceed the adopted LOS standard under 2030 Traffic ConditionsWith the CPA. That is the segment of SR 31 between SR 78 (Bayshore Road) and the CPA entrance, which will need to be widened to four laness. (sic)*

- *The CPA's off-site traffic impacts will be mitigated, in part, through the payment of road impact fees adopted by Lee County. Based on the current road impact fee schedule, the development associated with the proposed CPA is expected to pay approximately $22.8*

million in road impact fees. These fees can be used by the County to make whatever improvements are necessary on SR 31, SR 80, CR 78 and other roads in the area.

- *In addition to the payment of road impact fees, the Applicant has agreed to fund (without credit against road impact fees) the widening of SR 31 to four lanes between the cPA Entrance and SR 78 (Bayshore Road) and the construction of major intersection improvements at the SR 80/SR 31 and SR 80/Buckingham Road intersections. The details of this agreement will be set forth in a Development Agreement between the Applicant and Lee County.*

The Lee County Department of Transportation (LCDOT) has reviewed the request and has provided written comments dated September 17, 2008. These comments are reproduced below:

The Department of Transportation has reviewed the above-referenced privately-initiated future land use map and text plan amendment, to change the land use designation of approximately 1,232.5 acres east of SR 31, south of CR 78/North River Road, and north of the Caloosahatchee River, from a combination of Rural/Wetlands land use categories to a newly-created category called "River Village". The applicant indicates that the proposed change would allow approximately 1,500 single family dwelling units, 1,000 multi-family untis, 150,000 square feet of commercial space, and 100 hotel rooms on the site. The property is within Traffic Analysis Zone (TAZ) 1289 in the Lee County MPO's 2030 Financially Feasible Plan FSUTMS travel demand model. For this analysis, a new TAZ (#316) was created to encompass the new development parameters which were converted to the model inputs, with the dwelling and hotel units added to the zdata 1 parameters and 375 commercial and 110 service employees added to the zdata 2 parameters, and the 2030 Financially Feasible Plan model was rerun.

In examining the three-mile radius around the project, the model indicated that the addition of the CPA caused the section of SR 31 between SR 78 and the proposed project entrance to exceed its adopted level of service standard. In addition, the two sections of SR 80 from SR 31 to Davis Boulevard and from Davis Bouelvard to Tropic Avenue were projected to fail both with and without the CPA. The six-laning of SR 80 from SR 31 to Buckingham Road is identified in the MPO's Plan as needed by 2030, but contingent upon additional revenues beyond the standard projected sources. Absent the commitment of funding for the infrastructure improvements needed to support this development proposal and other growth in the area through the plan horizon of 2030, DOT staff would normally recommend against an intensification of use.

To address staff's concern, the applicant has indicated that he is willing to pay for the widening of SR 31 from SR 78 to his project entrance, and to pay for two intersection improvements on SR 80 that had previously been identified as improving the level of service condition of the road, through the River Hall plan amendment review. These payments would be over and above road impact fees, and not creditable against road impact fees. This will require execution of a development agreement, in addition to some plan text changes, and the applicant has offered to limit his development to the rural densities currently allowed on the site until the development agreement and subsequent road funding commitments are in place. The text additions proposed by the applicant in his latest submittal received on September 8, 2008 follow in underline format,

with some additional changes proposed by DOT staff in double-underline/strike-through format. The rationale for the DOT staff changes are discussed below.

Footnote to Table 1A:
The property that is the subject of CPA 2006-12 must enter into a development agreement prior to developing the 1,001st of 2,500 units. The development agreement will address the payment of the funds necessary to program the construction of four lanes on SR 31 from the project entrance to the intersection of SR 78, as specified in Policy 36.1.1, and any related right-of-way acquisition (including costs of condemnation if necessary). The development agreement must also include payment of the funds necessary to make the intersection improvements listed below in Policy 36.1.1 at the SR 80/SR 31 intersection and the SR 80/Buckingham Road intersection plus any additional right-of-way needed to construct these intersection improvements (including costs of condemnation if necessary). The cost of these improvements (all phases) will not be eligible for road impact fee credits. Lee County agrees that, once this development agreement is executed, the County will consider the four-laning of this section of SR 31 and the identified SR 80 intersection improvements financially-feasible improvements that are part of Map 3A.

Addition to Policy 36.1.1:
POLICY 36.1.1: *The Lee County Metropolitan Planning Organization's 2030 Financially Feasible Plan Map series is hereby incorporated as part of the Transportation Map series for this Lee Plan comprehensive plan element. The MPO 2030 Financially Feasible Highway Plan Map, as adopted December 7, 2005 and as amended through March 17, 2006, is incorporated as Map 3A of the Transportation Map series. Also, the comprehensive plan amendment analysis for the Simon Suncoast (Coconut Point) DRI identified the need for improvements at key intersections on US 41 from Estero Parkway to Alico Road to address the added impacts from the project for the year 2020, and a mitigation payment has been required as part of the DRI development order. Lee County considers the following intersection improvements to be part of Map 3A and will program the necessary funds to make these improvements at the point they are required to maintain adopted level of service standards on US 41 if they have not been addressed by FDOT:*

Intersection	*Improvements*
US 41/Constitution Boulevard	*Southbound Dual Left Turn Lanes*
US 41/B & F Parcel	*Northbound, Southbound, Eastbound and Westbound Dual Left Turn Lanes*
US 41/Sanibel Parkway	*Southbound Dual Left Turn Lanes*
US 41/Estero Parkway	*Southbound and Westbound Dual Left Turn Lanes*

Also, the comprehensive plan amendment analysis for the ~~Simon Suncoast (Coconut Point) DRI identified the need for improvements at key intersections on US 41 from Koreshan Boulevard to Alico Road to address the added impacts from the project for the year 2020, and a mitigation payment has been required as part of the DRI development order. The comprehensive plan amendment traffic analysis for the~~ North River Village that includes 2,500 dwelling units and

150,000 square feet of commercial area, identified the need for four lanes on SR 31 from Bayshore Road (SR 78) to the North River Village entrance and a set of intersection improvements on SR 80. The Developer for North River Village will provide right-of-way and fund the design and construct four lanes on SR 31 from the North River Village entrance to SR 78 (not creditable toward road impact fees). The ~~owner~~ Developer of the North River Village property must also fund the construction of the intersection improvements listed below at the SR 80/SR 31 and SR 80/Buckingham Road intersections and any additional right-of-way needed to construct the identified intersection improvements for SR 80. The full cost of the intersection improvements, including right-of-way if necessary, will not be eligible for road impact credits. Once this funding is committed through an executed development agreement, Lee County will considers the SR 31 widening and the following intersection improvements to be financially feasible and part of Map 3A ~~and will program the necessary funds to make these improvements at the point they are required to maintain the adopted level of service standards on SR 80~~:

Intersection	*Improvement*
~~1.~~ SR 80/Buckingham Road	*Add 2nd Northbound to Westbound Left Turn Lane*
	Add 2nd Westbound to Southbound Left Turn Lane
	Add Northbound Right Turn Lane
	Add Southbound Right Turn Lane
	Add 2,500 foot 3rd Eastbound Through Lane
	Add 2,500 foot 3rd Westbound Through Lane
~~2.~~ SR 80/SR 31	*Add 2nd Southbound to Eastbound Left Turn Lane*
	Add 2nd Eastbound to Northbound Left Turn Lane
	Add a third through lane Westbound in advance of the SR 31 intersection

Regarding the DOT staff changes to the applicant's proposed addition to Table 1A, the first change is to clarify where the intersection improvement description will be found. Table 1A is in a completely different part of the Lee Plan than Policy 36.1.1, so the intersection improvements would not be "below". The reference to the policy makes more sense. We've also added language that makes clear the right-of-way costs for the SR 80 intersection improvements include the costs of condemnation, the same as for the SR 31 widening, and to make clear that the costs for all phases of these improvements will not be eligible for road impact fee credits, so it is clear these improvements are over and above the impact fees the project will be paying. Finally, we've added back in language that was in a June version provided by the applicant but now missing, which says the improvements to SR 31 and to SR 80 can't be considered financially feasible, and therefore part of Map 3A, until the development agreement is executed. This is especially critical since the applicant has revised the date the development agreement is required, previously saying it would be done at the time of the plan amendment but now putting it off until the 1,001st unit is built.

Regarding the changes to Policy 36.1.1, the repeat of the Simon Suncoast language in the added language is unnecessary and can be removed. The applicant also left off "dwelling units" and the reference to the intersection improvements in addition to the SR 31 widening. Again, staff is also clarifying that the improvements aren't eligible for road impact fee credits and won't be considered financially feasible and therefore part of Map 3A until the development agreement is

executed. Finally, the applicant left out the specific intersection improvements that are to be done on SR 80, which should be specified in the plan. These were the specific improvements that were evaluated as part of the River Hall amendment and determined to improve the level of service condition on SR 80 (short of six-laning), and they were specified in the June version of the applicant's language.

DOT staff is not fully comfortable with the trend to condition plan amendment requests and include site-specific policies in the plan, but it is a trend nevertheless, and it is the only way to address the specific concerns related to this amendment. Should Planning staff ultimately recommend approval of the amendment request, the recommended language should include the addition to Table 1A and the revision to Policy 36.1.1 as noted above with the DOT-recommended changes.

Planning staff concludes that the Department of Transportation staff modifications will require the developer to mitigate the traffic impacts from the proposed amendment. Planning staff believes that no zoning or local Development Order approvals for more than one dwelling unit per acre should be approved until the referred to development agreement has been executed. In the event that the Board of County Commissioners is desirous of transmitting the proposed amendment, Planning staff recommends that the above mentioned modifications be included.

SPRAWL

The applicant has made several arguments in their application and resubmittals that the proposed land use change does not equate to sprawl. The following are excerpts form these materials.

On page 18 of 19 of the Applicants opening letter:

It is also our understanding that staff continues to be concerned with the idea of changing property from a "rural" designation to an "urban" designation. While the applicant understands this concern, it is also important to understand that this property has better access to urban infrastructure than many properties within "urban" land use designations in the Lee Plan. The property is also already designated for 1 dwelling unit per acre, a distinctly suburban density, not a rural density, similar to River Hall and Verandah. Two dwelling units per acre is also a suburban density similar to The Brooks and Bonita Bay. The idea that going from 1 to 2 dwelling units per acre changes the development pattern of the property from a rural style to an urban style is simply not accurate. Finally, similar to Downtown Alva, it is common to have nodes or centers of higher density within rural areas to create a sense of place and a community destination point. Our neighbors in North Olga have expressed an interest in and support for locating that destination point on this property, a property at the intersection of two state roads with an existing industrial marina. Please see Section 1, Tab 7 for previously submitted narrative on this issue. Creating a destination and sense of place is an aspect of this proposed development that the applicant feels strongly about.

Page 2 of 6 in Tab 7:

The North River Village property is currently designated as Rural, Wetland and Outer Islands [sic] on the Lee County Future Land Use Map. Policy 1.4.1 describes the Rural Land Use Designation and Policy 1.4.2 describes the Outer islands designation:

POLICY 1.4.1: *The Rural areas are to remain predominantly rural--that is, low density residential, agricultural uses, and minimal non-residential land uses that are needed to serve the rural community. These areas are not to be programmed to receive urban-type capital improvements, and they can anticipate a continued level of public services below that of the urban areas. Maximum density in the Rural area is one dwelling unit per acre (1 du/acre). (Added by Ordinance No. 97-17, Amended by Ordinance No. 98-09, 00-22, 07-12)*

The subject property is in an area that no longer fits the rural character described in Policy 1.4.1. With SR31, CR 78, the Lee County Civic Center and now the development of Babcock Ranch the property is in an area that is transitioning from a rural to a suburban character. The category that is being proposed provides for mor innovative planning techniques to better utilize the land as the area transitions.

POLICY 1.4.2: The Outer Islands are sparsely settled, have minimal existing or planned infrastructure, and are very distant from major shopping and employment centers. They are not expected to be programmed to receive urban-type capital improvements in the time frame of this plan, and as such can anticipate a continued level of public services below that of other land use categories. The continuation of the Outer Islands essentially in their present character is intended to provide for a rural character and lifestyle, and conserve open space and important natural upland resources. Maximum density is one dwelling unit per acre (1 du/acre). (Amended by Ordinance No. 98-09)

Policy 1.4.2 seems to be written more for properties on barrier islands, not for properties like Williams Island that are in the midst of development. Utilities are available in the area and could potentially be provided to Williams Island by directional bore under the Caloosahatchee River oxbow. The island is in between two historic marinas- Marina 31 and the Owl Creek marina, as well as significant development in Fort Myers Shores and Olga. While the proposed amendment to the Lee Plan is not requesting a significant change from this policy, setting up a performance standard that is more applicable to the Williams Island property would serve the community well.

Page 5 of 6, Tab 7
Designating large areas of land for low density development is necessary for mid-range planning in areas with slow growth patterns. However, as areas begin to urbanize, as is the case with the area in Lee County North of the Caloosahatchee River, East of SR 31, then planning needs to occur in order to channel the growth pressures toward development that will enhance the quality of life for the area, not detract from the quality of life. If a change in the Lee Plan does not occur for this area, development at 1 du/acre spread over North Olga and Alva, with no commercial opportunities, will significantly detract from the quality of life in the area. This type of development pattern is classic urban sprawl. This type of single use low density development is an inefficient use of land and greatly diminished our ability to preserve contiguous areas of open space. Through the proportionately high costs of extending services, low density residential development also encourages the use of septic tanks a know [sic] contributor to pollutants in the Caloosahatchee river and the County's red tide problem.

Near the end of Tab 7
SUMMARY OF REMAINING ISSUES

(Originally submitted March 2008)
Bottom of page
It is important to reemphasize the need for the increase in density. There is a misperception among the general community that increasing density will lead to sprawl, when all the planning literature and experience points to the opposite conclusion. It is clear from the proposed text amendment and the attached diagrams that allowing for additional units will not decrease the open space and preserve area on the property. We are proposing a requirement to increase open space and preserve on site.

STAFF RESPONSE
The applicant has stated that the Lee Plan encourages high infrastructure costs through the current future land use category. The applicant states that the low density residential uses force an increase in the provision of potable water and sanitary sewer and that the proposed North River Village will solve these issues through the use of improved design. However, this argument is based on the faulty premise that the rural areas of Lee County will be receiving potable water and sanitary sewer service. The rural areas of Lee County are intended to mainly utilize well water and septic fields in place of these services. This will have no adverse results in areas with rural residential densities. The proposed design of the North River Village will create residential densities that require the installation of potable water and sanitary sewer service. Unless these services are provided on site, this will require that potable water and sanitary sewer lines be extended to the subject property. This is urban sprawl.

The applicant also states that the Rural future land use category will result in a development pattern similar to the Golden Gate area of Collier County. This is simply not possible under the Lee Plan and the Lee County Land Development Code (LDC). In order to create such a pattern of development, the developer would have to acquire vast tracts of land and subdivide it. The provision and regulations of the LDC would require that the developer use the Planned Development rezoning process and submit a master concept plan. This process would prevent such a land development pattern from occurring.

The applicant states that the mixed use design of the North River Village precludes it from being sprawl. Their argument is partially that the mixed uses do not meet the "single use" definition of sprawl in FAC 9J-5.006(5). Apart from this, the applicant provides insufficient explanation of why a mixed-use development is not sprawl.

The applicant also states that the proposed North River Village meets Lee Plan Objective 2.1 by encouraging contiguous and compact growth patterns. This is true in regards to the North River Village internal design, however the project does not intergrate into the surrounding neighborhood. Although the uses within the development may be compact and contiguous, the site as a whole is remote and not well integrated with surrounding uses. The site is cut off on the south side by the Caloosahatchee River. To the north and west are State and County Roads that act as barriers to integration with abutting land. In addition, land to the east and west of the subject property is designated as Rural. The land to the north, across County Road 78, is in the Density Reduction Groundwater Resource future land use category. Neither of these future land use categories would permit development intensities or residential density similar to that proposed for the North River Village.

The applicant claims that the North River Village is not leapfrog development because of the presence of surrounding developments such as Fort Myers Shores to the south. The applicant claims that the North

River Village property is a natural extension of surrounding urban uses including Fort Myers Shores and the Lee County Civic Center. Fort Myers Shores is across the Intra-coastal Waterway, however and in no way interacts with the subject property. The Civic Center is a unique land use that is not integrated with any significant urban use. In addition, state Road 31 separates the Civic Center from the subject property and prevents any functional integration of the two properties.

The applicant claims that this area of Lee County is faced with enormous growth pressure. Table 1(b) already allocates sufficient residential acreage to Lee County. Growth should be guided to those areas where sufficient facilities and services exist rather than create the need for such services and facilities in new areas.
The applicant states that the North River Village would draw from a different market than infill development and would not discourage or inhibit infill development for existing neighborhoods. But by allowing an increase in density in the outer, rural portions of the County, the proposed amendment reduces the economic incentive for infill development and redevelopment in those areas that are already urban.

POPULATION ACCOMMODATION
The impacts of this amendment on the accommodated population are covered throughout the application in the original submittal, responses to staff comments, and various sections of the latest submittal. Staff has attempted to consolidate the population accommodation discussion into 3 topics, the Alva Planning Community population accommodation, the total county population accommodation, and the location of projected growth.

Alva Population Accommodation
The estimated buildout population of the Alva Planning Community, based on existing development patterns is 31,222. The acreage allocated for residential development through the year 2030 will accommodate a population of 5,090. Beyond 2030, the Alva Planning Community is anticipated to accommodate more than 26,000 additional residents before reaching "Buildout" with no changes to the Future Land Use Map.

The applicant's analysis also states that Alva's population accommodation should be higher to at least maintain the community's current proportional share of total county population. However, Lee County will more than double in population before reaching the estimated buildout population and there are vast areas of higher density urban areas remaining for development, it is expected that the population of rural areas will continue to be out paced by growth in the existing urban areas of the county. The percent of Lee County's population residing in Alva has steadily decreased over time. In 1995 Alva was .71% of the total county population and in 2005 it had decreased to .62%. Other rural areas like Buckingham, Pine Island, and Bayshore have followed the same trend. The urban areas of the county that have/had large amounts of vacant lands have experienced the reverse trend. Lehigh, Gateway, Daniels Parkway, Iona/McGregor, and Estero have all increased as a percent of the total county population.

The 2030 Acreage Allocation study projects more than half of the units in the Alva Planning Community to be within the Rural Land Use Category. If current development trends continue through buildout, the "Rural" area will contain nearly two thirds of all the dwelling units in the Alva Planning Community. The proposed amendment will increase the buildout population by 3,578 residents. In section 7 of the "North River Village CPA – Residential Needs Analysis" by Fishkind and Associates, the claim is made that there is a deficit in accommodated dwelling units to meet the population growth in the Alva Planning

Community and the additional population capacity created by the North River Village amendment will satisfy this deficit.

The Alva Planning Community has 1,418 dwelling units (as reported in the CPA2006-00026 staff report – the revision of the Lee Plan Table 1(b) Year 2030 Allocations). Alva's remaining "Rural" residential allocation of 639 acres is estimated to accommodate 448 new units based on the .7 dwelling units per acre assumption used in the allocation methodology. This is slightly higher than the density currently built in the 'Rural' portion of the Alva Planning Community. Including all areas of Alva, a total of 716 new units are assumed to be added through the current time horizon of the Lee Plan. It is not anticipated that the Alva Planning Community will reach buildout by 2030. The conclusion from the submitted Residential Need Analysis claims that the current Alva residential allocations are insufficient to accommodate the projected population. This analysis uses different density assumptions than used in the allocation methodology thereby estimating 132 fewer dwelling units to be accommodated than what has been projected by the county in the last update to Table 1(b). For example, the application analysis uses a density of 1.2 dwelling units per acre within the Urban Community land use category. The Lee Plan acreage allocation methodology used an assumption of 2 dwelling units per acre for the Urban Community lands. This is the area of Alva that the proposed community plan identifies as the "historic core" of Alva where it is appropriate to concentrate the more intense development while still retraining the historic rural character. The countywide Lee Plan assumption of density in the Urban Community category is 3.5 dwelling units per acre. Additionally, the Table 1(b) allocation assumptions do not impose new density maximums for each planning community. Development proposals in the Alva Planning Community are entitled to request the maximum density allowed by the corresponding future land use map designation. If development patterns change and the actual densities are higher than the assumptions, then the accommodated population will be higher than what is projected in the allocation table. If the assumptions that were originally used to estimate the population accommodation of the 1989 Lee Plan Future Land Use Map are applied to the available residential acreage in the Alva community, 46 more units are accommodated by the current allocations. Likewise, if the maximum density is used, the accommodated units increase by 252 units. Therefore, without redevelopment, the potential population of the Alva Planning Community is almost 5,700 people. Table one calculates the accommodated population based on changing density assumptions applied only to the vacant lands in the Alva Planning Community. The calculated safety factor for the maximum density scenario is 69%. Staff maintains that the current allocation of for the Alva Planning Community does accommodate the projected population and allows for substantial market flexibility.

Table 1

Future Land Use Category	Existing Units	Available Acres	Assumed Density		Maximum Density	Units/Population		
			1989 Lee Plan	Alva		Lee Plan Assumption	Alva Assumption	Maximum Density
Urban Community	597	26	3.5	2.0	6.0	687/1,638	648/1,546	751/1,790
Outlying Suburban	10	25	2.5	1.0	3.0	72/171	35/83	84/200
Rural	771	639	0.8	0.7	1.0	1,282/3,059	1,219/2,906	1,410/3,364
Outer Islands	1	4	0.3	0.3	1.0	2/5	2/5	5/11
Open Lands	25	157	0.2	0.25 (due to clustering)	0.2	56/135	64/153	56/135
DRGR	14	662	0.1	0.23 (due to clustering)	0.1	80/191	166/397	80/191
Total	1,418					2,180/5,199	2,134/5,090	2,386/5,692
Occupancy Rate = .89								
Persons Per Household = 2.68								

The approval of the requests in this application would reduce the flexibility of Table 1(b) but creating an additional Future Land Use Category that applies specifically to this project thereby reserving the allocated acreage to one project. The proposal being considered is to reduce the residential allocation for the "Rural" component by 600 acres and add 600 acres to the new "North River Village" category. This will add 5,963 residents in the new future land use category and reduce the estimated population accommodation of the "Rural" area by 1,001 residents for an increase in population of 4,962. If market conditions stall the development of this project, the needed units to meet the projected population demand could not be built without an amendment to the Lee Plan. Table 2 recalculates the accommodated population based on the changes to the allocations proposed in this application.

Table 2

Future Land Use Category	Existing Units	Available Acres	Assumed Density		Maximum Density	Units/Population		
			1989 Lee Plan	Alva		Lee Plan Assumption	Alva Assumption	Maximum Density
Urban Community	597	26	3.5	2.0	6.0	687/1,638	648/1,546	751/1,790
Outlying Suburban	10	25	2.5	1.0	3.0	72/171	35/83	84/200
North River Village	0	600	4.17	4.17	4.17	2,500/5,963	2,500/5,963	2,500/5,963
Rural	771	39	0.8	0.7	1.0	802/1,914	799/1,905	810/1,933
Outer Islands	1	4	0.3	0.3	1.0	2/5	2/5	5/11
Open Lands	25	157	0.2	0.25 (due to clustering)	0.2	56/135	64/153	56/135
DRGR	14	662	0.1	.23 (due to clustering)	0.1	80/191	166/397	80/191
Total	1,418					4,200/10,017	4,214/10,052	4,286/10,224
Occupancy Rate = .89								
Persons Per Household = 2.68								

Lee County Population Accommodation

The application also implies the county wide population projection used for Table 1(b) is too low (Residential needs and Population Analysis, pg 6). Increasing the county wide population projection for the year 2030 would necessitate the acreage allocations in most of the planning communities be revised to accommodate a greater population. Currently Table 1(b) provides for sufficient residential acreage to accommodate the population projection from the University of Florida Bureau of Business Research (BEBR) February 2006 Florida Population Studies. The 2007 study projects a larger population for 2030 than the 2006 study. However, the 2008 study projects a lower population than the 2007 study, but a higher population than the 2006 study. Since population studies are not an exact science, the Lee Plan is based on the latest available population at the time of the Evaluation and Appraisal Report or subsequent amendments intended to update the accommodated population and or plan horizon. The safety factor applied to the BEBR projection published in the 2006 report increases the accommodated population higher than the 2030 population projected in the 2007 BEBR study.

Section 5 of the Residential needs analysis concludes that the "safety factor" used in the population accommodation study is inaccurate on three counts. The first argument is that the "safety factor" should be applied to the land area and not the population. Staff disagrees with this argument for a number of reasons. Staff experimented with this methodology for the Alva Planning Community and calculated the acreage allocation that is currently in Table 1(b). The conclusion was that this methodology merely added

steps to the equation with no change in population accommodation. Second, the safety factor should be applied to the entire need, not the increment of growth. Thirdly, the safety factor applied is too low. This analysis suggests up to a factor of 3. The second and third issues would obviously increase the total population accommodated by the Lee Plan Future Land Use Map. Increasing the safety factor to 3 raises the accommodated population to nearly 1.8 million with an unincorporated county share of 1.16 million. Rule 9J-5.005(5) of the Florida Statutes requires the comprehensive plan to be internally consistent. Therefore, the population projection used for the Future Land Use Element (ie Table 1(b)) must also be used for the Capital Improvements Element. This requires the comprehensive plan to show funding sources for infrastructure needed to support the accommodated population. Raising the safety factor and ultimately the accommodated population requires the county to identify infrastructure and facilities in excess of the actual need by the year 2030. This may not appear to cause a problem; however, once the needs are identified, the planning process requires the demonstration of how these needs will be funded.

A second population analysis is included in the application which claims that the BEBR mid-range population series was not the appropriate projections to use for the basis of the Lee Plan. The updated Table 1(b) was based on the data source recommended by the Florida Department of Community Affairs (DCA).

9J-5.005 General Requirements.
(2) Data and Analyses Requirements.
(e) The comprehensive plan shall be based on resident and seasonal population estimates and projections. Resident and seasonal population estimates and projections shall be either those provided by the University of Florida, Bureau of Economic and Business Research, those provided by the Executive Office of the Governor, or shall be generated by the local government. If the local government chooses to base its plan on the figures provided by the University of Florida or the Executive Office of the Governor, medium range projections should be utilized. If the local government chooses to base its plan on either low or high range projections provided by the University of Florida or the Executive Office of the Governor, a detailed description of the rationale for such a choice shall be included with such projections.
Staff did compare the data from the Planning Department Land Use inventory with the BEBR annual population estimates. Using the dwelling unit counts from the inventory, and the occupancy assumptions used for the allocation methodology, the unincorporated population estimates were consistent with those issued by BEBR. A review of data compiled since the EAR data was collected reinforces this conclusion. The population analysis included with the comprehensive plan amendment application list 3 problems with using the DCA recommended BEBR mid-range population projections.

1. *The first problem is there is a greater downside to under projecting development pressure and being forced into dealing with growth not adequately planned for than there is with over projecting population and over planning for an area that does not have the development pressure anticipated.*

Staff acknowledges that under estimating future population is problematic, but not necessarily more so than over estimating future population. As stated above, Rule 9J-5.005(5) of the Florida Statutes requires the comprehensive plan to be internally consistent and higher population projection will require the county to plan capital projects to accommodate an elevated population.

2. *The second problem with using the Mid-Range BEBR projections is historically they have greatly underrepresented Lee County's growth. Tables 2 and 3 shows the BEBR projections released in the year 2000 and then in 2003 respectively. It is clear that although Lee County has been relying to some extent on the Mid-Range population projects, growth is actually occurring above even the High range projections. Creating a situation where there is an undersupply of housing will simply lead to rapid increases in residential home process.*

The BEBR projections are issued annually. Generally the projections have increased from year to year. However, the most recent projections issued in March of 2008 were lower than those issued in March of 2007. Considering the current market climate, staff expects the 2009 projections for 2030 to be lowered again. The projections currently adopted in the Lee Plan project a 2010 population of 648,400. The 2008 estimate for Lee County was 623,725. It is appears reasonable that the 2010 population will be close to the currently adopted BEBR projection. The population projections used as the basis for the Lee Plan are revised during every Evaluation and Appraisal Report as required by state statute. Lee County will be evaluating these projections for the next EAR which is due after the 2010 Census.

3. *The BEBR population projections do not reflect seasonal populations. Although the future land use map is based on units, population allocations are based on permanent population. Lee County's 2030 Overlay Map makes assumptions about the percent distribution of seasonal vs. permanent population, but in coastal and resort communities the seasonal population is very significant, yet not reflected in growth projections.*

The allocations on Table 1(b) do account for seasonal populations. Using the US Census occupied unit information, each Planning Community was assigned a ratio for the percent of units that are occupied year round (either owner or renter occupied). An assumption was made that a small amount of the total inventory of units would be vacant due to structure conditions or owner's preference. The remaining units are assumed to be occupied by seasonal residents. For the coastal communities like the Iona/McGregor area the assumption (based on the census data) is that a smaller percentage of the total dwelling unit supply will be occupied by permanent residents. The permanently occupied unit percentages range from 17% in the Captiva Planning Community to 94% in the Buckingham Planning Community. Therefore, the methodology used for Table 1(b) does account for a substantial amount of residential development that will be accommodating seasonal residents. If 100% of all units accommodated by the acreage allocations in Table 1(b) were occupied by year round residents, the population of the unincorporated area of Lee County would be 596,188. Since the actual population projected for the unincorporated areas of Lee County is 437,944, the allocations adopted into the Lee Plan will accommodate approximately 150,000 seasonal residents in the year 2030.

City of Bonita Springs

In response to staff's review comments, the application was supplemented with additional information. The response letter dated August 14, 2008 (updated September 3, 2008) includes a short discussion concerning the accommodation of the City of Bonita Springs population (see page 15 of 19). The city is currently reviewing changes to its EAR which could reduce the 2019 population projection from 98,217 to 75,700. The response concludes that this reduction in population should be accommodated by the unincorporated areas of the county. However, when staff was gathering data for the amendment "CPA2005-00026", the City of Bonita Springs had not adopted the EAR. The draft EAR available for

review did not include the 2019 population projection. The information available went through 2014. Planning staff did not consider this not adopted information as the "best available data". Instead staff used the BEBR 2005 population estimates that were available through the year 2025. With no additional information to base the 2030 projection on, staff used the 2025 projection of 95,551 as the 2030 projection. That data series was from the same source as the data used for the unincorporated portions of the county and were made in the same time period. When a trend is applied to the projection used for 2030, the estimate for 2020 is actually 73,871 which is less than the 2019 projection stated in the applicant's response. Therefore, planning staff has concluded that the possible change in the City of Bonita Springs population does not warrant a re-allocation of residential acreage to accommodate additional growth no longer anticipated to occur in the city.

The Verandah/Development Location

The final justification made for this amendment is the applicant is willing to re-designate the Verandah to "Sub-Outlying Suburban" "...so long as the population can be used at the North River Village" (page 15 of 19 August, 14/September 3, 2008 response letter). This change would not address the allocation table issues only map allocation and location of future population issues. The allocation table acreages for residential uses are based on net density, in other words, only the portion of development used for the residential component is counted when inventorying residential uses. Generally, roads, golf courses, and open space are not included in the residential inventory although they are used when calculating the allowable number of units. The net density of the Verandah is calculated at 3.82 units per acre which is slightly higher than the net density of the other existing development in the "Suburban" land use category in the Fort Myers Shores Planning Community. The density assumption used to calculate the required residential acreage was 3.6 du/acre. In 2005 when the data for existing development was calculated for CPA2005-00026 only 171 units existed in the Verandah development. Newer development will substantially draw down the remaining residential acreage. The Sub-Outlying Suburban area of this community consists of properties with existing approvals. The projects are approved a density that meets the gross density allowed by the Sub-Outlying Suburban designation. The net density which is used to calculate needed acres is 5.15 units per acre. Sufficient acreage has been allocated for these projects to be built by 2030. The remaining areas of the Fort Myers Shores Planning Community are not expected build out by 2030. There is remaining capacity to accommodate over 20,000 new residents between 2030 and buildout. The buildout population is based on the same density assumptions as used in the Lee Plan Table 1(b) methodology. Staff has not calculated the buildout accommodation of the Future Land Use map based on maximum density. The rational used by in this applicant proposal is assuming that amendments to the Verandah development would be approved a much higher densities than exist today. These amendments would require a rezoning case that would be subject to staff review which would consider compatibility, neighborhood comments at public hearings, and finally Lee County Board of County Commissioner approval. Currently the approved 1,700 units is approved at a gross density less than 1.5 units per acre. Originally the development was approved at closer to 1.25 units per acre. The proposed change in land use category to Sub-Outlying Suburban would still allow a potential request to be considered that would increase the gross density double what the previous amendment increased the gross density.

The density trade off proposed is unclear on the actual number of units removed from the Fort Myers Shores Planning Community. It is clear that the Alva Planning Community would increase by 1,500 units. The requested amendment is clear that the applicant is seeking "entitlements" to develop 2,500 units on the North River Village property. Information from the application indicates that the subject property

contains 988.9 upland acres and 232 wetland acres which will allow approximately 1,000 (988.9*1 + 232*1/20) dwelling units. If the subject property is developed similarly to the assumptions used in the allocation methodology, the entire 1,000 units could not be approved at this time. However, this methodology works as an incentive for clustered higher density development with more of the site left undeveloped in conservation, agriculture, or undisturbed acreage. This situation occurs because the regulatory figure is the acreage allocation and not the number of dwelling units. There are no Lee Plan policies that will preclude the developer from proposing a development for the entire 1,000 units (maximum allowed on this site based on the CPA application acreage data) on a smaller amount of land (639 acres or less) with the remaining acreage left undisturbed, in agriculture, or another public use that does not reduce the dwelling unit calculation. In fact, if the applicant were to assemble enough additional land in the Rural Land Use designation, they could cluster all of the requested units within the remaining acreage of the current "Rural" allocation.

The application narrative states that this site is the most appropriate location for future development in the Alva Planning Community. However, there is no explanation how approving this application will prevent the remaining areas of Alva to develop in the, as they call it, "developments with suburban character". The feasibility of this method has not been evaluated, however, there is no policy prohibiting this form of development. The development pattern that is precluded by the current Lee Plan is one where the entire upland portion of the site is divided into 1 acre lots. This development pattern would be subject to the allocation table restriction of only 639 acres (per the last inventory status report). This would still allow for more units than are currently projected for this area of Lee County. Also, a proposal for a subdivision of 450 units (the number of units projected for 2030) on large lots of 2 or more acres is also in consistent with the adopted Table 1(b) allocation. These scenarios demonstrate how the Table 1(b) allocations do not promote low density residential sprawl but actually encourage clustered developments and open space preservation.

ENVIRONMENTAL CONSIDERATIONS

Lee County Environmental Sciences staff have reviewed the request and provided comments dated January 14, 2009. The review memo provides recommended modifications to the applicant proposed policy language. For example, concerning proposed Policy 1.10.2 the memo provides the following:

> *ES Staff recommends deletion of the last sentence of Policy 1.10.2, Staff does not agree with this sentence. The applicant is proposing that the designation of Conservation Lands be delayed until the approval of a planned development rezoning. By delaying the adoption of the conservation lands, the applicant's effort to preserve environmentally sensitive lands will be unnecessarily delayed, potentially resulting in conflicts during the rezoning process. The Conservation Lands land use category should be done during the comprehensive land use amendment process and not delayed to a date uncertain. Staff and the applicant are in agreement with the areas designated for conservation as originally agreed upon but not with the timing of the conservation lands designation. These conservation areas are critical components to the project and subsequent policies. Delaying the designation of conservation lands affects other commitments and proposed policies. For example, in Policy 1.10.11, the applicant proposes increased building heights in order to preserve areas of environmental sensitivity. Withholding the designation of Conservation Lands until the approval of the planned development could impede the progress of the project, placing undo restraints on both the County and the applicant. Amending these lands into*

Conservation Lands category at this time will provide assurances to the public as well as the County as to what lands will be preserved at a minimum in subsequent development processes. If the BoCC recommends transmitting the NRV land use category then ES staff recommends the simultaneous designation of Conservation Lands and the supporting maps.

The memo provides further modifications to Policy 1.10.6, 1.10.7, 1.10.13, 1.10.16, 1.10.20, 1.10.23. The memo also concludes that ES Staff can no longer support a recommendation of approval for the project. This conclusion is reproduced below:

With the applicant's revision to Policy 1.10.2, ES Staff can no longer support a recommendation of approval for the project. The applicants' proposal to withhold the conservation lands until approval of the planned development jeopardizes the entire comprehensive plan amendment. The applicant is proposing increased height, density and commercial uses based on the argument that unique features and environmentally sensitive areas will be preserved. However, the designation to Conservation Lands is absent and no binding assurance is given The Comprehensive Plan Amendment, if approved, will grant the increased height, density and commercial development. Comprehensive Plan Amendments are designed to change the designation of the future land use map and cannot be designated at a later stage of the project. To ensure that the conservation lands are placed on the future land use map, ES Staff recommends that the Conservation Lands Buffers and Special Treatment Area Map be designated on the future land use map at the time of the Comprehensive Plan Amendment.

If the North River Village Comprehensive Plan Amendment is adopted, Staff recommends the above changes to the applicant's proposed text language and revision to the FLUM map to include the additional southern flow-way on the south side of Duke Highway.

Environmental Sciences staff have also provided comments related to the proposed Verandah amendment. These comments are reproduced below:

The Division of Environmental Sciences (ES) staff has reviewed the proposed Verandah Comprehensive Plan amendment from suburban and wetlands to out-lying suburban/wetlands and offer the following analysis and recommended conditions:

The Verandah is approximately 1,450 acres and is predominately development. The property was rezoned to MPD in August 2002 (Z-01-057) and amended in December 2005 (Z-05-081). The property has obtained development orders to construct the commercial areas, residential dwelling units and golf course areas including amenities. The property is predominately cleared and the infrastructure is in place to support future development. As part of the rezoning process, the applicant was required to preserve, enhance or restore indigenous preserves and flow-ways. The preserves in the Verandah were designed to incorporate historic flow-ways, protect listed species such as gopher tortoises, and meet the indigenous open space required by the MPD. If the land use category is amended, ES staff recommends that the applicant work with County Staff to designate Conservation Lands over preserves within the Verandah MPD. The utilization of the conservation land use category would also serve to protect the indigenous habitat while providing a wildlife corridor within the project boundaries. This would also ensure the long term protection of the natural flow-ways.

CONSERVATION LANDS:

The Conservation Lands land use categories (uplands and wetlands) were created to accurately depict the use of lands for long-range conservation purposes. The objective is to conserve important natural resources, environmentally sensitive areas, significant archeological or historical resources, or other conservation uses. Conservation Lands typically include such uses as wildlife preserves; large wetland and upland mitigation areas; natural resource based parks; and water conservation lands such as aquifer recharge areas, flow-ways, flood prone areas and well fields.

The Conservation Lands Future Land Use category is to provide the following public benefits:

- *Sustain native plant and animal populations; and*
- *Help protect people and property from flooding; and*
- *Help replenish our underground drinking water supply; and*
- *Help to improve or sustain the water quality of our coastal bays, inlets; and*
- *Provide eco-tourism opportunities, and*
- *Provide local environmentally oriented recreational and educational opportunities.*

The following Comprehensive Plan Goals, Objectives and Policies support ES Staff's recommendation for the conservation land use category.

> ***Policy1.4.6:*** *The Conservation Lands include uplands and wetlands that are owned and used for long-range conservation purposes. Upland and wetland conservation lands will be shown as separate categories on the Future Land Use map. Conservation Lands may include such uses as wildlife preserves; wetland and upland mitigation areas and banks; ancillary uses for environmental research and education, historic and cultural preservation, and natural resource based parks, and water conservation lands such as aquifer recharge areas, flow-ways, flood prone areas and well fields.*

The Board of County Commissioners has provided policy guidance to staff to maintain wildlife corridors and green space connections to ensure the preservation of indigenous plant and animal habitat throughout the County.

The following Comprehensive Plan Goals, Objectives and Policies further support ES Staff's recommendation for the conservation land use category for this project:

> ***Policy 1.4.6:*** *Conservation Lands land use category was created to accurately depict the use of lands for conservation purposes. Conservation Lands include uplands and wetlands that are owned and used for long range conservation purposes. The Conservation Lands FLUM category is for lands that are primarily used to conserve important natural resources, environmentally sensitive areas, significant archeological or historical resources, or other conservation uses. Conservation Lands typically include such uses as wildlife preserves; large wetland and upland mitigation areas; natural resource based parks; and water conservation lands such as aquifer recharge areas, flow-ways, flood prone areas and well fields.*

By utilizing the conservation land use category over the high quality indigenous areas, flow-ways and other natural resource areas will assist to preserve flow-ways and wildlife habitat.

Standard 11.4: Environmental Review Factors. *In any case where there exists or there is the probability of environmentally sensitive areas the developer must propose means to protect, conserve, or preserve the environmental and natural resources.*

The project site contains high quality indigenous habitat as well as natural flow-ways that connect to the Orange River. ES Staff recommends the use of conservation lands category to preserve these environmentally sensitive habitats and flow-ways.

Objective 60.5: Incorporation of Green Infrastructure into the Surface Water Management Plan. *The long-term benefits of green infrastructure as part of the surface water management system includes improved water quality, improved infiltration, wild life habitat and recreational opportunities. Policy 60.5.3: states that the County encourages the preservation of existing natural flow-ways and restoration of historic natural flow-ways.*

The two main flow-ways should be placed in the conservation lands future land use category to provide a wildlife corridor and protect drainage flow in the area.

Objective 61.2: Mimicking the function of natural systems. *Support a surface water management strategy that relies on natural features (flow-ways, sloughs, creeks, etc.) to help manage storm and surface water. Objective 61.3: Lee County will continue to provide design standards for development protective of the function of natural drainage systems.*

The flow-ways should be incorporated into the surface water management system to help maintain the historic flow-way.

Objective 77.3: *New developments must use innovative open space design to preserve existing native vegetation and buffer adjacent uses.* ***Policy 77.3.3:*** *The County encourages new developments to incorporate large contiguous open space areas in their development design.*

Goal 107: Resource Management Plan. *The county will continue to implement a resource management program that ensures the long-term protection and enhancement of the natural upland and wetland habitats through the retention of interconnected, functioning, and maintainable hydro ecological systems where the remaining wetlands and uplands function as a productive unit resembling the original landscape.*

The flow-ways onsite are an important wildlife link between lands to the north and the Orange River.

Utilizing the conservation lands future land use category for the high quality indigenous habitat and maintaining flow-ways on site will provide an indigenous high quality wildlife habitat; the preserve of the natural flow-ways onsite; and allow for a wildlife connection through the wetlands to the Orange River.

Planning staff recommends that the applicant work with staff to establish Conservation Lands on the Verandah site.

SOILS

The applicant has provided soils information in the background materials. The brief descriptions associated with the soil types depicted on the table prepared by the applicant are based on information provided in the Soil Survey of Lee County, Florida (U.S. Department of Agriculture, Soil Conservation Service, 1984).

HISTORIC RESOURCES

The application includes a map that depicts the North River Village boundary on the County's Archeological Sensitivity Map. This map indicates that the majority of the subject site is located in area that is depicted as "Archaeological Sensitivity."

The application includes a letter, dated October 6, 2006, from the Florida Department of State, Division of Historical Resources. This letter provides the following:

> *According to this agency's responsibilities under Sections 163.3177 and 163.3178, Florida Statutes, Chapter 9J-5, Florida Administrative Code, and any appropriate local ordinances, we reviewed the proposed comprehensive plan amendment consisting of 1,262± acres.*
>
> *A review of our records indicates that while most of this large tract falls within a high archaeological site probability zone, a systematic, professional survey to locate and evaluate cultural resources has never been conducted. It is the opinion of this office that there is a reasonable probability of proposed project activities impacting archaeological and historic sites and properties potentially eligible for listing in the National Register of Historic Places, or otherwise of historical or archaeological significance.*
>
> *Since potentially significant archaeological and historic sites may be present, it is our recommendation that, prior to initiating any project related land clearing or ground disturbing activities within the project area, it should be subjected to a systematic, professional archaeological and historical survey. The purpose of this survey will be to locate and assess the significance of any historic properties present. The resultant survey report must conform to the specifications set forth in Chapter 1A-46, Florida Administrative Code, and be forwarded to this agency for comment in order to complete the process of reviewing the impact of this proposed project on historic properties.*

The application includes 2 Phase 1 Cultural Resource Assessments. One for Williams Island, and one for the balance of the North River Village property. The Williams Island Assessment includes the following Summary:

> *In September 2007, the Archaeological and Historical Conservancy, Inc. (AHC) conducted a Phase I cultural resource assessment for Bonita Bay Properties, Inc., of the Williams (Havens) Island Parcels located in western Lee County. The combined (three) ±7 hectare (±20 acre) subject parcels on a 58-acre island were surveyed to locate sites of archaeological and/or historical significance.*

This assessment was conducted to fulfill historic resource requirements in response to Florida's Chapters 267 and 373. This assessment was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966 (Public Law 89-665), as amended in 1992, and 36 C.F.R., Part 800: Protection of Historic Properties. The work and the report conform to the specifications set forth in Chapter IA-46, Florida Administrative Code.

The parcels are within Section 19 in Township 43S, Range 26E (Figure 1). The island encompasses areas that have been cleared and covered with fill (Figure 3). Prior to development the parcel area was hydric and mesic woodlands vegetated in slash pine/saw palmetto flatwoods and riverine mangrove swamp. The parcel area prior to the turn of the 20th century and the dredging of the Caloosahatchee River was a point or promontory of the south bank of the Caloosahatchee River opposite the confluence of Trout and Owl Creeks.

The subject parcel was investigated with a pedestrian survey and subsurface testing. It was determined that the areas closest to the historic bank of the Caloosahatchee River were Moderate to High Probability Zones (MPZ/HPZ) for archaeological sites. Many of the higher probability zones on the parcel were covered with 1 to 5 meters of fill making shovel testing impossible. However an effort was made to test all three parcels on the island. Overall, 17 shovel tests (50 cm^2) were dug systematically and judgmentally (sic) across the parcel. No archaeological or historical artifacts, features, or sites were observed but two prehistoric sites were documented outside the project parcels. No historic structures occur on the parcel. A modern house and out building constructed in the 1980's are the only structures on the parcel. If future development uncovers archaeological or historic resources than an archaeologist should document those discoveries.

The North River Village "Assemblage" Assessment contains the following Summary:

In April - July 2006 and September 2007, the Archaeological and Historical Conservancy, Inc. (AHC) conducted a Phase I cultural resource assessment for Bonita Bay Properties, Inc. Of the North River Assemblage Parcel located in western Lee County. The combined ±520 hectare (±1300 acre) subject parcel was surveyed to locate sites of archaeological and/or historical significance.

This assessment was conducted to fulfill historic resource requirements in response to Florida's Chapters 267 and 373. This assessment was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966 (Public Law 89-665), as amended in 1992, and 36 C.F.R., Part 800: Protection of Historic Properties. The work and the report conform to the specifications set forth in Chapter IA-46, Florida Administrative Code.

The parcel encompasses parts of Sections 16, 17, 18, 19, and 20 in Township 43 South, Range 26 East (Figure 1). The parcel encompasses citrus groves, improved pasture, woodlands, and wetlands. Much of the parcel has been previously farmed and covered with fill (Figure 3). Prior to development the parcel area was hydric and mesic woodlands vegetated in slash pine/saw palmetto flatwoods, wetlands were characterized as cypress sloughs and grass marshes. The Trout and Owl Creeks exhibit a mangrove fringe near their confluence with the Caloosahatchee River.

The subject parcel was investigated with a pedestrian survey and subsurface testing. It was determined that the areas closest to the Caloosahatchee River as well as creeks, ponds, sloughs were Moderate to High Probability Zones (MPZ/HPZ) for archaeological sites. Ten higher probability areas were identified on the project parcel. Overall, 602 shovel test (50 cm2) wer dug systematically and judgmentally across the parcel. Five previously unrecorded archaeological sites were documented: 8LL2395, 8LL2396, 8LL2397, 8LL2398, and 8LL2399. Four of the sites are small prehistoric middens or camps, and one, 8LL2399, is a possible burial mound. No historic buildings occur on the subject parcel although there are six modern buildings on the parcel.

It is the consultant's opinion that four of the archaeological sites on the North River Assemblage Parcels are potentially eligible for listing on the National Register of Historic Places and should be preserved or subject to Phase II investigations if preservation is not feasible. One site, 8LL2396, is small and although available data does not indicate National Register significance, other site components are possible and if the site area is proposed for development, then Phase II testing is recommended.

As previously noted, there are areas on the North River Village property designated in the "Area of archaeological sensitivity, Sensitivity Level 2." Chapter 22 of the Lee County Land Development Code defines the Sensitivity Level 2 as follows:

Those areas containing known archaeological sites that have not been assessed for significance but are likely to conform to the criteria for local designation, or ***areas where there is a high likelihood that unrecorded sites of potential significance are present.*** (Bolding added for emphasis)

The developer will be required to obtain a "Certificate to dig" from Lee County prior to or in conjunction with the issuance of a final development order for activity within areas designated as being within the "Sensitivity Level 2" areas. "Activity" in this context means new construction, filling, digging, removal of trees or any other activity that may alter or reveal an interred archaeological site. However, the fact that there are resources located on the subject site and that the Owl Creek Boat Works was not evaluated warrants further Lee Plan guidance. The Housing and Historic Preservation section of the Lee County Planning Division has reviewed the request and provided comments dated September 24, 2008. These comments are reproduced below:

Recommendation #1: Per the findings of the above referenced study, archaeological sites identified as 8LL2395, 8LL2397, 8LL2398 and 8LL2399 are eligible for listing on the National Register of Historic Places. Staff recommends that in conjunction with the rezoning process these sites be designated under Chapter 22 of the LDC Historic Preservation. As part of this designation process, a professional archaeologist will identify the boundaries of the archaeological site and recommend appropriate buffers. The applicant will provide an accurate legal description of the site and buffer area so these can be accurately identified and mapped.

Recommendation #2: Per the findings of the above referenced study archaeological site 8LL2396 "...is a small artifact scatter and based on available data, does not appear to be eligible for listing on the National Register of Historic Places. However other site components are possible and if

the site area is proposed for development, then Phase II testing is recommended." Staff recommends that in conjunction with the rezoning process this site be designated under Chapter 22 of the LDC Historic Preservation in order to assure prior to any disturbance of this site Phase II testing is conducted by a professional archaeologist. As part of the designation process a professional archaeologist will identify the boundaries of the archaeological site and recommend appropriate buffers. The applicant will provide an accurate legal description of the site and buffer area so it can be accurately identified and mapped.

Recommendation #3: The actual marina area and the associated buildings and structures were not evaluated as part of the above referenced cultural assessment. Because 1958 aerials show buildings and structures in the marina area, staff recommends that as a condition of approval of this comprehensive plan amendment, a cultural resource assessment of the marina area, including associated buildings and structures, be conducted. The consultant should provide appropriate recommendations for preservation. This assessment should be provided as part of the zoning application so that staff may evaluate it in conjunction with the zoning application.

Given these recommendations, Staff recommends that if the amendment is transmitted, the following language be included in the Lee Plan to provide policy guidance concerning these issues:

POLICY1.10.27: Prior to rezoning approval archaeological sites identified as 8LL2395, 8LL2396, 8LL2397, 8LL2398, and 8LL2399 must be designated under the provisions of Chapter 22 of the Land Development Code. As part of this designation process, a professional archaeologist will identify the boundaries of the archaeological site and recommend appropriate buffers. The applicant will provide an accurate legal description of the site and buffer area so these can be accurately identified and mapped.

POLICY 1.10.28: Prior to rezoning approval the Developer must conduct a cultural resource assessment of the Owl Creek Boat Works marina area, including associated buildings and structures. The assessment consultant should provide appropriate recommendations for preservation. The results of this assessment must be provided as part of the rezoning application so that staff may evaluate the assessment in conjunction with the rezoning application.

Staff does not support the applicant proposed modifications to these policies.

SCHOOL IMPACTS

The applicant has provided a school impact analysis under Tab 10 of the application back up. The analysis provides a break down of the student generation rate by school type, based on the 2005 School Impact Fee Study, concluding that the proposed amendment will generate 319 elementary school students, 134 middle school students, and 178 high schools students. The applicant's analysis provides the following conclusions based on their analysis:

"Several of the schools in this district have available capacity. Therefore the timing of development will be more in line with the availability of public services. It is important to note that given the characteristics of the property - the waterfront and location, it is likely that any development occurring on this property will have a higher distribution of seasonal residents and

retirees. It is expected that student generation would be lower than the average assumed in the Impact Fee Study."

"The Impact Fee ordinance was adopted requiring that all new units pay for their proportionate impact on the school system. Therefore there will be no impact on the school system through this plan amendment. Any students generated will have been mitigated for through the payment of impact fees."

The applicant's representative has provided through recent correspondence that with the drop in enrollment over the last two years since the pan amendment submittal there is now sufficient capacity in the school choice zone according to recent student population numbers. The representative has indicated that the School Board is no longer actively looking for sites and the School Board is looking at a drop in their impact fees. Staff concurs that the impact fees were recently lowered by the Board of County Commissioners on September 23, 2008.

Lee County School District staff has reviewed the proposal and provided the following written comments to the applicant dated September 29, 2006:

"The proposed maximum total of 2,013 dwelling units which was specified in the letter, did not state whether these are single family or multi-family units. At this time I will use the generation rate for single family units because it is the higher of the two rates. The School District of Lee County is estimating that the proposal could generate up to 636 additional school-aged children. This uses the single family generation rate of 0.316 students per dwelling unit (if you need the multi-family generation rate it is 0.125). Based on the impact of this project to the school system, the School District of Lee County is requesting donation of land suitable for a school site, either within the project itself or within the same Choice Zone."

"The Lee County Board off County Commissioners adopted a School Impact Fee Ordinance on November 27, 2001, which was revised in November 2005. This letter uses the revised generation rate. The developers will be expected to pay the impact fee at the appropriate time if a school site is not donated."

Lee County School District staff has provided the following additional comments to Lee County staff dated September 5, 2008:

"The Developers request states that there is a possibility of 2,500 dwelling units without specifying the type. The calculation will be based on the maximum amount. 2,500 units would generate 790 additional school-aged children utilizing a generation rate of .316 per unit."

Therefore, this amendment would increase the total need for school facilities by 790 additional school age children, ultimately resulting in a need for additional facilities.

PARKS, RECREATION AND OPEN SPACE

To date we have not received comments from Public Works staff.

EMERGENCY MEDICAL SERVICES (EMS)

Lee County EMS staff reviewed the request and provided written comments. This letter provides the following:

> *Lee County Emergency Medical Services (LCEMS) has performed a preliminary review of the project referenced herein. Based upon the limited amount of information provided, LCEMS has no initial concerns with the ability to provide service to this project...*
>
> *...This current location is served by LCEMS Station 11, located at 10941 Palm Beach Blvd., which is approximately 2.5 miles away, and LCEMS Station 19, located at 17350 Nalle Road which is approximately 3 miles away.*
>
> *This statement does not indicate that any plans have been received, it just identifies that Lee County EMS has no initial concerns with the ability to provide service to this area.*

SOLID WASTE

The subject property is within Lee County Solid Waste District #4. The collection company for District #4 is Waste Management. With the existing Gulf Coast Landfill, the Waste-to-Energy facility, and the Lee/Hendry Disposal facility all online, staff anticipates that there will be adequate capacity in the County's solid waste system to accommodate the additional waste that will likely accompany the expansion of the airport.

Lee County Solid Waste Division staff reviewed the request and provided written comments dated September 20, 2007. This letter, in part, provides the following:

> *The Lee County Solid Waste Division is capable of providing solid waste collection service for the project known as North River Village through our franchised hauling contractors. Disposal of the solid waste from this development will be accomplished at the Lee County Resource Recovery Facility and the Lee-Hendry Regional Landfill. Plans have been made, allowing for growth, to maintain long-term disposal capacity at these facilities.*

MASS TRANSIT

Lee Tran staff reviewed the request and provided comments:

> *We currently do not provide transit service to this area north of the Caloosahatchee River, nor have we identified the capacity with which to do so in the future. The nearest transit service is approximately 2 miles south on Palm Beach Boulevard, SR 80.*
>
> *Transit service on SR 31 north of the river has not been identified as a need in either the Lee County Transit Development Plan or in the Lee County Long Range Transportation Plan. However, with the pace of growth projected for Lee County and the potential the SR 31 corridor has for becomng a transit corridor in the future, we request the design and development of North River Village to include "transit ready" features. Such features should include pedestrian walkways and bike ways internal to the project that will connect with the SR 31 corridor for future access to a transit system, as well as ROW and land preservation for future transit passenger amenities. Such items will facilitate easier access to public transportation and will allow for ease of implementation of such service in the future.*

POLICE
The Sheriff's Office has reviewed the request and provided written comments dated September 9, 2008. These comments are reproduced below:

> *The Lee County Sheriff's Office has reviewed the proposed North River Village Project located at North River Road. In order to provide core law enforcement services to this site, a Crime Prevention through Environmental Design (CPTED) study must be conducted. This study involves a survey of the physical, mechanical and organizational structure of the developmentto identify features which may contribute to unwanted behaviors such as criminal acts.*

The Office of the Sheriff would also like the applicant to notify their office "upon application to Lee County for a development order or building permit. Staff believes that if the request is approved the CPTED study and the desired notification should be included in policy language for the Lee Plan:

> **POLICY 1.10.29:** The Developer of the North River Village project will coordinate with the Office of the Sheriff throughout the development process. The Developer will conduct a Crime Prevention through Environmental Design study and submit this study for review and approval of the Office of the Sheriff. This study must be completed prior to zoning approval and a copy provided to Lee County. The Developer will notify the Office of the Sheriff upon application to Lee County for a development order and also for building permits.

FIRE
The North River Village site is located in the Bayshore Fire Protection and Rescue Service District. The District has reviewed the request and provided comments dated September 16, 2008. These comments are reproduced below:

> *In regards to the discussion I have had with you and Bonita Bay Group, as Fire Chief I wish to address my support for this project. As states earlier, the Bayshore Fire Protection and Rescue Service District is committed to insuring that services will be provided to all areas with our jurisdiction.*
>
> *I have also met with Bonita Bay, and I have found them to be receptive to fire service delivery needs. Through discussions they have stated their intent to assure easy access of our emergency vehicles to all interior locations, as well as shortened response time access through North River Village to reach existing response areas on Dukes Highway. The Expansion of the water main and hydrant system will also positively effect North River Village and the surrounding residents.*
>
> *With the increased population it would be conceivable that an increase in call volume could accompany the project and cause the district to move up plans for a second station along the Highway 31 corridor and Highway 78.*
>
> *Bayshore Fire Rescue is committed to working with Lee County, and the Bonita Bay Group in addressing service delivery needs not only for North River Village but to the Community as a whole. This project would provide for additional revenue that would enhance and expand the level of current services provided by the district, while permitting us to look at lowering our*

taxable millage rate. If I can provide any additional information or statistics, please feel free to contact this office.

UTILITIES

The applicant has provided that currently the subject area could be developed with 997 units which would generate an approximate water and wastewater demand of 249,250 gallons per day (GPD). The analysis provides that the proposed amendment would allow a maximum of 2,500 residential units and 150,000 square feet of commercial uses, increasing the demand by 475,750 GPD for a total demand of 725,000 GPD.

Wastewater

The subject property is not currently located within a service area for wastewater. Planning staff has confirmed that an application for an extension of the North Fort Myers Utility (NFMU) service area has been submitted to the Florida Public Service Commission for an extension of the wastewater service area that will include the subject area. The applicant's utility analysis states that wastewater service will be provided by North Fort Myers Utility, Inc. Per the applicant's analysis and back up materials, NFMU currently has a plant capacity of 3.5 million gallons per day (MGD). The utility has recently permitted an additional 4.0 MGD of capacity resulting in a total 7.5 MGD capacity. Based on NFMU's capacity analysis, the projected demand on the system in 2018 will be 5.34 MGD. The application states that this figure includes the sanitary sewer demand of the subject project. The application provides that NFMU maintains a 16" force main along Bayshore Road which is located within a mile of the subject area and the utility has a permit to extend the force main along Bayshore Road to SR 31.

NFMU has provided a letter to the applicant dated May 30, 2008 stating that *"North Fort Myers Utility, Inc. has the capacity to provide 725,000 gallons per day from its wastewater treatment plant."*

Potable Water

The subject property is not located within a service area for potable water. The proposed amendment includes adding the property into the Lee County Utilities future water service area by amending Map 6 of the Lee Plan, the Future Water Service Areas Map. The Utility analysis provided by the applicant states that potable water service will be provided by Lee County Utilities (LCU) which is permitted for 33.5 MGD. Per the applicant's analysis the current demand is 25.6 MGD. The capacity will be increased by 5.0 MGD when the Corkscrew Wellfield Expansion is completed. The projected demand for LCU in 2018 is 40.4 MGD and the projected capacity is 60.13 MGD. The application materials state LCU maintains transmission lines within a mile of the proposed amendment area. The applicant has verified the current demand and projected demands through Lee County Utilities staff. Lee County Utilities staff have noted that while LCU will have the capacity to serve the project, the Board of County Commissioners will make the final decision as to whether the area should be added to the County's future service area.

The application concludes that *"based on current capacities and planned expansions of the utilities, there will be excess capacity for each utility serving the demand of the proposed development. For NFMU, there will be nearly 2.2 MGD of permitted excess capacity available for wastewater service when including this project. For LCU, there will be as much as 19.0 MGD of excess capacity for potable water service when including this project."*

DRAINAGE/SURFACE WATER MANAGEMENT ISSUES

Topography

The application back up materials states that the topography of the area ranges in height from 19-ft NGVD north of Duke Highway (consisting of little or no wetlands) to about 2-ft along tidally influenced Trout Creek to the west (containing most of the areas wetlands, creeks, ponds and sloughs).

Land Use

Gravity discharge is the areas only drainage system supporting the current land uses (groves, pasture, cattle grazing, agricultural operation) The application back up material states:

> *"The majority of the fields operate without an operation permit issued by SFWMD. The fields can be farmed in a multitude of ways so long as a discharge pump is not used to remove stormwater during the wet season, or any other time of the year. Irrigation pumps and wells are allowed in this area. The only prohibition on the management of water is to remove the water by pumps."*

Hydrology

The area falls into three main watershed areas. The Trout Creek watershed being the largest runs north-southwest dividing the property into two main areas. The smaller Owl Creek watershed runs north-south and drains into the lower portion of Trout Creek before reaching the Caloosahatchee River. The site also falls within part of the Otter Creek watershed to the east. The application back up material states:

> *"The allowable peak rate of runoff from this property from the LCSWMP is 32 cubic feet per second per square mile (csm) for the Owl Creek portion of the site, 39 csm for Trout Creek, and 39 csm for Otter Creek."*

Most the North River Community falls below the current FEMA 100-year floodplain (areas of the Owl and Trout Creek watersheds). New FIRM maps were effective on August 28, 2008 and they confirm that large areas of the site are in the 100-year floodplain. The NOAA SLOSH model shows a section of the area to be inundated in a Tropical Storm. The Area also has sections, most of which are wetlands that fall within Lee County's Coastal High Hazard Zone. Some of these wetland areas will be recommended for a land use change. Fill will be added to upland areas to meet regulated minimum road and building elevations.

Existing Facilities

The application back up materials states.

> *"There are few existing manmade facilities on the property. Owl Creek has a small weir at the downstream end. Trout Creek has two private one-lane timber bridges between the Caloosahatchee and North River Road."*

Proposed Facilities

The applicant is proposing outfall structures, and a combination of lakes and wetlands allowing the needed detention required to satisfy the intensity and type of development in the proposal. The application back up materials states:

"The total-peak runoff rate from the site will not exceed the summation of the allowable rates times of the respective area from each watershed....It is not anticipated that pumps will be used for this CPA to discharge storm water from within the developed areas to a detention area, although not planned at the time, a pumped system might be considered for wetland restoration if a gravity source of water is deemed not practical"

REGIONAL POLICY PLAN AND FLORIDA STATE COMPREHENSIVE PLAN

Applicant provided analysis:

The proposed North river Village amendment to the Lee Plan aims to create a land use category that guides development toward the creation of a mixed use river oriented district. Development within th North River Village will have an emphasis on allowing for recreational usage of the waterfront and adding to Lee County's inventory of water dependant uses, while raising the bar for development to occur in an environmentally sustainable manner through requiring increased standards for energy and water conservation as well as environmental preservation. Specifically, the propose amendment implements the following Goals and Policies of the Regional Policy Plan:

Regional Policy Plan

Housing - Goal 2 - Livable Communities

The proposed amendment implements Goal 2 of the Regional Policy Plan by creating a mixed use development that will act as a waterfront destination. The proposed amendment allows for housing opportunities in close proximity to retail and office uses (Action 2).

Regional Policy Plan

Goal 2: Southwest Florida will develop (or redevelop) communities that are livable and offer residents a wide range of housing and employment opportunities.

By locating new housing in areas where services already exist, local governments can reduce the strain on their resources and promote the cost effective use of their services. Doing so can also promote livable communities that offer residents a variety of amenities and opportunities. Encouragement of infill development, mixed land uses, and neighborhood revitalization are among the steps local governments can take to promote new affordable housing without sacrificing other planning goals.

Strategy: Develop livable, integrated communities that offer residents a high quality of life.

Actions:

1. Encourage programs that promote infill development in urban areas to maximize the efficient use of existing infrastructure.

2. Work with local governments to promote structures and developments that combine commercial and residential uses as a means of providing housing that is affordable and near employment opportunities.

3. Encourage communities that are pedestrian friendly or offer alternative modes of transportation to overcome transportation problems many low-income families face.

4. Encourage new housing to be built in higher areas to reduce the need for costly flood insurance.

5. Promote the mix of affordable and non-affordable housing to create integrated communities.

Applicant provided analysis:
Economic Development - Goal 1, Strategy 3 - Maintain the physical infrastructure to meet growth demands

The proposed development is in an area where infrastructure and services are available and/or will be extended in conjunction with the development of the North River Village. The property is surrounded on the West and South by urban uses and on the North is the proposed Babcock development. The proposed North River Village will help make the needed infrastructure in this area financially feasible for the existing and future residents. This development will be required to pay impact fees for new development. For example, extending central water and sewer into this area under the current low density plan would not be practical. This land use change would make it feasible for many existing residents to access utility infrastructure.

Regional Policy Plan
Actions:

1. Review plan amendments, development proposals, and clearinghouse items for public facility deficits and encourage mitigation of those deficits.

2. Assist local governments and state agencies in planning for future support service facilities, before the need arises.

3. Review proposed public facilities to ensure their location in urban areas that have in place, or are covered by binding agreements to provide, the resources and facilities for desired growth in an environmentally acceptable manner.

4. Study alternatives and assist other entities to study alternatives to encourage land development that maximizes the use, rehabilitation, and re-use of existing facilities, structures, and buildings as an alternative to new construction and development.

5. Review proposed public facilities and services to ensure that costs are allocated on the basis of benefits received by existing and future residents.

6. Review proposed development to require the developer to install or finance the necessary infrastructure and to provide land for the needed support services.

7. Assist local governments to obtain funding to maintain, improve, or expand their infrastructure.

Applicant provided analysis:

Economic Development - goal 1, Strategy 4 - Ensure adequacy of lands for commercial and industrial centers, with suitable service provided.

The proposed North River Village is for a residential/commercial mixed-use center that will promote the goal of economic development in Lee County. The location of the North River Village is a "suitable urban area" based on the surrounding uses and existing infrastructure. Commercial uses will be provided as part of any future development plans.

Regional Policy Plan

Actions:

1. Map or assist in mapping the appropriate distribution of urban uses for growth.

2. Identify existing urban lands and transportation corridors for development or redevelopment, and ensure adequate access and services are provided.

3. Include in planning efforts the recognition of lands with natural capacity, accessibility, previous preparation for urban purposes, and adequate public facilities.

4. Participate, coordinate, or promote intergovernmental coordination for siting unpopular land uses.

5. Review proposed development for increased densities and infill in suitable urban areas.

Applicant provided analysis:

Economic Development - Goal 3, Strategy 1 - Maintain and improve the natural, historic, cultural, and tourist-related resources as primary regional economic assets.

As demonstrated in the planning narrative, creating a water oriented mixed use destination center provides very significant economic benefits to Lee County. According to a 2004 report published by the Florida Senate's Community Affairs Committee, the loss of public access to the waterfront for recreational purposes has a staggering effect on the economy. The current plan would allow for and has resulted in the total privatization of the waterfront in this area. The North River Village would create a tourist and community amenity that will serve to promote economic development in Lee County.

Regional Policy Plan

Actions:

1. Assist in the identification and acquisition of potential park and recreational sites and other resources in future growth areas.

2. Participate in studies, plans, and programs for public access to beaches and other resources.

3. Review proposed development to require that natural and other resources of regional significance are maintained, enhanced, restored, or re-created, as appropriate.

Applicant provided analysis:
Transportation - Goal 1, Strategy 3 - Promote Smart Growth where residential communities are linked with job centers.

The mixed-use nature of this proposed development implements this smart growth idea. Residential areas are being proposed as either adjacent to or integrated with job centers such as the Civic center and the commercial area, where a mix of uses is being requested. A system of pedestrian and bicycle ways will be developed, linking the residential with the commercial areas and creating a multi-modal environment.

Regional Policy Plan
Promote Smart growth where residential communities are linked with job centers through transit, carpooling, or other high occupancy vehicle transportation.

Actions:
1. Annually, provide a report in conjunction with regional transit agencies on the use of mass transit where development densities or population support such transit.

2. In cooperation with transit providers and other governmental and private entities, seek long term, dedicated funding sources for use for improving and expanding the transit system.

3. Report on the overall effect of regional land use policies and pricing policies on urban sustainability.

Transportation - Goal 2, Strategy 1 - Promote a good environment for driving, walking, bicycling, and public transit using a highly connected network of public streets, green space, and community centers.

The proposed North River village Policies require the preservation and enhancement of the natural features on site. Pedestrian linkages will be made so that these natural areas are linked with public spaces, private amenities, public amenities, the commercial area and the Caloosahatchee River.

State Policy Plan

The proposed North River Village is consistent with the State Comprehensive Plan. Below are specific policies as they relate to this proposed development.

(3) The Elderly

Policy (b) 10. Improve and expand transportation services to increase mobility of the elderly.

The goal of the North River Village is to create a mixed use environment where residential is integrated with and adjacent to civic and commercial uses. Mobility through the project is a key component of the project's design and functionality. The mixed use environmental is especially important for those with constraints on mobility such as the elderly.

(9) Natural Systems and Recreational Lands

The proposed Comprehensive Plan Amendment does not impact any natural resources or species on or off-site. The River Village land use category contains policies that aim to enhance the environment and create new recreational lands or access to recreational features, such as the Caloosahatchee River. Furthermore, this amendment proposes a series of policies to protect the natural environment and a simultaneous change to the FLUM for the environmentally sensitive portions of the property to the "Preservation" land use category.

(15) Land Use

(a) Goal. In recognition of the importance of preserving the natural resources and enhancing the quality of life of the state, development shall be directed to those areas which have in place, or have agreements to provide, the land and water resources, fiscal abilities, and service capacity to accommodate growth in an environmentally acceptable manner.

Policy (b) (1) - Promote state programs, investments, development and redevelopment activities which encourage efficient development and occur in areas which will have the capacity to service new population and commerce.

The proposed development is in an area where infrastructure and services are available and/or will be extended in conjunction with the development of the North River Village. The property is surrounded on the West and South by urban uses and on the North is the proposed Babcock development. The proposed North River Village will help make the needed infrastructure in this area financially feasible for the existing and future residents. This development will be required to pay impact fees for new public facilities based on the impact of this project.

Policy (b) (3) - Enhance the livability and character of urban areas through the encouragement of an attractive and functional mix of living, working, shopping, and recreational activities.

The proposed amendment creates a mixed use district and as such will "enhance the livability and character of urban areas through the encouragement of attractive and functional mix of living, working,

shopping, and recreational activities." The North River Village is being planned to include residential, commercial and recreational uses all mixed together with a strong emphasis on pedestrian connections and access to the river. The application provides a discussion concerning consistency of the proposal with the Florida State Comprehensive Plan as contained in F.S. 187.201. The discussion highlights various areas in which the plan amendment furthers and advances the State Comprehensive Plan. Staff concurs that the proposal is consistent with the State Comprehensive Plan.

AFFECT ON ADJACENT LOCAL GOVERNMENTS

The application provides that the proposed amendment "will not affect adjacent local governments and their comprehensive plans. Staff concurs that the amendment will not affect adjacent local governments and their comprehensive plans.

FEMA FLOODWAY ISSUE

Planning staff notes that the subject site is significantly impacted by areas that are designated on the FIRM maps as being floodways. The plans that staff have reviewed include development within these areas. Floodways are areas where a No Rise Certification is required for any construction. This is an engineering study that demonstrates that there will be no rise in the floodway due to the proposed development. The developer is currently seeking a Letter of Map Revision (LOMR) from FEMA. This is the second attempt to appeal the boundaries of the floodway. Staff can not predict the outcome of this LOMR process. Staff is uncomfortable with approving intensification of the property's density when staff is unsure as to the develop-ability of these areas.

B. CONCLUSIONS

The proposal results in an enlargement of the Future Urban Areas of the Lee Plan's Future Land Use Map. There is no demonstrated need for expanding the Lee Plan's Future Urban Areas. The Verandah site is located in area with all urban services available. Conversely, the North River Village property is located in one of the last truly rural areas of Lee County. Staff has long maintained that the approved Verandah density represents an under utilization of the property. The approval of the Verandah aspect of the request would continue the under utilization of the property as the Sub-Outlying Suburban category is limited to 2 dwelling units per acre. The applicant proposed development for Williams Island, depending on design and intensity, would be permitted in the Outer Islands Future Land Use category, which is the designation for Williams Island. Therefore, the proposed Inner Island amendment is not necessary.

The applicant is proposing to delay implementation of the Preservation Lands, Buffers, and Special Treatment areas map until some unspecified period in time in the future, thereby providing no protection to onsite wetlands, creek systems, habitat for endangered species, and heritage trees thru the plan amendment request.

C. STAFF RECOMMENDATION

Staff recommends that the Board of County Commissioners **not** transmit the proposed plan amendment.

PART III - LOCAL PLANNING AGENCY REVIEW AND RECOMMENDATION

DATE OF PUBLIC HEARING: September 29, 2008

A. LOCAL PLANNING AGENCY REVIEW

Planning staff provided a brief summary of the plan amendment request. Staff provided that the applicant has not demonstrated a need for additional urban lands in Lee County. One LPA member questioned the the lateness of the staff report. One member asked for staff to elaborate on the proposed development on Williams Island with consistency with the Outer Island Future Land Use category. Staff responded that the proposed development is for a resort type of a development on the island, including such uses as a hotel, bed and breakfast with recreational amenities. Staff stated that this proposed development is approveable in the Outer Island land use category and has been approved in the Outer Island land use category.

One LPA member asked about the status of the proposed Babcock development. Staff provided a brief summary of discussions that have occurred concerning the Babcock transportation amendment. It was stated that the County has not agreed to the level of impacts associated with the proposed development.

The applicant's representatives next addressed the LPA and provided an overview of the proposed amendment. The representative highlighted the areas of disagreement in the staff analysis as contained in the staff report. These included urban sprawl, precedential nature of the request, and population accommodation. The representative stated that the project will be served by central water and sewer, which is a major benefit over individual wells and septic systems. The representative questioned "whether or not the rural land use category of one unit an acre in the current comprehensive plan is the best form of development to implement the County goals." The representative discussed the location of the project , north of the Fort Myers Shores Community, south of the proposed Babcock village, and near the Lee County Civic Center.

The representative provided that the applicant had conducted several meetings with the North Olga community to learn what issues the community had with the proposal. These issues included: compatibility with existing residential uses; provide community gathering places; preservation of the character of C.R. 78; incorporate green building practices; ensure water quality; provide central water and sewer; no berms, and no gates; and the treatment of development along Duke Highway. The representative stated that the amendment proposes to preserve the character C.R. 78 through proposed Policy 1.10.4 that requires a 100-foot edge protection area. It was stated that this edge protection area will include an equestrian path, a multi-use bicycle and pedestrian path. Duke Highway was explained as another edge protection area in which the proposed homes will face the homes along Duke Highway.

The representative addressed open space and preservation that would occur as a result of the proposal. The request includes designating land with the Conservation Lands designation. It was stated that more units provide the incentive to preserve more land. The representative also stated that incorporating the proposed special treatment areas are an additional benefit as a result of the proposed amendment.

The applicant's representative addressed transportation and stated that the development is projected to pay up to $23 million in transportation impact fees and by definition, transportation impact fees mitigate

for every unit's impact on the road network. The representative stated that the applicant is going above and beyond impact fees. Several examples were given such as: donating 300 feet of right-of-way along the property adjacent to State Road 31; widening a section of State Road 31 from the project's main entrance to State Road 78; and, two intersection improvements. These intersections are the intersection of Buckingham Road and State Road 80, and the intersection at State Road 31 and State Road 80.

The applicant's representative stated that several environmental techniques will be utilized in the proposed development. Mentioned were green building for all single-family homes; low impact design criteria that consists of decreasing impervious surfaces, reducing roadway runoff, adding permeable pavement surfaces, increasing natural areas and xeriscaping in the community.

A second applicant representative addressed Smart Growth and urban sprawl concerns. This representative concluded that the amendment represented Smart Growth and discouraged sprawl. This representative also addressed population accommodation, and stated that the applicant does not propose an increase in the overall County population projection. It was stated that the applicant has identified systemic difficulties including: restrictions on Pine Island; density restrictions with regard to Verandah; municipal recalculations; extensive public acquisition of land; unanticipated new growth areas, such as the Babcock new town; and, additional wetlands. The representative then discussed the concept of precedent and concluded that the request does not represent a precedent. This representative also provided that the applicant "has no argument with the staff modifications" to the proposed text amendment.

The Local Planning Agency opened up the public hearing for public comments. A total of 36 members of the public addressed the LPA, 25 members opposed the request, 10 members supported the request, and one member was neutral. The members in opposition expressed concerns relating to: the density increase; increased traffic; urban sprawl; impacts to wildlife; impacts to surface water management and area flooding; loss of rural character; precedential nature of the request; building heights; and, proposal represents an inefficient use of energy resources. The members in support cited: Bonita Bay's previous developments as good examples; will provide jobs; will provide amenities for the whole community, such as public access to the water; will provide needed infrastructure, such as potable water and sewer systems; and Bonita Bay will protect the wildlife.

The LPA closed the public comment portion of the public hearing and invited the developer's representative an opportunity to provide rebuttal comments. The developer's representative stated that some of the expressed concerns were actually reasons why the proposal should be approved. He gave the example that a golf course could be developed with very little extra protection. He stated that the density trade-off, increased density, will result in a net positive environmental benefit to the community. He also discussed the level of impact fees the project will generate, and the other improvements committed to by the developer.

The members of the LPA then had a discussion concerning the proposed amendment. One LPA member expressed concern that she needed more time to weigh everything. One LPA member stated that the developer had "effectively constructed a strong man argument, giving some indication that if this doesn't happen in some way, that somebody else is going to do something bad with 1,000 units." The LPA member stated that is was a fact that the developed owned the property and was in control whether 1,00

units of 2,500 units were built. This LPA member recognized the staff position that additional urban areas were not needed.

Another LPA member discussed the history of community planning in Alva from the failed past attempts to the current Alva proposal. He also provided the he had a problem with 2,500 units. He also thought they needed more time to make this decision. Another LPA member expressed concern about the height of 85 feet, and that more time was needed. The LPA passed a motion that continued the request to October 9th, 2008.

On October 6, 2008, the applicant requested that the proposed amendment be continued to the 2008/2009 Comprehensive Plan Amendment Cycle.

DATE OF PUBLIC HEARING: January 26, 2009

A. LOCAL PLANNING AGENCY REVIEW

B. LOCAL PLANNING AGENCY RECOMMENDATION AND FINDINGS OF FACT SUMMARY

1. RECOMMENDATION:

2. BASIS AND RECOMMENDED FINDINGS OF FACT:

C. VOTE:

NOEL ANDRESS	_____
CINDY BUTLER	_____
CARIE CALL	_____
JIM GREEN	_____
MITCH HUTCHCRAFT	_____
RONALD INGE	_____
CARLA JOHNSTON	_____

PART IV - BOARD OF COUNTY COMMISSIONERS
HEARING FOR TRANSMITTAL OF PROPOSED AMENDMENT

DATE OF TRANSMITTAL HEARING: _____

A. BOARD REVIEW:

B. BOARD ACTION AND FINDINGS OF FACT SUMMARY:

1. BOARD ACTION:

2. BASIS AND RECOMMENDED FINDINGS OF FACT:

C. VOTE:

	_____
A. BRIAN BIGELOW	_____
TAMMARA HALL	_____
ROBERT P. JANES	_____
RAY JUDAH	_____
FRANKLIN B. MANN	_____

PART V - DEPARTMENT OF COMMUNITY AFFAIRS OBJECTIONS, RECOMMENDATIONS, AND COMMENTS (ORC) REPORT

DATE OF ORC REPORT: _____

A. DCA OBJECTIONS, RECOMMENDATIONS AND COMMENTS

B. STAFF RESPONSE

PART VI - BOARD OF COUNTY COMMISSIONERS
HEARING FOR ADOPTION OF PROPOSED AMENDMENT

DATE OF ADOPTION HEARING: _____

A. BOARD REVIEW:

B. BOARD ACTION AND FINDINGS OF FACT SUMMARY:

1. BOARD ACTION:

2. BASIS AND RECOMMENDED FINDINGS OF FACT:

C. VOTE:

	_____
A. BRIAN BIGELOW	_____
TAMMARA HALL	_____
ROBERT P. JANES	_____
RAY JUDAH	_____
FRANKLIN B. MANN	_____

Miller, Janet

From: Karen Kamener [Shadowfaxfan@earthlink.net]
Sent: Wednesday, February 11, 2009 6:10 AM
To: Carla Johnston; Jim Green; Mr. Noel Andress; Mr. Mitch A. Hutchcraft; Ms. Cindy Butler; Ms. Carie L. Call; Mr. Ronald Inge; steven brown; Miller, Janet; Noble, Matthew
Subject: Wastewater Planning and Smart Growth

Hi, Below are some excerpts from a power point presentation I found on the same website. It was created on 1/16/07. Towards the bottom are comments on how central sewer encourages Urban Sprawl-- again a much different opinion than Bonita Bays testimony. Thanks, Karen

Wastewater Planning and Smart Growth

Kevin M. Sherman P.E., Ph.D.
Director of Engineering
Quanics, Inc. Crestwood KY

What is Smart Growth?

- a collection of development strategies to reduce sprawl that are fiscally, environmentally and socially responsible.
- a means to make more sustainable development choices
- an innovative approach addressing EPA's environmental mandates

Smart Growth encourages

- Compact form
- Mixed-use development (pedestrian friendly)
- Historic revitalization
- Redevelopment / renewal of blighted areas
- Open space conservation
- Infill development

What is sprawl?

- New suburban development at the rural fringe
- Different from historical growth patterns
- Examples: large lot subdivisions, shopping centers that can only be accessed by car
- Develops land at rates that far outpaces population growth
- The causes of sprawl are complex
- Deeply rooted in urban decay

Sprawl results in

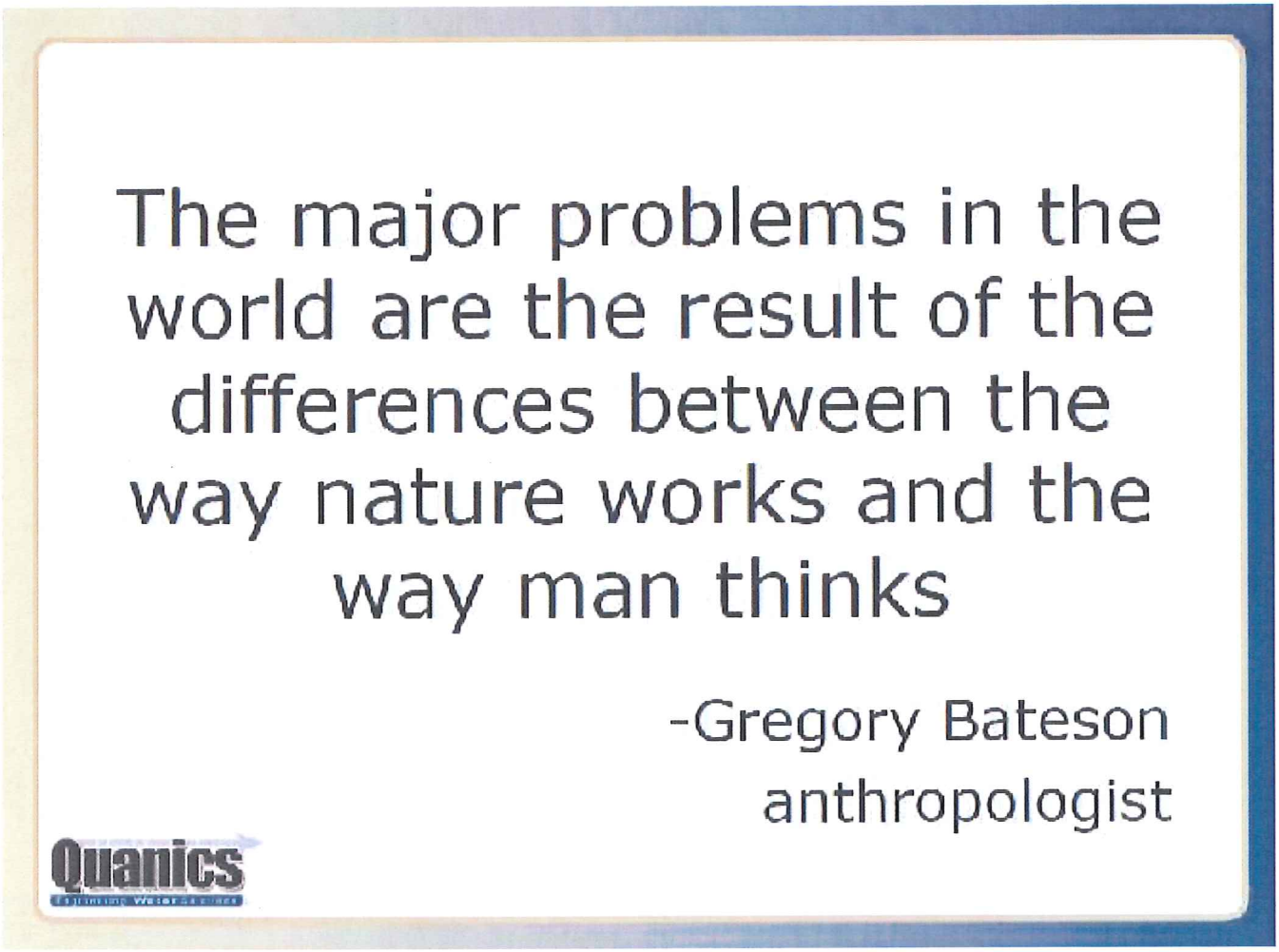
- Loss of agricultural land
- Loss of open space
- Fragmented forests
- Degradation of water resources
- Extensive land clearing/disturbance
- Increased erosion, stormwater impacts
- Less scenic views
- Increased vulnerability of drinking water wells

Wastewater choices can encourage sprawl

- Land area requirements for onsite sewage systems
- Rigid siting of conventional OSTDS
- Central sewer brings loss of control over land use with intensified developmental pressure
- Sewering brings the associated environmental impacts of urbanization
  - drastic increase in stormwater runoff
  - loss of groundwater recharge

How is Florida positioned?

- OSTDS program - one of the best reputations in the US
- More new installations than any other state
- More repair permits
- Reasonable levels of well-trained people in public and private sector


The major problems in the world are the result of the differences between the way nature works and the way man thinks
-Gregory Bateson
anthropologist
Quanics

--

Miller, Janet

From: Karen Kamener [Shadowfaxfan@earthlink.net]

Sent: Wednesday, February 11, 2009 8:48 AM

To: Carla Johnston; Jim Green; Mr. Noel Andress; Mr. Mitch A. Hutchcraft; Ms. Cindy Butler; Ms. Carie L. Call; Mr. Ronald Inge; Danielsare@ssfcumember.org; Miller, Janet

Subject: Rural --570.70 Legislative findings.

In reference to the Bonita Bay North River Village issue.

The 2008 Florida Statutes

Title XXXV	Chapter 570	View Entire Chapter
AGRICULTURE, HORTICULTURE, AND ANIMAL INDUSTRY	DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES	

570.70 Legislative findings.--The Legislature finds and declares that:

(1) A thriving rural economy with a strong agricultural base, healthy natural environment, and viable rural communities is an essential part of Florida. Rural areas also include the largest remaining intact ecosystems and best examples of remaining wildlife habitats as well as a majority of privately owned land targeted by local, state, and federal agencies for natural resource protection.

(2) The growth of Florida's population can result in agricultural and rural lands being converted into residential or commercial development.

(3) The agricultural, rural, natural resource, and commodity values of rural lands are vital to the state's economy, productivity, rural heritage, and quality of life.

(4) The Legislature further recognizes the need for enhancing the ability of rural landowners to obtain economic value from their property, protecting rural character, controlling urban sprawl, and providing necessary open space for agriculture and the natural environment, and the importance of maintaining and protecting Florida's rural economy through innovative planning and development strategies in rural areas and the use of incentives that reward landowners for good stewardship of land and natural resources.

(5) The purpose of this act is to bring under public protection lands that serve to limit subdivision and conversion of agricultural and natural areas that provide economic, open space, water, and wildlife benefits by acquiring land or related interests in land such as perpetual, less-than-fee acquisitions, agricultural protection agreements, and resource conservation agreements and innovative planning and development strategies in rural areas.

History.--s. 62, ch. 2001-279.

--

All
You
Have
To

Decide
is what
to do with
the time
that is given
to us. J.R.R. Tolkien

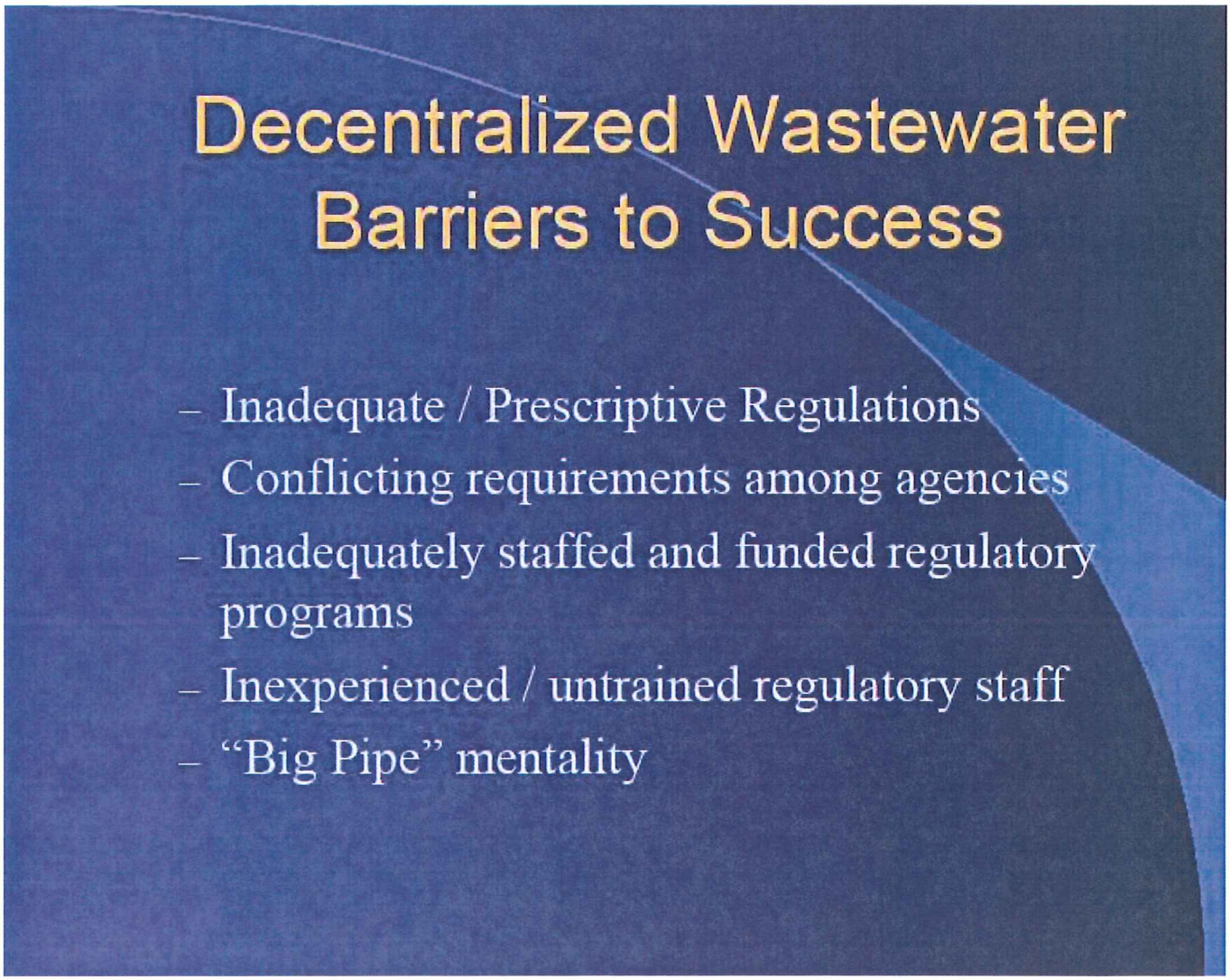
"Note: I was unable to print the 101 pg. Document (attached to e-mail). Ms. Kamener was okay with it not being placed in the file and only meant for us to file her e-mail, not the attachments. Miller

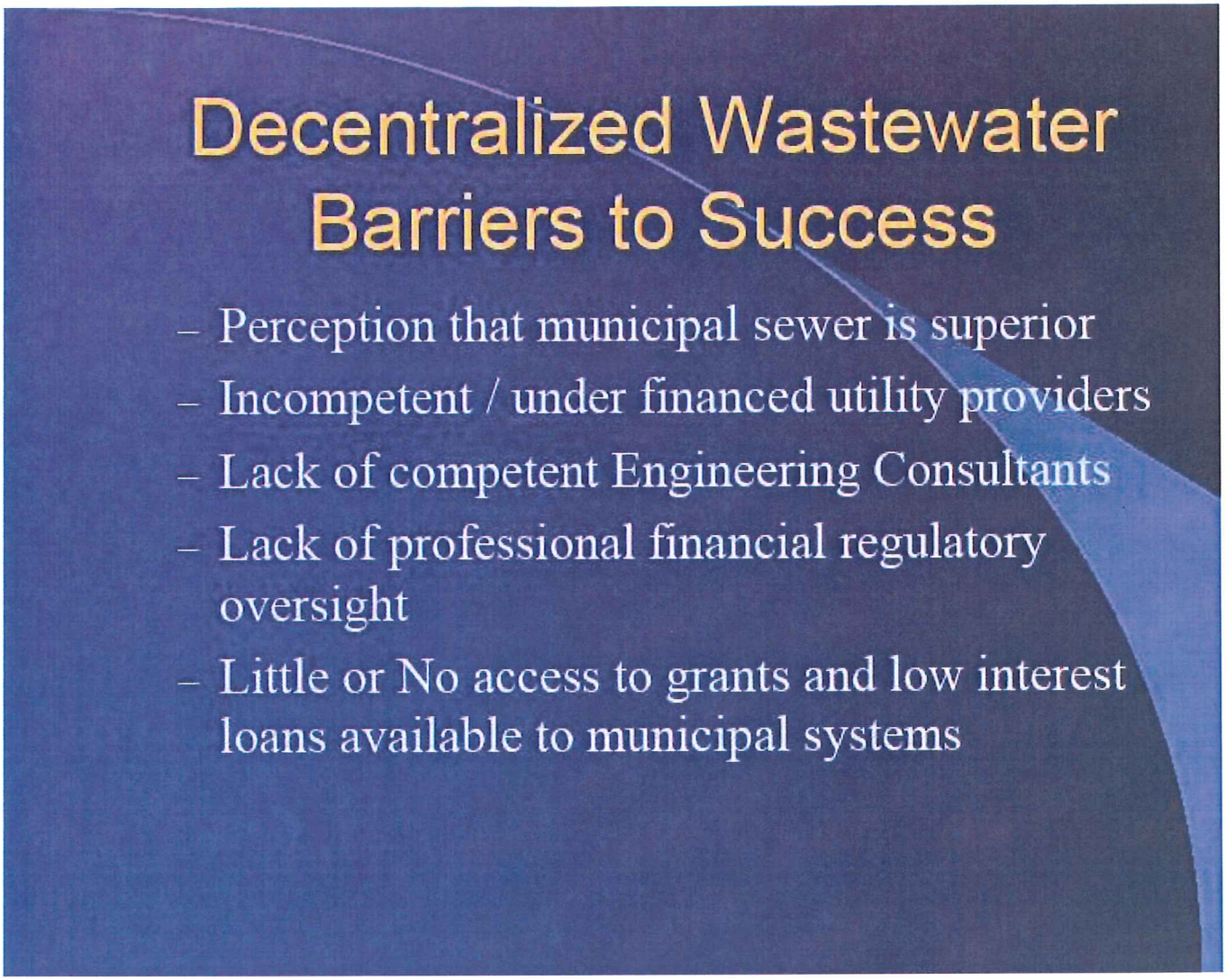
Miller, Janet

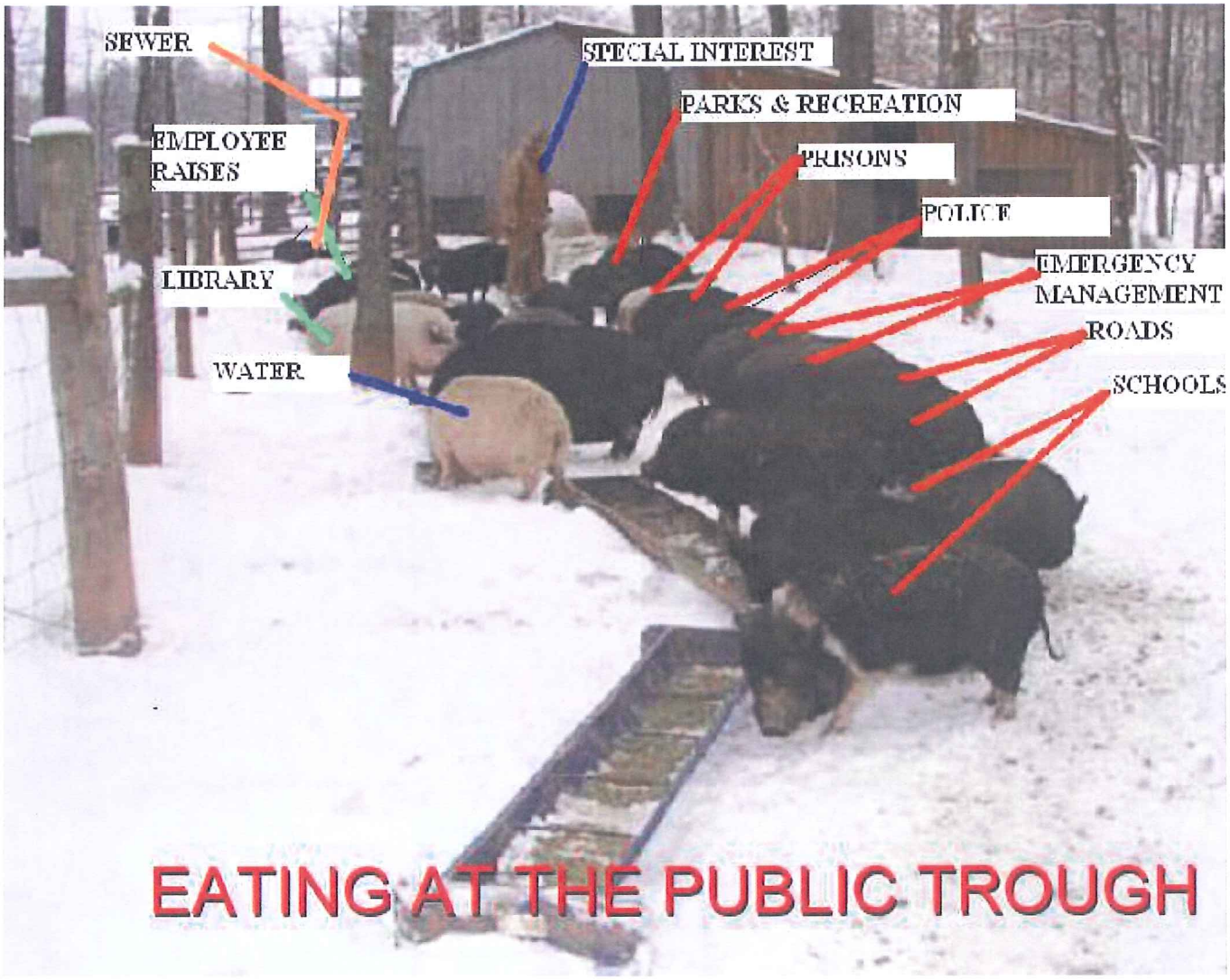
From: Karen Kamener [Shadowfaxfan@earthlink.net]
Sent: Wednesday, February 11, 2009 6:46 AM
To: Carla Johnston; Jim Green; Mr. Noel Andress; Mr. Mitch A. Hutchcraft; Ms. Cindy Butler; Ms. Carie L. Call; Mr. Ronald Inge; Noble, Matthew; Miller, Janet; 'Ruby Daniels'
Subject: Utility Solutions For A Changing World
Attachments: Sewer FEHA-1-10-06.pdf

I am attaching the PDF and putting a few excerpts in the Body. This PDF is pretty entertaining. Thanks,Karen

Bob Pickney, P.E.President




Decentralized Wastewater Barriers to Success
– Perception that municipal sewer is superior
– Incompetent / under financed utility providers
– Lack of competent Engineering Consultants
– Lack of professional financial regulatory oversight
– Little or No access to grants and low interest loans available to municipal systems



--

All You Have To Decide is what to do with the Time that is Given to You. JRR Tolkien

Miller, Janet

From: Karen Kamener [Shadowfaxfan@earthlink.net]
Sent: Wednesday, February 11, 2009 5:54 AM
To: Carla Johnston; Jim Green; Mr. Noel Andress; Mr. Mitch A. Hutchcraft; Ms. Cindy Butler; Ms. Carie L. Call; Mr. Ronald Inge; Noble, Matthew; Miller, Janet; steven brown; Danielsare@ssfcumember.org
Subject: The truth about septic

Dear LPA Members,

I attend the Jan. 26th, 09 LPA meeting and was concerned about the many negative comments about Septic Systems also know as OSTDS. I researched the issue after the meeting and am passing the information onto you that I found at the Florida Department of Health website. Some of this information in the form of excerpts to save you time and prevent your having to weed through hundreds of pages of information. The information at this website states that if septic systems are installed and maintained properly they are not a threat but actually contribute to ground water recharge. There are also statements that say central sewer burdens the local government financially and encourages urban sprawl.

Since there are also 5 new members whom did not attend the Sept. 29th,2008 meeting I will also forward the Florida State Statues pertaining to the preserving of our rural lands that I read to the board that day. I will also be copying this information to Janet Miller to be put in the public record.

Thank you very much for your time and efforts in dealing with the burden of decision making. Many lives and generations will be affected by the decision makers of the present day.

Best Regards, Karen Kamener

The info below is from this page:
http://www.doh.state.fl.us/environment/ostds/OSTDSdescription.html

floridashealth

DIVISION OF Environmental Health

850 245 4250 : Email Us

Description

The Bureau of Onsite Sewage Programs' mission is to protect the public health and e by developing and promoting a comprehensive onsite sewage program.

The bureau develops statewide rules and provides training and standardization for County Health Depar employees responsible for permitting the installation and repair of onsite sewage treatment and disposal (OSTDS) within the state. The bureau licenses septic tank contractors, approves continuing education co course providers for septic tank contractors, funds a hands-on training center, and mediates OSTDS cont complaints. The bureau manages a state funded research program, prepares research grants, and reviews innovative products and septic tank designs.

Our vision is to make the Florida onsite sewage program a model for the nation using research as the cor develop scientific standards.

Back To Top

Home : About Us : Community EH : Radiation : Medicine : Water : Sewage : Programs : Newsroom

Miller, Janet

From:	Karen Kamener [Shadowfaxfan@earthlink.net]
Sent:	Wednesday, February 11, 2009 7:14 AM
To:	Carla Johnston; Jim Green; Mr. Noel Andress; Mr. Mitch A. Hutchcraft; Ms. Cindy Butler; Ms. Carie L. Call; Mr. Ronald Inge; Danielsare@ssfcumember.org; Noble, Matthew; Miller, Janet
Subject:	EPA's opinion on septic
Attachments:	EPA septic_rtc_all.pdf

The attached PDF is 101 pages, here are some excerpts. Thanks, Karen

BENEFITS OF DECENTRALIZED SYSTEMS

Decentralized systems are appropriate for many types of com
Cost-effectiveness is a primary consideration for selecting these syst
below. A list of some of the benefits of using decentralized systems

- Protects Public Health and the Environment. Properly mana
systems can provide the treatment necessary to protect public
quality standards, just as well as centralized systems. Decent
designed, installed and operated to meet all federal and state
Effective advanced treatment units are available for additiona
disinfection requirements. Also, these systems can help to pr
management by avoiding the potentially large transfers of wa
another that can occur with centralized treatment.

- Appropriate for Low Density Communities. In small commu
densities, the most cost-effective option is often a decentraliz

- Appropriate for Varying Site Conditions. Decentralized syst
of site conditions, including shallow water tables or bedrock,
small lot sizes.

- Additional Benefits. Decentralized systems are suitable for e
(where advanced treatment, such as nutrient removal or disin
centralized systems require collection of wastewater for an en
substantial cost, decentralized systems, when properly install
can achieve significant cost savings while recharging local ac
water reuse opportunities close to points of wastewater gener

OVERCOMING BARRIERS TO IMPLEMENTING DECENTRAI

Several barriers, listed below, inhibit the expanded use of decentı systems. Suggested ways to overcome the barriers are also provided. Tl suggestions address a wide range of issues and apply to the various orgai implementing decentralized systems.

- Lack of Knowledge and Public Misperception. The perception o realtors, and developers that centralized systems are better for pr more acceptable than decentralized systems, even if they are far r difficult to demonstrate that properly designed and managed dece provide equal or more cost-effective service. Also, many regulat engineers are not comfortable with decentralized systems due to Decentralized systems, particularly the non-conventional types, a college and technical instructional programs.

  Overcoming the Barrier. Professional training and certification p decentralized treatment systems. Educational materials for home proper operation and maintenance practices and the consequence

- Legislative and Regulatory Constraints. State enabling legislatio necessary legal powers for carrying out important management fi vague, or not clearly applicable to decentralized systems. Most i states, legislative authority for centralized and decentralized wast between at least two state agencies. It is also common for legisla decentralized systems to be split between state and local governn confusion regarding accountability and program coordination. U decentralized wastewater systems have not gained equal stature v for public health and environmental protection.

  Many states and localities also rely on inflexible and prescriptive decentralized systems, and often allow only the use of conventio Where alternative systems are approved, approval often involves

--

All
You
Have
To

Decide
is what
to do with
the time
that is given
to ME. Tolkien

CONTENTS

EXECUTIVE SUMMARY

Adequately managed decentralized wastewater systems are a cost-effective and long-term option for meeting public health and water quality goals, particularly in less densely populated areas. Small communities' wastewater needs are currently 10 percent of total wastewater demands. Decentralized systems serve approximately 25 percent of the U.S. population, and approximately 37 percent of new development. This document addresses the Congressional House Appropriations Committee's request that EPA report on:

(1) the Agency's analysis of the benefits of decentralized wastewater system alternatives compared to current (i.e., centralized) systems;
(2) the potential savings and/or costs associated with the use of these alternatives;
(3) the ability of the Agency to implement these alternatives within the current statutory and regulatory structure; and
(4) the plans of the Agency, if any, to implement any such alternative measures using funds appropriated in fiscal year 1997.

Also addressed in this response is the Committee's inquiry on the role of Rural Electric Cooperatives in upgrading rural drinking water and wastewater facilities.

BACKGROUND

Well through the first half of this century, wastewater management entailed either centralized collection sewers with some type of treatment facility for the highly populated areas, or conventional onsite systems (or sometimes cesspools) for small towns, suburban and rural areas. With the passage of the Clean Water Act (CWA), P.L. 92-500 in October 1972, which contained a national policy to provide funding for publicly owned treatment works and a goal to restore our lakes and streams, most communities selected centralized systems which were eligible for funding by the federal government. The 1977 amendments to the CWA required communities to examine or consider alternatives to conventional systems, and provided a financial set-aside for such treatment systems to be built. Approximately 2,700 facilities utilizing innovative and/or alternative technologies were constructed through this grant program which ended in 1990. Incentive set-aside funding was not continued under the Clean Water State Revolving Fund (SRF) program. Given the billions of dollars in remaining needs for upgraded and new wastewater facilities (EPA, 1993), communities must look even closer at alternative technologies for meeting their needs.

One area of concern is failing or obsolete wastewater systems in less densely populated areas. When these systems were first built, common practice was to install the least costly solution, which was not necessarily the most appropriate solution for the conditions. For a

variety of reasons, these systems are failing. Both centralized and decentralized system alternatives need to be considered in upgrading failing systems to provide the most appropriate and cost-effective solution to wastewater treatment problems. This document addresses the issues raised when considering decentralized treatment options.

BENEFITS OF DECENTRALIZED SYSTEMS

Decentralized systems are appropriate for many types of communities and conditions. Cost-effectiveness is a primary consideration for selecting these systems and is summarized below. A list of some of the benefits of using decentralized systems follows:

- Protects Public Health and the Environment. Properly managed decentralized wastewater systems can provide the treatment necessary to protect public health and meet water quality standards, just as well as centralized systems. Decentralized systems can be sited, designed, installed and operated to meet all federal and state required effluent standards. Effective advanced treatment units are available for additional nutrient removal and disinfection requirements. Also, these systems can help to promote better watershed management by avoiding the potentially large transfers of water from one watershed to another that can occur with centralized treatment.

- Appropriate for Low Density Communities. In small communities with low population densities, the most cost-effective option is often a decentralized system.

- Appropriate for Varying Site Conditions. Decentralized systems are suitable for a variety of site conditions, including shallow water tables or bedrock, low-permeability soils, and small lot sizes.

- Additional Benefits. Decentralized systems are suitable for ecologically sensitive areas (where advanced treatment, such as nutrient removal or disinfection is necessary). Since centralized systems require collection of wastewater for an entire community at substantial cost, decentralized systems, when properly installed, operated and maintained, can achieve significant cost savings while recharging local aquifers and providing other water reuse opportunities close to points of wastewater generation.

POTENTIAL COSTS AND SAVINGS

Decentralized onsite and cluster wastewater systems can be the most cost-effective option in areas where developing or extending centralized treatment is too expensive (e.g., rural areas, hilly terrain). Cost estimates on a national basis for all decentralized systems are difficult to develop due to the varying conditions of each community. The comparisons presented in this document suggest that decentralized systems are typically cost-effective in rural areas. For small communities and areas on the fringes of urban areas, both decentralized and centralized systems

(or combinations) can be cost-effective, depending on the site conditions and distance to existing sewers.

OVERCOMING BARRIERS TO IMPLEMENTING DECENTRALIZED SYSTEMS

Several barriers, listed below, inhibit the expanded use of decentralized wastewater systems. Suggested ways to overcome the barriers are also provided. The barriers and suggestions address a wide range of issues and apply to the various organizations associated with implementing decentralized systems.

- Lack of Knowledge and Public Misperception. The perception of some homeowners, realtors, and developers that centralized systems are better for property values and are more acceptable than decentralized systems, even if they are far more costly, makes it difficult to demonstrate that properly designed and managed decentralized systems can provide equal or more cost-effective service. Also, many regulators and wastewater engineers are not comfortable with decentralized systems due to a lack of knowledge. Decentralized systems, particularly the non-conventional types, are not included in most college and technical instructional programs.

  Overcoming the Barrier. Professional training and certification programs should include decentralized treatment systems. Educational materials for homeowners should explain proper operation and maintenance practices and the consequences of failures.

- Legislative and Regulatory Constraints. State enabling legislation that provides the necessary legal powers for carrying out important management functions may be absent, vague, or not clearly applicable to decentralized systems. Most importantly, in almost all states, legislative authority for centralized and decentralized wastewater systems is split between at least two state agencies. It is also common for legislative authority for decentralized systems to be split between state and local governments, resulting in further confusion regarding accountability and program coordination. Under these conditions, decentralized wastewater systems have not gained equal stature with centralized facilities for public health and environmental protection.

  Many states and localities also rely on inflexible and prescriptive regulatory codes for decentralized systems, and often allow only the use of conventional septic systems. Where alternative systems are approved, approval often involves a lengthy process. As a result, an onsite system that may be inadequate (because the system could not operate under the special site conditions) or a needlessly expensive centralized system or expansion may be selected.

  Overcoming the Barrier. States should be encouraged to develop or improve enabling legislation that allows the creation of management agencies and empowers new or

existing organizations to carry out management functions for decentralized wastewater systems. Also, states should consider consolidating legal authority for centralized and decentralized wastewater systems under a single state agency so that all wastewater management options are reviewed more equitably.

State and local regulatory codes should be revised to allow the selection of decentralized systems based on their ability to meet public health and environmental protection performance standards, just as centralized systems are now. The development and use of model codes can facilitate this process.

- Lack of Management Programs. Few communities have developed the necessary organizational structures to effectively manage decentralized wastewater systems, although such management programs are considered commonplace for centralized wastewater facilities and for other services (e.g., electric, telephone, water). Without such management, decentralized systems may not provide adequate treatment of wastewater.

  Overcoming the Barrier: Management programs should be developed on state, regional, or local levels, as appropriate, to ensure that decentralized wastewater systems are sited, designed, installed, operated, and maintained properly and that they continue to meet public health and water quality performance standards. Examples of possible management structures (see Appendix C) should be provided to municipalities (e.g., public ownership/private maintenance). Examples of successful attempts of implementing management programs should be highlighted (see Appendix E for case studies).

- Liability and Engineering Fees. Homeowners and developers are often unwilling to accept the responsibility and potential liability associated with unfamiliar systems such as those providing decentralized treatment. Also, engineers' fees are often based on a percentage of project cost and have little incentive for designing low cost systems.

  Overcoming the Barrier. Liability can be addressed within the context of a management plan which will prevent failures and develop mechanisms to cover failures. Engineering fees should not be based on project cost for decentralized systems.

- Financial Barriers. EPA's Construction Grants program, and now the Clean Water SRF program, have been the major source of wastewater treatment facility funding. These programs are generally available only to public entities. Difficulties exist for privately-owned systems in obtaining public funds under current federal and state grant and loan programs.

Overcoming the Barrier. There are a number of other federal sources of funding for private entities. The U.S. Department of Agriculture's Rural Utility Service provides funding through its Water and Waste Disposal loan and grant program to public entities, Indian tribes, and organizations operated on a not-for-profit basis, such as an association, cooperative, or private corporations. Two EPA programs, the Clean Water SRF program for nonpoint source control and the CWA section 319 program, are also available to private entities. Public grant and loan funds for wastewater management should be utilized to a greater extent to manage decentralized wastewater systems where eligible. Education for community officials should be provided on the these eligibilities.

EPA'S ABILITY AND PLANS TO IMPLEMENT

Over the past 20 years, EPA has put considerable resources into helping small communities meet their wastewater needs. This has been accomplished in many ways -- financing, public education, technical assistance, technology transfer, research, demonstrations, and assistance with program development. Most of the outreach, which includes technical assistance and education has been grouped under the umbrella of EPA's Small Community Outreach and Education Program (SCORE). Assistance has also been provided indirectly through federal funding of the many associations that have come together to support small community needs. Many of these efforts continue today and will continue into the future. Described below are ongoing and planned activities and programs conducted by EPA or with EPA assistance, which provide a framework for implementing alternatives such as decentralized treatment systems.

Funding

- Technologies funded under the Innovative and Alternative Technology provisions of the Construction Grants program are being assessed under a technology assessment program which will produce technical documents and fact sheets on various technologies.

- The Clean Water State Revolving Fund program has funded decentralized systems in several states since the expiration of the Construction Grants Program. Loans are also available for nonpoint source activities, including planning, design and construction activities associated with correcting onsite system problems.

- EPA is working with USDA's Rural Utility Service and HUD to provide funding to communities in a more efficient and less burdensome manner. Improved coordination and cooperation between the Agencies is outlined in a memorandum that is in the process of being signed by the three Agencies. Follow-up actions to implement improvements will be undertaken in fiscal years 1997 and 1998.

- EPA has recently announced a Hardship Grants Program for Rural Communities which will fund wastewater treatment in communities not served by centralized wastewater collection or treatments systems. Decentralized systems may be the option of choice for these rural, dispersed communities. The program can also fund training programs that, among other things, can assist in the development of management districts.

Outreach and Education

- EPA provides yearly funding for the National Small Flows Clearinghouse to provide a wide range of technical assistance.

- The Small Towns Environmental Program (STEP) encourages the use of small alternative systems through a grass-roots, self-help program.

- The National Environmental Training Center for Small Communities (NETCSC) supports environmental trainers through development and delivery of training curricula and training of trainers.

- The Rural Community Assistance Program provides technical assistance to rural communities.

Technology and Demonstrations

EPA's technology and demonstration programs, in collaboration with other stakeholders, provide technical guidance through the following projects:

- National Onsite Demonstration Project
- Updates of EPA design manuals on Onsite Systems, Small Community Technologies and Constructed Wetlands; and a guidance document for Large Capacity Septic Systems
- Grants under the Environmental Technology Initiative to demonstrate onsite technologies
- A grant to develop a research agenda for onsite treatment
- A small community wastewater testing and verification center under EPA's Environmental Technology Verification (ETV) program (discussions are underway)

Program Development

- EPA plans to collaborate with other federal agencies to develop guidance to assist communities in implementing management systems based on performance goals.

- EPA is also encouraging planning and implementation on a watershed basis to meet water quality goals. Improved decentralized treatment is an important component of many of these plans.

THE ROLE OF RURAL ELECTRIC COOPERATIVES IN UPGRADING FACILITIES

Rural electric cooperatives are private entities that build and manage extensive rural utility systems. These cooperatives have the capability to address a full range of technical, financial, administrative, and regulatory issues related to the supply and management of electric power. In the Fiscal Year 1997 House Appropriations Committee report, the Committee acknowledged the significant interest of the cooperatives "to expand their current role of delivering electricity to the delivery to rural communities of clean water and safe drinking water improvement technologies as well." The Committee "is uncertain whether expansion into this new field is an appropriate means of upgrading rural drinking and wastewater facilities to meet federal requirements." EPA was asked to review this matter and report on its findings prior to the Committee's fiscal year 1998 budget hearings for EPA. The review is presented as an appendix to this response (Appendix F).

In summary, drinking water and wastewater treatment facilities can be upgraded and managed by rural electric cooperatives, although 13 states would require enabling legislation for them to own and/or operate drinking water and wastewater facilities. Cooperatives could be a good solution in rural areas because cooperatives are non-political, known entities to the homeowners, that bring experienced management and staff to solve the O&M challenge, as well as options for obtaining capital. The ability to provide management services, including O&M, can be the cooperatives' most valuable asset.

From the drinking water perspective, cooperatives offer great promise as management entities for small water systems which lack institutional strength. However, for many reasons, it is unlikely that more cooperatives will make significant movements into the drinking water and wastewater business quickly. These reasons involve the interest on the part of individual owners to pay for onsite system management, the technical ability of the cooperative to manage drinking water and wastewater facilities, limited experience with low energy onsite technologies, and the ability to obtain capital. Once these issues are resolved, the community and cooperative may be able to work together to efficiently provide the needed wastewater services.

Chapter 1

INTRODUCTION

PURPOSE

This document addresses the Congressional House Appropriations Committee's request that EPA report on

(1) the Agency's analysis of the benefits of decentralized wastewater system alternatives compared to current (i.e., centralized) systems;
(2) the potential savings and/or costs associated with the use of these alternatives;
(3) the ability of the Agency to implement these alternatives within the current statutory and regulatory structure; and
(4) the plans of the Agency, if any, to implement any such alternative measures using funds appropriated in fiscal year 1997.

Appendix F addresses the Committee's request to analyze the ability of rural electric cooperatives to upgrade facilities in rural areas. A separate response addresses privatization of municipal wastewater facilities, also requested by the Committee.

Responses to areas 1 through 4 are presented below. Following this Introduction is an analysis of the benefits of implementing decentralized treatment options (#1 above). It focuses on the factors that influence the selection of a wastewater system in a community and the conditions under which a decentralized or centralized system would be the best option. This is followed by an analysis of the potential costs and savings (#2 above) which examines comparative costs for centralized and decentralized wastewater systems using two hypothetical scenarios. Next, the document highlights barriers that inhibit the expanded use of decentralized systems and suggestions for overcoming the barriers. A section follows describing EPA's ability and plans to implement the findings (questions #3 and #4 above), with appendices supplementing the text.

The House Appropriations Committee request highlighted several alternative approaches for managing wastewater, including:

- Targeted upgrades of treatment systems failing at individual homes.
- Innovative, high-performance technologies for pretreatment on lots characterized by shallow soils or other adverse conditions.
- Small satellite treatment plants or leaching fields in high-density areas.
- Detailed watershed planning to specify precise standards for sensitive versus non-sensitive zones.

- Maintenance, inspection, and water quality monitoring programs to detect failures in onsite systems.

These approaches are discussed throughout this document, particularly in the "Analysis of Benefits" section. Targeted upgrades of failing onsite systems are discussed in a variety of contexts, including the section on "Lower Capital Costs for Low Density Communities", which discusses why decentralized systems are most applicable for upgrading failing systems in small, rural communities and in ecologically sensitive areas. Examples of innovative or alternative technologies that provide additional treatment for sites with shallow soils and a variety of other hydro geological conditions are given in the section "Adaptable to Varying Site Conditions" and many such systems are described in Appendix A, "Definitions and Descriptions of Wastewater Systems." Small satellite treatment plants or leach fields which have low cost collector sewers are referred to as "cluster systems" or "package plants" throughout this report. Watershed planning and standards for targeting ecologically sensitive areas are discussed in the section on "Additional Benefits" and in Appendix B under "Comprehensive Planning." Maintenance, inspection, and monitoring programs are described in several sections related to management systems and Appendix C on "Management Systems."

SELECTED DEFINITIONS

Appendix A provides detailed definitions of many terms used in this document. There are several terms which are used extensively throughout this document and are defined here as well as in Appendix A.

- A **decentralized system** is an onsite or cluster wastewater system that is used to treat and dispose of relatively small volumes of wastewater, generally from individual or groups of dwellings and businesses that are located relatively close together. Onsite and cluster systems are also commonly used in combination.

- An **onsite system** is a natural system or mechanical device used to collect, treat, and discharge or reclaim wastewater from an individual dwelling without the use of community-wide sewers or a centralized treatment facility. A conventional onsite system includes a septic tank and a leach field. Other alternative types of onsite systems include at-grade systems, mound systems, sand filters and small aerobic units.

- A **cluster system** is a wastewater collection and treatment system where two or more dwellings, but less than an entire community, are served. The wastewater from several homes may be pretreated onsite by individual septic tanks or package plants before being transported through low cost, alternative technology sewers to a treatment unit that is relatively small compared to centralized systems.

maintained. Subsequently, in the 1980's, the Innovative and Alternative (I&A) Technology and Small Community set-asides of the Construction Grants program resulted in the construction of hundreds of small community technologies using centralized and decentralized approaches. Both programs provided some information on performance and costs of newer decentralized systems.

Circumstances changed in 1990, when the federal Construction Grants and I&A programs were eliminated. These programs were replaced by the Clean Water State Revolving Fund program, which provides communities with low interest loans. These programs have only been able to meet a small portion of the total needs. EPA's 1992 Needs Survey estimated the nation's documented wastewater needs to be $137 billion, with an increase of 39 percent from 1990 to 1992 (EPA, 1993). Small community needs comprised approximately 10 percent (over $13 billion) of total unmet needs in 1992. Furthermore, EPA estimated that replacing failing septic systems with new centralized system sewers and treatment facilities accounted for 40 percent of the small community needs (EPA, 1993).

Managed decentralized wastewater systems are viable, long-term alternatives to centralized wastewater facilities where cost-effective, particularly in small and rural communities. Decentralized systems already serve one-quarter of the population nationwide, and 50% of the population in some states. These systems merit serious consideration in any evaluation of wastewater management options for small and mid-sized communities and new development. In some cases, combinations of decentralized and centralized arrangements will be useful to solve diverse conditions.

HISTORY OF WASTEWATER MANAGEMENT

Onsite wastewater systems have been used since the mid-1800s, with technological advances improving the systems from simple outhouses to cesspools, to septic tanks, to some of the more advanced treatment units available today. In the 1970s and 1980s, large Federal investments in the construction of wastewater facilities focused primarily on large, centralized collection and treatment systems rather than on decentralized systems. Federal funds for wastewater systems increased significantly in 1972, as authorized in the Federal Water Pollution Control Act (later called the Clean Water Act). Municipalities used funds from the new Construction Grants program to build sewers and centralized treatment facilities to meet national standards for discharged pollutants (GAO, 1994). Between 1972 and 1990, the federal government spent more than $62 billion in this program for constructing or upgrading treatment facilities (Lewis, 1986).

The initial decision to install a particular system (i.e., hookup to a centralized system or use onsite systems) was primarily made in the private sector by the developer of a property, based on affordability or profitability. In small communities, developers often chose more affordable onsite systems which could be easily installed for each dwelling. Once installed, the onsite system was usually not examined again unless an emergency situation arose, with wastewater either backing up into backyards or streets even though in many cases, they were contributing to pollution of ground water and nearby surface waters. In most small communities, outdated state and local regulatory codes still promote the continued use of poorly maintained conventional onsite systems (a septic tank and leach field). In many of these communities, these systems are providing adequate public health and environmental protection, but in many cases, they are not.

The 1990 Census indicates that 25 million households use conventional onsite systems or cesspools. Data on the failure rate associated with these systems is limited; a national estimate is not available. However, during 1993 alone, a total of 90,632 failures were reported, according to a National Small Flows Clearinghouse survey of health departments across the country. Failure rates as high as 72 percent have been documented, such as in the Rouge River National Demonstration Project. Nationwide data show that failures of onsite wastewater systems are primarily due to improper siting (e.g., in low-permeability soils), improper design, poor installation practices, insufficient operation and maintenance of the systems, and lack of enforcement of codes. Some communities, such as Stinson Beach, CA (see Appendix E) and Warwick, RI, explored ways to prevent future failures, including managing decentralized systems to ensure that they were operated and maintained appropriately, and using alternative types of systems where site conditions made conventional onsite systems marginally applicable. During the 1970's, a number of state and local governments, including Gardiner, NY and Wood County, WV, with the support of the U.S. EPA Research and Development programs, experimented with different types of decentralized systems that could accommodate a variety of site and community conditions and meet environmental protection goals if properly operated and

Chapter 2

ANALYSIS OF BENEFITS

WASTEWATER SYSTEM GOALS

Wastewater systems have two fundamental goals:

- o Protection of public health (e.g., from waterborne disease-causing organisms such as bacteria; from high nitrate levels in ground water).
- o Protection of the environment (e.g., protection of surface waters from eutrophication caused by excess phosphorus and nitrogen).

If properly sited, designed, installed and managed over their service lives, decentralized wastewater systems can, and do, meet both public health and environmental protection goals in areas where centralized treatment is impractical or not cost-effective. This section discusses why a decentralized system is often the most feasible choice for small communities.

The Clean Water Act, as amended, identifies federal requirements for wastewater treatment facilities discharging to waters of the U.S., i.e., a minimum of secondary treatment and water quality standards. Decentralized systems which discharge to a surface water must, and can, meet these requirements. Conventional onsite systems discharge effluent through the soils to the groundwater. Groundwater can be protected with properly maintained onsite systems or with additional treatment to control nutrients.

In addition, the Safe Drinking Water Act addresses the risk to groundwater quality posed by the large capacity septic systems (systems with the capacity to serve 20 or more persons per day). EPA includes large capacity septic systems as a type of Class V well which are regulated within the Underground Injection Control program to protect ground waters.

BENEFITS OF DECENTRALIZED WASTEWATER SYSTEMS

For certain communities and site conditions, managed decentralized wastewater systems are the most technically appropriate and economical means for treating wastewater when compared to centralized treatment systems. The primary benefits of using decentralized systems are:

- o Protects public health and the environment
- o Lower capital and maintenance costs for low density communities
- o Adaptable to varying site conditions
- o Additional benefits

How these factors affect the selection of wastewater systems is discussed below. For a more detailed discussion of cost-effectiveness, see the "Potential Costs and Savings" section of this document.

Protects Public Health and the Environment

Properly managed decentralized wastewater systems can provide the treatment necessary to protect public health and the environment including groundwater and surface waters, just as well as centralized systems. Decentralized systems can usually be sited, designed, installed and operated to meet all federal and state required effluent standards for biological oxygen demand (BOD), total suspended solids (TSS) and fecal coliform. Effective advanced treatment units are available for additional nutrient removal and disinfection requirements for both types of systems, as well.

Centralized systems frequently result in large watershed transfers of waters, whereas decentralized systems when used effectively promote the return of treated wastewater within the watershed of origin. Managed decentralized systems can effectively minimize the impacts of these interbasin water transfers.

Lower Capital and Maintenance Costs for Low Density Communities

In areas with low population densities (approximately one dwelling or less per acre), decentralized onsite wastewater systems often are the most cost-effective option for upgrading failing septic systems or serving new development. Constructing new centralized systems in rural areas is often economically unfeasible because of the distances between homes, the significant piping required to tie-in all the connections, and the inability to achieve economies of scale (i.e., a certain number of users to support system costs).

In urban and suburban areas with high population densities (more than three to four dwellings per acre), large-scale, centralized collection and treatment of wastewater is usually most cost-effective.

For areas with moderate population densities (one dwelling per one-half to one acre) located at moderate distances from a centralized treatment facility, the choice of a centralized or decentralized wastewater system may vary by neighborhood based on local conditions. Moderately populated areas may effectively use decentralized cluster wastewater systems that serve two or more (up to several hundred is possible) homes and are located close to the dwellings they serve. These cluster systems are cost-effective in many cases because they use smaller, less expensive collection pipes that travel relatively short distances to smaller, less maintenance intensive treatment units (often with soil disposal or reuse of effluent). As long as homes are relatively close together, cluster systems may be cost-competitive with numerous individual onsite systems.

Adaptable to Varying Site Conditions

In the past, when fewer types of decentralized wastewater systems were available, certain site conditions, such as high ground-water tables, impervious soils, shallow bedrock or limestone formations, were considered limiting factors that precluded decentralized systems. In many cases, septic tank/leach field systems were nonetheless used at many such sites, with inadequate subsequent protection of surface and ground water. Today, however, decentralized systems can usually be designed for a specific site and its hydrogeological conditions. For example, sand mounds systems are designed specifically for sites with high ground water. Decentralized wastewater systems now allow greater flexibility and are often combined into treatment trains to meet a range of treatment goals and site conditions. A treatment train might include a septic tank and recirculating sand filter (or other types of technologies) to greatly reduce BOD, TSS, nitrogen, and bacteria levels; a relatively small leach field (a larger leach field becomes unnecessary with the additional treatment provided by a sand filter or other treatment units); and multiple dosing of effluent to the leach field on sites with excessively permeable soils.

Additional Benefits

Decentralized systems can be advantageous in ecologically sensitive areas, where treatment must be specifically targeted to local environmental concerns (e.g., ground water protection and protection of off-shore shellfish beds or where construction of centralized collection systems may disrupt the ecosystem). Also, most decentralized onsite systems inherently include on-lot water reuse and ground-water recharge. The wastewater can be treated by decentralized systems to a specified level and then retained for reuse near (usually outdoors) the home or facility (e.g., outside for irrigating the landscape). Such reuse is most common in industrial settings and is beginning to occur in commercial settings (e.g., office parks, golf courses); however, certain types of industrial facilities may require pretreatment if wastes are toxic. In certain water-short states (e.g., Arizona, California, Florida, Texas), such reuse is even practiced in residential settings.

CONCLUSION

Communities Can Use Combinations of Decentralized Wastewater Systems

For communities with a diversity of locales, the best option might be to use a combination of wastewater systems. For example, in more densely populated areas, hookup to a centralized facility might be most cost-effective. Decentralized cluster systems could be chosen for less densely populated fringe areas currently under development and for use in ecologically sensitive areas. Onsite systems could be used in the more rural areas. Considering all possible options and their combinations is the best approach to managing wastewater needs to achieve the most cost-effective solution for a variety of site conditions and community goals.

Chapter 3

POTENTIAL COSTS AND SAVINGS

Cost is a key factor that affects the selection of wastewater management options for a community. The cost of these options varies depending on specific community characteristics, including population size and density, topography, distance to an existing treatment facility, and local performance requirements. These variables make it difficult to present a valid national comparison of costs for decentralized and centralized systems. To illustrate the differences in the cost-effectiveness of various technology options, cost estimates were developed for two hypothetical communities. Several components of the cost estimates presented may vary considerably from community to community, and may impact the cost-effectiveness of one technology option over another option. For example, land costs vary regionally and may be prohibitive in some communities for construction of large treatment facilities.

Descriptions of the two hypothetical communities on which cost estimates were based are presented below, followed by a summary of the technology options considered for different areas in the communities with different population and site characteristics; and a comparative summary of costs for different types of wastewater management options.

Costs are based on a variety of sources, including cost equations for centralized collection developed by Dames and Moore (based on Smith, 1978); centralized treatment costs presented in the WAWTTAR computer model developed at Humboldt State University (Gearheart et al., 1994); costs for small diameter gravity sewers presented in EPA documents (EPA, 1991; EPA Region IV, n.d.) and in Abney, 1976; cluster treatment costs presented in Abney, 1976 and Otis, 1996; onsite system treatment and operation and maintenance costs used in the COSMO computer model, developed at North Carolina State University (Renkow and Hoover, 1996); average land purchase costs, based on data for North Carolina; and equipment and labor costs based on data from Wisconsin. A detailed description of the cost estimation methodologies used for each type of wastewater collection and treatment technology is presented in Appendix D.

COMMUNITY PROFILES

Costs are presented for (1) a hypothetical small, rural community, and (2) a hypothetical community located on the fringes of a metropolitan center (referred to as the "fringe" community). The profiles of both types of communities are described below.

Rural Community - The rural community has a population of 450 people living in 135 homes. These homes are located on 1-acre lots or larger lots and are serviced by conventional onsite wastewater systems consisting of septic tanks and leach fields; wastewater is transported from the tanks to the leach fields through gravity distribution. About 50 percent of the onsite

systems (67 systems) are currently failing due to inadequate sizing, inappropriate site conditions, or lack of maintenance. As shown in Figure 1a, these 67 failing systems are located in the northeastern section of the community near a river where there is a high water table and a prevalence of soils with low permeability.

Fringe Community - The fringe community, located 10 miles from the nearest city, has a current population of 770 people in 220 homes, but is expected to grow to a total population of 1,550 people in 443 homes located on 1/2-acre lots. The existing homes are serviced by conventional onsite wastewater systems consisting of septic tanks and leach fields; wastewater is transported from the tanks to the leach fields through gravity distribution. As shown in Figure 1b, about 50 percent of the existing onsite systems (110 systems) are currently failing due to inappropriate site conditions, including a high water table and soils with low permeability, and lack of maintenance. The metropolitan area is serviced by a centralized collection and treatment facility with unused capacity (10 miles away).

For comparative purposes, costs for centralized, cluster, and decentralized onsite systems are provided for both the rural and fringe communities, as described below.

TECHNOLOGY OPTIONS AND PERFORMANCE GOALS

The technology options considered for the rural and fringe communities are summarized below. All of the options considered are assumed to be capable of achieving the secondary treatment standard of 30 mg/L for BOD and TSS, as well as disinfection goals for significant bacteria reduction; disinfection of cluster and onsite system effluent is provided by physical and biological processes as the effluent moves through the soil.

Appendix D ("Cost Estimation Methodology") provides a detailed description of each technology, the methodologies and assumptions used in developing the cost estimates, and the capital costs and annual operating and maintenance (O&M) costs for each technology. Appendix D also includes a discussion of how costs were indexed to 1995 dollars.

Rural Community - Wastewater options considered for the rural community include:

- *Centralized system* - New conventional gravity collection servicing the entire rural community and construction of a new centralized treatment facility, with treatment consisting of a facultative oxidation pond and disinfection. This has been the most frequently used option to address the small community problems described in this report.

- *Cluster systems* - New alternative collection (small diameter gravity sewers [SDGS]) and construction of new small cluster treatment systems, each consisting of a sand filter and a central leach field (cluster systems would be installed only

where onsite systems are currently failing; properly functioning onsite systems would continue in use).

- *Onsite systems* - Replacement of failing conventional onsite systems (septic tanks and leach fields) with new onsite systems consisting of septic tanks, intermittent sand filters where necessary, and leach fields; low pressure pipe (LPP) distribution would be used to transport the wastewater from the septic tanks up to, and through the leach fields. The sand filters and LPP distribution address the issues of a high ground-water table and low-permeability soils.

Fringe Community - Wastewater options considered for the fringe community include:

- *Centralized system* (two options considered) - A new conventional gravity collection system connected to an existing centralized treatment facility that currently serves the main municipality. In option 1, the facility has sufficient collection and treatment capacity, and in option 2, the facility has sufficient capacity to handle the added load to the sewers, but requires additional treatment capacity. Treatment for both centralized options is provided by a sequencing batch reactor (SBR) with grit removal, screening, disinfection, and sludge disposal.

- *Cluster systems* - New alternative collection (small diameter gravity sewers [SDGS]) and construction of new small cluster treatment systems, each consisting of a central sand filter and a central leach field; for new homes, the installation of new onsite septic tanks which connect to the SDGS.

- *Onsite systems* - For existing homes, replacement of failing onsite systems with new onsite systems consisting of septic tanks, intermittent sand filters where necessary, and leach fields, with wastewater transported up to, and through the leach fields with low pressure pipe (LPP) distribution; for new homes, installation of new onsite systems consisting of septic tanks and leach fields, with wastewater transported to the leach fields with low pressure pipe distribution (LPP).

SUMMARY OF COSTS

Cost summaries and comparisons for each technology option considered are presented below. Costs include the capital costs necessary to install the system(s) and the annual costs to operate and maintain the system(s). Capital costs were annualized over 30 years (the life of the system) for each technology option using a discount rate of 7 percent (OMB, 1996). All costs are presented in 1995 dollars. Table 1 presents a summary of the estimated costs for the rural community. Similarly, Table 2 presents the costs for the fringe community.

Table 1. Summary of Rural Community Technology Costs

Technology Option[1]	Total Capital Cost (1995 $)	Annual O&M Cost[2] (1995 $)	Total Annual Cost (Annualized Capital Plus O&M - 1995 $)
Centralized systems[3]	$2,321,840 - $3,750,530	$29,740 - $40,260	$216,850 - $342,500
Alternative SDGS collection and small cluster systems[4]	$598,100	$7,290[6]	$55,500
Onsite systems[5]	$510,000	$13,400[6]	$54,500

Note: The rural community consists of 450 people in 135 homes

[1]All technology options presented are assumed to have a 30-year life span.

[2]O&M costs include: centralized system - treatment chemicals such as chlorine and sulfur dioxide, energy to run equipment such as mixers, pumps, and aerators, and labor; cluster system - yearly inspections of onsite components including sand filter, quarterly inspections of the central leach field, 10-year pumpouts of individual septic tanks, replacement of distribution pump every 10 years; onsite systems - quarterly inspections of systems, including septic tanks, leach fields, and sand filters, pumpouts of septic tanks and replacement of distribution pumps every 10 years; the establishment of an organization to provide wastewater management assumes that maintenance of all existing and future onsite systems will be performed; therefore, the annual O&M cost estimates include costs for new systems as well as existing onsite systems that are still functioning effectively.

[3]Represents conventional gravity collection and construction of a new centralized treatment plant within the rural area, consisting of a facultative oxidation pond and disinfection; the conventional gravity collection system costed for the rural community was evaluated for two population densities (1 home per acre and 1 home per 5 acres), and therefore a range of costs are presented for this technology option.

[4]Includes intermittent sand filters and gravity distribution to leach fields where onsite systems are failing.

[5]Includes replacement of failing onsite systems with (1) onsite systems consisting of septic tanks with LPP distribution to leach fields where soils have poor drainage and (2) onsite systems consisting of septic tanks and sand filters with LPP distribution to leach fields where water table is high.

[6]O&M costs for cluster systems are lower than O&M costs for onsite systems because of the lower labor requirements for operating and maintaining a single centralized sand filter and leach field in a cluster system than for operting and maintaining up to 135 individual onsite sand filters and leach fields.

Table 2. Summary of Fringe Community Technology Costs

Technology Option[1]	Total Capital Cost (1995 $)	Annual O&M Cost[2] (1995 $)	Total Annual Cost (Annualized Capital Plus O&M - 1995 $)
Centralized systems[3] -			
System type #1:			
at 1 mile from existing sewer	$3,322,900	$83,800	$351,600
at 5 miles from existing sewer	$5,377,800	$95,900	$529,300
System type #2:			
at 1 mile from existing sewer	$3,786,900	$83,800	$389,000
at 5 miles from existing sewer	$5,841,800	$95,900	$566,700
Alternative SDGS collection and small cluster systems[4]	$3,783,700	$18,000[6]	$322,900
Onsite systems[5]	$2,117,100	$59,240[6]	$229,900

Note: The fringe community consists of 1,550 people in 443 homes (includes future growth)

[1]All technology options presented are assumed to have a 30-year life span.

[2]O&M costs include: centralized system - treatment chemicals such as chlorine and sulfur dioxide, energy to run equipment such as mixers, pumps, and aerators, and labor; cluster system - yearly inspections of onsite components including sand filter, quarterly inspections of the central leach field, 10-year pumpouts of individual septic tanks, replacement of distribution pump every 10 years; onsite systems - quarterly inspections of systems, including septic tanks, leach fields, and sand filters, pumpouts of septic tanks and replacement of distribution pumps every 10 years; the establishment of an organization to provide wastewater management assumes that maintenance of all existing and future onsite systems will be performed; therefore, the annual O&M cost estimates include costs for new systems as well as existing onsite systems that are still functioning effectively.

[3]System type #1 represents conventional gravity collection connected to an existing sewer and treatment system that already has adequate capacity to handle the additional load; System type #2 represents conventional gravity collection connected to an existing sewer system that already has adequate sewer capacity but requires expanded treatment capcity to handle the additional load. For both systems, treatment consists of an SBR and disinfection.

[4]Includes central intermittent sand filters and gravity distribution to central leach fields.

[5]Represents onsite systems consisting of septic tanks with LPP distribution to leach fields for new homes; replacement of failing onsite systems with (1) onsite systems consisting of septic tanks with LPP distribution to leach fields where soils have poor drainage and (2) onsite systems consisting of septic tanks and sand filters with LPP distribution to leach fields where water table is high.

[6]O&M costs for cluster systems are lower than O&M costs for onsite systems because of the lower labor requirements for operating and maintaining a single centralized sand filter and leach field in a cluster system than for operting and maintaining up to 443 individual onsite sand filters and leach fields.

Rural Community Costs - As shown in Table 1, for the rural community, the most cost-effective option for meeting performance goals is using new onsite systems to replace the old onsite systems that are failing. The newer onsite systems will include low pressure pipe distribution (LPP) to achieve effective operation in areas with poor soil drainage, and sand filter and LPP in areas with a high water table to provide additional treatment before the effluent reaches the water table. The use of cluster systems with alternative collection for the failing onsite systems is not significantly more expensive; if soils were unsuitable for onsite systems, the cluster alternative would be the best choice. As the distance between homes in the rural area increases, however, cluster system collection costs would increase. Compared to the onsite or cluster system options, centralized collection and treatment is not cost-effective.

Fringe Community Costs - A summary of the estimated costs for the fringe community is presented in Table 2, including total capital costs, annual O&M costs, and the total annual cost (i.e., annualized capital plus annual O&M) for each option.

Table 2 shows that for the fringe community, in this instance, installing new onsite systems to replace the old onsite systems that are failing and new onsite systems for new homes would be the most cost-effective option. However, construction of cluster systems with alternative collection might be the preferred option in this type of growing community where space may be limited for individual onsite systems. In cases where a fringe community is relatively close to a sewer interceptor (e.g., 1 mile), and the existing centralized collection and treatment facility can accept the additional wastewater loadings, it might be cost-effective. If a fringe community is located relatively far from a sewer interceptor (e.g., 5 miles), centralized collection and treatment may not be cost-effective, especially if treatment and collection facilities require upgrading to handle additional flows. These results are typical of fringe communities, which are often "gray" areas regarding costs; that is, depending on their proximity to existing centralized facilities and their population densities, the most cost-effective option for fringe communities often varies depending on site-specific conditions. Long term growth also may be a factor in determining the most appropriate solution. Additionally, the assimilative capacity of the receiving environment may limit the utility of centralized systems that discharge to surface waters.

CONCLUSIONS

Results of the cost analysis indicate decentralized systems, whether onsite or cluster systems, are generally cost effective means of managing wastewater in rural communities due to the distance between homes and land availability. In small communities and fringe areas of metropolitan cities, the most cost effective solution depends on population density, distance to the sewer interceptor, and availability of land. The centralized alternative can be competitive with decentralized options in fringe areas, where the distance to the intercepting sewer is less than 5 miles and the receiving water body can accommodate the additional waste load. Although excluded from this analysis, the relative costs of failure for centralized systems can be far greater, given that all wastewater is concentrated at a central location (point source).

Chapter 4

OVERCOMING BARRIERS TO IMPLEMENTING DECENTRALIZED WASTEWATER TREATMENT OPTIONS

Several important barriers currently inhibit the expanded use of decentralized wastewater systems, including:

- o Lack of knowledge and misperception of decentralized systems
- o Statutory and regulatory barriers at the state and local level, including:
  - Lack of enabling legislation
  - Legislative authority that is split between agencies
  - Prescriptive regulatory codes
- o Lack of adequate management programs for decentralized systems in many regions
- o Liability and engineering fee issues
- o Financial limitations

These barriers, and steps that have or can be taken to overcome them, are discussed below.

LACK OF KNOWLEDGE AND MISPERCEPTION OF DECENTRALIZED SYSTEMS

Public health officials, engineers, regulators, system designers, inspectors and developers often possess only limited knowledge of the broad range of decentralized wastewater systems because these technologies are not adequately covered in university engineering curricula. Decentralized systems are perceived to be inadequate for meeting specified public health and water quality goals. Centralized wastewater treatment facilities meet these goals by complying with regulatory and permit standards (e.g., secondary treatment standards of 30 mg/L TSS and BOD). Appropriately sited and adequately designed and maintained, decentralized wastewater systems can meet public health and water quality goals, as well.

Typically, onsite systems are perceived as the standard septic tank and leach field (referred to as conventional onsite systems in this document). However, alternative onsite systems include other types of decentralized systems, such as mound systems or sand filters. Conventional onsite systems can pose a threat to ground water, however, these systems can be

designed to alleviate the threat through retrofitting existing treatment trains or with new systems that include the appropriate unit processes (Anderson et al., 1985; Ayres, 1991; Ball, 1995; Boyle, 1995; Cagle and Johnson, 1994; Hines and Favreau, 1975; Jenssen and Siegrist, 1990; Laak, 1986; Piluk and Peters, 1994; Soltman, 1989; Tchobanoglous and Burton, 1991). Recognizing that performance standards should apply to any type of wastewater system, a few states, including Florida, North Carolina, Washington and Wisconsin, have recently begun the process of setting performance standards for decentralized systems.

Homeowners are frequently uninformed about how their conventional onsite systems work, how to maintain them, and about the potential for human health and ecosystem risks from poorly functioning systems. The prevailing public perception of conventional onsite systems is they are maintenance free. Regulators and technical professionals may have little experience with alternative systems because these technologies are not included in their educational curricula and little effective training is available.

Another factor blocking acceptance of decentralized systems is the lack of comprehensive performance and cost data, or where data is available, an evaluation of the results is needed. EPA's Innovative and Alternative Technology program yielded a limited number of technology evaluations before the program and efforts to conduct assessments ended. In 1995, EPA began to fund the assessment effort again. EPA-funded assessments and fact sheets on these technologies will be published in the near future, but these efforts will mostly cover surface water discharge technologies.

Overcoming the Lack of Knowledge Barrier. Education is critical to effective efforts to encourage the acceptance and use of decentralized systems. Those who choose, design, and use these systems need to know that they perform well if properly managed. Information on what proper management entails should be readily available and widely distributed. Professional training and certification programs should cover regulatory code requirements, system siting, soils fieldwork, design, construction, monitoring and maintenance. Federal, state, local, or private agencies can provide classroom and in-field training. Six states, Arizona, Missouri, North Carolina, Rhode Island, Texas, and Washington, currently have training programs for sanitarians and installers. Since the advent of these programs, state regulatory officials (in North Carolina, for example) have allowed the utilization of a much broader array of advanced onsite technologies under the condition that these systems are managed by professional, certified operators. Similar training and certification programs in other states are a necessary precursor to broad scale use of decentralized technologies. With the participation of nationally recognized authorities and product manufacturers and the issuance of certificates of competency, these programs could produce a well-trained field of regulators and service providers.

In addition, educational materials for homeowners should explain proper wastewater disposal and maintenance practices and the consequences of system failures. Informed, responsible homeowners would help ensure that their systems are operated and maintained

properly and they will be more likely to support new management programs. Training and education to increase awareness about decentralized wastewater systems should help reduce both the number of failing systems and adverse impacts on ground and surface water.

Establishment of testing centers for verification of decentralized wastewater treatment technologies is expected in the future and can enhance the confidence that these systems will perform as designed. States would need to agree to accept the testing results from these centers.

STATE/LOCAL STATUTORY AND REGULATORY BARRIERS

Decentralized wastewater systems are primarily governed by state and local jurisdictions. Only three states do not have specific regulations governing decentralized systems (in California, Georgia, and Michigan, decentralized systems are governed at the local level) (NSFC, 1995: This reference also provides a matrix of the components of all existing state regulations for decentralized wastewater systems.) However, existing laws and regulations can be barriers to implementing decentralized systems. In many cases, states and/or localities:

- Lack adequate enabling legislation to support proper management of decentralized systems.
- Divide the legislative authority for public health and water quality protection between two or more branches of government, resulting in inequitable consideration of centralized and decentralized wastewater options and in inadequate management of decentralized systems.
- Enact prescriptive regulatory codes that narrowly define the types of wastewater systems allowed, regardless of the fact that other types of systems can meet performance and regulatory standards.

These regulatory barriers as well as recommended changes are discussed below.

Lack of Enabling Legislation - Agencies responsible for decentralized wastewater systems must be vested with the powers necessary to effectively manage them, such as the right to access private property to inspect systems and correct system malfunctions. But state enabling legislation may not refer to decentralized wastewater systems or it may be vague or uncertain regarding legal powers to perform important management functions. Limited or unclear authority can prevent an agency from establishing a successful management program, which is a vital factor in ensuring that decentralized systems do not fail in the future.

Legislative Authority Split Between Agencies - Typically, state statutes divide legal authority for wastewater systems between state departments of health which are responsible for

state sanitary codes for decentralized wastewater systems, and state departments of environmental protection which are responsible for regulations governing surface-water discharges; issuance of NPDES permits, including those for centralized wastewater facilities; and various water quality programs. In some states , some aspects of onsite system regulation resides with state planning authorities or housing development agencies. Thus, legal authority for the two types of systems fall under separate, and confusing, legal jurisdictions at a fundamental level. Regulatory officials responsible for water quality programs historically have not considered decentralized wastewater systems as an acceptable option, and certainly not an option of equal stature with centralized facilities for protection of water quality.

Legal authority often is split between state and local governments. County governments are often delegated the task of developing and managing on-site disposal programs. Delegation of tasks to local entities from state government can and does work for wastewater management. Wastewater and water quality guidance coming from a single, centralized legal authority which clarifies responsibilities and facilitates selection and management of a centralized and/or decentralized system, whichever is most appropriate for the local circumstances.

Overcoming the Legal Barriers. Several steps can be taken to develop the requisite state enabling legislation and related legal authority. Existing legislative authority and institutional structures should be reviewed and be used, if possible, to minimize costs and simplify the regulatory process. For example, a simple local code enacted by a municipal or county health department for regular inspection and pumping might be adequate to significantly reduce onsite system failures in an area. Another example is that existing provisions for ground-water, septage, or general improvement districts could be used to establish a complete management program (Shephard, 1996).

If, however, existing legal authority is insufficient for implementing management responsibilities, state laws could be modified to extend the powers of relevant organizations (e.g., those that already manage centralized wastewater systems or other utilities) to cover the management of decentralized systems, to allow access to private property, or to create new management structures with necessary powers.

Some states or communities have developed or adopted model ordinances or legal agreements, such as the state of Iowa and the community of Kueka Lake, NY (see Appendix E). Examples include entering into service agreements with homeowners for system maintenance (conducted by either a local agency or a private contractor); obtaining property easements for inspections of decentralized systems; and establishing clear public/private ownership, inspection, operation, maintenance, and financial assurance responsibilities for cluster systems. Some cases may require special legislation that authorizes the creation of new entities (such as management districts) with explicit responsibilities for managing decentralized systems (see "Structure of the Management Program" below). Other states should use the model legislation to measure their current legislation against and make adjustments as needed.

The best way to clarify legislative authority is to consolidate programs for centralized and decentralized wastewater systems (e.g., in the state environmental protection agency or state health agency). Authority for specific management functions could then be delegated as appropriate to regional and local agencies. Such consolidation would allow for a comprehensive analysis and equitable appraisal of wastewater needs and how water quality goals could be best met. In addition, consolidating programs on the state and local levels fosters accountability and management program coordination for decentralized systems, which have heretofore not enjoyed much of either.

State and Local Codes Stifle Consideration of Decentralized Systems - State and local regulatory codes often prohibit or restrict the use of alternative onsite systems. These codes require the presence of a certain type of soil in order to build. Several factors influence the development of these codes, including inadequate performance data on alternatives, system complexity, and (most of all) lack of trained staff.

In addition, some communities have restricted decentralized wastewater systems to conventional onsite systems with large lot requirements (e.g., 2 to 5 acres) as a way to control increasing development densities and "maintain the character" of a community. These two subjects (onsite system requirements and land use) should be kept separate; land use control should be performed by zoning agencies, not public health agencies. Without the technical or financial resources to evaluate alternatives or provide necessary management, state and local governments rely on conventional septic tank/leach field systems and codify inflexible, overly conservative specifications that allow only passive, seemingly "maintenance-free" designs (Shephard, 1996). This approach continues to delay the need to address the real problem, which is the lack of a comprehensive management program for both conventional and alternative systems that would ensure their proper siting, design, construction, operation, maintenance, and monitoring. With such management, systems could be assessed and selected according to their ability to meet regional and local performance standards and their suitability for site-specific conditions.

Obtaining case-by-case variances from these restrictive regulatory codes is usually a cumbersome and expensive process. When a failing onsite septic system needs to be retrofitted or replaced quickly to protect public health and the environment, timely approval for an alternative system is unlikely. The result is continued use of an ineffective septic tank/leach field system or an expensive expansion of a centralized system.

Overcoming the Regulatory Barriers. The prescriptive regulatory approach (i.e., with state or local regulations prescribing specific types of systems and design parameters for sites meeting minimum conditions) currently followed in most states generally works only for sites with "ideal" soil and water conditions. In reality, however, most sites have less-than-ideal conditions.

To address varying site conditions, a few communities have established a combination of prescriptive- and performance-based approaches. They allow prescriptive designs for sites where conventional septic-tank/leach field systems can function properly. Performance standards are used for sites with limiting soil and water conditions (e.g., high ground-water tables, low-permeability soils, inadequate soil depth), for environmentally sensitive areas (e.g., coastal bays), in locations experiencing rapid development, and in areas where regional pollution problems already exist.

Some changes in the regulatory approval process that facilitate the use of decentralized systems have occurred or are underway. For example, a few state or local codes (e.g., in Kentucky, North Carolina and West Virginia) now include provisions allowing specific types of alternative systems, such as mounds or sand filters (although their use may be allowed only under certain conditions). A few states are also setting performance standards that would allow designers to select any type of system, as long as it is proven to meet the standards. These standards should specify the quality of the effluent discharged to the groundwater for all types of decentralized systems.

It should be noted, however, that some states attempting to set performance standards have been sued by involved parties who view the performance standards (which are equivalent to discharge standards) for new decentralized systems as too stringent. State officials and the regulated communities are currently re-evaluating specific standards. The problem has arisen because performance standards are not necessarily equivalent to effluent standards. In the case of surface discharge, where a centralized wastewater system discharges directly to surface water, the performance standards set for the facility are the same as the effluent quality standards. For decentralized systems that discharge to ground water, however, performance standards will be different from final effluent standards. The standard must account for the soil providing additional treatment before the wastewater reaches the ground water, the ground water quality and use, and the point of monitoring.

LACK OF ADEQUATE MANAGEMENT PROGRAMS

Few communities have developed organizational structures for managing decentralized wastewater systems, although such programs are required for centralized wastewater facilities and for other services (e.g., electric, telephone, water, etc.). Instead, state regulations prescribe the specifications and design of decentralized systems, and enforcement of these regulations falls to local agencies, often with limited authority, expertise, and staff. Inconsistent laws and policies have resulted in large, urban centralized wastewater facilities being effectively managed, while small, rural decentralized wastewater systems are frequently unmanaged.

The experience of many communities has shown, however, that to protect ground and surface water, decentralized systems, whether for individual or multiple dwellings, must be managed from site evaluation and design, through the life of the system. For individual

dwellings, homeowners are responsible for managing their systems. Inadequate operation and a lack of routine maintenance for these systems have led to system failures and the resulting perception that decentralized systems are less reliable than centralized facilities.

An important objective of a management program for decentralized wastewater systems is to ensure that the systems perform satisfactorily over their service lives. In the past decade, some government officials and private citizens have begun to address the problem of failing septic systems in the context of water quality protection, rather than merely as part of private real estate transactions. This shift in perspective reinforces the need for communities to develop comprehensive management programs for decentralized systems.

The incentives for establishing proactive management programs for decentralized wastewater systems include better onsite system performance and environmental protection, extended life of the system, significant cost savings, planning flexibility, assistance for individual homeowners and developers in meeting requirements, and economic benefits accruing from the use of local contractors (Shephard, 1996).

Figure 2 depicts the typical functions of a wastewater management program, which include system planning, legal and financial needs and responsibilities, program coordination, supervision, of installation, operation and maintenance requirements, public participation and education, inspection schedules and monitoring programs. The planning process for wastewater management is described in Appendix B.

Generally, operation and maintenance requirements for decentralized systems are less complex, and less costly, than operation and maintenance requirements for centralized systems.

Overcoming the Lack of Management Barriers - Management programs should be developed on state, regional, or local levels, as appropriate, to ensure that decentralized wastewater systems are sited, designed, installed, operated, and maintained properly and that they continue to meet public health and water quality performance standards.

Structure of the Management Program: Selecting a Management Agency - The structure of a management program depends on the functions to be performed and the resources of the community. The institutional structure should include mechanisms for proposing and enforcing regulations, performing system inspections and maintenance, and monitoring program performance.

Many small communities have unpaid or part-time officials with no technical knowledge in wastewater management and minimal experience working with other levels of government. Therefore, the success or failure of a management program for decentralized wastewater systems may depend significantly on the choice of a management agency. Once a community defines specific functions needed to support system operation, it has to determine whether existing

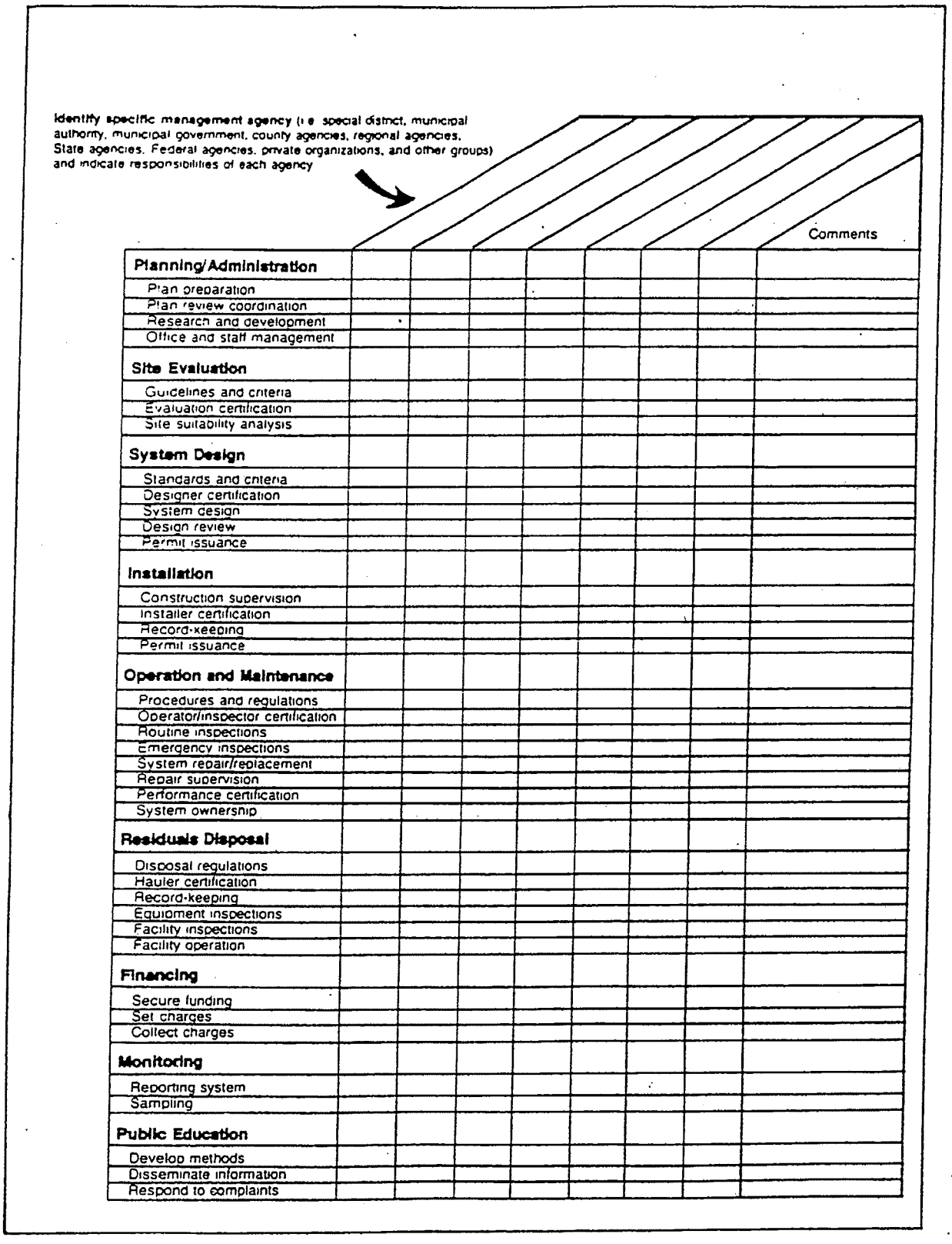


Figure 2. Management Program Functions for Decentralized Wastewater Systems

organizations have the statutory authority and resources to carry out these functions. If existing institutions lack certain legal powers, legislative modifications may be necessary (see "Regulatory Barriers" above).

Several types of management arrangements are possible, which may involve existing local agencies, private organizations, or a combination of agencies and organizations, as described in Appendix C. In some cases, such as where wastewater management crosses jurisdictional boundaries, coordinated planning and sharing of natural, financial, and human resources may be necessary, possibly through inter-jurisdictional agreements. Existing or planned water protection programs may be a logical place to incorporate wastewater management programs. Different types of entities can provide management services including local government, private industry, and in some rural areas, management by rural electric cooperatives is being considered (see Appendix F).

Financing the Management Program - Effective management will increase the cost of decentralized wastewater systems, which currently have little, inadequate, or no management in many areas. A variety of financing options commonly used by utilities and other service providers may be adapted to decentralized systems; however, not all management entities have the legal authority to implement each option. The management entity selected may determine the type of financing available (i.e., whether the program will be eligible for federal or state grants; whether taxing is an option; or whether user fees can be collected).

Commonly used financing mechanisms applicable to wastewater management systems include:

- User fees
- Service fees
- Property taxes
- Punitive fees
- Permit fees
- Connection fees
- Special tax assessments
- Federal, state, or private grants or loans
- License fees

Some states and communities are also using creative funding mechanisms for water quality protection such as tobacco taxes, lottery revenues or license plate programs that could be used to partially fund onsite programs, especially retrofitting existing systems.

The issue of eligibility for public funding is discussed below in "Financial Barriers." Management programs for decentralized wastewater systems should, if possible, include a reserve fund to cover management functions and to alleviate some of the liability issues discussed below.

LIABILITY AND ENGINEERING FEE ISSUES

One of the factors that has impeded the acceptance and use of innovative and alternative onsite systems is the potential risk of installing systems that do not perform as anticipated. Due to this risk, regulators have, in many cases, not provided an environment that is conducive to trying out new systems. In some cases, the requirements to install and operate such systems are so administratively or economically burdensome (e.g., redundant systems) that they inhibit new or experimental solutions. As a result, homeowners or developers are often unwilling to accept the liability incurred with alternative systems. In the 1970s and 1980s, EPA's Innovative and Alternative (I&A) Technology Program provided grants of up to 100 percent of the cost for modifying or replacing I/A systems that failed to perform according to their design standards. The I&A program was terminated in 1990, and the current Clean Water State Revolving Fund program contains no similar "modification and replacement" provision. Thus this type of risk insurance no longer exists for the use of decentralized wastewater systems (GAO, 1994). In addition, the issue of liability has been raised in various communities where the use of decentralized cluster systems appears appropriate. Small communities are thus hesitant to choose these systems, despite their apparent advantages.

Engineers also face financial disincentives in designing lower cost decentralized systems since engineers' fees are sometimes based on a percentage of the project cost.

Overcoming the Liability and Fee Barrier. Liability can be addressed within the context of a management program, which can establish ongoing operation and maintenance programs to prevent system failures and mechanisms for covering failures should they occur (e.g., through federal or commercial insurance programs or escrow of a designated portion of system fees). Engineers can also obtain liability insurance. Engineering fees should be based on cost-plus-fixed-fee or lump-sum approaches.

FINANCIAL BARRIERS: PUBLIC GRANT AND LOAN PROGRAMS

Traditionally, EPA grants and loans for the construction of wastewater treatment facilities are available only to public entities. In such cases, if a community wishes to seek such funding, the management agency for decentralized wastewater systems must be a public agency. Private entities such as private contractors, individual homeowners, and homeowners' associations would not be eligible, except under certain provisions of the Clean Water Act that allow federal funds to be used for specific non-point source pollution management programs. Also, states have typically given funding priority to larger communities with more costly wastewater needs over smaller communities with lower-cost needs. Thus smaller communities typically are the last ones to receive wastewater funding assistance and often do not receive these types of funds. In addition, costs for planning purposes and for state review may be higher with alternative systems

than for conventional systems. As a result, financially strapped small communities are not able or are reluctant to incur additional costs without financial assistance. At the same time, most small communities are not informed of how to pursue outside funding sources.

Overcoming the Financial Barriers. There are other federal sources of funding for public as well as private entities. The U.S. Department of Agriculture's Rural Utility Service provides funding through the Water and Waste Disposal loan and grant program to public entities, Indian tribes, and organizations operated on a not-for-profit basis, such as an association, cooperative, or private corporation.

Public grant and loan funds for wastewater management should be utilized to a greater extent to manage decentralized wastewater systems where eligible (i.e., the Rural Utilities Service's funding program, EPA's Hardship Grants program, the Clean Water SRF program for nonpoint source control and the CWA section 319 program). Community officials should be educated on the these eligibilities.

Chapter 5

EPA'S ABILITY AND PLANS TO IMPLEMENT DECENTRALIZED TREATMENT SYSTEMS

BACKGROUND

Over the past 20 years, EPA has put considerable resources into helping small communities meet their wastewater needs. This has been accomplished in many ways -- public education, technical assistance, technology transfer, research, demonstrations, and financing. It has been accomplished directly by EPA and state staff, and indirectly through federal funding of the many associations that have come together to support small community needs. Most of the outreach, which includes technical assistance and education has been grouped under the umbrella of EPA's Small Community Outreach and Education Program (SCORE). While EPA personnel have provided some direct technical assistance to small communities, EPA has primarily leveraged state outreach programs through grants and other assistance activities. In addition, assistance to other technical service providers foster activities such as development and distribution of educational materials, telephone consultation, classroom training and field assistance and training. In recent years, EPA's outreach program has been expanded to include special populations such as Native American Tribes and low income "colonias" along the U.S. - Mexico border.

This section responds to both areas raised by the House Appropriations Committee concerning EPA's ability to implement the alternatives within the current statutory and regulatory structure, and EPA's plans for implementation using fiscal year 1997 funds. Described below are ongoing and planned activities and programs conducted by EPA or with EPA assistance, which provide a framework for implementing alternatives such as decentralized treatment systems.

FUNDING

The Construction Grants Program required all but 4 or 5 states to set aside 4 percent of their annual allotments for communities with populations of 3,500 or less to be used only for alternatives to conventional sewage treatments works (Sec.205(h)). Many of these communities have treatment facilities which serve as demonstrations of decentralized technology. Last year, EPA initiated a program to conduct assessments of many innovative technologies funded under the Construction Grants program, and any other new technologies which have been put into use more recently. These assessments will continue over the next several years. As the assessments are completed, the information will be provided to our customers in various formats from technical reports to fact sheets to pamphlets.

than for conventional systems. As a result, financially strapped small communities are not able or are reluctant to incur additional costs without financial assistance. At the same time, most small communities are not informed of how to pursue outside funding sources.

Overcoming the Financial Barriers. There are other federal sources of funding for public as well as private entities. The U.S. Department of Agriculture's Rural Utility Service provides funding through the Water and Waste Disposal loan and grant program to public entities, Indian tribes, and organizations operated on a not-for-profit basis, such as an association, cooperative, or private corporation.

Public grant and loan funds for wastewater management should be utilized to a greater extent to manage decentralized wastewater systems where eligible (i.e., the Rural Utilities Service's funding program, EPA's Hardship Grants program, the Clean Water SRF program for nonpoint source control and the CWA section 319 program). Community officials should be educated on the these eligibilities.

Although there is no specific set aside for small communities or alternative systems in the Clean Water State Revolving Fund program (SRF), decentralized technologies are eligible for funding. EPA staff are aware of decentralized systems funded by the SRF around the country. In Pennsylvania, local banks process SRF loans for homeowners which fund onsite systems. Minnesota has developed the Clean Water Partnership Program that has provided funds to Brown, Nicollet and Cottonwood counties to re-loan to homeowners for conventional onsite system replacements. SRF funding has also provided assistance to the Osakis Lake Project to replace failing systems around Osakis Lake. The state of Washington provides SRF loans to local loan funds. These funds in turn provide loans to homeowners and small businesses for the rehabilitation or reconstruction of onsite systems. Ohio, Virginia and West Virginia are developing similar programs.

In an effort to expand the types of projects funded by the SRF, EPA issued the "Clean Water State Revolving Fund Funding Framework" in October 1996. This document was developed in conjunction with state SRF partners to clarify the eligible uses of SRF funds and provide tools to establish relative priorities among water quality projects. States are encouraged to assess water quality problems on a watershed basis and develop integrated priority setting processes. With the expansion of the SRF to cover activities included in EPA approved nonpoint source management plans, onsite treatment projects have a much greater potential for funding by the SRF. EPA plans to sponsor training workshops to further educate the nonpoint source community about the SRF as a potential source of funding for nonpoint source projects (including onsite systems) and facilitate coordination with the state SRF programs. Demonstration grants have also been issued to six states to develop integrated priority setting systems that can be used as models by states.

Recognizing that several federal agencies provide funds for wastewater collection and treatment, EPA is participating in an effort with USDA's Rural Utility Service and HUD to provide funding to communities in a more efficient and less burdensome manner. Improved coordination and cooperation between the Agencies will include:

- Coordinating funding cycles and selection systems on a State-by-State basis,
- Promoting the use of a lead agency for jointly financed projects, where suitable, to receive and review environmental review documents and ensure compliance with Federal cross-cutting legislation, and
- Encouraging the use of a single application on a State-by-State basis to address similar data requirements.

A memorandum outlining this effort, to be signed by the three Agencies, is being prepared. Follow-up actions to implement these improvements will be undertaken in fiscal years 1997 and 1998.

Most recently, EPA issued guidelines for a new $50 million Hardship Grants Program for Rural Communities. To qualify for hardship assistance a grantee must be a rural community with a population of 3,000 or fewer; lack centralized wastewater collection or treatment; have a per capita income less than 80% of the national average; and have an unemployment rate of one percent or more above the national rate. This program is designed to be managed in conjunction with the SRF program to make wastewater treatment more affordable to rural, economically disadvantaged communities. The Hardship Grant funds can be used to plan, design and construct publicly-owned wastewater treatment works and/or provide training programs for sanitarians related to the operation and maintenance of such systems. Although no grants have yet been made to communities, it is expected that many communities receiving hardship grants will have failing septic tanks. Decentralized systems may be viewed as the most economical treatment option for dispersed, rural communities. Examples of technical assistance that may be provided to communities are over-the-shoulder training, educational seminars, and assistance with development of local management districts. States that take advantage of this program can make strides toward eliminating the barriers identified earlier in this response. Financial assistance under this program will be provided to qualifying communities during fiscal years 1997 and 1998.

CWA Section 319 program grants are also available to assist States in implementing approved nonpoint source management programs. Section 319 grants have been used to support numerous projects that relate to decentralized system program implementation and technology demonstrations. Examples of projects that have been funded through Section 319 include: Demonstration of Alternative Onsite Systems; Maintenance of Onsite Constructed Wetlands; Analysis of Onsite Sewage System Impacts on Groundwater Quality; Onsite Septic System Demonstration and Training; Septic System Survey; Septic System Inventory and Inspection Education Program; and Evaluation and Upgrades of Onsite Systems.

OUTREACH, TRAINING AND EDUCATION

In addition to the ongoing outreach efforts conducted by EPA staff, several significant efforts, described below, are underway and will continue, which provide technical assistance to small communities.

Since 1979, EPA has funded the National Small Flows Clearinghouse, at West Virginia University in Morgantown. The Clearinghouse is the national repository and referral service for the transfer of information on decentralized, onsite, alternative collection and small treatment technologies and serves as a model for several other countries which are interested in establishing similar programs. The Clearinghouse services include: (1) a toll-free technical assistance hot line which answers over 3,000 assistance calls per month, (2) product distribution, which involves filling over 1,000 orders monthly for 10,000 publications, articles, reports, and videotapes, (3) publication of two newsletters and a professional journal reaching over 7,000 subscribers, (4) several national computer data bases on small community wastewater technology

and regulations, and (5) a site on the World Wide Web. The Clearinghouse has a wealth of information available that can provide state and local regulators with the means to change laws and make technical decisions. Examples include: (a) maintaining a database and summary of all state regulations relating to onsite systems; (b) a recent survey of all health departments in the nation, identifying such information as the number of households served by conventional onsite systems, how many are failing, and what local regulations apply; (c) establishing a database on the testing of various onsite technologies conducted by six states in New England, and will also facilitating communication among the states regarding the testing results. The Clearinghouse services are being used more and more each year.

The Small Towns Environment Program (STEP) was funded several years ago through a grant to Rensselaerville Institute as a grass-roots, self-help program. STEP encourages the use of small alternative wastewater systems and calls for citizens to perform many functions the community would otherwise pay outsiders to do.

EPA also funds an organization based at West Virginia University, the National Environmental Training Center for Small Communities (NETCSC). This center supports environmental trainers nationwide through development and delivery of training curricula and training of trainers. Services also include a toll-free telephone line, quarterly news letter, and a training resource center with computer databases. Several courses have been developed on wastewater topics, including onsite and decentralized treatment. Examples include: "Assessing Wastewater Options for Small Communities", "Basics of Environmental Systems Management", "Onsite Wastewater System Operation and Maintenance", and "Operation of Sand Filters".

Some state organizations have already taken responsibility for onsite training. Presently at least six states have an organization with a center for training personnel associated with installing and regulating onsite wastewater systems (Arizona, Missouri, North Carolina, Rhode Island, Texas and Washington). EPA recently awarded a grant to the NSFC for establishment of a new onsite training center in Vermont.

TECHNOLOGY AND DEMONSTRATIONS

EPA's technology and demonstration programs have fostered and collaborated with others over the past 25 years to provide many of the technical guidance materials available today. Listed below is a summary of work that is currently underway.

- The National Onsite Demonstration Project is a three-phased, $3.5 million program to demonstrate alternative onsite wastewater systems. Funded by EPA through the NSFC, this program includes construction and monitoring of demonstration facilities, community education programs, technology transfer and building the capacity of states to implement appropriate systems. This project started in 1993 and is expected to be

completed in the year 2000. Demonstration projects have been started in 12 communities in 10 states.

- EPA is in the process of updating two of its design manuals: "Design Manual for Onsite Systems" and "Design Manual for Constructed Wetlands Wastewater Treatment Systems". The Design Manual for Onsite Wastewater Systems is currently under development and is expected to be published in 1998. The manual on constructed wetlands will be completed within the next year. A manual on Small Community Technologies was recently updated.

- Several grants have been awarded, in the past two years, under the Environmental Technology Initiative, to design and demonstrate onsite technologies. These projects will be getting underway this year and the results will be made available within a couple of years, when demonstrations are completed.

- A grant to develop a research agenda for the field of onsite wastewater treatment and to begin some targeted research efforts is currently being prepared for award sometime later this year. This grant should help to coordinate research and uncover significant needs that are currently being missed.

- Within EPA, discussions are being held to establish a small community wastewater technology testing and verification program under the Environmental Technology Verification (ETV) program. ETV is a new program to verify the performance of innovative technical solutions to problems that threaten human health or the environment. This would allow manufacturers of onsite system technologies to obtain independent testing of their technologies. It would also allow state and local authorities to know that the technologies will meet acceptable standards.

- EPA's ground water program in cooperation with the wastewater program is currently developing a guidance manual for large septic systems; a type of decentralized treatment. This guidance is also under final quality review at this time and will be published by the end of the year.

- Outside EPA, and without EPA funds several demonstrations of technologies are also being conducted. Five onsite demonstration projects are being initiated this year by the Pennsylvania State Rural Electric Cooperative Association. The State of North Carolina has numerous demonstration activities focused on decentralized and onsite treatment. EPA will utilize these demonstrations in assessing new technologies. Also the NSFC is establishing a database which will serve as a repository of information on all projects demonstrating onsite wastewater technology.

PROGRAM DEVELOPMENT

EPA plans to collaborate with other federal agencies to develop guidance to assist communities to implement management systems. One such guidance document has been developed titled, "On-site Wastewater Management and Protection of Sensitive Receiving Water Systems: Planning for Opportunities." EPA also plans to promote the development of decentralized management programs which are based on performance goals. Under this effort, EPA plans to provide analytical tools and guidance to assist state and local governments in revising and updating decentralized system programs.

The Office of Water has promoted the watershed concept over the past several years to move toward the place-driven approach which will give holistic attention to ecosystems. This approach places the focus of watershed pollution abatement needs on the clean-up activities which will allow watersheds to meet their designated uses. Some watershed analyses have identified onsite systems as sources of pollution.

EPA is collaborating with other federal, state and local agencies as well as private partners, to achieve the ultimate goal of a healthy ecosystem in these watersheds. Many of the tools needed to accomplish this work already exist, although additional tools will be developed. They will have to be applied by the state and local authorities to solve the pollution problems that remain.

Once completed, the Office of Water will transmit this response to EPA Regional offices, State agencies, the National Rural Electric Cooperative Association, and other stakeholders and encourage them to take follow-up actions, as appropriate, to promote improved management and operation of decentralized wastewater treatment systems.

REFERENCES

Abney, J. 1976. Fountain Run, Kentucky (Case Study). Parrot, Ely, & Hurt. March 1976.

Anderson, D., R. Siegrist, and R. Otis. 1985. Technology Assessment of Intermittent Sand Filters. EPA/832/R-85/100.

Ayres & Associates, Inc. 1991. Onsite Nitrogen Removal Systems Research/Demonstration Project. Phase I Report. Prepared for the Wisconsin Department of Industry, Labor and Human Relations, Madison, WI.

Arenovski, A. and F. Shephard. 1996. A Massachusetts Guide to Needs Assessment and Evaluation of Decentralized Wastewater Treatment Alternatives. Ad Hoc Task Force for Decentralized Wastewater Management.

Ball, H. 1995. Nitrogen Reduction in an Onsite Trickling Filter/Upflow Filter System. In: Proc. 8th Northwest On-Site Wastewater Treatment Short Course and Equipment Exhibition. University of Washington, Seattle, WA, pp. 259-268.

Boyle, W. 1995. Nitrogen Removal from Domestic Wastewater in Unsewered Areas. In: Proc. 8th Northwest On-Site Wastewater Treatment Short Course and Equipment Exhibition. University of Washington, Seattle, WA, pp. 237-258.

Cagle, W. and Johnson, L. 1994. On-Site Intermittent Sand Filter Systems, A Regulatory/Scientific Approach to their Study in Placer County, California. In: Proc. 7th Nat. Symp. on Individual and Small Community Sewage Systems. American Society of Agricultural Engineers, St. Joseph, MI, pp. 283-291.

Ciotoli, P. and K. Wiswall. 1982. Management of On-site and Small Community Wastewater Systems. Roy Weston, Inc., for U.S. EPA, Municipal Environmental Research Laboratory, Cincinnati, OH.

Gearheart, R.A., Finney, B., and McKee, M.. 1994. Water and Wastewater Treatment Technologies Appropriate for Reuse (WATTAR). Humboldt State University, Arcata California, October 1994.

Hines, J. and R. Favreau. 1975. Recirculating Sand Filter: An Alternative to Traditional Sewage Absorption Systems. In: Proc. Nat. Home Sewage Disposal Symp., Chicago, IL. American Society of Agricultural Engineers.

Hoover, M.T. and M.A. Renkow. 1997. (In review). Technical Specifications for the COSMO

onsite System Cost Estimation Tool. College of Agriculture and Life Sciences, North Carolina State University, Raleigh, N.C. 27695.

Jenssen, P. and R. Siegrist. 1990. Technology Assessment of Wastewater Treatment by Soil Infiltration Systems. In: Wat. Sci. Tech., Vol. 22 (3/4): 83-92.

Laak, R. 1986. The RUCK System. In: Proc. Workshop on Appropriate Environmental Engineering TEchnologies for Rural Areas Under Adverse Conditions, CWRS TEchnical University of Nova Scotia.

Lewis, J. 1986. EPA's Construction Grants Program: A History. In: EPA Journal, Vol. 12, No. 9, November.

NSFC. 1995. A Guide to State-Level Onsite Regulations. NSFC-WWBKRG01. National Small Flows Clearinghouse, Morgantown, WV.

Otis, D. 1996. Memorandum: "Cluster System Costs", December 1996.

Piluk, R. and E. Peters. 1994. Small Recirculating Sand Filters for Individual Homes. In: Proc. 7th Nat. Symp. on Individual and Small Community Sewage Systems. American Society of Agricultural Engineers, St. Joseph, MI, pp. 310-318.

Renkow, M. and Hoover, M. 1996. Costs of Onsite Management Options (COSMO) Model. North Carolina State University, Raleigh, North Carolina.

Shephard, F. 1996. Managing Wastewater: Prospects in Massachusetts for a Decentralized Approach. Ad hoc Task Force for Decentralized Wastewater Management.

Smith, Robert. 1978. Memorandum: "Cost of Conventional Gravity Sewers and Centralized Treatment in Small Communities", Robert Smith, Chief, Systems and Economic Analysis Branch, U.S. EPA, June 21, 1978.

Soltman, J. 1989. Sand Filter Performance: An Overview of Sand Filter Performance in Washington and Oregon. In: Proc. 6th Northwest On-Site Wastewater Treatment Short Course and Equipment Exhibition, University of Washington, Seattle, WA, pp. 271-287.

Tchobanoglous, G. and F. Burton. 1991. Wastewater Engineering: Treatment, Disposal, and Reuse. Metcalf & Eddy, Inc. McGraw-Hill, Inc.

U.S. EPA. n.d. A Survey of Alternative Collection Systems in EPA Region IV. Region IV Water Management Division, Technology Transfer Unit.

U.S. EPA. 1991. Alternative Wastewater Collection Systems Manual. EPA/625/1-91/024, U.S. Environmental Protection Agency, Office of Research and Development, Cincinnati, Ohio.

U.S. EPA. 1993. 1992 Needs Survey Report to Congress. Office of Water, Washington, DC. EPA 832-R-93-002.

U.S. GAO. 1994. Water Pollution: Information on the Use of Alternative Wastewater Treatment Systems. Report to the Subcommittee on Investigations and Oversight. General Accounting Office, Washington, DC.

U.S. OMB (Office of Management and Budget). 1996. Economic Analysis of Federal Regulations, Executive Order 12866, January 11, 1996.

Appendix A

Definition of Terms and Descriptions of Wastewater Systems

DEFINITIONS

Activated Sludge: A wastewater treatment process that uses suspended microorganisms to digest the organic contents of wastewater. (see "Suspended Growth Systems' in the Description of Wastewater Systems" section below)

Alternative onsite system: An onsit treatment system other than a conventional septic tank and leach field design. Alternative systems are used to accommodate a variety of site conditions (e.g., high ground water, low-permeability soil) and/or to provide additional treatment. Examples of alternative systems include alternative collection sewers, sand mounds, sand filters, anaerobic filters, disinfection systems, and cluster systems, among others, as described in "Descriptions of Wastewater Systems".

Alternative Sewers: Low-cost wastewater collection systems for small communities and/or areas with difficult topography or high ground water or bedrock. Alternative sewers are smaller in size than conventional sewers and are installed at shallower depth, providing a more cost-effective method of wastewater collection. The three main classes of alternative sewers are pressure sewers, small diameter gravity sewers, and vacuum sewers.

Black Water: Wastewater from the toilet, which contains most of the nitrogen in sewage.

BOD: Biochemical Oxygen Demand (BOD) is the measure of the amount of oxygen required by bacteria for stabilizing material that can be decomposed under aerobic conditions. BOD is a commonly used determinant of the organic strength of a waste.

Centralized System: A collection and treatment system containing collection sewers and a centralized treatment facility. Centralized systems are used to collect and treat large volumes of wastewater. The collection system typically requires large-diameter deep pipes, major excavation, and frequent manhole access. At the treatment facility, the wastewater is treated to standards required for discharge to a surface water body. The large amounts of biosolids (sludge) generated in treatment are treated and either land applied, placed on a surface disposal site, or incinerated.

Class V Well: A shallow waste disposal well, stormwater and agriculture drainage system, or other device, including a large domestic onsite wastewater system, that is used to release fluids above or into underground sources of drinking water. EPA permits these wells to inject wastes provided they meet certain requirements and do not endanger underground sources of drinking water.

Cluster System: A decentralized wastewater collection and treatment system where two or more dwellings, but less than an entire community, is served. The wastewater from several homes often is pretreated onsite by individual septic tanks before being transported through alternative sewers to an off-site nearby treatment unit that is relatively simple to operate and maintain than centralized systems.

Conventional Onsite System: A conventional onsite system includes a septic tank and a leach field.

Decentralized System: An onsite or cluster wastewater system that is used to treat and dispose of relatively small volumes of wastewater, generally from dwellings and businesses that are located relatively close together. Onsite and cluster systems are also commonly used in combination.

Effluent: Partially or fully treated wastewater flowing from a treatment unit or facility.

Eutrophication: A process by which nutrient-rich surface water or ground water contributes to stagnant, oxygen-poor surface-water environments which may be detrimental to aquatic life.

Facultative Pond: A lagoon that is sufficiently deep (i.e., 5 to 6 feet) where organic solids settle to the bottom as sludge and decay anaerobically; a liquid layer forms above the sludge where facultative and aerobic bacteria oxidize the incoming organics and products of anaerobic sludge decomposition.

Fecal Coliform Bacteria: Common, harmless forms of bacteria that are normal constituents of human intestines and found in human waste and in wastewater. Fecal coliform bacteria counts are used as an indicator of presence of pathogenic microbes.

Gray Water: Non-toilet household wastewater (e.g., from sinks, showers, etc.).

Leaching Field: See "Subsurface Soil Absorption Field".

Management of Decentralized Systems: The centralized management and monitoring of onsite or cluster wastewater systems, including, but not limited to, planning, construction, operation, maintenance, and financing programs.

National Pollutant Discharge Elimination System (NPDES): A regulatory system that requires wastewater treatment systems discharging into surface waters to obtain a permit from the EPA which specifies effluent quality.

Nonpoint Source Discharges: Relatively diffuse contamination originating from many small sources whose locations may be poorly defined. Onsite wastewater systems are one type of Nonpoint source discharge.

Onsite System: A natural system or mechanical device used to collect, treat, and discharge or reclaim wastewater from an individual dwelling without the use of community-wide sewers or a centralized treatment facility. A conventional onsite system includes a septic tank and a leach field. Other alternative types of onsite systems include at-grade systems, mound systems, sand filters and small aerobic units. These and other types of onsite systems are described in the "Description of Wastewater Systems" section.

Package Plant: Prefabricated treatment units that can serve apartment buildings, condominiums, office complexes, and up to a few hundred homes. Package plants generally are used as cluster systems, but can also be used in an onsite wastewater treatment train. They are usually of the activated sludge or trickling filter type, and require skilled maintenance programs.

Point Source Discharges: Contamination from discrete locations, such as a centralized wastewater treatment facility or a factory.

Pressure Sewers: An alternative wastewater collection system in which household wastewater is pretreated by a septic tank or grinder and pumped through small plastic sewer pipes buried at shallow depths to either a conventional gravity sewer or a treatment system. Pressure sewers are used in areas with high groundwater or bedrock, low population density, or unfavorable terrain for gravity sewer collection. They require smaller pipes and less excavation than conventional sewers. Two types of pressure sewers include:

Septic Tank Effluent Pump (STEP). A submersible pump located either in a separate chamber within a septic tank or in a pumping chamber outside the tank pumps the settled liquid through the collector main. Because the wastewater is treated in a septic tank, the treatment facility may be smaller and simpler than would otherwise be needed.

Grinder Pump. Household wastes flow by gravity directly into a prefabricated chamber located either in the basement of a house or outside the foundation wall. The chamber contains a pumping unit with grinder blades that shred the solids in the wastewater to a size that can pass through the small-diameter pressure sewers.

Pumping Stations: A pumping facility is used to lift wastewater where topography is too flat or hilly to permit natural gravity flow to treatment facility.

Receiving Water: Streams (i.e., surface water bodies) into which treated wastewater is discharged.

Residuals: The by-products of wastewater treatment processes, including sludge and septage.

Secondary Treatment: Typical effluent quality achieved by a conventional centralized treatment facility, typically defined as 85% reduction of influent BOD and TSS or 30 mg/l or both; which ever is least.

Septage: The solid and semi-solid material resulting from onsite wastewater pretreatment in a septic tank, which must be pumped, hauled, treated, and disposed of properly.

Sludge: The primarily organic solid or semi-solid product of wastewater treatment processes. The term sewage sludge is generally used to describe residuals from centralized wastewater treatment, while the term septage is used to describe the residuals from septic tanks.

Small-Diameter Gravity Sewers: An alternative wastewater collection system consisting of small-diameter collection pipes (e.g., between three and six inches) that transport liquid from a septic tank to a treatment unit, utilizing differences in elevation between upstream connections and the downstream terminus to achieve gravity flow.

Subsurface Soil Absorption Field: A subsurface land area with relatively permeable soil designed to receive pretreated wastewater from a septic tank or intermediate treatment unit (e.g., sand filter). The soil further treats the wastewater by filtration, sorption, and microbiological degradation before the water is discharged to ground water.

Trickling Filter: A fixed-film (see "Fixed Growth Systems" in "Description" section below) biological wastewater treatment process used for aerobic treatment and nitrification.

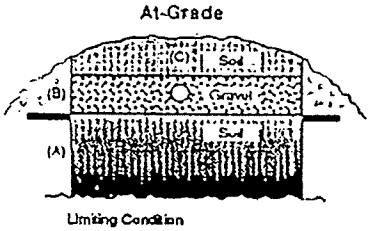
Total Suspended Solids (TSS): A measure of the amount of suspended solids found in wastewater effluent.

Vacuum Sewers: An alternative wastewater collection system that uses vacuum to convey household wastewater from each connection to a vacuum station which includes a collection tank and vaccum pumps. Wastewater is then pumped to a treatment facility or conventional sewer interceptor.

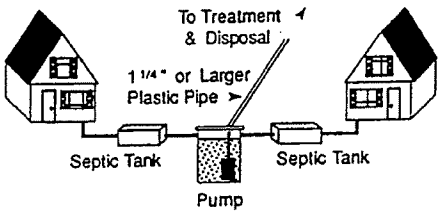
DESCRIPTIONS OF WASTEWATER SYSTEMS

Anaerobic Filters: Anaerobic filters are used as part of a treatment train designed to minimize nitrate concentration in areas where discharge of nitrates to surface water or ground water is a concern. Anaerobic filters convert nitrate (NO_3) to gaseous forms of nitrogen (N_2, N_2O, NO). The key design consideration for anaerobic filters is to ensure that the carbon-to-nitrogen ratio is sufficient for denitrification. Good performance can be obtained by treating septic tank effluent with a nitrifying (usually sand) filter before the anaerobic filter.

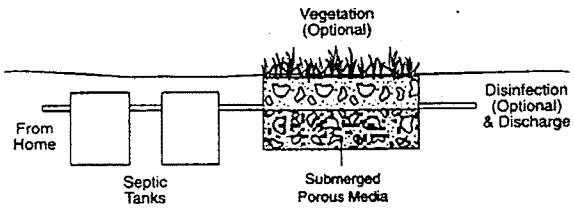
At-Grade Soil Absorption Systems: At-grade soil absorption systems are similar to the subsurface soil absorption systems, but bedding material (usually gravel) is placed at the ground surface rather than below ground and is covered with soil fill material. At-grade systems are used in areas with relatively high ground-water tables or shallow bedrock.



Cluster Systems: Decentralized wastewater collection and treatment systems serving two or more dwellings, but less than an entire community. Sometimes, the wastewater from several homes is pretreated onsite by individual septic tanks before being transported through alternative sewers to an off-site, nearby treatment unit that is relatively small compared to centralized systems.



Constructed Wetlands: Constructed wetlands are engineered systems designed to optimize the physical, chemical, and biological processes of natural wetlands for reducing BOD and TSS concentrations in wastewater. Wastewater from a septic tank flows through a pipe into the wetland, where the wastewater is evenly distributed across the wetland inlet. Sedimentation of solids with the media substrate occurs. Constructed wetlands are reliable for BOD and TSS removal, and may contribute to nutrient removal when used after a nitrifying unit process.



Disinfection Systems: Disinfection refers to the destruction of disease-causing organisms called pathogens (e.g., bacteria, viruses) by the application of chemical or physical agents. Disinfection may be necessary where other types of treatment are inadequate to reduce pathogen levels to the required regulatory standards for surface discharge. The most common types of disinfection for decentralized systems are:

Chlorination Systems. Chlorination occurs by mixing/diffusing liquid or solid chlorine forms with wastewater. Chlorination is considered to be the most practical disinfection method for onsite wastewater treatment because it is reliable, inexpensive, and easy to use; however, dechlorination may be needed to prevent the dispersal of residuals that may be harmful to aquatic life.

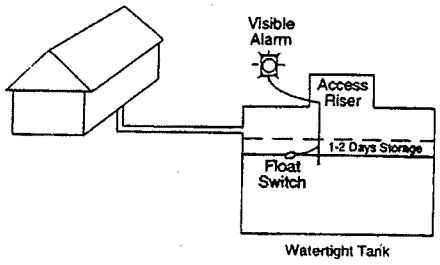
Ultraviolet Disinfection. In an ultraviolet treatment system, high intensity lamps are submerged in wastewater or the lamps surround tubes that carry wastewater. Disinfection occurs when the ultraviolet light damages the genetic material of the bacterial or viral cell walls so that replication can no longer occur. Care must be taken to keep the surface of the lamps clean because surface deposits can shield the bacteria from the radiation, thus reducing the performance of the system. Ultraviolet radiation is a highly effective technique especially attractive in cluster systems where the effluent cannot include any residuals or where there are overriding concerns with safety.

Effluent Distribution Systems: Effluent distribution systems are essential components of subsurface wastewater treatment systems. These systems deliver wastewater to soil infiltrative surfaces either by gravity or by pressure distribution.

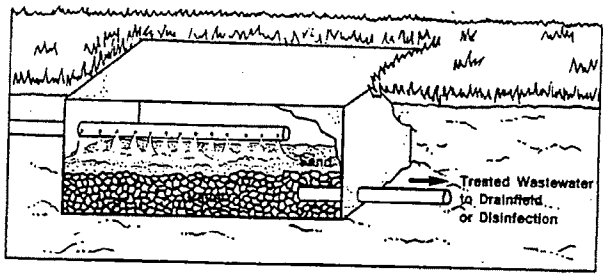
Pressure distribution. Pressure dosing systems distribute water over more infiltrative surface and provide a resting period between doses that increases the life and performance of the leach field. Dosing siphous or pumps provide the pressure; the latter requires additional maintenance demands.

Fixed Growth Systems: In fixed growth systems, aerobic microorganisms attach and grow on an inert media. Wastewater flows across a slime layer created by the attached microorganisms, which extract soluble organic matter from the wastewater as a source of carbon and energy.

Holding Tank: A large storage tank for wastewater or septage. An alarm on the tank signals when the tank is full and the contents need to be pumped and properly disposed.



Intermittent Sand Filters (ISF): An intermittent sand filter consists of sand media with a relatively uniform particle-size distribution above a gravel layer. An ISF reduces BOD and TSS concentrations to 10 mg/L or less. Wastewater passes through the filter and drains from the gravel to the collector. Uniform distribution of influent is very important to filter performance. Influent is dosed to the surface 4 to 24 times per day, with best performance from higher numbers of smaller doeses. The sand filter material may be left exposed or covered with removable covers. A septic tank (or other pretreatment system) is required to remove settleable solids and grease, which can clog the sand. Covers are used in cold climates. If sand filter material is left exposed, it must be checked regularly for litter, vegetation growing on the surface. It may require raking perodically. An uncovered system also is susceptible to potential odor problems. Less frequently, the sand may require removal and replacement of the top layer.



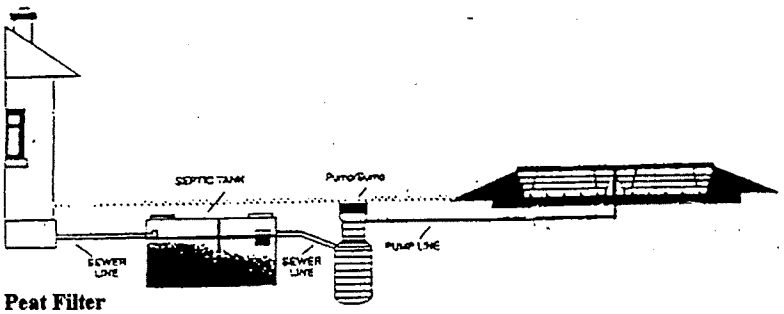
Nitrogen Removal Systems: Several types of treatment processes are capable of removing nitrogen in wastewater. Nitrogen removal systems are used in onsite treatment trains to ensure protection of ground water as well as coastal waters recharged by ground water. Biological nitrogen removal requires aerobic conditions to first nitrify the wastewater, then anaerobic conditions to denitrify nitrate-nitrogen to nitrogen gas. The successful removal of nitrogen from wastewater requires that environments conducive to nitrification and denitrification be induced and positioned properly. Three types of nitrogen removal systems are described below:

Separation of Black Water and Gray Water. Black water (toilet water) can be segregated from other sources of household wastewater (gray water) for separate treatment and disposal. A separate plumbing system within a house is required. Black water, which contains 80% or more of the nitrogen in household wastewater, can be discharged directly to a holding tank; the remaining gray water is discharged to a septic tank/soil absorption system.

Nitrification/Denitrification Trickling Filter Plant. Septic tank effluent is recycled by a pump toa low-loaded, plastic-media trickling filter for aerobic treatment; and nitrification can occur. Filtrate from the trickling filter returns to the lower anaerobic septic tank effluent, providing an environment conducive to biological denitrification.

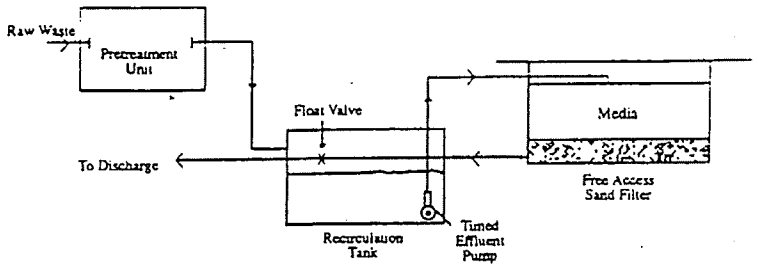
Recirculating Sand Filters. Recirculating sand filters also can provide consistent nitrogen removal (See "Recirculating Sand Filter" below).

Non-Sand Filters: Non-sand filters function similarly to sand filters but use materials other than sand as the filter medium, including natural media such as peat and bottom ash, and synthetic media such as expanded polyurethane foam and honeycombed plastic to reduce levels of TSS, BOD, and fecal coliforms. Most non-sand filter media are packaged in units or placed in enclosures and use pressure dosing to distribute the effluent in the filter.

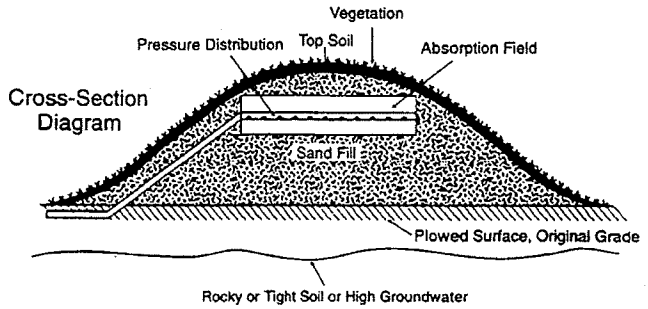


Peat Filter

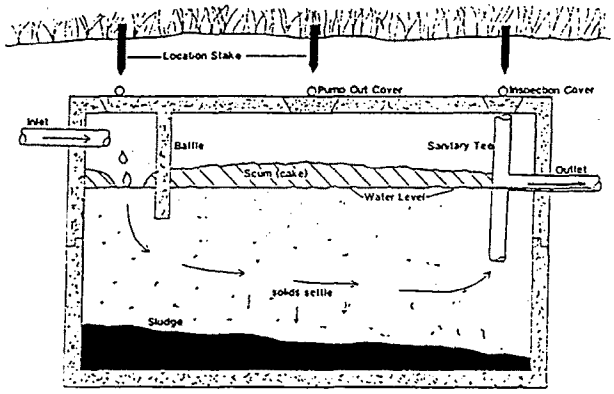
Recirculating Sand Filters (RSF): A recirculating sand filter uses relatively coarse sand or gravel media for filtration of wastewater. The wastewater is dosed from a recirculating tank, which receives septic tank effluent and returned filtrate. A portion of the filtrate is diverted for disposal during each dose. RSFs are suitable in areas too small for conventional soil absorption systems or with shallow depths to groundwater or bedrock. RSFs can be used for reducing TSS, BOD, fecal coliform, and nitrogen. RSFs are reliable, requiring little maintenance in comparison to activated sludge systems.



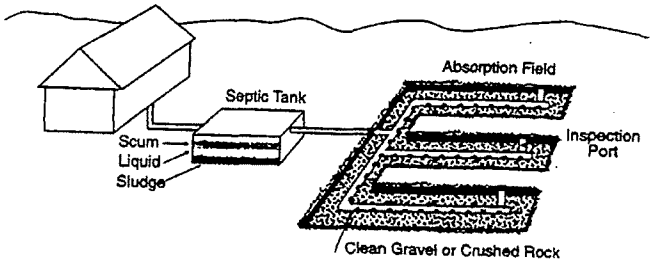
Sand Mounds: Sand mounds are used when soil depth is too shallow for a conventional septic tank and leach field system. The sand mound filters septic tank effluent before it reaches the natural soil. Sand fill is placed above the ground surface, and a pipe distribution system and pressure dosing is used to distribute the effluent. A septic tank or other pretreatment is required to remove settleable solids and grease.



Septic Tank: A buried tank designed and constructed to receive and pretreat wastewater from individual homes by separating settleable and floatable solids from the wsteater. Grease and other light materials, collectively called scum, float to the top. Gases are normally vented through the building's sewer pipe. An outlet blocked off from the scum layer feeds effluent to a subsurface soil absorption area or an intermediate treatment unit.

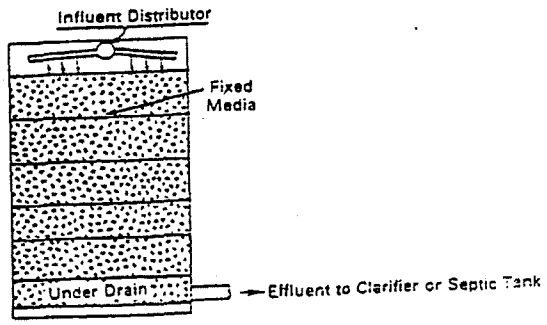


Subsurface Soil Absorption Systems: A typical soil absorption system consists of perforated piping and gravel in a field or trench, although gravelless systems can also be used. Soil absorption systems are normally placed at relatively shallow depths (e.g., <2 ft). Excellent TSS, BOD, phosphorus, and pathogen removal is provided in the unsaturated soil which surrounds the infiltrative surfaces. If properly sited, designed, constructed, and maintained, subsurface soil absorption systems are very reliable and can be expected to function for many years.



Suspended Growth Systems: Suspended growth treatment systems are variations of the activated sludge process in which microorganisms are suspended in an aerated reactor by mixing. Oxygen is supplied to oxidize organic carbon and, possibly, nitrogen compounds. Effluent is discharged either to surface water or subsurface systems . Suspended growth systems can be engineered as package plants to serve clustered residential housing, commercial establishments, or small communities with relatively small flows.

Trickling Filters: Used to reduce BOD, pathogens, and nitrogen levels, trickling filters are composed of a bed of porous material (rocks, slag, plastic media, or any other medium with a high surface area and high on permeability). Wastewater is first distributed over the surface of the media where it flows downward as a thin film over the media surface for aerobic treatment and is then collected at the bottom through an underdrain system. The effluent is then settled by gravity to remove biological solids prior to being discharged.



Appendix B

The Wastewater Planning Process

Appendix B The Wastewater Planning Process

The wastewater planning process involves coordinating a variety of technical and institutional factors, including engineering, environmental, legislative, public education, socioeconomic, and administrative considerations, as shown in Figure B1. The goal of the wastewater planning process is to develop a comprehensive plan to guide the community in the selection, siting, construction, operation, maintenance, and financing of wastewater systems that address the wastewater needs of the community. A key part of the planning process is a systematic evaluation of the financial and regulatory feasibility of all practical centralized and decentralized engineering alternatives. The steps in a wastewater planning process typically include (Arenovski and Shephard, 1996):

- Needs assessment—establishing an overall community profile, including current and future needs and issues, and identifying areas of concern where existing wastewater facilities are inadequate or problems might occur in the future.

- Development and screening of alternatives—examining which technology, or combination of technologies, will best address the concerns the community faces. The alternatives to consider include expanding or upgrading existing systems or improving their operation and maintenance, as well as installing new systems.

- Evaluation of community-wide plans—comparing the feasibility and cost-effectiveness of a small number of viable plans, and comparing each to a "baseline alternative" of maximizing the use of existing facilities.

In many communities, results of wastewater planning efforts will indicate that the best option is choosing several alternatives—that is, decentralized onsite wastewater systems in one part of the community, decentralized cluster systems in other sections, and a centralized facility in another part of town. This type of integrated approach reinforces land use planning; it also emphasizes the need for adequate management of decentralized systems, and for centralized and decentralized systems to be managed together by a central oversight agency (Shephard, 1996).

Comprehensive Planning

Wastewater system options are best selected in conjunction with broader, comprehensive community planning efforts to ensure that overall community goals are being met, such as environmental protection and land use goals. The planning process includes an analysis of the physical, social, economic, cultural, and environmental characteristics of the planning area. For example, if a watershed protection program already exists in a region to protect sensitive environmental areas, more advanced wastewater treatment (e.g., disinfection or nutrient removal) might be included as part of the watershed program, whether as part of a centralized or decentralized wastewater system (note that a decentralized system would allow the flexibility of installing advanced treatment only for those dwellings in close proximity to the sensitive areas). Similarly, if local land-use planning efforts include maintaining open space and conservation/woodland areas, wastewater management choices can complement such efforts (e.g., by encouraging cluster developments serviced by cluster wastewater systems).

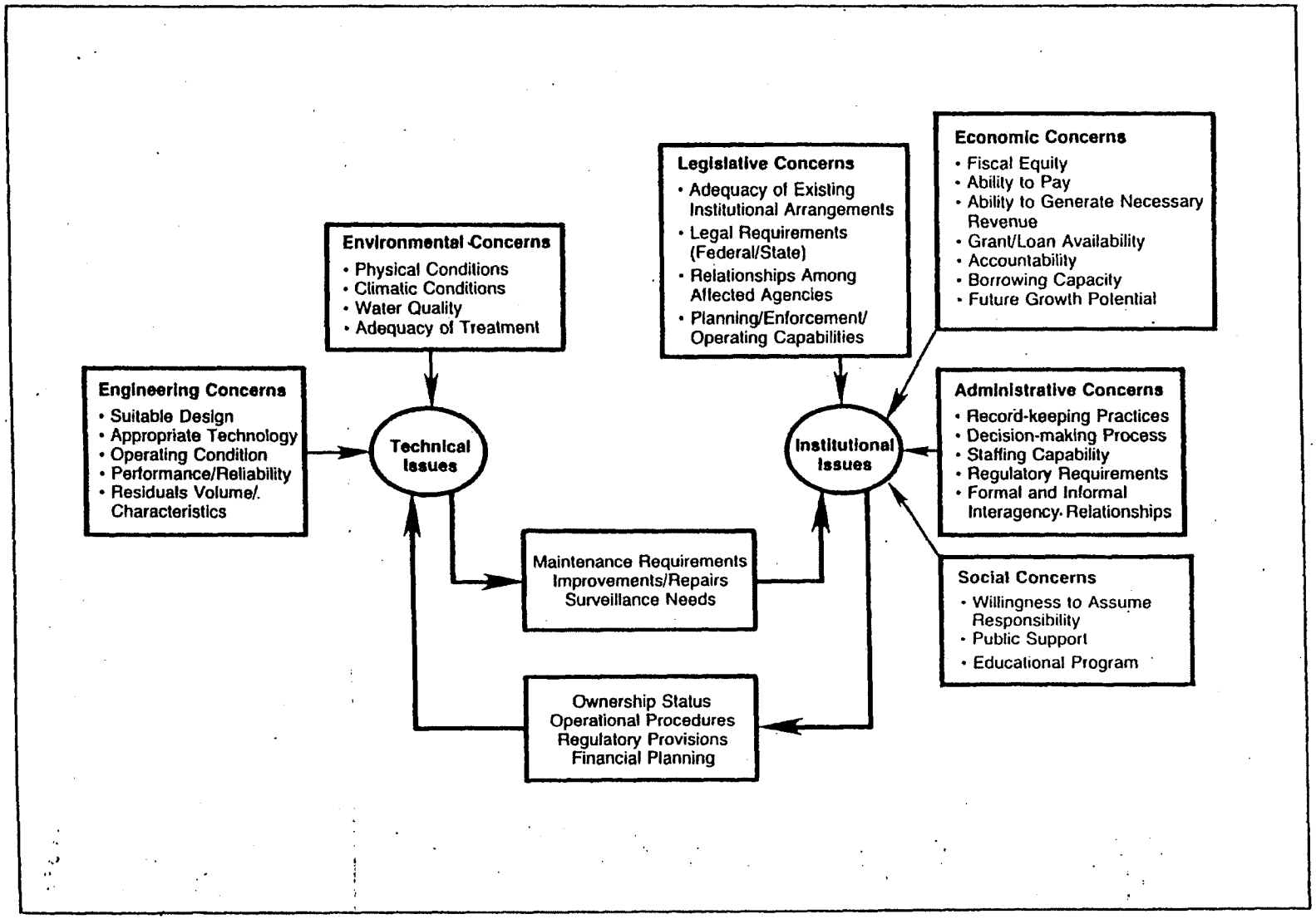


Figure B-1. Technical and institutional factors in decentralized wastewater systems management planning.

Appendix C

Types of Management Structures for Decentralized Wastewater Systems

Appendix C Types of Management Structures for Decentralized Wastewater Systems

Table C-1. Management Structures

Management Entity	State Agency	County	Municipality	Special District	Improvement District	Public Authority	Public Nonprofit Corp.	Private Nonprofit Corp.	Private For Profit Corp.
Description	Environmental protection agencies, health departments, and public utilities	Most basic political subdivision in a state. Comprised of incorp. munic. and unincorp. areas.	Cities, towns, villages, and townships.	Performs functions prescribed by state-enabling legislation. Provides single or multiple services.	Device used by counties/ munic. to provide services to local gov. jurisdictions.	Authorized to administer a revenue-producing public enterprise. Similar to a special district.	Provides water or wastewater services on behalf of local governments.	Established by the users of a facility to assist in facility financing and operation.	Can design, operate, or maintain sewerage facilities.
Service Area	Program enforcement can be handled on a regional basis.	Provides service throughout its juris. and to defined areas via improvement districts.	Provides service throughout its juris. and to defined areas via improvement districts.	Flexible	One or more as part of a single jurisdiction.	Flexible	Flexible (single community, group of communities, or statewide)	Can include subdivisions, small communities, and rural areas	Flexible (single homeowner to small community)
Governing Body	State legislature. Agencies report to the governor, legislature, or to a board of directors	Includes elected (princ. legislative branch) county board com-mission, council-administrator, council-elected executive.	Mayor-council, commission, and council-manager.	Board of directors (elected, appointed, or existing agency members)	Governing body of the creating unit of government.	Board of directors (elected or members of local government)	Usually municipal or state officials.	Board of directors elected by stockholders or a property owners association.	Private utility has stockholders or investors. Public utility commission (PUC) has jurisdiction.
Responsibilities	Code enforcement of wastewater design, installation, and operation standards; and technical and financial assistance.	Coordinates munic. in its juris.; provides special services on contract basis; serves as a fiscal agent for other local units of government.	Provides a wide range of services.	All wastewater management functions, similar to local government. State defines function and scope.	State statutes define extent of authority. Usually applied to finance public service improvements.	Used primarily for financing capabilities.	Serves as financing mechanism. Can provide technical assistance to small communities.	Provides financing and operational functions.	Active and flexible role to play in managing small wastewater systems.

Table C-1 (continued)

Management Entity	State Agency	County	Municipality	Special District	Improvement District	Public Authority	Public Nonprofit Corp.	Private Nonprofit Corp.	Private For Profit Corp.
Financing Capabilities	Provides financial support through federal grants and state revenues.	Charges for sewerage sources and finance construction through taxation, general funds, special assess-ments, bonds, and permit fees.	Has a broad range of fiscal powers (similar to counties).	Local taxation, service charges, special assess-ments, grants, loans, bonds, and permit fees.	Can apply special property assessments, user charges, other fees. Can sell bonds.	Can use revenue bonds, user charges, and connection fees.	User charges and services fees and sales of stocks and tax-exempt bonds. Can accept some Federal grants and loans.	Eligible for Federal grants and loans.	User charges. The PUC can influence the service rates charged.
Advantages	Regulatory and financial advantages over local government. State enforce-ment can insulate from local political pressure. Can administer training/cert. programs.	Can interact with states and local governments on many issues. Often seen as administrative arms of the state. Provide efficient resource base for providing public services.	Can better react to local perception and attitude.	Flexible. Renders equitable services (only those receiving services pay for them). Simple, independent forms of government.	Can extend public services without major expenditures. People in the benefitted area usually favor the improvement.	Good when local governments are not able to provide public service because of financial, administrative, or political problems. Has a certain degree of autonomy.	Offers flexibility in establishing management facilities and financing facilities by state and local governments. Financing method doe not affect local debt limitations.	Provides public services where local govern-ments are unwilling or unable.	Frees the local public sector from providing these services. Competition between firms will help maintain quality while keeping costs down.
Disadvantages	Program organizations differ. (Difficult to implement methods from one state in another. Can become distanced from local governments.	Sometimes not willing to provide specialized public services to a defined service area. Community debt limits could be restrictive.	Might lack admin. capa-bilities, staff, or willingness to design, install, operate, and/or regulate a facility. Financial capabilities might be limited.	Can promote proliferation of local govern-ment and duplication and fragmentation of public services. Fiscal problem could result from overuse.	Contributes to fragmentation of local government services. Can result in administrative delays.	Financing ability is limited to revenue bonds. Thus, local government must support the debt incurred by the public authority.	Local governments might be reluctant to apply this concept.	Services could be of poor quality or could be terminated.	Threat that the company could go out of business. Private corporations are usually not qualified for federal and state grant and loan programs.

Source: Ciotoli and Wiswall, 1982.

In addition to the types of management structures described above, two additional approaches to managing decentralized wastewater systems include public/private partnerships and management districts, as describe below.

Public/Private Partnerships. It is sometimes difficult to determine which parties are responsible for the various decentralized system management functions because of the split responsibility between the public and private sector. Several options exist for public/private partnerships in the management of decentralized systems. Systems can be privately owned and managed under a permit system, privately owned and publicly managed, or publicly owned and managed. In the first option, the resident must comply with the regulations and pays all costs for maintenance, pumping, and if necessary, rehabilitation. In the second option, the resident pays user charges to the local district which performs the necessary maintenance (this does not cover rehabilitation). The final option involves the public organization providing wastewater services for all households and collecting user charges to pay for the service; all construction, operation, and maintenance tasks are performed by the public agency, or firms under contract to it.

Wastewater Management District. When a government agency or public authority is unable or unwilling to assume the life-cycle management of decentralized wastewater systems, a special management entity, such as a management district, can be formed where state statutes permit. This management option involves incorporating decentralized systems into a local or regional wastewater management district, with district personnel responsible for system operation and maintenance. Decentralized wastewater management districts have been in existence since 1972, when Georgetown, California implemented a community-wide onsite wastewater system management program in the Lake Auburn Trails subdivision (Shephard, 1996).

Table C–2 summarizes a number of decentralized wastewater management programs that have been implemented as management districts throughout the country. For a further discussion of management systems for decentralized wastewater treatment systems, see Shephard (1996).

Table C-2. Management Districts: Summary of Case Study Characteristics

Case Study	Funding Source	Size of Area	Waterbody Protected	Program Components
Crystal Lakes, CO	Annual dues ($60 per lot, $100 per lot if served by central water and sewer, $180 per lot if connected to seasonal central water and sewer)	4,000 lots	Crystal Lakes	Developer establishes and manages decentralized water and wastewater facilities in the subdivision. Management is funded through annual dues and includes, maintenance, removal of sewage from vaults, and delivery of drinking water to cisterns.
Crystal Lake, MI	Not Reported	1,100 homes	Crystal Lake	Establishment of new ordinances: (1) inspection/upgrade required prior to sale, (2) homeowners required to report on all systems, (3) health department required to inspect the systems, (4) systems must be upgraded within 120 days of inspection if failed, and (5) non-compliance meets with tough consequences.
Georgetown Divide, CA	Annual dues ($12.75 to $22.75), design costs ($540 per system), and hook-up fees ($875 per system)	3,000 acres	American River	Management entity is responsible for operations and maintenance, repair and inspection, system design, control of installation and siting, and control of building process. Inspection and maintenance program is database-controlled.
Kueka Lake, NY	$300 per year per parcel fee	Not Reported	Kueka Lake	Management entity responsible for evaluating, monitoring, and setting standards. Ordinances established include (1) the town had ultimate authority, (2) a mix of system designs was allowed, (3) annual inspection were required for highly technical systems, (4) systems within 200 feet of the lake must be inspected every 5 years, (6) systems must be inspected prior to property transfer, and (7) enforcement powers.
Stinson Beach, CA	Funds obtained from tax revenues, semiannual fee of $53, and charges for special inspections and inspection for compliance.	700 onsite systems	Groundwater/ Coastal waters	The District's management activities include inspection of system installation and routine system operation, and water quality monitoring. The district's rules and regulations specify the criteria to be used when issuing permits for new onsite systems, as well as for the repair and/or replacement of existing systems. Most of the systems in the community are inspected at least once a year, the systems that have been corrected or replaced, however, are inspected two or three times a year. District has a broad range of regulatory authority to perform onsite management functions.

Table C-2(continued)

Case Study	Funding Source	Size of Area	Waterbody Protected	Program Components
Guysborough, Nova Scotia	Initial Funds:$2,500 fee per equiv. unit or property, funds from Capital Assist.e Program (50% of total), and funds from the Council of the Municipality of Guysborough (26% of total) Funds for Management Program: Connection fee of $3,500. Annual property tax equal to the expected annual maintenance fee plus an amount to be set aside for future capital.	700 residents	Guysborough harbor	Built a Rotating Biological Contactor type sewage treatment facility to service the main core of the community. Second, a portion of the District was connected by sewer lines to an aerated lagoon system. The remaining properties within the District have been serviced by individual on-site systems. The municipality hired one employee to be responsible for the general maintenance of the treatment plant and lagoon systems. A preventative maintenance was established for the onsite systems
Cass County, MN	$3,800 per resident initial cost; annual fee of $12 to $15	110 miles, 85 towns	numerous lakes, streams	In 1994, the county developed an "Environmental Subordinate Service District," whereby a township, as the local unit of government, can effectively provide, finance, and administrate government services for subsets of its residents. Establishment of such districts within a town is authorized under MN Statute 365A. The purpose of these districts is to provide a self-sufficient, effective, and consistent long-term management tool, chiefly for neighborhood alternative (STEP) collection and communal leach fields. This innovative model stays at the grass roots level where the affected property owners and township are involved. Cass County provides technical and support assistance when required, but is not directly involved. The partnering with the townships and the county has allowed resource sharing, improved communication, and thus has opened up prospects for other cooperative ventures such as land-use planning, road improvements, and GIS use. Once a Subordinate Service District is created by petition and vote from the residents needing the specific service, a County/Township agreement is signed. The County then determines the system's design, handles construction oversight, gives final approval for the collection system, commits to yearly inspections, and assures regulatory compliance. The leach fields are located away from lakes, wells, and groundwater supplies. Cass County will allow systems to lie on county-administered land in order to defray residents' costs, or to enable optimal siting (Shephard, 1995).

Appendix D

Cost Estimation Methodology

COST ESTIMATION METHODOLOGY

The cost estimation methodologies for conventional gravity and alternative collection systems, as well as centralized treatment, cluster treatment, and onsite treatment systems, are presented in this appendix. The cost estimates include the capital cost necessary to install the system(s) and the annual cost to repair and maintain the system(s). Capital costs are annualized over 30 years (the life of the system) using a discount rate of 7 percent (OMB, 1996). All costs are presented in 1995 dollars. Cost data for the different technologies have been obtained from various sources, as documented in each section. Because the data reflect costs from different years, they have been indexed to 1995 dollars using the Means Historical Cost Indexes, as printed in the "Engineering News-Record (ENR)"(Means Heavy Construction Cost Data, 1996). Costs are indexed using the following equation:

$$1995\ Cost = 1987\ Cost \times \frac{1995\ Index}{1987\ Index}$$

Indexes applicable to the costs presented in this appendix are:

Table D-1. Cost Indexes

Year	Index
1976	46.9
1978	53.5
1987	87.7
1991	96.8
1992	99.4
1995	107.6

COLLECTION SYSTEMS

Conventional Gravity Collection

A conventional gravity collection sewer collects and transports sewage to a centralized treatment facility via gravity. The system includes lateral pipes, collection sewers, interceptor sewers, manholes, and pump stations. Laterals are the pipes that transport wastewater from homes to the collection main sewers. Collection sewers are the pipes which carry the wastewater to interceptor sewers, which carry wastewater to the treatment system with the help of pump stations if needed. Manholes are included along the collection sewer to allow access for cleaning.

Because the pipes in a gravity collection system must continually slope downward, pump stations may be required to avoid excessive excavation for pipes or to reach a particular elevation at the system outfall. Pump stations (or lift stations) include pumps, valves, and a well to hold incoming sewage.

Cost Data

Cost estimates were developed for a conventional gravity collection system using cost equations developed by Dames and Moore. These equations were derived from actual installation and annual operating and maintenance (O&M) costs (Smith, 1978). The cost estimating procedure calculates costs in 1978 dollars because these were the best data available; the costs were then indexed to 1995 dollars.

Pipe Diameter - Dames and Moore provide an equation for estimating the capital costs of the lateral, collection main, and interceptor sewer pipes on a dollar per foot basis. This equation relates the cost of the pipe to the diameter of pipe required:

$$\frac{\$}{foot}\ (1978\ dollars) = 3.2\ x\ (pipe\ diameter)^{1.1667}\ x\ 1.03$$

Dames and Moore also provide an equation to determine the diameter of pipe required for the collection and interceptor sewer, based on the flow of wastewater through the pipe:

$$Pipe\ diameter = 17.74\ x\ Flow\ (mgd)^{0.3756}$$

A minimum pipe diameter of 8 inches was used for the collection and interceptor sewers (Fact Sheet, n.d.), unless a larger pipe size was required for the design flow. A pipe diameter of 4 inches was used for on-lot lateral pipes.

Pipe Length - The length of collection sewer required is dependent on the population density. Dames and Moore provide an equation for estimating this length:

$$\frac{feet\ of\ sewer}{capita} = 54\ x\ \left(\frac{persons}{acre}\right)^{-0.65}$$

The length of interceptor pipe needed to transport the wastewater to a newly constructed treatment facility in the rural community is estimated to be about one mile. The length of interceptor pipe for the fringe community needed to transport wastewater to an existing facility in the metropolitan center was estimated between one and five miles. On-lot lateral pipes are estimated to be about 50 feet per home in the rural community, and 25 feet per home in the fringe community.

Lift/Pump Stations - The number of pump stations required in a system is dependent on the site topography. Dames and Moore estimate the number of pump stations to be one for every 18,000 feet of collection and interceptor length; however, additional pump stations are necessary if the topography is hilly or steep. The cost to install pump stations is dependent on the flow of wastewater and is estimated by the following equation:

$$Cost\ per\ station\ (1978\ \$) = 0.168\ x\ (flow,\ mgd)^{1.08}\ x\ 1.03$$

A minimum cost of $50,000 (1995$) was used for construction of pump stations.

Annual costs to repair and maintain gravity collection sewers were also estimated from Dames and Moore data; average operating and maintenance costs for sewers is $1,502 per mile of sewer line (1978 dollars).

System Design and Cost

The following conventional gravity collection systems were designed and costed for the fringe and rural communities using the methodology presented above:

1) Installation of a conventional gravity sewer in the fringe community, with an additional 1-5 miles of pipe to connect this system to the existing sewer system in the metropolitan center.

2) Installation of a conventional gravity sewer in the rural community to be connected to a new rural community treatment plant located within one mile of the community.

Fringe Community Costs (1995 $)

The collection system for the fringe community is estimated to require about 25,000 feet of 10-inch diameter collection pipe, between 5,280 and 26,400 feet of 10-inch interceptor pipe, 11,000 feet of 4-inch lateral pipe, and three pump stations. The capital cost to install this system ranges from $3,322,900 to $5,377,800, depending on the distance of interceptor pipe required. The annual O&M costs are estimated to range between $23,000 and $35,000.

Rural Community Costs (1995 $)

Population density has a significant impact on the cost of collection, and ultimately makes up a large percentage of the cost to connect an area to centralized treatment. For this reason the cost of collection for the rural community was calculated using two population densities: a moderate density of 1 home per 1.5 acres and a low density of 1 home per 5 acres.

The collection system for the rural area when the population density is moderate is estimated to require about 15,500 feet of 8-inch diameter collection pipe, 5,280 feet of 8-inch diameter interceptor pipe, 6,800 feet of 4-inch diameter lateral pipe, and two pump stations. The capital cost to install this system is estimated to be $1,882,800 and the annual O&M costs are estimated to be about $15,750.

The collection system for the rural area when the population density is low is estimated to require about 34,000 feet of 8-inch diameter collection pipe, 5,280 feet of 8-inch diameter interceptor pipe, 6,800 feet of 4-inch lateral pipe, and three pump stations. The capital cost to install this system is estimated at $3,311,500 and the estimated annual O&M costs are about $26,300.

Alternative SDGS Collection

Alternative collection sewers are used in place of, or in conjunction with, conventional gravity collection sewers to collect and transport wastewater to a central treatment facility. Small diameter gravity sewers (SDGS) are a system of interceptor pipes and tanks and small diameter PVC collection mains. Onsite tanks are used to remove grease and settleable solids, allowing for the smaller diameter collection pipe to be used. The settled wastewater is discharged from the septic tank via gravity into the collector mains (EPA, 1991) . The collector mains then transport the wastewater to a local cluster system, a centralized treatment facility, or a conventional collection system. The main components of an SDGS are 3-inch to 8-inch PVC mains, cleanouts or manholes, vents, and septic tanks.

Cost Data

Several sources were reviewed to obtain cost data on SDGS systems. These sources include :

- EPA Manual on Alternative Collection (EPA, 1991)
- Fountain Run Case Study (Abney, 1976)
- Region IV Survey (EPA, n.d.)

The EPA alternative collection manual provides unit cost data (mid-1991) for interceptor tanks and 4-inch mains. The manual also contains design data and SDGS systems for several small communities; these communities were located in areas with steep and hilly topography. These systems were also designed to feed into central treatment facilities, instead of local cluster treatment systems. These differences are the reason why the sewer designs for these communities were not applied to the hypothetical communities.

The Fountain Run case study provides design information for a community divided into clusters ranging from 3 homes to 34 homes. The study did not indicate any prevailing topographic conditions which would hinder the construction of a SDGS. The study also provided unit cost data (1976) for the SDGS components, but these were not used since more recent unit cost information is available from the EPA alternative collection manual.

The Region IV survey contains design and project cost information on alternative collection systems. The SDGS projects were all designed to feed into centralized treatment facilities, therefore, these projects are not applied to the hypothetical communities.

System Design and Cost

The SDGS system was chosen to collect and transport wastewater to a local cluster treatment system. The homes in the fringe and rural communities were divided into smaller groupings, or clusters, based on their proximity to each other. Homes located in areas with poorly drained soils or high water table were also clustered together.

Design information for cluster systems of 3 to 34 homes was obtained from the Fountain Run Case Study. This information was combined with unit costs obtained from the EPA alternative collection manual. Homes with existing onsite septic tanks in good working order were not costed for replacement. Cost estimates for the installation of SDGS in the fringe and rural areas are provided below.

Fringe Community

The fringe area was grouped into 20 clusters. Table D-2 presents a summary of the capital cost and the length of sewer required for each cluster. As an example, the calculation of the capital costs for the 34-home SDGS cluster is presented below.

Table D-2. Fringe Area Clusters

Number of Clusters	Number of Connections	Capital Cost per Connection	Feet of Sewer per Connection
1	7	$2,633	174
6	10	$2,271	147
3	12	$1,723	83
10	34	$2,372	148
Total	383	$827,631	63,440

Septic Tank Capital Cost. This cluster contains 34 tanks. The EPA manual estimates the average installed septic tank cost to be $800 (1991 dollars). This yields a capital cost of $27,200 in 1991 dollars or $30,235 in 1995 dollars for the septic tanks in this cluster.

Sewer Main Capital Cost. The 34-home cluster requires 5,040 feet of 4-inch main. The EPA alternative collection manual estimates the cost per foot to install 4-inch pipe to be $9 per foot (1991). This yields a capital cost of $45,360 in 1991 dollars or $50,421 in 1995 dollars for the collection main in this cluster.

Total Capital Cost for Collection. The capital cost for collection is the sum of the capital cost for the units in the system incremented to 1995 dollars. For the 34-home cluster system the capital cost is $80,818, or a cost of $2,372 per home. Two hundred twenty homes in the fringe community have existing tanks which will be utilized by these cluster systems; therefore, the cost to replace these tanks ($195,636) has been subtracted from the total collection cost. The capital cost for collection in the fringe area is $827,631, as shown in Table D-2.

Operation and Maintenance Costs. The operation and maintenance cost for the SDGS system is included in the description of treatment for cluster systems, described later in this appendix.

Rural Community

For estimating the cost of cluster systems, the failing systems in the rural community were grouped into 4 clusters. Table D-3 presents a summary of the capital cost and the length of sewer required for each cluster. The capital cost of the SDGS clusters in the rural area were calculated using the same process as the fringe area.

Table D-3. Rural Area Clusters

Number of Clusters	Number of Connections	Capital Cost per Connection[1]	Feet of Sewer per Connection
2	10	$2,271	147
1	12	$1,723	83
1	35	$2,372	148
Total	67	$149,122	9,116

Capital Cost. The capital cost for collection in the rural area is $149,122, as shown in Table D-3.

Operation and Maintenance. The operation and maintenance cost for the SDGS system is included in the treatment part of the cluster system.

TREATMENT SYSTEMS

Centralized Wastewater Treatment

Many treatment technology options are available to communities that wish to employ centralized wastewater treatment. Community-specific characteristics, such as land cost and availability, wastewater characteristics and flow rates, desired treated wastewater effluent concentration, and solids disposal costs affect whether a particular treatment train may be the most cost-effective and reliable system for a particular community. For the hypothetical fringe and rural communities, different treatment trains are costed based on their expected community characteristics. For the rural community, due to the very small wastewater flow and the relatively large amount of land available, the treatment train costed includes a facultative oxidation pond, which requires a large amount of land but is economical and requires relatively little maintenance, and a chlorination/dechlorination disinfection unit. For the fringe community, the treatment train consists of a grit chamber, comminutor, sequencing batch reactor (SBR), and chlorination/dechlorination disinfection unit. The SBR was selected for the fringe community because it is capable of handling small wastewater flows and requires only a small amount of land, which may not be readily available in a fringe area. If removal of additional nitrogen is required, the facultative oxidation pond in the rural community is replaced by a SBR that provides nitrification and denitrification, and the SBR in the fringe community is modified to provide such treatment. Waste solids from the SBR unit is costed for disposal of via land application.

Cost Data

The costs for treatment of wastewater at centralized wastewater treatment facilities were estimated using the computer cost model Water and Wastewater Treatment Technologies Appropriate for Reuse (WAWTTAR) (Gearheart et al, 1994). WAWTTAR was developed to estimate the feasibility and cost of water supply, wastewater collection, and wastewater treatment. The WAWTTAR cost model estimates costs in 1992 dollars, which are then indexed to 1995 dollars. Inputs to the WAWTTAR cost model include the community wastewater volume and characteristic data, treatment trains, and land costs, as well as target treatment performance standards.

The cost of land for construction of treatment facilities varies significantly from location to location. In some areas, the local government may already own the land necessary for construction of treatment facilities. In these instances, the land cost for treatment facilities will be minimal. However, many communities may need to purchase additional land to construct treatment facilities. The cost of the land will vary greatly from location to location. In the state of North Carolina, for example, land costs may range from $5,000 per acre in rural communities to $50,000 per acre in more developed areas (Hoover, 1996). Land costs for this report are based on an approximate average cost of $25,000 per acre.

The basic SBR and disinfection treatment system for the fringe community and the facultative oxidation pond and disinfection for the rural community are expected to reduce the biological oxygen demand (BOD) of the wastewater, as well as reduce suspended solids and fecal coliform bacteria.

These are parameters that would be included in most NPDES permits for municipal wastewater treatment facilities. The following treatment standards were input to the WAWTTAR cost model:

BOD	≤ 30 mg/L;
Suspended solids	≤ 50 mg/L; and
Fecal Coliform	≤ 200/100 ml.

The SBR modified to provide nitrification and denitrification, which was used for both the fringe and rural communities to remove nitrogen would meet the above standards and also reduce total nitrogen in the wastewater to 6 mg/L.

System Design and Cost

The cost estimates for centralized treatment of the wastewater from the rural community includes construction of a new treatment system dedicated to the community's wastewater. The cost estimates for centralized treatment of the wastewater from the fringe community includes expansion of the existing metropolitan center treatment plant to accomodate the additional flow. The centralized treatment costs discussed in this section do not include collection costs to transport the wastewater to the treatment facility, which were presented earlier in this appendix. Capital costs include the cost to purchase land on which to construct the facility, design, construction materials and equipment, and labor costs. Operating and maintenance costs include treatment chemicals such as chlorine and sulfur dioxide, energy to run equipment such as mixers, pumps, and aerators, and labor.

In some communities, existing wastewater treatment facilities may have sufficient capacity to treat additional wastewater from nearby community developments, such as the fringe community. Other communities may be capable of upgrading or expanding their existing wastewater treatment facilities; such modifications may range from minor operational changes to extensive upgrades and/or construction of additional facilities. The extent to which existing facilities must be modified to accommodate additional wastewater is highly dependent on site-specific factors, such as the existing capacity of the sewer and lift stations and treatment plant, and the effluent standards that must be met by the facility. Due to these highly site-specific factors, little or no capital investment would be necessary in some communities to enable an existing facility to treat additional wastewater, while in others upgrading the existing facility would be more expensive than construction of a completely new facility. Where existing facilities are used to treat additional wastewater, additional operating and maintenance expenses would be incurred from the use of additional oxygen and treatment chemicals, disposal of additional sludge, possible permit modifications, and other costs that are primarily and secondarily related to the volume of wastewater treated.

Fringe Community Costs (1995 $)

The capital cost to expand the existing metropolitan centralized wastewater treatment system consisting of a grit chamber, comminutor, SBR, and chlorination/dechlorination unit to accomodate the flow from the fringe community is estimated to be $464,000. Annual O&M costs are estimated to be $61,000.

Rural Community Costs (1995$)

The capital cost to install a centralized wastewater treatment system consisting of a facultative oxidation pond and a chlorination/dechlorination unit to service the rural community is estimated to be $439,000, while annual O&M costs are estimated to be $14,000.

Cluster Systems

A cluster system treats wastewater from a localized group of homes and is often used in conjunction with an alternative collection system. Cluster systems may include a central leach field for subsurface discharge, or may discharge to surface waters. The cluster systems evaluated for the rural and fringe communities consists of onsite septic tanks, and central sand filters and leach fields. The main components of a central leach field are dosing siphons/tanks, pumps, adsorption trenches, and land. The main components of a sand filter are pumps, dosing tanks, and the filter.

Cost Data

Cost estimates were developed for a central leach field to serve a cluster of homes. The Fountain Run case study (Abney, 1976), which was used to develop alternative collection costs, also provides design information on leach field treatment. The case study provides capital cost data for a community divided into clusters ranging from 3 to 34 homes. The study includes unit cost data (1976) for leach field treatment, including construction of the adsorption trenches. More recent cost data were used for sand filter treatment for cluster systems (Otis, 1996) and for land. As with centralized treatment, the cost for land is based on the approximate average cost of $25,000 per acre for North Carolina (Hoover, 1996).

Operating and maintenance costs include pumpout of the individual septic tanks and replacement of distribution pump every 10 years, and quarterly inspections of the cluster systems. Cost data were obtained from the COSMO cost model (Renkow and Hoover, 1996) developed at North Carolina State University and are described in detail in the onsite system section, described later in this appendix.

System Design and Cost

The homes in the fringe and rural communities were divided into smaller groupings , or clusters, based on their proximity to each other. Homes located in areas with poorly drained soils or higher water table were also clustered together.

Design information on leach fields for cluster systems of 3 to 34 homes was obtained from the Fountain Run case study, and was combined with the average cost per acre of land to comprise the capital cost for the leach field system. The capital cost for sand filter treatment is based on wastewater flow, and is estimated to be $15 per gallon (Otis, 1996). Operating and maintenance costs were obtained from the COSMO cost model. Cost estimates for the installation of treatment systems in the fringe and rural areas are provided below.

Fringe Area

To correspond with alternative collection costs, the fringe community was broken into 20 clusters. In the fringe community, cluster systems were costed for sand filter treatment followed by a leach field. Table D-4 presents a summary of the capital cost for cluster systems in the fringe community.

Table D-4. Fringe Area Clusters

Number of Clusters	Number of Connections	Capital Cost per Connection
1	7	$6,598
6	10	$6,914
3	12	$6,529
10	34	$6,639
Total	383	$2,953,421

Capital Cost. The cost for the leach field treatment follows the methodology outlined in the alternative collection section. The sand filter treatment cost was estimated as $15 per gallon of wastewater treated. Using the basis of 175 gallons of wastewater produced per home, a sand filter treatment system is estimated to cost $2,625 per home. The capital cost for treatment in the fringe area is $2,953,421, as shown in Table D-4.

Operation and Maintenance Cost. The operation and maintenance (O&M) cost for the combined collection and treatment cluster was obtained from the COSMO cost model. Maintenance of the onsite systems, including yearly inspections and pumpouts every 10 years cost $32 per year. Quarterly inspections of the central leach field cost $100 per year; additional inspection time for the sand filter is expected to cost an additional $25 per year. Pump replacements are expected to occur three times over the life of the system and cost a total of $1,800.

Rural Community

To correspond with alternative collection costs, the failing systems in the rural community were broken into 4 clusters. Table D-5 presents a summary of the capital cost for each cluster.

Table D-5. Rural Area Clusters

Number of Clusters	Number of Connections	Capital Cost per Connection
2	10	$6,914
1	12	$6,529
1	35	$6,639
Total	67	$448,992

Capital Cost. The cost for the leach field treatment follows the methodology outlined in the alternative collection section. The sand filter treatment cost was estimated as $15 per gallon of wastewater treated. Using the basis of 175 gallons of wastewater produced per home, a sand filter treatment system is estimated to cost $2,625 per home. Sand filter costs are added to the costs for the 4 cluster systems (serving 67 homes) located in areas with poor soil conditions. The capital cost for cluster treatment in the rural community is $448,992, as shown in Table D-5.

Operation and Maintenance. The operation and maintenance (O&M) cost for the combined collection and treatment cluster was obtained from the COSMO cost model. Maintenance of the onsite systems, including yearly inspections and pumpouts every 10 years cost $32 per year. Quarterly inspections of the central leach field cost $100 per year; additional inspection time for the sand filter is expected to cost an additional $25 per year. Pump replacements are expected to occur three times over the life of the system and cost a total of $1,800.

Onsite Treatment

Onsite systems treat wastewater from individual homes, thereby eliminating the need for a centralized collection and treatment system. A conventional onsite system consists of a septic tank, gravity distribution leach field, and the soil beneath the leach field (Hoover and Renkow, 1997). Solids from the wastewater deposit in the septic tank where anaerobic decomposition occurs. The effluent is dispersed throughout the leach field where it infiltrates the soil. Additional treatment, such as aerobic decomposition, occurs in the soil.

Because of site-specific conditions, some onsite systems require additional treatment units or use different methods of distributing the wastewater to the leach field. Two system modifications evaluated for the hypothetical community were low pressure pipe (LPP) distribution and sand filter treatment. Systems that utilize LPP distribution include a pump, pump tank, floats and controls, and a pressure distribution system, including small diameter (1.25-inch) PVC lateral pipes with small perforations.

Cost Data

Onsite treatment costs were estimated using the COSMO cost model (Renkow and Hoover, 1996). Equipment and labor costs (1995 dollars) reflecting the Wisconsin area were obtained and entered into COSMO to develop cost estimates. However, it should be noted that onsite treatment costs vary by region and may in fact be more or less cost-effective depending on site-specific conditions and costs.

Onsite capital costs include upgrades (i.e., replacement systems) for failing systems in the rural and fringe communities, as well as new systems for the future development in the fringe community. Operating and maintenance costs include quarterly inspections of the onsite systems, including septic tanks, leach fields, and sand filters. O&M costs also include pumpouts of the septic tanks and replacement of the distribution pumps every 10 years. The establishment of one district to provide wastewater management to the fringe and rural communities assumes the district will take over maintenance of all existing and future onsite systems; therefore, the annual O&M cost estimates include costs for the existing onsite systems that are still functioning effectively.

System Design and Cost

Two onsite treatment systems were evaluated for the hypothetical community:

- Septic tank with low pressure pipe (LPP) distribution to a leach field
- Septic tank with sand filter treatment and LPP distribution to a leach field

LPP systems were chosen because they provide dosing and resting cycles in the leach field and distribute the wastewater more effectively throughout the system. LPP distribution is effective in areas with poor drainage, such as some of the homes in the hypothetical rural and fringe communities. Sand filters provide additional treatment to meet performance goals in systems located in ecologically sensitive areas and/or areas with high water tables, such as the homes located near the river in the rural community..

Rural Community

About half (67) of the 135 onsite systems currently in operation in the rural community are failing. Twenty of the 67 failing systems are located in an area near the river with a high water table. These systems need to achieve better quality discharge; therefore, the cost estimates include installing a new onsite systm equipped with a septic tank, a pressure-dosed single pass sand filter and a low pressure pipe distribution system to a leach field. Forty-seven of the 67 failing systems are located in areas with poor soils; the cost estimates include installing a new septic tank with a low pressure pipe distribution system to replace these systems. Capital costs for the rural area are estimated to be $510,000.

Annual O&M costs include maintenance of the 67 newly upgraded systems, as well as maintenance of the 68 current systems that still function effectively. These existing systems consist of a

septic tank and gravity distribution system to a leach field. Annual O&M for the rural area is estimated to be $13,400.

Fringe Community

About half (110) of the 220 onsite systems currently in operation in the rural community are failing. Thirty-three of these failing systems are located in an area near the river with a high water table. These systems need to achieve better quality discharge; therefore, the cost estimates include installing a new onsite system equipped with a septic tank, a pressure-dosed single pass sand filter and a low pressure pipe distribution system to a leach field. Seventy-seven of these failing systems are located in areas with poor soils; the cost estimates include installing a new septic tank with a low pressure pipe distribution system to replace these systems. The cost estimates for onsite treatment in new fringe community homes also include installing new septic tanks with low pressure pipe distribution to a leach field for all future homes (223 systems). Capital costs for the fringe community is estimated to be $2,117,095; O&M costs are estimated to be $59,240.

Appendix E

Case Studies

(Excerpted from "Managing Wastewater: Prospects in Massachusetts for a Decentralized Approach")

Nova Scotia, Canada

The noncontiguous district

A law passed in 1982 allows Nova Scotia towns and municipalities to create Wastewater Management Districts. The idea is to provide uniform "flush and forget" services to building owners, regardless of the mix of technologies and regardless of who owns the systems. All property owners in the district are obliged to participate in the funding, paying an annual charge that covers capital recovery as well as operation and maintenance costs. Boundaries of the district need not coincide with the existing town boundaries, and would typically be smaller.

In fact, the district may be "noncontiguous," consisting of individual properties or groups of properties that require special consideration for environmental or historical reasons. The administrative institution is either a sewer or public works committee of the municipal council. It is vested with all the necessary authorities and duties. It can own or lease land, make contracts, and fix and collect charges. It is held responsible for overall planning; upgrades; and design, construction, inspection, operation and maintenance of all types of systems. Finally, it can enter private property to inspect, repair, or replace malfunctioning systems.

In Port Maitland (population 360), a preliminary study estimated a per household cost of $6000 to $10,000 to install a conventional plant. The town opted instead for a mix of individual onsite systems and four cluster systems fed by gravity sewers to central septic tanks, siphon chambers, and contour subsoil trenches. Installation costs were approximately $2400 per unit. Maintenance, repair, and pumping are provided by private contractors with the District. Annual fees per household were $65 in 1994. Recent studies have shown that despite seasonally high groundwater, the systems are functioning well.

Guysborough, with a similar population, adopted a plan that includes a small conventional treatment plant for part of the town, an aerated lagoon for another part, and individual onsite systems for a third part. All owners were assessed $2100 initially, and were charged annual fees of $125 in 1994.

Voter approval of those in the district is required; it must be presented to them as a complete plan that has considered sites, boundaries, servicing options, preliminary designs, and cost estimates. However, districts have often been voted down. Only three Nova Scotia towns had adopted such districts by the spring of 1994. Of sixteen others that considered it, decentralized management was actually recommended in fourteen cases. But six had

chosen to centralize, and five were still in nebulous discussion. Five others were actively considering OWMD programs. Equity of either service or cost has been an issue in towns considering a mixed approach. Furthermore, central sewering is often regarded by the public as more desirable and less interfering. Aside from questions of equity, voters have not always perceived that a problem existed, or that a Wastewater Management District was the entity to fix it.

Sources

Jordan D. Mooers and Donald H. Waller, 1994, **Wastewater management districts: the Nova Scotia experience.** In: E.C. Jowett, 1994, (see references). • Nova Scotia Dept of Municipal Affairs, 1983, ***Wastewater management districts: an alternative for sewage disposal in small communities.*** (No further information available.) • David A. Pask, 1995, ***Personal communication.*** Technical Services Coordinator, National Drinking Water Clearinghouse, West Virginia Univ, Box 6064, Morgantown, WV 26506. • Andrew Paton, 1995, ***Review merits of Wastewater Management Districts.*** (Municipal infrastructure action plan, Activity #15.) Community Planning Division, Provincial Planning Section, P.O. Box 216, Halifax, NS B3J 2M4.

Cass County, Minnesota

Rural electric cooperatives manage service districts

Cass County is typical of the counties in the "Northern Lake Ecoregion" which have evolved from an economy based on agriculture and timber to an economy where the lakes and associated tourism have become very important. Because much of the development and growth around the lake regions took place in earlier years, there wasn't great attention paid to lot sizes, soil types, or to consideration of water quality. Cass County is now faced with a growing number of nonconforming onsite septic systems around many of its rural lakes. Furthermore, the state Shorelands Management Act, and Minnesota Pollution Control Agency (MPCA) regulations, are setting tighter regulatory wastewater standards which Cass County is obliged to enforce. And many residents are in the unfortunate position of being unable to sell their homes due to the fact that they can not provide a "conforming" septic system on their property. Cass County has been pressed to look for answers.

In 1994, the county developed the concept of the "Environmental Subordinate Service District," whereby a township, as the local unit of government, can effectively provide, finance, and administrate governmental services for subsets of its residents. Establishment of such districts within a town is now authorized under Minnesota Statute 365A. So far, one district has been formed; five are in planning stages. The purpose of these districts is to provide a self-sufficient, effective, and consistent long-term management tool, chiefly for neighborhood alternative (STEP) collection and communal leach fields. This model is innovative, because it stays at the grass roots level where the affected property owners and the township remain involved. Cass County provides technical and support assistance when required, but is not directly involved on a daily basis. The partnering with the townships and the county has allowed resource sharing, improved communication, and thus has opened up prospects for other cooperative ventures such as land-use planning, road improvements, and geographic information systems.

Once a Subordinate Service District is created by petition and vote from the residents needing the specific service, a County/Township agreement is signed. The County then determines the system's design, handles construction oversight, gives final approval for the collection system, commits to yearly inspections, and assures regulatory compliance. The leach fields are located away from lakes, wells, and groundwater supplies. Cass County will allow systems to lie on county-administered land in order to defray residents' costs, or to enable optimal siting.

The township is the legal entity that secures management services needed for the district to function. Other key players are the MPCA's Brainerd Regional Office, providing regulatory and technical assistance, the Association of Cass County Lakes for lake and water quality monitoring and educational support, the Minnesota Association of Townships for their legal counsel, the Mutual Service Insurance Agency for insuring the townships and the district wastewater collection systems, the Tri-County Leech Lake Watershed (district) for their engineering funding, and the Woodland Bank of Remer for working with the township to obtain low interest financing for residents.

However, **another key and major** player is the Rural Utilities Services (formerly the Rural Electrification Association). The piece of the puzzle missing for the districts to actually work was an operations, maintenance, and management program. Therefore, Cass County sought out the local utility, Crow Wing Power and Light (Brainerd, MN), and asked them to consider helping. Crow Wing Power and Light now provides the following services as utility managers: (1) security monitoring; (2) monthly inspections (they also maintain the grounds); (3) through a subcontractor, pumping of individual septic tanks, and any other repair or maintenance required; and (4) record keeping—logs are kept of inspections and repairs/maintenance. Bills are sent to the residents involved every six months, totalling about $200 per year per household.

A management maintenance contract is negotiated for the utility's services, thus reducing the need for additional staffing by the town itself. The township remains the legal entity guaranteeing any unpaid charges through its power to levy special district taxes.

Source

This (extracted) text has been supplied by Bridget I. Chard, Resource Consultant, Red River Ox Cart Trail, Rte 1, Box 1187, Pillager, MN 56734; tel. 218-825-0528.

Stinson Beach, California

Another classic, enforceable by shutting off town water

Stinson Beach is a small town in Marin County, located about 20 miles north of San Francisco. Part of the beach is a park that can draw 10,000 visitors on a weekend. The town *generally* answers to Marin County government. At present there are about 700 onsite systems in Stinson Beach. It is another early participant in the onsite management concept.

In 1961 a county survey concluded that surface and groundwaters were being polluted by many of the town's often antiquated onsite systems. In response, the county created the Stinson Beach County Water District, whose task would be solve the problem. The water district is governed by a five-member, elected Board of Directors who make policy and perform water quality planning. Between 1961 and 1973, nine separate studies and proposals for central treatment were rejected by voters. In 1973 the San Francisco Regional Water Quality Control Board (SFRWQCB) intervened, putting Stinson Beach on notice. All onsite systems would be eliminated by 1977, and a building moratorium would go into effect forthwith. Even so, a *tenth* central sewer proposal was rejected. Voters were not only alarmed by costs, but were unconvinced that alternatives had been sufficiently considered. An eleventh study, specifically undertaken to examine alternatives, concluded that onsite remediation was both the most cost effective and environmentally benign.

Concurrence was sought from both the regional board and the state legislature, which enacted special legislation (consistent with California Water Code provisions) in 1978 empowering the Stinson Beach County Water District to establish the Stinson Beach Onsite Wastewater Management Program. The program would answer directly to the SFRWQCB, rather than to Marin County. The program would govern the permitting, construction, inspection, repair, and maintenance of old and, later, new systems. Rules and regulations were approved by the regional board on a trial basis, and were later made permanent. The program went into effect with the passage of a series of town ordinances. Rules and regulations (and ordinances) have evolved as problems were encountered, there being few precedents to go on.

Ownership of the systems, and ultimately the responsibility for repairing or upgrading them, rest with the building owner. But program staff perform inspections out of which come permits to operate, or instead a citation that lists violations and provides a timetable for remediation. (Initially a house-to-house survey was used to identify the most critical failures or substandard sys-

tems from which came *interim* permits to operate.) As in the case of Georgetown, the permit to operate is conditional on authorizing the district to enter property for purposes of inspection and, if need be, repair. Conventional systems are inspected every two years, alternative systems (now stipulated for some areas) every quarter. The permit may carry conditions, or varying periods of validity. The regulations provide penalties for noncompliance of up to a $500 fine or 60 days imprisonment, each day considered another count. The district also has the power to effect its own repairs and put a lien on the property until repaid. And it has access to low-interest state loan funds for low-income households. However, *it has rarely had to take strong measures because the district is also empowered to cut off the water supply of a noncomplier,* something it has had to do occasionally. During the initial period, about half the existing systems were found to require repair or replacement.

Five staffers approve plans, and inspect and handle compliance. The budget is met partly out of tax revenues and partly by a $53 per household semiannual fee. Special inspections or inspections for compliance are also charged for.

Problems encountered at Stinson Beach mostly had to do with delays as bugs were worked out and sudden demands were put on staff as well as private engineers and installers. One completely unanticipated problem: Access ports, required of system owners, were leading to a serious mosquito problem; redesign of the ports resulted. Then, in 1992, the RWQCB imposed a moratorium on new systems pending reevaluation of the program, revised (and tighter) technical, approval and tracking procedures, and the development of a more adequate staffing and fee structure. New ordinances were passed in 1994, and the program is back on track. Not without some growth pains, this 17-year old program is regarded as both successful and adaptable to other locales.

Sources

Mark S. Richardson, 1989; (see references). • Stinson Beach County Water District, 19??. ***Wastewater management program rules and regulations;*** and ***[Revisions of 1994]*** (SBCWD Ordinance 1994-01); SBCWD, Box 245, Stinson Beach, CA 94970. • SBCWD, 1982. ***Report on the Stinson Beach Onsite Wastewater Management District for the period January 17, 1978 through December 31, 1981.*** SBCWD (see address above). • SBCWD, 1991. ***Fifteenth annual report of the Onsite Wastewater Management Program.*** (January 1, 1992 - December 31, 1992; including data summary of Jan 1, 1986 - Dec 31, 1991.) SBCWD (see address above). • Bonnie M. Jones, 1995, ***Personal communication.*** SBCWD (see address above).

Keuka Lake, New York

A home-rule intermunicipal agreement, eight towns strong

Lake Keuka lies in upper New York State's "Finger Lakes Region." The Keuka watershed supplies water for over 20,000 people; over 10,000 live on the lake's shores, which border 8 municipalities and two counties. Overall, water quality in the lake is good, but occasionally elevated levels of sediment, nutrients, and pathogens have been recorded. Pollution, and its potential impact on health, recreation, property values and the associated tourism industry, led local townspeople to identify watershed management as their leading concern.

This concern was uncovered by a civic group, the Keuka Lake Association; more than 30 years old, it ultimately comprised 1700 members and was able, via its nonprofit Foundation, to acquire $180,000 in grants and other revenues for study and planning purposes. It went on, in 1991, to establish the Keuka Lake Watershed Project, whose more specific purpose was to promote uniform, coordinated, cooperative watershed management for the region. There were three prongs to its effort: (1) establish details of the current situation; (2) educate the public to the need for action; and (3) foster inter-institutional cooperation.

With regard to the latter, it encouraged the formation of individual Town Watershed Advisory Committees that would provide local participatory forums to address water issues, and at the same time report to the Project's director. An early suggestion of the individual committees was to form a single, oversight committee, consisting of elected officials from the eight municipalities around the lake. This committee came to be called the Keuka Watershed Improvement Cooperative (KWIC). Initially it had no official status.

The stated purpose of the Cooperative was to develop a model watershed law, and then identify who should administer it. In developing the law it specifically excluded facilities of such a size that they were already regulated by the state. When it came to administration, they examined and rejected forming a regulatory commission through the state's enabling procedures, and they examined and rejected county-based ("county-small") watershed districts. Instead, they opted for drawing up an intermunicipal agreement under the state's Home Rule provisions which allow the municipalities to do anything together (by agreement) that they could have done separately. The agreement, itself, was only 8 pages long. It legally formalized the cooperative, providing for a board of directors consisting of the Chief Executive Officer of each municipality, and for a professional watershed management staff. Voters were presented with a package consisting of the agreement, the proposed

watershed protection law, and recommended policy and procedures, including those for dispute resolution. After dozens of public meetings the package won by a landslide in every municipality.

Regulations govern permitting, design standards, inspection and enforcement. A program for all sites in "Zone One," the land within 200 feet of lake, calls for their inspection at least once every five years. Failures are cited and required upgrades stipulated. Aerobic and other alternative systems must be inspected annually, at which time the owner must show evidence of an extant maintenance contract. Specifications for the design, construction, and siting of replacement systems are also tighter than the state's, and approval may require the use of advanced or "Best Available Technology." Enforcement provisions define violations, and specify timetables for compliance and fines. The individual municipalities issue notices of violations and citations to appear in town or village court.

The Cooperative coordinates its activities with state and county health agencies, maintains a database and GIS system to track environmental variables and the performance of new technologies, continues with ongoing studies, and retains a Technical Review Committee to help with policy and regulatory modifications. Staff include a full time watershed manager, employed by KWIC, and part time inspectors, employed by the towns.

KWIC is financed by septic system permit fees, grants as available, and funds from each member municipality's annual budget. The annual KWIC budget forecasts permit fees, considers grant funds immediately available, and distributes the balance of funds needed evenly among the towns and villages.

Sources

Peter Landre, 1995. **The creation of Keuka Lake's Cooperative Watershed Program.** *Clearwaters*, summer 1995, 28-30. • James C. Smith, 1995. **Protecting and Improving the waters of Keuka Lake.** *Clearwaters*, summer, 1995, 32-33. • Text is also partially based on a one-page description of KWIC provided by James Smith. • (Peter Landre can be reached through Cornell Cooperative Extension, 315-536-5123; James C. Smith, Keuka Lake Watershed Manager, can be reached at 315-536-4347.)

Gloucester, Massachusetts

Exploring new approaches for Massachusetts' cities

Gloucester is a fishing port (population, 30,000) on the rocky coast of Cape Ann, about 40 miles north of Boston. While 40% of the city is sewered, the particularly troublesome area of North Gloucester is not. Failed septic systems have resulted in the closing of shellfish beds, and since 1979 the city has been under a consent decree to comply by 1999 with state clean water standards. Numerous environmental problems were initially taken to imply that North Gloucester should be required to hook into the city sewer. These included shallow soil depth, a high groundwater table, wetland areas, and numerous private wells.

The hookup was partially underway when the EPA Construction Grants program was terminated in 1985, leaving Gloucester still with a problem, and still under a consent decree. Aware that centralized hookups would now become extremely expensive to homeowners, and also aware that the central sewer provided only primary treatment (albeit waivered for the time being), the city began an examination of the many ramifications of decentralized management, and many discussions with the state's Department of Environmental Protection.

In ongoing negotiations for its consent decree, Gloucester is pioneering a new approach to wastewater management in Massachusetts. It is in the process of developing a citywide wastewater plan that avoids construction of additional conventional sewer lines by proposing STEP sewers and/or ensuring that all onsite systems are properly built and maintained. Small community systems and package plants would be administered by the city's Department of Public Works, although their ownership is still under discussion.

Individual systems would still be administered by the Board of Health, albeit in a framework tougher than the state's recently revised (Title 5) regulations. As it presently stands, key provisions relating to individual systems include the following: An initial inspection and pumping will be conducted by either Board of Health personnel or privately-licensed inspectors at the homeowner's option. Inspection will result in either an Operating Permit or an Order to Comply that stipulates upgrade or replacement requirements and a time frame for compliance. Regular inspections will follow, ranging from annual (for food industries) to every seven years (for residences). A BOH computer system now in development will record data from these inspections as well as from septage haulers. There are emergency repair provisions and financial relief (loan) provisions for qualifying homeowners to be funded through a

Betterment Bill bond issue. The system is to be financed by license fees from professionals and by inspection fees from homeowners. Contractors and haulers will be licensed annually by the city, which will also conduct training programs. Enforcement will rely on the ultimate power of the BOH to make repairs itself and then invoice, with collection falling to the city and courts.

In areas unsuited for conventional systems, alternative technologies permitted by the DEP will be stipulated. For those, technical advice can be obtained from the DPW as well as the BOH. Such systems must be accompanied by three-year maintenance contracts with either the DPW or a licensed manufacturer/installer. In North Gloucester a National Onsite Demonstration Project is underway to test innovative systems yet to receive general state approval. Not all details of Gloucester's plans are settled, and final approval has yet to be obtained from the DEP, which, however, is being consulted as the plan is developed.

Sources

City of Gloucester wastewater management plan, revision of 1-10-95; Gloucester, MA • David Venhuizen, Ward Engineering Associates, 1992, ***Equivalent environmental protection analysis;*** an evaluation of the relative protection provided by alternatives to Title 5 systems, in support of the City of Gloucester wastewater management plan. • Ellen Katz (City Engineer), Dan Ottenheimer (City Health Agent), 1995, ***Personal communication,*** City Hall, Dale Ave., Gloucester, MA 01930.

Appendix F

The Role of Rural Electric Cooperatives in Upgrading Facilities

THE ROLE OF RURAL ELECTRIC COOPERATIVES IN UPGRADING FACILITIES

BACKGROUND

Rural electric cooperatives are private entities that build and manage extensive rural utility systems. These cooperatives have the capability to address a full range of technical, financial, administrative, and regulatory issues related to the supply and management of electrical power. A report titled, "COMMUNITY INVOLVEMENT - Opportunities in Water-Wastewater Services, The Final Report of the NRECA/CFC Joint Member Task Force on Rural Water and Wastewater Infrastructure, February 1995" (CI Report), produced jointly by the National Rural Electric Cooperative Association and the National Rural Utilities Cooperative Finance Corporation, sets forth a "blueprint for rural electric cooperatives which decide to enter the water-wastewater business voluntarily." In the Fiscal Year 1997 House Appropriations Committee report, the Committee acknowledged the significant interest of the cooperatives "to expand their current role of delivering electricity to the delivery to rural communities of clean water and safe drinking water improvement technologies as well." The Committee "is uncertain whether expansion into this new field is an appropriate means of upgrading rural drinking and wastewater facilities to meet federal requirements." EPA was asked to review this matter and report on its findings prior to the Committee's fiscal year 1998 budget hearings for EPA. This response examines whether cooperatives are an appropriate vehicle to manage, operate, maintain and upgrade drinking water and wastewater systems. It is included as an appendix to an overall response to Congress on decentralized wastewater treatment systems.

There are approximately 900 rural electric cooperatives in the United States. An estimated 80 to 90 of these cooperatives are involved in some aspect of drinking water or wastewater management with the overwhelming majority dealing with drinking water management. Only a few of the cooperatives own wastewater treatment facilities or are currently involved in wastewater management.

KEY ISSUES

To determine whether cooperatives are appropriate management entities for managing drinking water and wastewater systems, there are several key issues to consider:

1. Authority for ownership/management,
2. Managerial and technical ability,
3. Ability to obtain capital, and
4. Ability to ensure continued management and operation and maintenance (O&M).

These issues are examined below for the purpose of determining whether cooperatives are appropriate for upgrading drinking water and wastewater facilities to meet federal requirements.

1. Authority for Ownership/Management. The CI Report notes that most states - all but 13 - have laws that authorize cooperatives to own and operate drinking water and wastewater facilities. The CI Report notes "...some cooperatives have used innovative methods to gain entry to the drinking water and wastewater business. Cooperatives. . . may be eligible through other methods of organization."

In addition to state and local authority, in the wastewater area, cooperatives must have each individual owners' agreement to upgrade and/or operate and maintain their onsite wastewater systems. This generally happens when a large percentage of homeowners have failing onsite systems and have a need for upgraded treatment which they cannot meet themselves, and for which local government is incapable or unwilling to meet. The owners retain the services of a cooperative which would seek the capital needed for the system upgrade. The cooperative would be charged with the responsibility for operation and maintenance of the system and charge a monthly utility rate for this service and the cost of needed upgrades.

In cases where centralized wastewater collection and treatment systems or water distribution systems already exist, but fail to meet the federal statutory or regulatory requirements, the same situation occurs. If the facilities are inadequate, the system owner must invest in improvements. An organization, such as a cooperative or other private entity, may take ownership of the system and provide operation and maintenance. Issues associated with privatization of wastewater are discussed in a companion document entitled, "Response to Congress on Privatization of Wastewater Facilities".

One area related to wastewater where cooperatives are having success is where state or local health officials have ruled that conventional onsite wastewater systems will not work due to soil conditions. In these cases, developers are usually not familiar with alternative systems and welcome cooperatives to take ownership and/or manage the new upgraded systems that they are required to install. There are two driving forces that are bringing this about: 1) the need for some form of wastewater treatment other than conventional septic systems, and 2) the revenue generated by each new homeowner (customer) for electric power (estimated at about $1,000 / yr / household).

A second area of success has been assistance and contract management to drinking water authorities, both public and private. The CI Report indicates that types of services currently provided include organizing, feasibility, bylaws, mapping, accounting and billing.

2. Managerial and Technical Ability. Cooperatives do not generally have the technical ability "in house" to conduct drinking water and wastewater feasibility studies and facility designs (with the exception of those which currently own or operate drinking water and/or wastewater facilities). However, they are well equipped with managerial capabilities and can

contract for these technical services. In addition, cooperative associations have contracted with several drinking water and wastewater research-oriented professionals who provide technical assistance, including demonstrations of technology, thus giving them access to technically competent people. At least one state cooperative association is already performing demonstrations of alternative technologies (in Pennsylvania, five onsite system projects will be demonstrated).

Rural electric cooperatives have historically dealt with issues relating to the use of electricity to enhance the lives of inhabitants of rural areas in the context of economic development. Conventional onsite systems (septic tank and leach field) typically do not involve the use of electricity, while centralized systems and alternative types of onsite systems generally rely upon electricity for pumping, power, lighting and other activities. Therefore, there could be a possible concern that rural electric cooperatives might be more comfortable with constructing or managing facilities which rely on electric power versus those that do not. This concern would need to be addressed if rural electric cooperatives are to play a more prominent role in the construction and/or management of decentralized treatment systems. It should be noted that the Federal Agriculture Improvement and Reform Act of 1996 (the Farm Bill) prohibits cooperatives from requiring those receiving drinking water and wastewater services to receive electric services.

3. Ability to Obtain Capital. In the CI Report (chapter 9), there is considerable discussion of the various possible funding scenarios. Federal funding, including loans, grants, and guarantee programs, for drinking water and wastewater programs is provided by the following federal departments and agencies:

- o USDA's Rural Utilities Service (RUS)
- o USDA's Rural Business and Cooperative Development Service (RBCDS)
- o USDA's Rural Housing and Community Development Service (RHCDS)
- o U.S. Department of Commerce's Economic Development Administration (EDA)
- o U.S. Department of Housing and Urban Development (HUD)
- o U.S. EPA

There are many opportunities for funding other than federal programs, including loans from local financial institutions. In addition, two other sources of funding are the National Rural Utilities Cooperative Finance Corporation (CFC), and National Bank for Cooperatives (CoBank). The cooperatives' managerial skills and equity provide support that other private or governmental organizations may not provide in rural areas. However, issues related to ownership and management of the facilities may limit where funds can be obtained. The CI Report provides six recommendations to Congress to strengthen the ability of cooperatives to obtain funding. These recommendations include: authorization for a re-lending program for system upgrades; funding for the Water-Wastewater Disposal Loan Guarantee program; removal

of the "no-credit-elsewhere" condition in the loan program; financing for feasibility studies; eligibility for cooperatives to receive funds under all federal programs; and support for rural electric infrastructure activities.

4. Ability to Ensure Continued Management and O&M. Chapter 8 of the CI Report provides a strong basis for the ways that cooperatives can assist in management and O&M. Cooperatives are more likely to provide better management and O&M than small public (town) or private entities (e.g. homeowners' associations) which cannot afford to staff up appropriately and typically run into political and financial conflicts. The ability to provide management, including O&M, could be the strongest and most valuable asset the cooperatives offer. The real problem in the wastewater area involves convincing the homeowners there is a need for management services, including O&M, of the onsite wastewater system starting from its initial installation.

CONCLUSIONS

In summary, drinking water and wastewater treatment facilities can be upgraded and managed by rural electric cooperatives, although 13 states would require enabling legislation for them to own and/or operate these facilities. Upgrades of drinking water and wastewater facilities by cooperatives could be a good solution in rural areas because cooperatives are non-political, known entities to the homeowners, that bring experienced management and staff to solve the O&M challenge, as well as options for obtaining capital. Also, the ability to provide management services, including O&M, can be the cooperatives' most valuable asset.

From the drinking water perspective, cooperatives offer great promise as management entities for small water systems which lack institutional strength. However, for many reasons, some stated above, it is unlikely that more cooperatives will make significant movements into the drinking water and wastewater business quickly. These reasons involve interest on the part of individual owners to pay for onsite system management, the technical ability of the cooperative to manage drinking water and wastewater facilities, limited experience with low energy onsite technologies, and the ability to obtain capital. Once these issues are resolved, the communities and cooperatives may be able to work together to efficiently provide the needed improvements and services.

2/12/2009

Lee County Local Planning Agency,

I urge you to reject the marina and all of Bonita Bay's requests that would double the density limits of the North River Village property. Bonita Bay can build responsibly and will enjoy great prosperity at the current density requirements. There is no need for the expansion of this project.

On Saturday 2/7/2009 I spent a few hours at Lee County Manatee Park collecting the signatures on the petitions attached.

As a concerned citizen of eastern Lee Co., I collected 292 signatures in 6 hours from people who are opposed to the North River Village and Leeway marina developments that would add nearly 700 boat slips upriver on the Caloosahatchee. Only 2 boaters didn't want to sign the petition because they felt this infringed on boater's rights. 292 to 2. This was done by one person in 1 day.

The wintering of about 1/3 of the remaining endangered Florida manatee population in our river is a treasure and in itself creates tourism revenues for our area. We are the stewards of the river system and this marina expansion will guarantee an increase in Lee County manatee casualties.

Sincerely,

Patrick K. Hosey

335 Shore Drive

Fort Myers, Fl 33905

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please **STOP** both of these projects!!!

	Signature	Print Name	Phone #	Date
1		Angie Lorenzo	(239)645-9889	2-3-09
2		Patrick Hosey	239 826 8107	2/3/09
3		Ashley Acosta	239 297-7962	2/3/09
4		Susan Tuttle	239-693-7863	2/7/09
5		Linda Bloom	941-627-8878	2/7/09
6	Nickie Weidner	NICKIE WEIDNER	750-5141	2-7-09
7	Tom Bloom	Tom Bloom	941-6278878	2-7-09
8		DENNIS WEIDNER	574-276-1573	2-7-09
9		Stanley Richards	2677532129	2-7-09
10		Sharon Bass	712-527-0268	2-7-09
11		R. Lloyd Bass	712-527-0268	2-7-09
12		T.J. McEwan	727 819 2686	2-7-09
14		DS(D.G. McEwan)	727-819-2686	2-7-09
15		STEVE MOORE	613-659-4767	FEB-07-2009
16		JoAnne Ceci	989-859-4638	2/7/09
17		David Willett	989-859-8689	2/7/09
18		JOAN McVady	239-9491	2-7-09
19		JAMES McVADY	239-9491	2/7/09
20		Steven Ludewig	595-4969	2/7/09

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please **STOP** both of these projects!!!

	Signature	Print Name	Phone #	Date
1	[illegible]	Ceryl Clark	239-985-9030	2/7/09
2	Debbie Martin	Debbie Martin	239-592-6058	2/7/09
3	Jayme Martin	Jayme Martin	239-431-6034	2/7/09
4	Pat Watts	Pat Watts	319-399-9547	2/7/09
5	Betty N. Johnson	Betty N. Johnson	239-267-5078	2/7/09
6	Jane Stebbins	Jane F. Stebbins	239-482-7242	2/7/09
7	Ronald Lake	Ronald Lake	815-478-5334	2/7/09
8	Alfred G. Mueller	Alfred G. Mueller	401-624-3016	2/7/09
9	Betsy Miller	BETSY Miller	239-243-8824	2/7/09
10	[illegible]	Steven Miller	239-243-8824	2/7/09
11	Linda Beck	LINDA BECK	~~23~~ 847-658-0638	2/7/09
12	Don J. Young	DON J. YOUNG-MD	419-609-2900	2/7/09
14	Karen Magley	Karen Magley	239-765-0858	2/7/09
15	Jean [illegible]	AKSENTUFF	418-534-2906	2-7-09
16	Jeanette Kloeckin	Jeanette Kloeckin	347 231 1712	2/7/09
17	Joan Daley	JOAN DALEY	239-765-5639	2/7/09
18	Lorraine Oliphant	LORRAINE OLIPHANT	781-858-0974	2/7/09
19	Beverly A. Stairs	Beverly A. Stairs	239-390-8894	2/7/09
20	Gloria Waterson	GLORIA WATERSON	239-947-3068	2/7/09

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please STOP both of these projects!!!

	Signature	Print Name	Phone #	Date
1	[signature]	G.J. Vandergrift	330-856-2754	2/7/09
2	[signature]	B. VANDERGRIFT	330 856 2754	2-7-09
3	[signature]	SHARON ANN PAGE	941-639-2222	2-7-09
4	[signature]	Robert E Brubaker	330 676 9800	2-7-9
5	[signature]	C. HACKBRUSH	815-577-0316	2-7-09
6	[signature]	Kenneth Anderson	207 929 6190	2-17-09
7	[signature]	Francis P. Hyland	(239) 590-0410	2/07-09
8	[signature]	Kristin Jellema	239-333-6940	2/7/09
9	[signature]	TERRY McVANNEL ERWIN	239-242-6545	2/7/09
10	[signature]	MARTHA ERWIN McVANNEL	239-242-6545	2/7/09
11	[signature]	James Fletcher	870 897 6116	2/7/09
12	[signature]	Ashley Fletcher	870 930 1005	2-7-09
14	[signature]	Dana Vitto	586-382-1227	2-7-09
15	[signature]	Lorrie HEIDE	815-273-1003	2-7-09
16	[signature]	Jana Campbell	815 259 2512	2-7-09
17	[signature]	DUSTIN DRAHMER	815 718 2785	2-7-09
18	[signature]	Peggie Kuhl	419-345-9891	2-7-09
19	[signature]	Carol May	239-948-4106	2/7/09
20	[signature]	Helmut May	239-948-4126	2/7/09

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please STOP both of these projects!!!

	Signature	Print Name	Phone #	Date
1		Charles S. Hee	612 578 6613	2/7/09
2		Roger A. Johnson	239-467-2862	2/7/09
3		Mark Stappenbelt	239-549-1286	2/7/09
4		Rich Caruso	207.646-8911	2/7/09
5		Elizabeth Rogers	239.549.6157	2/7/09
6		JOHN ROGERS	239-549-6157	2/7/09
7		LARRY JOHNSON	612-702-8016	2-7-09
8		PHYLLIS JOHNSON	239-353-3596	2-7-09
9		Jane R. Gates	941-423-7757	2-7-09
10		Henry R. Gates	" " "	"
11		TROY S. FLICK	317-856-0659	2-7-09
12		John Hall	734-878-3872	2/7/09
14		Larry Hall	734-878-3872	2-7-09
15		Kathy Soulek	262-652-7855	2/7/09
16		JAN Soulek	262-652-7855	2-7-09
17		Ann Haase	219-865-2858	2-7-09
18		Patricia Haase	219-865-2858	2-7-09
19		John Rafalcz	239-267-4641	2-7-09
20		Jan Rafalcz	239-267-4644	2-7-09

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please STOP both of these projects!!!

	Signature	Print Name	Phone #	Date
1	Sheri Raybuck	Sheri Raybuck	561-2589	2/7/09
2	Anita Stone	Anita Stone	561-0160	2/7/09
3	Joyce Gordon	Joyce Gordon	415-1595	2/7/09
4	[illegible]	Kelly [illegible]	541-9744	2/7/09
5	Myron Lightner	MYRON LIGHTNER		2/7/09
6	[illegible] Lightner	[illegible] LIGHTNER		2/7/09
7	Karen Cumberledge	Karen Cumberledge		2/7/09
8	Ruth Lubbers	Ruth Lubbers	(614)889-9337	2-7-09
9	Carolyn Dumont	Carolyn Dumont	248-376-8941	2-7-09
10	James Dumont	JAMES DUMONT	248-376-8941	2-7-09
11	Terry Martin	TERRY MARTIN	941 870-3696	2-7-09
12	Jean Goddard	JEAN Goddard		
14	Sara R. Jones	SARA R. JONES	901-757-5269	"
15	O. Paul Brewington	O Paul BREWINGTON Sr		2-7-09
16	Joe Roesch	Joseph S. Roesch	941 429 2651	2-7-09
17	Debbie Roesch	Debbie Roesch	1-941-429-2651	2-7-09
18	Paul Gordon	PAUL GORDON	239-415-1575	2-7-09
19	Charles Hutchins	Charles Hutchins	517-353-7134	2-7-09
20	Roger Hutchins	Roger Hutchins		2-7-09

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please STOP both of these projects!!!

	Signature	Print Name	Phone #	Date
1	Cindy Lake	CINDY LAKE	315-479-5334	2-7-09
2	Roger & Cook	ROGER COOK	440 967 5588	2-7-09
3	Josie Cook	JOSIE COOK	446-967-5588	2-7-09
4	[illegible]	[illegible]	847 358 0338	2-7-09
5	Karen Young	Karen Young	(419) 609-2900	2-7-09
6	Philip Wagley	Philip L. Wagley	703 450-8488	2-7-2009
7	Karen Demmin	Karen Demmin's	207 867 2265	
8	Jonathan Grant	Jonathan Grant	Same -	
9	Kim Hopkins	Kim Hopkins		2/7/09
10	Helen Klapchin	HELEN KLAPCHIN	239-369-5357	2/7/09
11	Steven Meyer	Steven Meyer	608 632-0354	2/7/09
12	Jane Meyer	Jane Meyer	608 6320354	2/7/09
14	Robert Olphant	Robert Olphant	781-438-5998	2-7-09
15	Russell Daley	Russell Daley	978-657-7096	2/7/09
16	Roger Larson	ROGER LARSON	651-426-0291	2/7/09
17	Lori Larson	Lori Larson	651-426-0291	2/7/09
18	Mark Hanson	Mark Hanson	239 851 7164	2/7/09
19	Shawn Lombardi	Shawn Lombardi	239-574-9147	2-7-09
20	Lorraine Tavino	Lorraine Tavino	239-362-1156	2-7-09

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please **STOP** both of these projects!!!

	Signature	Print Name	Phone #	Date
1	[illegible]	[illegible]	[illegible]	02-07-09
2	[illegible]	Mark Schultz	239-433-4761	02-07-09
3	Betty E. Hundseid	BETTY E. HUNDSEID	941-426 7074	02-07-09
4	[illegible]	GREGORY C KING	239-459-3823	02-07-09
5	Jack Belford	JACK BELFORD	239 567 3244	2/7/09
6	Dorothy Belford	DOROTHY BELFORD	239 567 3244	2/7/09
7	Paul Baumann	PAUL BAUMANN	239-489-4676	"
8	[illegible]	Irene Giniat	239-458-[illegible]	2/7/09
9	Joan G. Anderson	JOAN G. ANDERSON	708/707-1019	2/7/09
10	CHARLIE ORNER	Charlie Orner	610 845-2370	2/7/09
11	JUANITA BRUBAKER	Juanita Brubaker	330-676-9858	2/7/09
12	Judy Ackhurst	Judy Ackhurst	239-543-4545	2/7/09
14	George M. Morris	GEORGE M. MORRIS	1-269-649-	2119
15	[illegible]	DALE KUNTZ	414 916 3024	2/7/09
16	Nancy J. Anderson	Nancy Anderson	207-590-1805	2-7-09
17	[illegible]	Rachel Anthony	239-368-1430	2-7-09
18	[illegible]	[illegible]	863-993-1175	2/7/09
19	Ronald K. Bowman	RONALD BOWMAN	863-993-1175	2/7/09
20	C. Wagner	Cheryl Wagner	239-357-4567	2/7/09

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please STOP both of these projects!!!

	Signature	Print Name	Phone #	Date
1		Donna Hyland	239-590-0410	2-7-09
2		KAREN BRENNAN	724-459-8079	2-7-09
3		Arthur Brennan	724-459-8079	2-7-09
4		Crystal Schuth	239-673-7715	2-7-09
5		Ernest Schuth	239-333-5526	2-7-09
6		John Q Anderson	913-831-3404	2/7/09
7		Joan K Anderson	9138313404	2/7/09
8		Gary Heide	815 773-1003	2/7/09
9		JW KUHL	419 727 3660	2/7/09
10		Wilbur A. Chase	239-543-8872	2/7/09
11		Katharine S. Chase	239-543-8872	2/7/09
12		Nelson L. Anderson	630-323-8478	2/7/09
14		[illegible]	419-271-0066	2/7/09
15		[illegible]	419 626-0076	2/7/09
16		Charlotte Galinski	239-731-1994	2-7-09
17		Robert Row	239-[illegible]	2-7-09
18		JOHN HAVILAND	941-235-0711	2-7-09
19			5153939547	
20		Janet Schultz	314-782-4239	2-7-09

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please STOP both of these projects!!!

	Signature	Print Name	Phone #	Date
1	[illegible]	[illegible]	941-[illegible] 5686	
2	[illegible]	MaryAnn Thoresen	(306) 763-5073	[illegible] 09
3	[illegible]	[illegible] Williams	[illegible]-836-6927	[illegible]
4	J Mapley	[illegible]	313 478-3007	2/7/09
5	R. Mapley	[illegible]	" "	"
6	[illegible]	William R Williams	941-575-1581	2-7-09
7	[illegible]	Jean DeMair	239-949-1421	2-7-09
8	Dom DeMair	Dominic DeMair	239-949-1421	
9	Mary Garcia	Mary Garcia	239-464-6836	2-7-09
10	[illegible]	Ken Murphy	239 456.5756	
11	[illegible]	Dennis [illegible]	239-458-5756	
12	Emil J. Sporer	Emil J. Sporer	313-622-0103	
14	Susan Knight	Susan Knight		2-7-09
15	Bea Sporer	BEA SPORER		2-7-09
16	[illegible]	Virginia Gilson	941-624-6079	2-7-09
17	[illegible]	Merita Stapelfeldt		2-7-09
18	[illegible]	Stapelfeldt	590 1286	
19	[illegible]	Debra DeNeill	239 728 1868	2-7-09
20	[illegible]	Collins Geistner	303-585-4140	2-7-09

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please **STOP** both of these projects!!!

	Signature	Print Name	Phone #	Date
1	H J Howlett	H. J. HOWLETT	239-455-1006	2-7-09
2	Connie Bradshaw	Connie Bradshaw	676-9388	2/7/09
3	Thomas Bradshaw	THOMAS BRADSHAW	239 676 9388	2/7/09
4	Kathy Hinga	Kathy Hinga	941-628-8855	2/7/09
5	Elizabeth Dunshee	Elizabeth Dunshee		2-7-09
6	Heidi White	Heidi White		2-7-09
7	Kristi Lane	Kristi Lane	941 228 7801	2.7.09
8	Sue Webb	Sue Webb	651-213-1976	2-7-09
9	Jennifer Rosen	Jennifer Rosen	239-432-0210	2-7-09
10	June Bahn	JUNE BAHN	239 652 0037	2.7.09
11	William A. McGrath	William A. McGrath	603 733 6906	02/07/2009
12	Elizabeth Callagan	Elizabeth Callagan		2/07/09
14	Robt Pettington	Robt Pettington		2/7/09
15	Dorothy Conway	Dorothy Conway	239 992-1705	2/7/09
16		Charles T. Stark	239.567-0166	2-7-9
17	Mike Smith		902.543.1862	
18	Deana Braatz	Deana Braatz	239 292-8005	2-7-09
19	Gage Braatz	Gage Braatz	239-287-[illegible]	2-7-09
20	Mike DeMain		863 979-0277	

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please STOP both of these projects!!!

	Signature	Print Name	Phone #	Date
1	Sandra A Pelto	Sandra A Pelto	941-4265490	02-07-09
2	Paul E Cox	PAUL E COX	941-429-6355	2/7/09
3	Bonnie K Cox	Bonnie K Cox	941-429-6355	2/7/09
4	Norman Pelto	NORMAN PELTO	941-426-5490	2/7/09
5	John Buchanan	JOHN BUCHANAN	U.K	Feb 7th
6	Joyce Buchanan	JOYCE BUCHANAN	U K	Feb 7th
7	Lois Elaine Fluent	LOIS ELAINE FLUENT		Feb 7
8	Richard Houle	RICHARD HOULE	239-936-0215	2/7/09
9	Mary Barcelli	MARY BARCELLI	239 834-3936	2/9/09
10	Roger Gray	ROGER GRAY	(309) 361-7151	2/7/09
11	Janet Driver	Janet Driver	239 283-7153	2/7/09
12	Linda Phares	LINDA PHARES	419.551.2061	2.7.09
14	Kristine C Fink	Kristine C Fink	419 894-6551	2-7-09
15	Ruby Powers	Ruby Powers	CT	2-7-09
16	Vivian Powers	Vivian Powers	CT	2-7-09
17	Osvaldo Rodriguez	Osvaldo Rodriguez	CT	2-7-09
18	R.t. Powell	R.t. Powell	(512) 312-0125	2-7-09
19	Jean Devenbery	Jean Devenbery	612-598-0438	2-7-09
20	[illegible]		239 455 1006	2-7-09

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please STOP both of these projects!!!

	Signature	Print Name	Phone #	Date
1	[illegible]	James S. Seiclin	603-756-1914	2/7/09
2	[illegible]	Janice Law	515-238-6748	2/7/09
3	[illegible]	[illegible]	360-490-3963	2/7/09
4	[illegible]	Christine Sea[illegible]		2/7/09
5	Frances Cenci	Frances Cenci	239-437-6484	2/7/09
6	Jean Willertz	Jean Willertz	989-687-6553	2\7\09
7	Alice Whitt	Alice Whitt	863-398-6452	2-7-09
8	[illegible]	Herb Whitt	" " " "	2-7-09
9	[illegible]	Beth Ludewig	595-4969	2-7-09
10	Jennifer Dumaresq	Jennifer Dumaresq	351 732-391-3908	2-7-09
11	[illegible]	Teresa McShane	860-536-4113	2-7-09
12	[illegible]	Joe Bowerman		2-7-09
14	Sue Spandet	Sue Spandet	239-495-2189	2-7-09
15	Terry Spandet	Terry Spandet	239-495-2189	2-7-09.
16	[illegible]	Ted Kaczorczyk	947-873-2398	2-7-09
17	[illegible]	Tim Lucten	441-851-3061	2-7-09
18	[illegible]	T. [illegible]	239 931 6983	2-7-09
19	Josh Shepard	Josh Shepard	605-963-7785	2-7-09
20	Cylinda Shepard	Cylinda Shepard	608-963-7563	2-7-09

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please STOP both of these projects!!!

	Signature	Print Name	Phone #	Date
1	[signature]	Priscilla McShane	502-931-6231	2-7-09
2	[signature]	Hugh C. McShane	502-758-4426	2/7/09
3	[signature]	Michael W Mitchell	931-967-2799	2/7/09
4	[signature]	Judith A Kasperczyk	847-872-2298	2/7/09
5	[signature]	ROBERT CURTIS	419-343-1774	2/7/09
6	[signature]	JACKIE BALTIMORE	941 474-7107	2-7-09
7	[signature]	Ray Baltimore	941-474-7107	2-7-09
8	[signature]	Teresa Guest	810-331-3374	2-7-09
9	[signature]	KEN GUEST	810 331-3174	2-7-09
10	[signature]	CAROLYN NUBER	239-513-1722	2-7-09
11	[signature]	William L NUBER	239 513.1722	2-7-09
12	[signature]	TOM FLUENT	2393136291	2-7-09
14	[signature]	Andrea Houle	239-936-0215	2-7-09
15	[signature]	CLAIRE Houle	505 565-3913	2-7-09
16	[signature]	Brenton Thompson	563-675-0094	2-7-09
17	[signature]	SABRA THOMPSON	563-675-0094	2-7-09
18	[signature]	Peggy L. Gray	309-995-3330	2-7-09
19	[signature]	NANCY L HALIK	941-575-6114	2-7-09
20	[signature]	Sean Driver	239-223-7153	2-7-09

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please **STOP** both of these projects!!!

	Signature	Print Name	Phone #	Date
1		Donald Powers	860-688 2942	2-7-09
2	Roy Newcomer	Roy Newcomer	715-691-0881	2-7-09
3		JOHN B. Powell	512-312-0125	02-07-09
4		Judith Dorfler	239-547-6017	02-07-09
5	SUSAN SPENCE	Susan Spence	954-232-1124	2-7-09
6		JOHN R SPENCE	440-266-0570	2/7/09
7		Maybeth Ford	239-220-6192	2/7/09
8		Terry Schwarze	941-538-4858	2-7-09
9		T. Knapp	995-1780	2-7-09
10		J. Rosen	432 0210	2/7/09
11	Nicole Rosen	Nicole Rosen	4320210	2-7-09
12	Pat Haines	PAT HAINES	239 997 7193	2-7-09
14	Elinor Gevirtzman	Elinor Gevirtzman	978-263-1005	2-7-09
15	~~Pauline McCarthy~~	~~Pauline McCarthy~~	~~603-733-6664~~	~~2-7-09~~
16		Doris Hough	804 863-5789	2-7-09
17		FRAN ZEBIG	870-257-5673	2-7-09
18		Ed Zebig	870-257-5673	2-7-09
19		Ilene Whittaker	904-223-0868	2-7-09
20		JAMES WHITTAKER	904-223-0868	2-7-09

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

SAVE THE MANATEES
Make a Difference

Governor Christ and
Lee County BOCC

We are opposed to the 2 proposed marinas on the Caloosahatchee River.

The Leeway and North River Village Marinas will add and additional 600 to 700 boats to the east Lee river system.

These projects will have a dramatically negative effect on an endangered Manatee population.

We support protective measures to safeguard our Manatees. Lee is consistently in the top 2 counties in the State of Florida in Manatee death and injury from boating accidents.

Please **STOP** both of these projects!!!

	Signature	Print Name	Phone #	Date
1		Danielle Cilona	239 207 6833	2-7-09
2		Kim Hess	941-624-5558	2/7/09
3		Ken Hess	941-624-5558	2/7/09
4		Lou Voltarel	239 765 7033	2-7-09
5		Faye Voltarel	239 765-7033	2/7/09
6		Bill Fine	illegible	illegible
7		Deb Doherty	231-565-8200	2/7/09
8		Tim Hall	239-220-9991	2/7/09
9		Robert Pawbaker	905-691-9234	2/7/09
10		Tina Pawbaker	905-691-9234	2/7/09
11		Vincent Iovino	631-457-3547	2/7/09
12		Christine Bartolillo	631-275-4039	2/7/09
14				
15				
16				
17				
18				
19				
20				

Please return originals to Patrick Hosey, 2366 E. Mall Drive, #316, Ft Myers, Florida or call Patrick @ 239-826-8107 for pick up or questions. *Thank you*

PLANNING DIVISION
M E M O R A N D U M

LEE COUNTY
SOUTHWEST FLORIDA

to: Local Planning Agency Members

from: Paul O'Connor, AICP, Director of Planning

subject: North River Village Goals, Objectives, and Policies

date: February 13, 2009

Attached is a copy of proposed Goals, Objectives, and Policies (GOPs) for CPA2006-12, the North River Village plan amendment. Should the LPA decide to recommend transmittal of the amendment by the Board of County Commissioners, staff believes these are the preferred GOPs to be transmitted. Also attached is the applicant's summary of these changes as the GOPs have been modified since the January 23rd staff report.

This proposed plan amendment and specifically these GOPs will be further discussed at your February public hearing. There has been no additional applicant submittals since the January 26th LPA public hearing. There have been ongoing discussions with the applicant's representatives since the LPA hearing.

It should be noted that planning staff is **not** recommending the transmittal of the proposed amendment, however, staff has worked closely with the applicant in the creation of this language and if the request is transmitted, staff recommends that the attached GOPs be the language transmitted.

The applicant's representatives have indicated that they are in agreement with this language, with one exception. Their exception concerns the last sentence of Policy 1.10.19, paragraph 3. The applicant objects to including specific language in the amendment concerning this specific flowway. This is not a new issue from a staff perspective. The original staff report, issued September 29th, 2008, contained the same staff recommendation.

Additionally, there is newly adopted statutory language that requires and establishes minimum mitigation for density increases in the Coastal High Hazard Area. This statutory change is being implemented into the Lee Plan by CPA 2007-59, which is scheduled for adoption by the Board on February 25th. The DCA has informed us that their interpretation of this statute requires that the specific form of mitigation be established through an agreement that must be executed at the time of the amendment's adoption. If this amendment proceeds to adoption, there will need to be an executed agreement that specifies hurricane evacuation and sheltering mitigation. Policy 1.10.7 simply proposes mitigation options, therefore, these options will need to be finalized in the required agreement.

NORTH RIVER VILLAGE LAND USE CATEGORY

Policy 1.1.10: North River Village, as described on Map XXX is intended to provide public benefits for the surrounding community by developing a mixed use community that incorporates green development techniques and provides public waterfront access and recreation opportunities. Waterfront access will be accomplished through expansion of existing and new marina and docking facilities. This category will foster community character, enhanced environmental design standards and sense of place through Smart Growth principles of compact and Low Impact Development and energy efficiency. A community built within this category must provide enhancements to transportation infrastructure and opportunities for improvement to water quality through provision of the necessary infrastructure of central sewer and water system. These priorities will be achieved by promoting compact mixed use development as an alternative to low density single use development.

The minimum number of units allowable in the North River Village land use category is 2,000 and the maximum number of units allowable is 2,500. The Floor Area Ratio for commercial uses will be a maximum of 1.0 over the entire designated commercial development area. The North River Village development will be limited to a maximum of 150,000 square feet of commercial development, not including marina, recreational and community facilities.

North River Village will promote a balanced mixture of uses, in an effort to increase the internal capture of trips, by incorporating commercial, residential and recreational uses with pedestrian, bicycle and transit friendly streetscapes.

The applicant for development in North River Village must enter into a development agreement that assures appropriate traffic mitigation is provided. No zoning or local Development Order approvals for more than 1001 units for the North River Village property will be granted until the development agreement has been executed. The development agreement will include language providing that the agreement will not be implemented unless and until the North River Village rezoning is approved. The following road improvements will be provided unless otherwise determined in the adopted developer's agreement. The development agreement will address the payment of the funds necessary to program the construction of four lanes on SR 31 from the project entrance to the intersection of SR 78, as specified in Policy 36.1.1, and any related right-of-way acquisition (including costs of condemnation if necessary). The development agreement must also address the payment of the funds necessary to make the intersection improvements listed below in Policy 36.1.1 at the SR 80/SR 31 intersection and the SR 80/Buckingham Road intersection plus any additional right-of-way needed to construct these intersection improvements (including costs of condemnation if necessary). The cost of these improvements (all phases) will not be eligible for road impact fee credits. Lee County agrees that, once this development agreement is executed, the County will consider the four-laning of this section of SR 31 and the identified SR 80 intersection improvements financially-feasible improvements and part of Map 3A.

Objective 1.10: North River Village will provide innovative waterfront development designed to protect environmentally sensitive areas, promote water conservation and energy efficient methods of development, provide for the efficient delivery of public facilities and services, enhance the

existing riverfront community character, and allow for the efficient use of land. North River Village will incorporate smart growth principles to direct the form and design of development to achieve environmental, planning and community character objectives. These objectives will be achieved by promoting compact mixed use development as an alternative to low density single use development, and will require the inclusion of infrastructure and enhanced environmental design standards.

Policy 1.10.1: Development in North River Village must incorporate a mix of uses, such as residential, commercial, water related and recreational uses. Residential development in North River Village must be clustered to avoid areas of environmental sensitivity as reflected on the Conservation lands, Buffers and Special Treatment Areas Map, and must promote both connectivity between uses and walkability throughout the development. Commercial uses must be designed with direct internal connectivity as well as public access. Commercial uses must also be designed to a "Human-Scale", as defined in the Lee Plan.

Policy 1.10.2: North River Village must be rezoned to one or more Planned Development zoning districts.

Sense of Place/Design

Policy 1.10.3: In order to create a sense of place within the residential and nonresidential areas the following design elements must be incorporated in the Planned Development master concept plan. The master concept plan must depict design elements including, but not limited to: a hierarchy of connectivity between uses, special nodes, landmarks, and a distinct variety of architectural styles.

1. North River Village must provide for one or more Marina Village areas for the benefit of the public and North River village residents. Marina Village areas will be designed to create a sense of community through internal and external connections with adjacent residential development, that serve to integrate commercial development with residential development and facilitate the construction of Marina Village areas that are at a human scale and pedestrian oriented.

2. The Marina Villages must be designed as follows.

    a. Marina Villages will be a minimum of 5 acres.

    b. Marina Villages will not be required to meet site location standards.

    c. Marina Villages may incorporate mixed uses within individual buildings (e.g. residential above commercial space).

    d. Include focal points such as signature buildings, civic spaces, natural amenities and other prominent features through placement or street layout.

    e. Incorporate development design techniques to integrate nonresidential establishments into the surrounding community. Such design techniques include:

1. Creation of a series of smaller, well defined customer entrances to break up long facades and provide pedestrian scale and variety, which may be achieved through the use of liner buildings.
2. Uniform signage design.
3. Landscaping and use of pocket parks and courtyards adequate to soften large building masses.

f. Parking lots designed with pedestrian connections to business entrances and public space to create a park-once environment.

g. Incorporate Crime Prevention Through Environmentally design (CPTED) guidelines to the maximum extent possible. The Developer of the North River Village project will coordinate with the Office of the Sheriff through the local permit process for the application of these guidelines.

h. Link pedestrian routes and bikeways with the street system or other public spaces, avoiding routes through parking lots and other locations separated from the overall system.

i. Incorporate street and road design features, including landscaping and sidewalks, which define and contribute to a pedestrian street character. Building design, placement, and entrances will be at a pedestrian scale and oriented towards streets and other public space such as parks or squares.

j. In order to integrate uses internally buffering within Marina Villages is not required.

3. General Community design techniques must:

a. Design pedestrian circulation systems to connect the nonresidential uses with the public and residential uses and areas.
b. Reduce paved parking areas wherever practicable through measures such as provision of shared Parking and parking structures to serve multiple uses. Large expanses of pavement are discouraged and use of alterative paving materials will be encouraged.

c. Design internal traffic circulation to include:

1. Traffic calming techniques.
2. Maximum use of common access drives.

Policy 1.10.4: The North river Village Community will be required to provide an overall 50% on site Open Space as defined and calculated in chapter 10 of the Lee County Land development Code. Individual pods, tracts, and parcels may be designed and developed with a minimum of 10% open space to facilitate the clustering of uses. North River Village must provide 30% of total project acreage as indigenous native vegetative communities as shown and in compliance with the Conservation Lands, Buffers and Special Treatment Areas Map.

Community Outreach

Policy 1.10.5: Community Outreach requirements for North River Village must include, at a minimum, the following:

1. Prior to any required public hearings for a Comprehensive Plan Amendment, the applicant must engage in a series of meetings with the surrounding community, County planning, zoning and natural resources staff and the public at large.
2. Prior to submitting a zoning application for a property utilizing the North River Village land use category the applicant must conduct a minimum of two separate meetings. One meeting with the surrounding community and one with County staff. Throughout the zoning review process the applicant must conduct a series of meetings with the public to keep them informed on changes and opportunities to participate in the public hearing process. Meeting notices and sign in sheets must be submitted formally to the County to keep with the zoning application records. Notice of the meeting(s) with the surrounding community will be achieved by sending mailed notices to the property owners within 500 feet of the property to be rezoned.

General Public Benefits

Policy 1.10.6: North River Village must provide public access to Trout Creek through a canoe/kayak launch with parking facilities that connect to the Lee County Blue Way system and public access to the Marina Village.

Policy 1.10.7: Mitigation for hurricane evacuation must be provided, over and above the mitigation fees required in LDC Section 2-485. Additional hurricane mitigation may include contributions toward the hardening of an existing or proposed building to provide a regional shelter in a category 4-5 zone in eastern Lee County, Charlotte County or Western Hendry County and/or monetary contributions toward road capacity improvements that improve hurricane evacuation. If a regional shelter in an adjacent county is used for mitigation, documentation must be provided that Lee County residents can use the facility. Documentation that the facility will be constructed to meet Lee County standards must be provided to the Director of Public Safety. The mitigation commitment and timing of the mitigation must be established through the planned development process, however surety for the mitigation must be provided no later than the issuance of a local development order approving the construction of the 1001st unit.

Compatibility and Integration with the Surrounding Community

Policy 1.10.8: To promote preservation of the surrounding community character and drive by experience along County Road 78, a minimum 100 foot wide perimeter protection area must be incorporated into the development along the roadway. Development adjacent to properties under separate ownership must provide a 50 foot wide perimeter protection area. The edge protection area along County Road 78 must contain one or more elements that are representative of existing character including but not limited to groves, livestock grazing, pervious recreational areas or open space, preserves, equestrian facilities, lake or other elements of existing character. Berms and walls

that are intended to provide a visual barrier will not be permitted within 100' along County Road 78 and are discouraged along the remaining perimeter fencing including but not limited to horse fences and picket fences will be encouraged. This policy does not preclude berms necessary to meet South Florida Water Management District requirements.

Policy 1.10.9: North river Village must be designated to maintain the existing character of the residential street along Duke Highway. Single family homes and a landscape area must be developed and oriented toward Duke Highway rather than creating a neighborhood with homes backing up to Duke Highway.

Policy 1.10.10: North River village will provide a public collector road connection from State Road 31 to County Road 78 that adds a new link to the transportation network. North River Village will provide an emergency access route from State Road 31 and Country Road 78 through the community to Duke Highway. This will shorten response times for Fire/EMS and police to this area while also providing for an alternate route in case of emergency.

Policy 1.10.11: Buildings within North River Village will have a maximum height of 45 feet and as depicted on Map YYY. By committing to greater open space and preservation of environmentally sensitive areas through designation of lands as Conservation on the future Lands Use Map, the use of increased heights in the Marina Village Areas is appropriate. The Marina Village includes four parcels which abut the confluence of Owl Creek, Trout Creek and the Caloosahatchee River; three mixed use parcels will be a maximum of 75 feet in building height and one residential parcel which will be a maximum of 60 feet in building height.

Water Conservation and Management

Policy 1.10.12: To ensure that development occurs in a manner consistent with Lee County's goals for the protection of natural aquatic systems and the enhancement of water quality within the Caloosahatchee river basin, new development or redevelopment within North River Village will be required to provide or connect to central water and sewer facilities.

Policy 1.10.13: Water conservation measures will be implemented utilizing the following mechanisms:

1. Accepting reuse water, if available, and

2. Using 70% drought tolerant landscape material and 75% native plants for require landscaping in common areas.

3. Limiting the amount of irrigated turf to 50% for all single family residential lots.

4. Requiring common area landscaping to be clustered to separate non-drought tolerant plants from drought tolerant plants to limit areas requiring full permanent irrigation.

5. Use of drip irrigation on all common area trees and palms.

Policy 1.10.14: Low impact development techniques will be incorporated into the required surface and storm water management facilities. These facilities will be designed to provide open space or a planted visual amenity that resembles natural areas. Enhanced Best Management Practices for surface water management must include one or more of the following: treatment trains, created flow ways, reduced impervious area, and other Low Impact Development design techniques.

Water Quality

Policy 1.10.15: Development within North River Village will provide a minimum of 50' wide buffer along both sides of Owl and Trout Creeks. Buffer areas may contain passive recreational uses, including boardwalks, and river oriented recreational uses such as a canoe/kayak launch with an ancillary building, and necessary community infrastructure crossing points. This policy is not intended to apply to the construction of marina facilities and uses within the Marina village located on Trout/Owl Creeks or the Caloosahatchee River or the expansion of any marina facility that is identified on the Lee County Water Dependant Overlay Map Series. Residential dwelling units must not be constructed within 50 feet of the MHWL of natural water bodies. However, ancillary uses such as docks, observation decks and boardwalks are allowed.

Policy 1.10.16: During the Planned Development process the applicant will pursue opportunities to partner with governmental agencies to create water quality improvement systems for degraded water bodies directly connected to the property. Specifically, applicants will work with Lee County and the South Florida Water Management District to identify ways to improve the water quality of the Caloosahatchee River.

Policy 1.10.17: Development within the North River Village must promote green technologies consisting of the following:

1. Energy Efficient programs such as "energy Star" and LCEC's "Good Cents Home" will be promoted for use in all buildings and residences within the community. An education program on energy efficiency programs will be provided to all residents. In order to facilitate these benefits all Builders within North River Village will be certified through the University of Florida's Build Green and Profit program or similar program.

2. Compliance with the requirements of a Green Development by the Florida Green Building Coalition or similar program.

3. Construction of single family residential units in compliance with Florida Green Building Coalition standards.

4. Landscape design that incorporates elements from the Florida Yards and Neighborhoods program. Private homeowners will be encouraged to utilize the recommendations of the Florida Yards and Neighborhoods program and the University of Florida IFAS fact sheet ENH-860.

5. Site design and construction meeting the criteria of a Florida Firewise Community.

6. Incorporation of the National Wildlife Federation Backyard Wildlife Habitat Program elements and requirements.

7. Use of only controlled release or slow release organic fertilizers for both common areas and private areas. The developer or their successor will have the responsibility of providing for sale or easy accessibility to allowable fertilizers for private use.

8. Design and construction of all commonly owned and maintained buildings, excluding a golf course maintenance facility and any other non air-conditioned buildings with the goal of meeting LEED standards.

9. Design, construction and operation of all marina facilities in a manner that will achieve Clean Marina Certification.

10. Establish buffer zones for wetlands and natural waterways that avoid potential adverse effects upon ground and surface water quality, including any Outstanding Florida Waters, Wild and Scenic Rivers, Florida Aquatic Preserves or Florida Class I or II Waters that occur within, abutting or downstream of the site. This is not intended to preclude construction of appropriate infrastructure, road crossings, decks and docks and the uses in the Marina Village areas.

11. Grading and site design of properties adjacent to natural bodies of water that conforms to Federal, State and local regulations which may include but is not limited to the use of berms or retention ditches, to intercept surface water runoff and debris that may contain fertilizers.

Habitat Preservation

Policy 1.10.18: Development within the North River Village property will be designed to incorporate significant indigenous system, such as cabbage palm and oak hammocks, and promote the preservation and restoration of wetlands, listed species habitat, and rare and unique uplands through designation of lands as Conservation in accordance with Policy 1.10.20. In order to protect Owl Creek and Trout Creek and associated wetland systems, development will preserve high quality wetlands adjacent to natural water bodies. Site design will minimize impacts to native trees. If impacts to live oak and laurel oak trees that have a greater than 10 inch caliper dbh are unavoidable, these trees will be relocated and used within the landscape design of the project to the greatest extent possible.

Policy 1.10.19: In order to protect valuable upland and wetland areas, designation of the North river Village includes designation of indigenous areas as Conservation on the Future Land Use Map.

1. Native Indigenous vegetative communities will qualify as indigenous lands, if impacted or exotic vegetative communities are restored to indigenous status. Areas that were designated

for Conservation through the comprehensive plan amendment process will be counted toward the North River Village's overall open space and indigenous preservation requirements through the planned development process. Buildings and other areas of impervious surface for passive recreational uses such as parking areas, docks, decks and boardwalks, crossings of Conservation lands will be allowed in accordance with the general alignments shown on the Future Land Use Map. Conservation areas will be maintained in perpetuity by a Homeowners Association, Community Development District or similar entity.

2. Special Treatment Areas are depicted on Map X. The Special Treatment Areas are intended for development, recreational and water management facilities. The goals of these areas is to incorporate indigenous vegetation and native trees into the development areas. Special treatment areas will limit lot coverage to 50% on single family lots and multifamily parcels. All residential parcels in Special Treatment Areas shall utilize stemwall or stilt home construction in order to retain existing vegetative communities. Any water management facilities in special treatment areas on single family lots will be designed to incorporate existing vegetative communities through the use of dry detention or low impact development techniques. Live Oak trees on the single family lots or multifamily parcels with a DBH of 15" or more that can not be relocated must be replaced with like species with a height of 16' or greater. Heritage trees must be replaced with trees 20' in height or greater at time of planting. The replacement trees may be located either within the lots or common areas in the special treatment areas.

3. Historical Flowways will be restored if found to be hydrologically significant and capable of restoration. The historic flow-way located in the north central portion of the property and depicted on the Conservation Lands, Buffers and Special Treatment Areas Map will be restored and incorporated into the water management system. The existing flowway located in the south central portion of the project that originates just north of Duke Highway and flows south to the Caloosahatchee River will be restored and incorporated into the water management system and depicted on the Conservation, Buffers and Special Treatment Areas Map.

Policy 1.10.20: In order to protect gopher tortoises and their habitat, development will be designed to preserve sufficient areas to support the existing gopher tortoise population. This may be done through the designation of Conservation lands in accordance with Policy 1.10.20. This preserve area must consist of suitable gopher tortoise habitat of sufficient quality to support four gopher tortoises per acre. The preserve area will be designated as a gopher tortoise preserve and placed under a conservation easement. A gopher tortoise habitat management plan will be prepared and implemented to ensure the long-term management of the designated preserves.

Policy 1.10.21: In order to protect access to the waterfront, development will be designed to redevelop, expand or provide new marina and docking facilities (Policy 98.5.4) in those areas within the Water Dependent Overlay District and other locations consistent with the Lee County manatee Protection Plan as specified in Objective 107.7 and related policies.

Policy 1.10.22: Any project within 660 feet of an active, inactive or alternate bald eagle nest must prepare a bald eagle management plan which is reviewed by the Eagle Technical Advisory Committee (ETAC). The bald eagle management plan must be consistent with the recommended guidelines per Florida Fish and Wildlife Conservation Commission and U.S. Fish and Wildlife Services guidelines. The management plan must be developed utilizing existing conditions as outlined in the FWC Bald Eagle Management Plan dated April 2008.

Policy 1.10.23: During the rezoning of North River Village archaeological sites identified as 8LL2395, 8LL2396, 8LL2397, 8LL2398, and 8LL2399 must be designated under the provisions of Chapter 22 of the Land Development Code. As part of this designation process, a professional archaeologist will identify the boundaries of the archaeological site and recommend appropriate buffers. The applicant will provide an accurate legal description of the site and buffer area so these can be accurately identified and mapped.

Policy 1.10.24: Prior to rezoning approval, the applicant must conduct a cultural resource assessment of the Owl Creek Boat Works marina area, including associated buildings and structures. The assessment consultant should provide appropriate recommendations. The results of this assessment must be provided as part of the rezoning application so that staff may evaluate the assessment in conjunction with the rezoning application.

Additional Policy modifications

Addition to Policy 36.1.1:
POLICY 36.1.1: The Lee County Metropolitan Planning Organization's 2030 Financially Feasible Plan Map series is hereby incorporated as part of the Transportation Map series for this Lee Plan comprehensive plan element. The MPO 2030 Financially Feasible Highway Plan Map, as adopted December 7, 2005 and as amended through March 17, 2006, is incorporated as Map 3A of the Transportation Map series. Also, the comprehensive plan amendment analysis for the Simon Suncoast (Coconut Point) DRI identified the need for improvement at key intersections on US 41 from Estero Parkway to Alico Road to address the added impacts from the project for the Year 2020, and a mitigation payment has been required as part of the DRI development order. Lee County considers the following intersection improvements to be part of Map 3A and will program the necessary funds to make these improvements at the point they are required to maintain adopted level of service standards on US 41 if they have not been addressed by FDOT:

Intersection	Improvements
US 41/Constitution Boulevard	Southbound Dual Left Turn Lanes
US 41/B & F parcel	Northbound, Southbound, Eastbound and Westbound Dual Left Turn Lanes
US 41/Sanibel Parkway	Southbound Dual Left Turn Lanes
US 41/Estero Parkway	Southbound and Westbound Dual Left Turn Lanes

Also, the comprehensive plan amendment analysis for the North River Village that includes 2,500 dwelling units and 150,000 square feet of commercial area, identified the need for four lanes on SR 31 from Bayshore Road (SR 78) to the North River Village entrance and a set of intersection

improvements on SR 80. The Developer for North River Village will provide right-of-way, fund the design and construct four lanes on SR 31 from the North River Village entrance to SR 78 (not creditable toward road impact fees). The Developer of the North River Village property must also fund the construction of the intersection improvements listed below at the SR 80/SR 31 and SR 80/Buckingham Road intersections and any additional right-of-way needed to construct the identified intersection improvements for SR 80. The full cost of the intersection improvements, including right-of-way if necessary, will not be eligible for road impact credits. Once this funding is committed through an executed development agreement, Lee County will consider the SR 31 widening and the following intersection improvements to be financially feasible and part of Map 3A:

Intersection	Improvement
1. SR80/Buckingham Road	Add 2nd Northbound to Westbound Left Turn Lane
	Add 2nd Westbound to Southbound Left Turn Lane
	Add Northbound Right Turn Lane
	Add Southbound Right Turn Lane
	Add 2,500 foot 3rd Eastbound Through Lane
	Add 2,500 foot 3rd Westbound Through Lane
2. SR 80/SR 31	Add 2nd Southbound to Eastbound Left Turn Lane
	Add 2nd Eastbound to Northbound Left Turn Lane
	Add a third through lane Westbound in advance of the SR 31 intersection

No zoning or local Development Order approvals for more than 1001 units for the North River Village property will be granted until the development agreement has been executed.

Table 1(a)
SUMMARY OF RESIDENTIAL DENSITIES

FUTURE LAND USE CATEGORY	STANDARD OR BASE DENSITY RANGE		BONUS DENSITY
	MINIMUM (Dwelling Units per Gross Acre)	MAXIMUM (Dwelling units per Gross Acre)	MAXIMUM TOTAL DENSITY (Dwelling Units per Gross Acre)
Intensive Development	8	14	22
Central Urban	4	10	15
Urban Community [4,5]	1	6	10
Suburban	1	6	No Bonus
Outlying Surburban [6]	1	3	No Bonus
Rural	No Minimum	1	No Bonus
Outer Islands	No Minimum	1	No Bonus
Rural Community Preserve	No Minimum	1	No Bonus
Open Lands [8]	No Minimum	1 du/5 acres	No Bonus
Density Reduction/Groundwater	No Minimum	1 du/10 acres	No Bonus
Wetlands [9]	No Minimum	1 du/20 acres	No Bonus
New Community	1	6	No Bonus
University [10] Community	1	2.5	No Bonus
North River Village [9, 12]	2,000	2,500	No Bonus
~~Inner Islands~~	~~No Minimum~~	~~1~~	~~No Bonus~~

[1] See the glossary in Chapter XII for the full definition of "density."
[2] Adherence to minimum densities is not mandatory but is recommended to promote compact development.
[3] These maximum densities may be permitted by transferring density from non-contiguous land through the provisions of the Housing Density Bonus Ordinance (No. 89-45, as amended or replaced) and the Transfer of Development Rights Ordinance (No. 886-18, as amended or replaced).
[4] Within the Future Urban Areas of Pine Islands Center, rezonings that will allow in excess of 3 dwelling units per gross acre must "acquire" the density above 3 dwelling units per gross acre utilizing TDRs that were created from Greater Pine Island Coastal Rural or Greater Pine Island Urban Categories. (Amended by Ordinance No. 05-21).
[5] In all cases on Gasparilla Island, the maximum density must not exceed 3 du/acre.

[6] In the Outlying Suburban category: north of the Caloosahatchee River and east of Interstate-75; north of Pondella Road and south of Pine Island Road (SR 78); Lots 6-11, San Carlos Groves Tract, Section 20, Township 46 S, Range 25 E of the San Carlos/Estero are; in the Buckingham area (see Goal 17); and, all lands 187.5 feet south of the north section line of Section 33, Township 43 S, Range 26 E in the Caloosahatchee Shores Community Plan are, the maximum density is 2 du/acre. (Amended by Ordinance No. 03-20, 03-21).

[7] Caloosahatchee Shores Community Plan area, the maximum density is 2 du/acre. (Amended by Ordinance No. 03-20, 03-21).

[8] The maximum density of 1 unit per 5 acres can only be approved through the planned development process (see Policy 1.4.4), except in the approximately 135 acres of land lying east of US 41 and north of Alico Road in the northwest corner of Section 5, Township 46, Range 25. (Amended by Ordinance No. 99-15)

[9] Higher densities may be allowed under the following circumstances:

(a) If the dwelling units are relocated off-site through the provisions of the Transfer of Development Rights Ordinance (No. 86-18, as amended or replaced); or

(b) Dwelling units may be relocated to developable contiguous uplands designated Intensive Development, Central Urban, or Urban Community at the same underlying density as is permitted for those uplands, so long as the uplands density does not exceed the maximum standards density plus one-half of the difference between the maximum total density and the maximum standard density; or

(c) Dwelling units may be relocated from freshwater wetlands to developable contiguous uplands designated Surburban or Outlying Suburban at the same underlying density as is permitted for those uplands, so long as the uplands density does not exceed with (8) dwelling units per acre for lands designated Surburban and four (4) dwelling units per acre for lands designated Outlying Suburban, unless the Outlying Suburban lands are located in those areas described in Note 6 above, in which case the maximum upland density will be three (3) units per acre. (Amended by Ordinance No. 00-22)

(d) Dwelling units may be relocated from freshwater wetlands to developable contiguous uplands designated North River Village at the same underlying density as is permitted for those uplands, so long as the uplands density does not exceed 2,500 dwelling units.

[10] Overall average density for the University Village sub-district must not exceed 2.5 du/acre. Clustered densities within the area may reach 15 du/acre to accommodate university housing.

[11] In the Rural category located in Section 24, Township 43 South, range 23 East and south of Gator Slough, the maximum density is 1 du/2.25 acres. (Added by Ordinance No. 02-02)

[12] Development within the North River Village property as described in Map XXX is limited to 2,500 residential units and 150,000 square feet of commercial floor area, not including marina, civic private recreational/community and recreational facilities.

TABLE 1(b)

2030 Allocations Table, Alva Planning Community

Residential Use by Future Land Use Category	Acreage		
	Allocation for Year 2030	Existing	Available
Urban Community (UC)	520	462	58
Outlying Suburban (OS)	30	5	25
North River Village	600	0	600
Rural (R)	~~1,948~~ 1,348	1,225	123
Outer Islands (OI)	5	2	3
Open Lands (OL)	250	83	167
Density Reduction/Ground water Resources (DRGR)	711	49	662
Wetlands (RPA	0	0	0
Total Residential	3,464	1,826	1,648

Definitions

DENSITY - The number of residential dwelling or housing units per gross acre (du/acre). Densities specified in this plan are gross residential densities. For the purpose of calculating gross residential density, the total acreage of a development includes those lands to be used for residential uses, and includes land within the development proposed to be used for streets and street rights of way, utility rights-of-way, public and private parks, recreation and open space, schools, community centers, and facilities such as police, fire and emergency services, sewage and water, drainage, and existing man-made waterbodies contained within the residential development. Lands for commercial, office, industrial sues, natural water bodies, and other non-residential uses must not be included, except for commercial uses located within North River Village and within areas identified on the Mixed Use Overlay Map (Future Land Use Map Series Map 1 page 6 of 16) that have elected to use the process described in Objective 4.2. Within the Captiva community in the areas identified by Policy 13.2.1, commercial development that includes commercial and residential uses within the same project or the same building do not have to exclude the commercial lands from the density calculation. For true mixed use developments located on the mainland areas of the County, the density lost to commercial, office and industrial acreage can be regained through the utilization of TDRs that are either created from Greater Pine Island Coastal Rural future land use category or previously created TDRs. True mixed use developments must be primarily multi-use structures as defined in this Glossary as a mixed use building.

NORTH RIVER VILLAGE TEXT CHANGES

The following lists the changes that were made to the December 23rd North River Village Text Submittal in order to address the staff concerns as stated in the Staff Report.

1. First line change Exhibit to Map. 4th paragraph in Policy 1.1.10 comes from Dave Loveland's e-mail to Matt Noble dated January 20, 2009.

2. The change from "Preservation" to Conservation in Policy 1.10.1 comes from Environmental Science Staff Memo to Matt Noble dated January 23, 2009.

3. The Deletion of the last sentence of Policy 1.10.2 comes from the staff recommendation in the staff report Pages 20-23

4. The change from "Preservation" to Conservation in Policy 1.10.4 comes from Environmental Science Staff Memo to Matt Noble dated January 23, 2009.

5. Policy 1.10.6 add "and public access to the Marina Village" to first sentence then delete second sentence.

6. The change to the last sentence of Policy 1.10.7 comes from Matt Nobles' e-mail to the Applicant on 1/23/09.

7. Policy 1.10.13 – the change from 70 to 75% comes from Environmental Science Staff Memo to Matt Noble dated January 23, 2009.

8. Policy 1.10.15 - The change from "May" to "Must" comes from Environmental Science Staff Memo to Matt Noble dated January 23, 2009.

9. Policy 1.10.19 – The addition to the last sentence in #1 requiring a HOA , CDD or like entity comes from Environmental Science Staff Memo to Matt Noble dated January 23, 2009.

10. Policy 1.10.19 – The change to #3 to add the last sentence comes from Environmental Science Staff Memo to Matt Noble dated January 23, 2009. Applicant is not in agreement with this addition.

11. Policy 1.10.20 – changes "large enough" to "sufficient quality", the change comes from Environmental Science Staff Memo to Matt Noble dated January 23, 2009.

12. Policy 1.10.22 – corrected citation to USFWS, the change comes from Environmental Science Staff Memo to Matt Noble dated January 23, 2009.

13. Deletion of the Inner Islands land use category from Table 1a comes from Matt Noble's e-mail on January 21, 2009.

Miller, Janet

From: Karen Kamener [Shadowfaxfan@earthlink.net]
Sent: Tuesday, February 17, 2009 12:47 AM
To: Miller, Janet
Subject: [Fwd: [Fwd: FW: FYI on Designation of Sawfish critical habitat]]
Attachments: Scan of NMFS_Smalltooth Sawfish Critical Habitat_02.11.08.pdf; Attached Message Part

Hi Janet,

Here is another one for the records. The attached letter should be in the record also. There will be another email coming also that also has a letter for the record. Hope you had a nice weekend, I thought you had off for the Holiday. Thank you, Karen

-------- Original Message --------
Subject:[Fwd: FW: FYI on Designation of Sawfish critical habitat]
Date: Tue, 17 Feb 2009 00:22:32 -0500
From: Karen Kamener <Shadowfaxfan@earthlink.net>
To: Carla Johnston <carlajohnston@earthlink.net>, Jim Green <jgreen@cyberstreet.com>, "Mr. Noel Andress" <nandress@comcast.net>, "Mr. Mitch A. Hutchcraft" <mhutchcraft@cclpcitrus.com>, "Ms. Cindy Butler" <gbutler@peganet.com>, "Ms. Carie L. Call" <clcall@pbsj.com>, "Mr. Ronald Inge" <ringe@landsolutions.net>

Dear LPA Members,

The paragraph below from the attached letter concerns North River Village. Please excuse my actions if this information is redundant, but time is short and will not allow for endless emails to make sure you have not already received the attached information. I will also be sending you a letter that I submitted to the Army Corps concerning the local Woodstork population and the affects North River Village will have on them.

Thank you for your time. Karen Kamener

When the smalltooth sawfish was listed under the ESA in 2001, "present or threatened destruction, modification, or curtailment of habitat or range" was identifiec a predominant reason for its imperilment[2]. Coastal agricultural and urban developmen boating, dredge and fill operations, loss of wetlands, poor water quality, and freshwat run-off have all been cited as threats to sawfish habitat[3]. Proposed developments such North River Village (Army Corps of Engineers application SAJ-2008-1327), which li within the proposed critical habitat area, sits directly on the Caloosahatchee River, an proposes 474 boat slips and destruction of over fifty acres of wetlands, is one example

---

From: amber crooks
Sent: Wed 2/11/2009 4:15 PM
To: steven brown
Subject: FW: FYI on Designation of Sawfish critical habitat

Hi Steven

I'm glad Jennifer forwarded this letter to you because I mention North River Village. Although this critical habitat won't be designated before the North River Village decision, it is interesting to see that it will be in the same area as the proposed development. Yet another reason why this thing should not be approved!!

Thanks!

Amber Crooks

Amber Crooks
Natural Resources Specialist
Conservancy of Southwest Florida
1450 Merrihue Dr.
Naples, Florida 34102
(239) 262.0304, Ext. 286
Fax (239) 262.5872

From: jennifer hecker
Sent: Wednesday, February 11, 2009 4:12 PM
To: policy
Cc: andrew mcelwaine
Subject: FYI on Designation of Sawfish critical habitat

From: amber crooks
Sent: Wednesday, February 11, 2009 4:10 PM
To: jennifer hecker
Subject: Sawfish letter sent

Hi Jennifer-

CONSERVANCY
Of Southwest Florida

Preserving Southwest Florida's natural environment and quality of life ... now and forever.

February 11, 2009

National Marine Fisheries Service
Southeast Regional Office
Attn: Assistant Regional Administrator, Protected Resources Division
263 13th Ave. South
St. Petersburg, FL 33701

Submitted by mail and docket website

Re: Designation of critical habitat for the smalltooth sawfish, (RIN) 0648-AV74

Dear Assistant Regional Administrator,

The Conservancy of Southwest Florida, representing our 6,000 members, writes to support the proposed designation of critical habitat for the critically-endangered smalltooth sawfish (*Pristis pectinata*). Since 1973, the Endangered Species Act (ESA) has been a vital regulation that has helped to protect and recover America's imperiled fish and wildlife. The designation of critical habitat is a crucial component of the Act's protections for listed species. With the widespread and devastating impacts of habitat destruction, fragmentation, and isolation on wildlife, the Conservancy supports critical habitat designation for all covered species, where proposed habitat is, as broadly defined, "essential to the conservation of the species" or requiring "special management considerations or protection[1]."

When the smalltooth sawfish was listed under the ESA in 2001, "present or threatened destruction, modification, or curtailment of habitat or range" was identified as a predominant reason for its imperilment[2]. Coastal agricultural and urban development, boating, dredge and fill operations, loss of wetlands, poor water quality, and freshwater run-off have all been cited as threats to sawfish habitat[3]. Proposed developments such as North River Village (Army Corps of Engineers application SAJ-2008-1327), which lies within the proposed critical habitat area, sits directly on the Caloosahatchee River, and proposes 474 boat slips and destruction of over fifty acres of wetlands, is one example of

[1] Federal Register, 2001. *Proposed Endangered Status for a Distinct Population Segment of Smalltooth Sawfish (Pristis pectinata) in the United States.* Vol. 66, No. 73. P.19419.
[2] Federal Register, 2001. *Proposed Endangered Status for a Distinct Population Segment of Smalltooth Sawfish (Pristis pectinata) in the United States.* Vol. 66, No. 73. P.19414.
[3] Federal Register, 2001. *Proposed Endangered Status for a Distinct Population Segment of Smalltooth Sawfish (Pristis pectinata) in the United States.* Vol. 66, No. 73. P.19416.

1450 Merrihue Drive • Naples, Florida 34102 • 239.262.0304 • Fax 239.262.0672 • www.conservancy.org

why designation of these two units of critical habitat –Charlotte Harbor Estuary Unit and Ten Thousand Islands/Everglades Unit- are important to recovering the sawfish.

Smalltooth sawfish have been documented to utilize estuarine waters with muddy or sandy bottoms with mangrove shorelines, as well as man-made canals and waters adjacent to docks and marinas[4]. The recently-released Smalltooth Sawfish Recovery Plan outlines that "given habitat loss elsewhere, it is essential that the remaining high-quality nursery habitats in these recovery regions be strongly protected and maintained at near existing levels to allow for the species' recovery[5]." Therefore, the Conservancy supports the Service's preferred alternative, in which the units described in the 2008 Federal Register as the Charlotte Harbor Estuary Unit and the Ten Thousand Islands/Everglades Unit are designated as critical habitat, protecting approximately 840,472 acres of smalltooth sawfish habitat, particularly for juveniles. However, we ask that the Service also look at including coastal Collier County –Estero Bay to Marco Island- in its designation of critical habitat.

Although the Service found that the "long stretch of sandy beach habitat in the Naples area...is lacking encounters with densities greater than the mean density overall,[6]" sawfish are "mobile and can move over relatively large distances[7]"; a geographical connection between the two units should be considered. In particular, Wiggins Pass, Clam Bay and Rookery Bay estuaries in Collier County meet the biological requirements of juvenile sawfish, in that they have mangrove shorelines, euryhaline waters, and in some areas, seagrasses (see attached map). Criteria for designating critical habitat, established by the Code of Federal Regulations, includes means for designating area that may be needed for "individual and population growth[8]" and may include "areas outside the geographical area presently occupied by a species only when a designation limited to its present range would be inadequate to ensure the conservation of the species[9]."

We also ask that the Service return in five years to re-assess the adequacy of its critical habitat designation for the habitat needs of adult smalltooth sawfish (i.e. breeding) and to modify the designated critical habitat to include needed areas to support this segment of the population.

We commend the Service for establishing the need for critical habitat for this species: "though there are numerous existing Federal, state, or local laws and regulations that protect natural resources including the proposed essential features to some degree, none of these laws focuses on avoiding the destruction or adverse modification of these features, which provide sawfish nursery area functions, thus facilitating sawfish

[4] Federal Register, 2008. *Critical Habitat for the Endangered District Population Segment of Smalltooth Sawfish.* Vol. 73, No. 225. P. 70295-70296.
[5] National Marine Fisheries Service, 2009. *Smalltooth Sawfish Recovery Plan.* Pg. III-3.
[6] Federal Register, 2008. *Critical Habitat for the Endangered District Population Segment of Smalltooth Sawfish.* Vol. 73, No. 225. P. 70296.
[7] National Marine Fisheries Service, 2009. *Smalltooth Sawfish Recovery Plan.* Pg. II-3.
[8] C.F.R. 50 § 424.12(b)(1).
[9] C.F.R. 50 § 424.12(e).

recovery[10]." One of the main recovery strategies for the sawfish is protecting and restoring habitat, therefore, we encourage the Service to (1) explore our recommendations of including other areas of coastal Collier County in this designation, (2) revisit the adequacy of this designation's protection of the habitat needs of adult sawfish, and (3) officially designate the units described as critical habitat for the smalltooth sawfish.

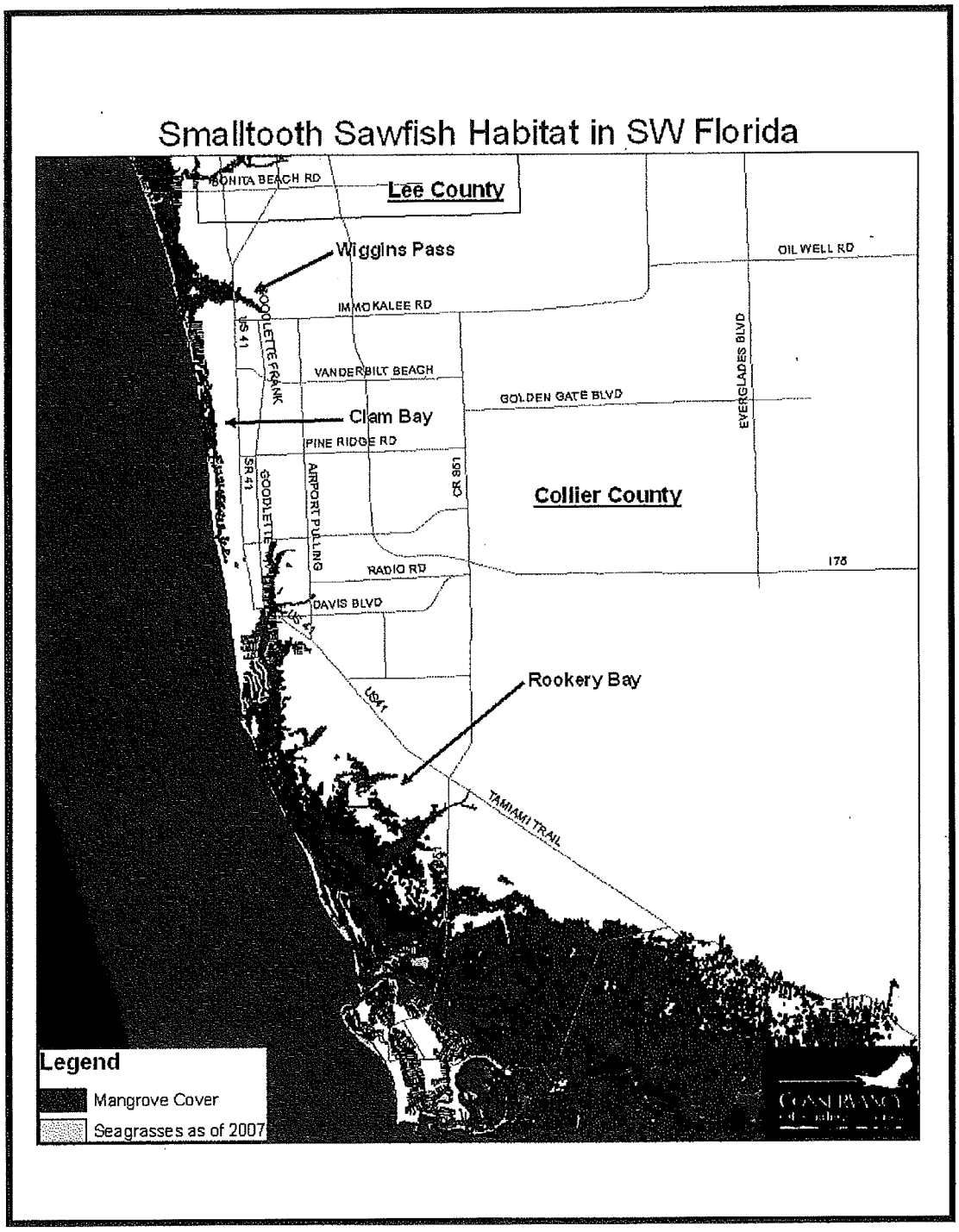
If you have any questions, please feel free to contact me at (239) 262-0304 ext. 286.

Sincerely,

Amber Crooks
Natural Resources Specialist

Cc: Harry Bergmann, U.S. Army Corps of Engineers
Kalani Cairns, U.S. Fish and Wildlife Service

[10] Federal Register, 2008. *Critical Habitat for the Endangered District Population Segment of Smalltooth Sawfish.* Vol. 73, No. 225. P. 70300.


Smalltooth Sawfish Habitat in SW Florida
BONITA BEACH RD
Lee County
Wiggins Pass
OIL WELL RD
IMMOKALEE RD
GOODLETTE FRANK
US 41
VANDERBILT BEACH
GOLDEN GATE BLVD
EVERGLADES BLVD
Clam Bay
PINE RIDGE RD
SR 41
GOODLETTE
AIRPORT PULLING
CR 951
Collier County
RADIO RD
175
DAVIS BLVD
Rookery Bay
US 41
TAMIAMI TRAIL
Legend
Mangrove Cover
Seagrasses as of 2007

Miller, Janet

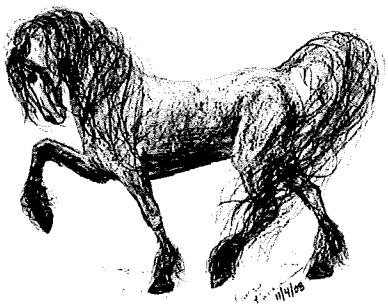
From:	Karen Kamener [Shadowfaxfan@earthlink.net]
Sent:	Tuesday, February 17, 2009 12:56 AM
To:	Carla Johnston; Jim Green; Mr. Noel Andress; Mr. Mitch A. Hutchcraft; Ms. Cindy Butler; Ms. Carie L. Call; Mr. Ronald Inge; Miller, Janet
Subject:	Wood Stork Habitat-- North River Village
Attachments:	NRV Corps Letter.pdf

Dear LPA members,

Please see the attached letter written to the Arm Corps concerning the Core Feeding Area of the Local Wood Stork Colony on Lenore Island located in the Caloosahatchee along with other impacts to the area from this development.

Thank you, Karen Kamener

--



The Concerned Citizens of Bayshore Community Inc.

December 2, 2008

District Engineer
Department of the Army
Jacksonville District Corps of Engineers
1520 Royal Palm Square Boulevard; Suite 310
Fort Myers, Florida 33919

Subject: Permit Application No. SAG-2008-1327
North River Communities LLC

Dear Sir or Madame,

The Bayshore Community is of a rural nature and abuts the proposed project. We are opposed to the permitting of this project for the various reasons listed below. We request that you would deny this permit and if that is not an option then we request a public hearing held during hours when our citizens may attend, as in the current economical situation many cannot afford to forfeit wages to attend a morning or afternoon hearing.

The proposed project does not support Florida Statute 570.70 (1)-(5) as it describes the importance of preserving rural lands and preventing Urban Sprawl which Lee County Staff has deemed this project to be.

Complete Statute is attached.

(1) A thriving rural economy with a strong agricultural base, healthy natural environment, and viable rural communities is an essential part of Florida. Rural areas also include the largest remaining intact ecosystems and best examples of remaining wildlife habitats as well as a majority of privately owned land targeted by local, state, and federal agencies for natural resource protection.

In addition to the destruction of Manatee Habitat- which will be addressed by the Save the Manatee Club- the proposed project will affect the Core Feeding Area of the local Wood Stork nesting colony on Lenore Island located in the Caloosahatchee River just a few miles away. This colony was highly productive in 2007 compared to the Corkscrew swamp colony that produced 0 nests and 0 fledglings due to the

drought. The Lenore Island colony produced 220 nests with between 100-150 fledglings according to the 2007 "South Florida Wading Bird Report".

We feel that the long term job opportunities that Tourism offers would benefit from keeping our endangered wildlife in South Florida instead of eliminating their habitat so they leave to reside in other states to the north like Georgia or South Carolina as the Wood Storks have already begun to do.

The proposed project is applying for permits based on the assumption they will receive a change in zoning as a result of their attempt to increase density by requesting a change to the Lee County Comprehensive plan and incorporate a new Land Use called River Village and Inner Islands, which will set precedent encouraging urban sprawl in and near lands that have been zoned Density Reduction Groundwater Recharge, Agricultural, and Outer Islands.

The DRGR and Agricultural zoning in northeast Lee County provides the preservation of essential wetlands that allow the historical flows to continue in the Northern Everglades, which will not only support habitat for endangered species, but will also help to prevent draw-down of the aquifers. Keeping these lands open and unbermed will also eliminate the increase in flooding to surrounding off-site areas as the proposed project accepts additional flows from the west of Rt. 31 via Owl Creek yet they plan to apply to FEMA for a LOMA to reduce floodways on Owl and Trout Creeks.

The proposed Babcock development also plans to reduce their floodways on Owl and Trout Creek while digging a canal on the east side of Rt 31 to convey water from the west side of Rt 31 south to Owl Creek. There are upwards of 65 square miles of sheetflow of which at least half is flowing south and south east from the Cecil B. Web area that needs to be kept at the optimum depth for Wading Bird feeding and flood control which will not happen if the proposed developments are allowed to set precedent through zoning changes thus eliminating the rural character and essential water storage of the area resulting in alternative storage methods such as reservoirs with mined berms and Aquifer Storage and Recovery{ASR}.

*In light of a new study - " In cooperation with the U.S. Army Corps of Engineers, Jacksonville, Florida --*An Assessment of the Potential Effects of Aquifer Storage and Recovery on Mercury Cycling in South Florida- 2007-- **U.S. Department of the Interior U.S. Geological Survey "**

The conclusion states: In general, the concentration of sulfate observed in samples from Floridan and surficial aquifer wells (19 to 369 mg/L) are substantially greater than most Everglades surface-water concentrations. Given the known links between sulfate loading and MeHg production, it is reasonable to conclude that sulfate added from the release of recovered ASR water could contribute to

additional MeHg formation in receiving waters of the Everglades. -
And this study below which warns of an increase in arsenic in excess of 100mg/L- more than 10 times the standard for drinking water from ASR. How will arsenic affect the wetland habitat? There is a long list of additional impacts in this study. -

-Adverse Environmental Impacts of Artificial Recharge Known As "Aquifer Storage and Recovery" (ASR) In Southern Florida: Implications for Everglades Restoration (2005) — Sydney T. Bacchus, Ph.D., Applied Environmental Services. A scientific review and analysis commissioned by THIRD PLANET. A CD of the book can be obtained from AES Publications (aes.publications@mindspring.com) -

We would request that preserving all existing natural wetlands be preferred over Aquifer Storage and Recovery which is a very questionable form of water storage void of extended longterm studies that unveil long term consequences..

There are also recent studies that question the ability of manmade wetlands to function as natural wetlands and the long term implications of these failures are unknown.

The future of our Communities should be based on what is necessary for our Communities, Lee County and Florida as a whole. Neither the language in Lee County Comprehensive Plan nor the vast miles of undeveloped lots in Lehigh and Cape Coral warrant the destruction of rural lands at this point in time.

To iterate, we as a community hope you would deny this permit based on the Big Picture and not the needs of those who knowingly purchase lands that will need zoning changes to ensure a profit and whose profits benefit few while providing short term Job Opportunities. We need to encourage sustainable industry that will not cease at build out and that supports the preservation of the species whom call the Northern Everglades their home which in turn will support the tourist industry which is vital to Florida's economy and will in turn make a Global statement of integrity.

Thank you for your time and your consideration of this matter,

Best Regards,

Matt Smith
President of the Concerned Citizens of Bayshore Community Inc.

p.p. Karen Kamener
Secretary of the Concerned Citizens of Bayshore Community Inc.

Bonita Bay Group®

September 9, 2009

Mr. Matt Noble
Principal Planner
Community Development
Lee County Planning Department
P. O. Box 398
Ft. Myers, FL 33902

RE: North River Village
CPA2006-00012
Comprehensive Plan Amendment Withdrawl

Dear Matt:

Due to the extended downturn of the Southwest Florida real estate market and Bonita Bay Group's restructuring plans, we respectfully withdraw our request for an amendment to the Lee County Comprehensive Plan for North River Village and the concurring amendment for Verandah.

It is an unfortunate time for all of us, as North River Village was planned, with extensive help from the North Olga neighbors and others, to become a state-of-the-art community, with energy efficiency, green principles, new standards of environmental preservation, and most importantly, public access to the Caloosahatchee River and Trout Creek. The extension of central sewer and water services would have served as a significant enhancement to the water quality within the river, the development would have created many needed jobs for our area, hurricane evacuation would be enhanced and adjacent roadways would have been improved.

We thank you and your staff for all of your time as you processed this application over the last three years.

Sincerely,

Susan Hebel Watts

Susan Hebel Watts
Senior Vice President

Cc: Neale Montgomery, Pavese Law Firm
Dan DeLisi, Delisi Fitzgerald, Inc.
Mary Gibbs, Lee County
Paul O'Conner, Lee County

LEE COUNTY
SOUTHWEST FLORIDA

BOARD OF COUNTY COMMISSIONERS

Hearing Date:	September 23, 2009
Case Number:	CPA2006-00012
Case Name:	North River Village Comprehensive Plan Amendment
Request:	This amendment affects two separate areas. The first request is to amend the Future Land Use Map Series; Map 1 to change 1,232 acres of land designated "Rural" and "Outer Islands" to the "River Village," "Inner Islands," and "Conservation Lands" future land use categories. The second request is to amend 1,456 acres of land designated Suburban to the Sub-Outlying Suburban future land use category.
Location:	The 1,232-acre property in the first request is located in Sections 16, 17, 18, 19, and 20 of Township 43 South Range 26 East. The property is generally located east of State Road 31 south of North River Road and north of the Caloosahatchee River. The 1,456-acre property in the second request is in the residential development known as Verandah, bordered by State Road 80 on the north, Buckingham Road on the east and the Orange River on the southwest. It is located in sections 28, 29, 30, 31, and 32 of Township 43 South Range 26 East.
APPLICANT:	North River, LLC
APPLICANT'S REPRESENTATIVE:	DeLisi Fitzgerald, Inc. 1500 Royal Palm Square Blvd., Suite 101 Fort Myers, FL 33919
Lee County Planner:	Matthew Noble (239) 533-8548

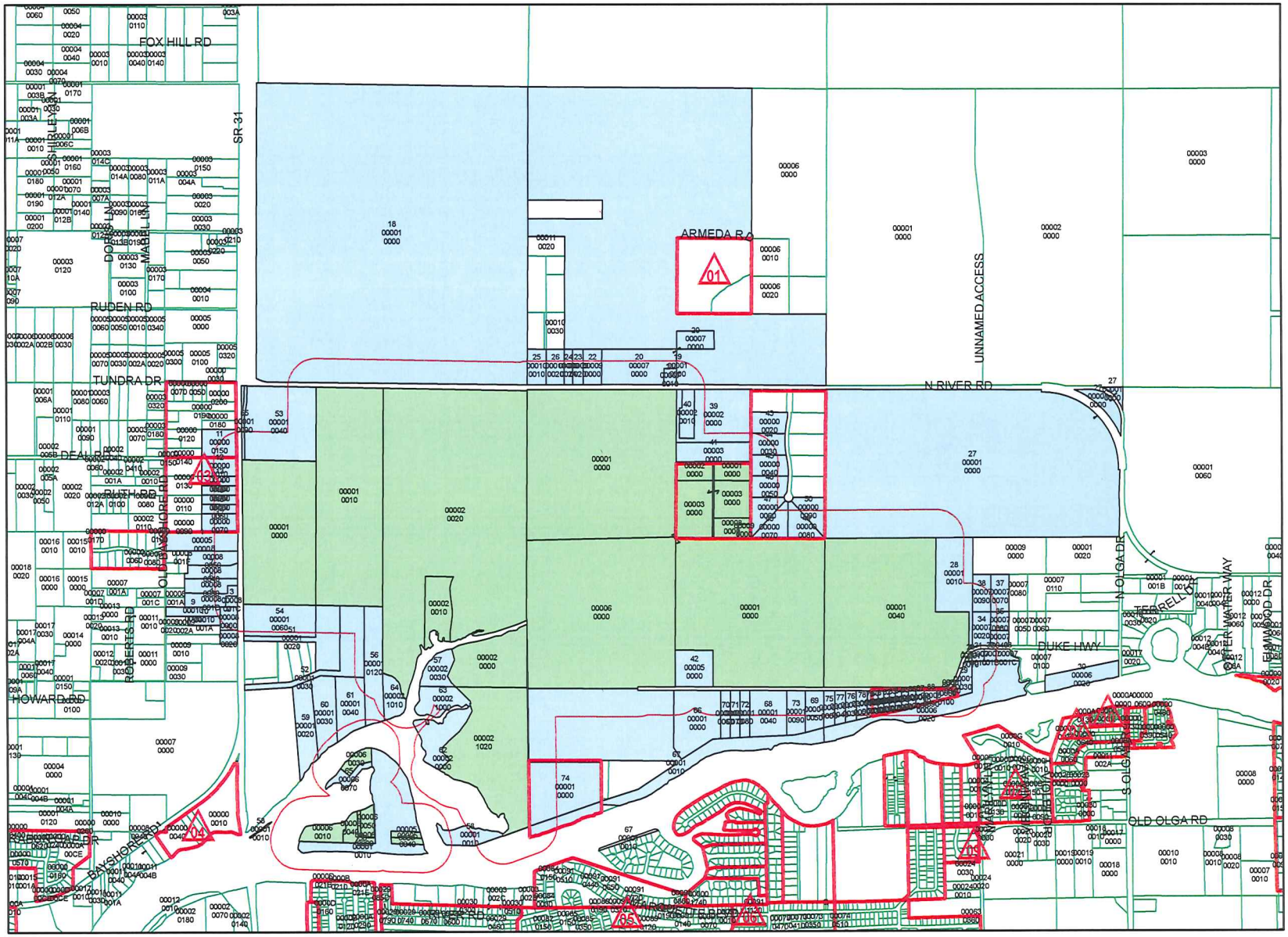
The file may be reviewed Monday through Friday between the hours of 8:00 am and 4:30 pm at the Lee County, Planning Division, 1500 Monroe Street, Fort Myers, Florida 33901. Call (239) 533-8583 for additional information. This is a courtesy notice that the Board of County Commissioners will meet on September 23, 2009 at 9:30 a.m. in the Old Lee County Courthouse, 2120 Main Street, Fort Myers, Florida 33901.

P.O. Box 398, Fort Myers, Florida 33902-0398 (239) 533-2111
Internet address http://www.lee-county.com

VARIANCE REPORT

1/8/2009

Subject Parcels : 21 Affected Parcels : 89 Buffer Distance : 500 ft



16-43-26-00-00001.0040 et al.

2,750 1,375 0 2,750 Feet

Lee County Property Appraiser

Kenneth M. Wilkinson, C.F.A.

GIS Department / Map Room

Phone: (239) 533-6159 • Fax: (239) 533-6139 • eMail: MapRoom@LeePA.org

VARIANCE REPORT

Date of Report: January 08, 2009

Buffer Distance: 500 ft

Parcels Affected: 89

Subject Parcel: 16-43-26-00-00001.0040, 17-43-26-00-00001.0000, 17-43-26-00-00006.0000, 17-43-26-01-00001.0000, 17-43-26-01-00002.0000, 17-43-26-01-00003.0000, 17-43-26-01-00008.0000, 17-43-26-01-00009.0000, 18-43-26-00-00001.0000, 18-43-26-00-00001.0010, 18-43-26-00-00002.0000, 18-43-26-00-00002.0010, 18-43-26-00-00002.0020, 19-43-26-00-00002.1020, 19-43-26-00-00005.0030, 19-43-26-00-00005.0040, 19-43-26-00-00006.0010, 19-43-26-00-00006.0030, 19-43-26-00-00006.0040, 19-43-26-00-00006.0050, 19-43-26-00-00006.0060

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION	Map Index
MARTENSSON PER-ARME TR SOUTH JARPETAN 405 65591 KARLSTAD SWEDEN	**13-43-25-00-00005.0000** 18420 OLD BAYSHORE RD NORTH FORT MYERS FL 33917	N 1/2 OF N 1/2 OF NE 1/4 OF SE 1/4 LESS RD R/W.	1
O C F PROPERTIES OF SW FL LLC 22920 N RIVER RD ALVA FL 33920	**13-43-25-00-00008.0000** 18191 SR 31 NORTH FORT MYERS FL 33917	E 1/2 OF NE 1/4 OF SE 1/4 OF SE 1/4 LESS THE S 250 FT	2
CARRIGAN JAMES M + KIMBERLY 6464 PINE AV SANIBEL FL 33957	**13-43-25-00-00008.001C** 18241 SR 31 NORTH FORT MYERS FL 33917	PARL IN S 3/4 OF NE 1/4 SE 1/4 OR 1288 PG 1576	3
CARRIGAN JAMES M 6464 PINE AVE SANIBEL FL 33957	**13-43-25-00-00008.001D** 18281 SR 31 NORTH FORT MYERS FL 33917	PARL LOC IN NE 1/4 OF THE SE 1/4 AS DESC IN OR 2878 PG 2728	4
SALE HELENE 41 SCHOOL HOUSE RD MIDDLETOWN NY 10940	**13-43-25-00-00008.0020** 18141 SR 31 NORTH FORT MYERS FL 33917	THE S 250 FT OF THE E 1/2 OF NE 1/4 OF SE 1/4 OF SE 1/4 LESS R/W SR 31	5
CARRIGAN JAMES M 6464 PINE AVE SANIBEL FL 33957	**13-43-25-00-00008.0030** 18301 SR 31 NORTH FORT MYERS FL 33917	PARL LOC IN THE NE 1/4 OF THE SE 1/4 DESC IN OR 2878 PG 2731	6
CARRIGAN JAMES M 18301 STATE RD 31 NORTH FORT MYERS FL 33917	**13-43-25-00-00008.0040** 18331 SR 31 NORTH FORT MYERS FL 33917	PARL LOC IN THE NE 1/4 OF THE SE 1/4 DESC IN OR 2878 PG 2734	7
CARRIGAN JAMES M 18301 STATE RD 31 NORTH FORT MYERS FL 33917	**13-43-25-00-00008.0050** 18361 SR 31 NORTH FORT MYERS FL 33917	PARL LOC IN THE NE 1/4 OF THE SE 1/4 DESC IN OR 2878 PG 2737	8
STRATTA NATALIE L 18220 OLD BAYSHORE RD NORTH FORT MYERS FL 33917	**13-43-25-00-00010.0000** 18220 OLD BAYSHORE RD NORTH FORT MYERS FL 33917	PARL IN S E 1/4 OF S E 1/4 SEC 13 T 43 R 25 AS DESC IN OR 1234 PG 0517	9
STRATTA NATALIE L 18220 OLD BAYSHORE RD NORTH FORT MYERS FL 33917	**13-43-25-00-00010.001A** 18200 OLD BAYSHORE RD NORTH FORT MYERS FL 33917	PARL IN S E 1/4 AS DESC IN OR 1354 PG 719	10
TEMPLE BAPTIST CHURCH OF 18841 SR 31 NORTH FORT MYERS FL 33917	**13-43-25-02-00000.0150** 18841 SR 31 NORTH FORT MYERS FL 33917	S 3/4 OF SE 1/4 OF NE 1/4 OF NE 1/4 AKA LTS 15-17 LAZY R RANCHETTES UNREC	11

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION	Map Index
ACUFF JERRY + JANNIE 18751 SR 31 NORTH FORT MYERS FL 33917	**13-43-25-03-00000.0010** 18751 SR 31 NORTH FORT MYERS FL 33917	N 1/2 OF NE 1/4 OF SE 1/4 OF NE 1/4 LESS RD R/W AKA LOTS 1 + 2 PINECONE ACRES UNREC	12
TOMLINSON DIANA R + WILLIAM M PO BOX 50824 FORT MYERS FL 33994	**13-43-25-03-00000.0030** 18691 SR 31 NORTH FORT MYERS FL 33917	N 1/2 OF S 1/2 OF NE 1/4 OF SE 1/4 OF NE 1/4 LESS RD R/W FOR SR 31 AKA LOT 3 PINECONE ACRES UNREC	13
TUTTLE KELLY 18151 LEETANA RD NORTH FORT MYERS FL 33917	**13-43-25-03-00000.0040** 18671 SR 31 NORTH FORT MYERS FL 33917	S1/2 OF S1/2 OF NE1/4 OF SE1/4 OF NE1/4 LESS RD R/W AKA LOT 4 PINECONE ACRES UNREC	14
SHERRINGTON GRAHAM S + 18641 STATE RD 31 NORTH FORT MYERS FL 33917	**13-43-25-03-00000.0050** 18641 SR 31 NORTH FORT MYERS FL 33917	N1/2 OF N1/2 OF SE1/4 OF SE1/4 OF NE1/4 LESS R/W AKA LOT 5 PINECONE ACRES UNREC	15
SPENCER PHILLIP 18621 HWY 31 N FT MYERS FL 33917	**13-43-25-03-00000.0060** 18621 SR 31 NORTH FORT MYERS FL 33917	S 1/2 OF N 1/2 OF SE 1/4 OF SE 1/4 OF NE 1/4 DESC IN OR 1726 PG 7 AKA LOT 6 PINECONE ACRES UNREC	16
QUILLEN CHERYL A 22920 N RIVER RD ALVA FL 33920	**13-43-25-03-00000.0070** 18561 SR 31 NORTH FORT MYERS FL 33917	THE S 1/2 OF TH SE 1/4 OF SE 1/4 OF NE 1/4 LESS SR 31 AKA LOTS 7 + 8 PINECONE ACRES UNREC	17
BABCOCK PROPERTY HOLDINGS LLC 9055 IBIS BLVD WEST PALM BEACH FL 33412	**07-43-26-00-00001.0000** 19100 SR 31 NORTH FORT MYERS FL 33917	ALL SEC LESS W 350 FT R/W DESC IN INST#2006-301710	18
ARMEDA FAMILY LLC 19440 ARMEDA RD ALVA FL 33920	**08-43-26-00-00001.0000** ACCESS UNDETERMINED ALVA FL 33920	PARL IN SEC 8 AS DESC IN OR 1134 PG 0362	19
SNELL FRANK A TR 1470 ROYAL PALM SQ BLVD FORT MYERS FL 33919	**08-43-26-00-00007.0000** 13341 N RIVER RD ALVA FL 33920	S 1/2 OF SE 1/4 OF SW 1/4 + S1/2 OF NW1/4 OF SW1/4 OF SE1/4 LESS OR 1285 1967	20
SNELL FRANK A TR 1470 ROYAL PALM SQ BLVD FORT MYERS FL 33919	**08-43-26-00-00007.0010** 13441 N RIVER RD ALVA FL 33920	PARL IN SW 1/4 OF SE 1/4 AS DESC IN OR 1285 PG 1967	21
SUMMERALL D C + CAROLYN 13201 N RIVER RD ALVA FL 33920	**08-43-26-00-00009.0000** 13201 N RIVER RD ALVA FL 33920	E 1/2 OF SW 1/4 OF SW 1/4 OF SW 1/4	22
SUMMERALL D C + CAROLYN 13201 N RIVER RD ALVA FL 33920	**08-43-26-00-00009.0020** 13161 N RIVER RD ALVA FL 33920	W 1/2 OF SE 1/4 OF SW 1/4 OF SW 1/4 LESS THE W 140 FT	23
SUMMERALL RANDALL C 13131 N RIVER RD ALVA FL 33920	**08-43-26-00-00009.002A** 13131 N RIVER RD ALVA FL 33920	THE W 140 FT OF W 1/2 OF SE 1/4 OF SW 1/4 OF SW 1/4	24
BEALL JOAN C + 13033 N RIVER RD ALVA FL 33920	**08-43-26-00-00010.0010** 13033 N RIVER RD ALVA FL 33920	W 1/2 OF S W 1/4 OF S W 1/4 OF S W 1/4 DESC IN OR 1432 PG 635	25
PIPKINS DAVID S + 19100 TURKEY RUN LN ALVA FL 33920	**08-43-26-00-00010.0020** 19100 TURKEY RUN LN ALVA FL 33920	E1/2 OF SW1/4 OF SW1/4 OF SW1/4 DESC IN OR 1505 PG 1868	26
POVIA FAMILY LLC 5991 BUCKINGHAM RD FORT MYERS FL 33905	**16-43-26-00-00001.0000** 14500 N RIVER RD ALVA FL 33920	N 1/2 SEC PT.SWAMP	27
CARY GLENN O TR 18451 OLGA RD ALVA FL 33920	**16-43-26-00-00001.0010** 18451 N OLGA DR ALVA FL 33920	SW 1/4 LESS PARCEL 1.003 DESC IN INST 2006-281030 LESS R/W OR 2026/2985	28
MAY RANDALL M 14410 DUKE HWY ALVA FL 33920	**16-43-26-00-00001.0030** 14410 DUKE HWY ALVA FL 33920	A PARL IN SW 1/4 OF SEC AS DESC IN OR 484 PG 407	29

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION	Map Index
SOUTH FLA WATER MGMT DIST LAND MANAGEMENT PO BOX 24680 WEST PALM BEACH FL 33416	**16-43-26-00-00006.0020** 18051 N OLGA DR ALVA FL 33920	S 1/2 OF SE 1/4 OF S E 1/4 + S 471ST IN SW 1/4 OF SW 1/4 OF SE 1/4 W OF CRK +OR 50/414 +OR 53/214 + ALL THAT PT OF NE 1/4 OF NE 1/4 SEC 21 LYING N OF RVR	30
PARK ANDREW K + REBECCA 14560 DUKE HWY ALVA FL 33920	**16-43-26-00-00007.0010** 14560 DUKE HWY ALVA FL 33920	PARL IN SE 1/4 OF SEC 16 S OF DUKE HWY E OF CREEK DESC OR 2132/1948 AKA TR A	31
RONCO LAWRENCE G + CARLA D 14600 DUKE HWY ALVA FL 33920	**16-43-26-00-00007.001B** 14600 DUKE HWY ALVA FL 33920	PARL IN SE 1/4 SEC 16 S OF DUKE HWY E OF CREEK DESC OR 1982/2816 AKA TR B	32
RONCO SANDRA 14640 DUKE HWY ALVA FL 33920	**16-43-26-00-00007.001C** 14640 DUKE HWY ALVA FL 33920	PARL IN SE 1/4 SEC 16 S OF DUKE HWY E OF CREEK DESC IN OR 1982 PG 2819	33
SANDERS SCOTT D + DONNA C 14561 DUKE HWY ALVA FL 33920	**16-43-26-00-00007.0020** 14561 DUKE HWY ALVA FL 33920	W 1/2 OF NW 1/4 OF SW 1/4 OF SE 1/4 LESS R/W OR 2026/2986	34
REDFERN W E JR + LINDA JOYCE C 14651 DUKE HWY ALVA FL 33920	**16-43-26-00-00007.0030** 14651 DUKE HWY ALVA FL 33920	NE 1/4 OF NW 1/4 OF SW 1/4 OF SE 1/4 FR 16-43-26-00-00007.0000	35
BYLE BILL JR 12525 SUMMERWOOD DR FORT MYERS FL 33908	**16-43-26-00-00007.0040** 14641 DUKE HWY ALVA FL 33920	SE 1/4 OF NW 1/4 OF SW 1/4 OF SE 1/4 FR 16-43-26-00-00007.0000 LESS R/W OR 2026/2985	36
CARY GLENN O TR 18451 N OLGA DR ALVA FL 33920	**16-43-26-00-00007.0070** ACCESS UNDETERMINED ALVA FL 33920	E 1/2 OF SW 1/4 OF NW 1/4	37
CARY JAY C 18471 N OLGA DR ALVA FL 33920	**16-43-26-00-00007.0090** 18471 N OLGA DR ALVA FL 33920	W 1/2 SW 1/4 OF NW 1/4 OF SE 1/4	38
VAN HORNE SUZANNE L + 13630 N RIVER RD ALVA FL 33920	**17-43-26-00-00002.0000** 13630 N RIVER RD ALVA FL 33920	N 3/4 OF NW 1/4 OF NE 1/4 LESS RD R/W + LESS INST#2008000262414	39
EDWARDS DAVID R 3612 2ND ST SW LEHIGH ACRES FL 33976	**17-43-26-00-00002.0010** 13620 N RIVER RD ALVA FL 33920	PARL LYING IN N 3/4 OF NW 1/4 OF NE 1/4 AS DESC IN INST#2008000262414	40
CARY GLENN O TR 18451 N OLGA RD ALVA FL 33920	**17-43-26-00-00003.0000** ACCESS UNDETERMINED ALVA FL 33920	S 1/2 OF S 1/2 OF NW 1/4 OF NE 1/4	41
HENGGE BRUCE 6420 PINEVIEW RD N FT MYERS FL 33917	**17-43-26-00-00005.0000** 13591 DUKE HWY ALVA FL 33920	SW 1/4 OF SW 1/4 OF SE 1/4 LESS R/W OR 2026/2985	42
BROWN DOUGLAS G + SANDRA H PO BOX 130 FORT MYERS FL 33902	**17-43-26-02-00000.0020** 18961 SERENOA CT ALVA FL 33920	NORTH RIVER OAKS PB 34 PG 102 LOT 2	43
CARY G KEITH + ROBBI R PO BOX 718 FORT MYERS FL 33902	**17-43-26-02-00000.0030** 18931 SERENOA CT ALVA FL 33920	NORTH RIVER OAKS PB 34 PG 102 LOT 3	44
BORCHERING BARRY C + LINDA J 18901 SERENOA CT ALVA FL 33920	**17-43-26-02-00000.0040** 18901 SERENOA CT ALVA FL 33920	NORTH RIVER OAKS PB 34 PG 102 LOT 4	45
ESTOYE LUDOVICO R + JILL E 18871 SERENOA CT ALVA FL 33920	**17-43-26-02-00000.0050** 18871 SERENOA CT ALVA FL 33920	NORTH RIVER OAKS PB 34 PG 102 LOT 5	46
ELSCHLAGER JANE E TR 18841 SERENOA CT ALVA FL 33920	**17-43-26-02-00000.0060** 18841 SERENOA CT ALVA FL 33920	NORTH RIVER OAKS PB 34 PG 102 LOT 6	47
MOLLER MARCIA H PER REP PO BOX 419 SCOTTSVILLE TX 75688	**17-43-26-02-00000.0070** 18811 SERENOA CT ALVA FL 33920	NORTH RIVER OAKS PB 34 PG 102 LOT 7	48

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION	Map Index
TILTON ANDREW DOUGLAS 18810 SERENOA CT ALVA FL 33920	**17-43-26-02-00000.0080** 18810 SERENOA CT ALVA FL 33920	NORTH RIVER OAKS PB 34 PG 102 LOT 8	49
RODGERS DON S + MARGARET G 18840 SERENOA CT ALVA FL 33920	**17-43-26-02-00000.0090** 18840 SERENOA CT ALVA FL 33920	NORTH RIVER OAKS PB 34 PG 102 LOT 9	50
LUSTER JEFFERY R 17321 TALULAH FALLS RD NORTH FORT MYERS FL 33917	**18-43-26-00-00001.0020** 18000 SR 31 ALVA FL 33920	PARC IN S 1/2 OF SW 1/4 DESC OR 2625/1528 + INST#2006-51208 LESS 3408/3769 + INST#2006-51228	51
GREENWELL LEONARD JR + BEVLYN 12251 OLD RODEO DR ALVA FL 33920	**18-43-26-00-00001.0030** 12251 OLD RODEO DR ALVA FL 33920	PARC IN S1/2 OF SE1/4 DESC OR 2626/0083	52
KREINBRINK KATHERINE TR 12100 N RIVER RD ALVA FL 33920	**18-43-26-00-00001.0040** 12100 N RIVER RD ALVA FL 33920	NW1/4 OF NW1/4 OF SEC LESS OR 3247 PG 2951	53
SINGLETARY STEVE R + HEIDI L 18200 STATE ROAD 31 ALVA FL 33920	**18-43-26-00-00001.0060** 18200 SR 31 ALVA FL 33920	PARL LOC IN THE W 1/2 OF THE W 1/2 OF THE SW 1/4 AS DESC IN OR 2974 PG 2172	54
FLORIDA GAS TRANSMISSION CO BRICKLEMYER SMOLKER + BOLVES PO BOX 4967 HOUSTON TX 77210	**18-43-26-00-00001.0090** RIGHT OF WAY FL	PARCEL IN NW 1/4 OF NW 1/4 AS DESC IN OR 3247 PG 2951	55
GREENWELL MICHAEL L + TRACEY C 12250 N RIVER RD ALVA FL 33920	**18-43-26-00-00001.0120** 12320 OLD RODEO DR ALVA FL 33920	PAR IN E 3/4 OF E 1/2 OF W 1/2 OF SEC 18 + 19 N OF RIVER DESC OR 2510/2120 LESS INST#2006-467701	56
BLACKBURN ROBERTA J 17901 OWL CREEK DR ALVA FL 33920	**18-43-26-00-00002.0030** OWL CREEK DR ALVA FL 33920	PARCEL IN SE 1/4 S OF TROUT CREEK LESS OR 2619 PG 3907	57
SOUTH FLA WATER MGMT DIST LAND MANAGEMENT PO BOX 24680 WEST PALM BEACH FL 33416	**19-43-26-00-00001.0010** 17410 SR 31 FORT MYERS FL 33905	PARL DESC IN OR 39 PG 30 + OR 37 PG 220 + OR 37 PG 244	58
DUNFORD LARRY W + TERRILYNN TR 12190 OLD RODEO DR ALVA FL 33920	**19-43-26-00-00001.0020** 12190 OLD RODEO DR ALVA FL 33920	PARL LOC IN THE NW 1/4 OF SEC DESC IN OR 2832 PG 3164 + OR3350/60	59
DILORETO TODD V + 12240 OLD RODEO DR ALVA FL 33920	**19-43-26-00-00001.0030** 12240 OLD RODEO DR ALVA FL 33920	ALL FRAC W 1/2 N OF RIVER AS DESC IN OR 3052 PG 2003 LESS RD R/W + 3350/60	60
DILORETO THOMAS N + 12290 OLD RODEO DR ALVA FL 33920	**19-43-26-00-00001.0040** 12290 OLD RODEO DR ALVA FL 33920	ALL FRAC W 1/2 OF RVR DESC IN OR 4830 PG 1310 LESS RD R/W + 1.0000 THRU 1.0030	61
BLACKBURN ROBERTA J 17901 OWL CREEK DR ALVA FL 33920	**19-43-26-00-00002.0000** 17901 OWL CREEK DR ALVA FL 33920	ALL FRAC E 1/2 N OF RVR LESS PARCEL 2.001 + 2.1000	62
BLACKBURN ROBERTA J 17901 OWL CREEK DR ALVA FL 33920	**19-43-26-00-00002.1000** 18001 OWL CREEK DR ALVA FL 33920	E 1/2 OF SEC N OF RIVER LESS 2.+ 2.001 + 2.1010 + 2.1020	63
GREENWELL MICHAEL L + TRACY C 12250 N RIVER RD ALVA FL 33920	**19-43-26-00-00002.1010** 12350 OLD RODEO DR ALVA FL 33920	PAR IN NW1/4 OF NW1/4 OF NE1/4 OF SEC 19 + PORT IN SE 1/4 OF SW 1/4 OF SW 1/4 AS DESC IN INST#2006-467705	64
RESOURCE CONSERVATION 9990 COCONUT RD STE 200 BONITA SPRINGS FL 34135	**19-43-26-00-00006.0070** HAVENS ISLAND ALVA FL 33920	PT OF GOVT LOT 7 N OF US CHANNEL IN RIVER AS DESC IN OR 2841/742 LESS 6.003	65
NORTH RIVER COMMUNITIES LLC 9990 COCONUT RD STE 201 BONITA SPRINGS FL 34135	**20-43-26-00-00001.0000** 13638 DUKE HWY ALVA FL 33920	PARL IN NE 1/4 AS DESC IN OR 1227 PG 1185	66

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION	Map Index
SOUTH FLA WATER MGMT DIST LAND MANAGEMENT PO BOX 24680 WEST PALM BEACH FL 33416	**20-43-26-00-00001.0010** ACCESS UNDETERMINED FORT MYERS FL 33905	PARL IN NE 1/4 AS DESC IN OR 50/414 + OR 484/407 + HART + FOXWORTHYS SUB PB 1 PG 44 SLY PT LOTS 1 THRU 8 +OR 41/239 + OR 21/105	67
NORTH RIVER COMMUNITIES LLC 9990 COCONUT RD STE 201 BONITA SPRINGS FL 34135	**20-43-26-00-00001.0040** 13808 DUKE HWY ALVA FL 33920	W 1/2 OF NE 1/4 OF NE 1/4 LESS PAR 1.001 + RD R/W	68
CARY LINNIE M TR 18451 N OLGA DR ALVA FL 33920	**20-43-26-00-00001.0050** 13910 DUKE HWY ALVA FL 33920	TH E 1/2 OF TH E 1320 FT OF GOVT LOT 1 LYING N OF C + F S CONTROL DIST LESS THE W 330 FT	69
SCHWARTZ DANIEL G + DIANE B 3580 GULF HARBOUR CT BONITA SPRINGS FL 34134	**20-43-26-00-00001.0060** 13714 DUKE HWY ALVA FL 33920	W 517 FT OF E 1837 FT LYG N OF C + FSC DIST N OF RVR	70
NORTH RIVER COMMUNITIES LLC 9990 COCONUT RD STE 200 BONITA SPRINGS FL 34135	**20-43-26-00-00001.0070** 13746 DUKE HWY ALVA FL 33920	PARL LOC IN GOVT LOT 1 AS DESC IN OR 2906 PG 1605	71
NORTH RIVER COMMUNITIES LLC 9990 COCONUT RD STE 201 BONITA SPRINGS FL 34135	**20-43-26-00-00001.0080** 13778 DUKE HWY ALVA FL 33920	PARL LOC IN GOVT LOT 1 AS DESC IN OR 2906 PG 1608	72
NORTH RIVER COMMUNITIES LLC 9990 COCONUT RD STE 201 BONITA SPRINGS FL 34135	**20-43-26-00-00001.0090** 13860 DUKE HWY ALVA FL 33920	TH E 1/2 OF TH E 1320 FT OF GOVT LOT 1 LESS THE E 330FT LYING N OF C + F S CONTROL DIST	73
BIGELOW CHARLES L JR + 1471 RICARDO AVE FORT MYERS FL 33901	**20-43-26-01-00001.0000** ACCESS UNDETERMINED FORT MYERS FL 33905	HART + FOXWORTHYS S/D PB 1 PG 44 NLY PT LOTS 1 THRU 8	74
FIELDS WILLIAM T + THERESA E 14080 DUKE HWY ALVA FL 33920	**21-43-26-00-00001.0000** 14080 DUKE HWY ALVA FL 33920	PARL IN GOV LOT 5 DESC OR 2029 PG 46	75
CULVER ROGER D + MELODY 14120 DUKE HWY ALVA FL 33920	**21-43-26-00-00001.0030** 14120 DUKE HWY ALVA FL 33920	PARL IN GOV LOT 5 AS DESC OR 2029 PG 55	76
EBERLE KORNELIA 14100 DUKE HWY ALVA FL 33920	**21-43-26-00-00001.0040** 14100 DUKE HWY ALVA FL 33920	PARL IN GOV LOT 5 DESC OR 2029 PG 44	77
STERLACCI JOSEPH + DIANE 14130 DUKE HWY ALVA FL 33920	**21-43-26-00-00001.0050** 14130 DUKE HWY ALVA FL 33920	PARL IN GOV LOT 5 DESC OR 2029 PG 53	78
RODRIGUES FLORA TR 241 ALAMEDA AVE FORT MYERS FL 33905	**21-43-26-00-00002.0000** 14150 DUKE HWY ALVA FL 33920	E 80 FT OF W 860 FT N OF CSFFC IN NW 1/4 OF NW 1/4	79
FARIED SAMY 14160 DUKE HWY ALVA FL 33920	**21-43-26-12-00000.0010** 14160 DUKE HWY ALVA FL 33920	RIVER RIDGE S/D PB 42 PG 76 LOT 1	80
MONACELL DAVID A 14180 DUKE HWY ALVA FL 33920	**21-43-26-12-00000.0020** 14180 DUKE HWY ALVA FL 33920	RIVER RIDGE S/D PB 42 PG 76 LOT 2	81
WEISS TIMOTHY R + JEANETTE L AUTO AIR + ELECTRIC OF LEE 3132 FOWLER ST FORT MYERS FL 33901	**21-43-26-12-00000.0030** 14200 DUKE HWY ALVA FL 33920	RIVER RIDGE S/D PB 42 PG 76 LOT 3	82
BANFER KARL P + ELIZABETH 14220 DUKE HWY ALVA FL 33920	**21-43-26-12-00000.0040** 14220 DUKE HWY ALVA FL 33920	RIVER RIDGE S/D PB 42 PG 76 LOT 4	83
JESSUP CLAIRE D + 5400 TAMARIND RIDGE DR NAPLES FL 34119	**21-43-26-12-00000.0050** 14240 DUKE HWY ALVA FL 33920	RIVER RIDGE S/D PB 42 PG 76 LOT 5	84

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION	Map Index
LONGFELLOW ROBERT M + JANICE J 14260 DUKE HWY ALVA FL 33920	**21-43-26-12-00000.0060** 14260 DUKE HWY ALVA FL 33920	RIVER RIDGE S/D PB 42 PG 76 LOT 6	85
DURLING KEITH O 3733 CARRISA LN OLNEY MD 20832	**21-43-26-12-00000.0070** 14280 DUKE HWY ALVA FL 33920	RIVER RIDGE S/D PB 42 PG 76 LOT 7	86
DURLING RICHARD F 11500 COMPASS POINT DR FORT MYERS FL 33908	**21-43-26-12-00000.0080** 14300 DUKE HWY ALVA FL 33920	RIVER RIDGE S/D PB 42 PG 76 LOT 8	87
PRITCHETT R H III + LYNNE R PO BOX 2148 FORT MYERS FL 33902	**21-43-26-12-00000.0090** 14350 DUKE HWY ALVA FL 33920	RIVER RIDGE S/D PB 42 PG 76 LOT 9	88
PRITCHETT RICHARD H III+ PO BOX 2148 FORT MYERS FL 33902	**21-43-26-12-00000.0100** 14400 DUKE HWY ALVA FL 33920	RIVER RIDGE S/D PB 42 PG 76 LOT 10	89

89 RECORDS PRINTED

LEE COUNTY
SOUTHWEST FLORIDA

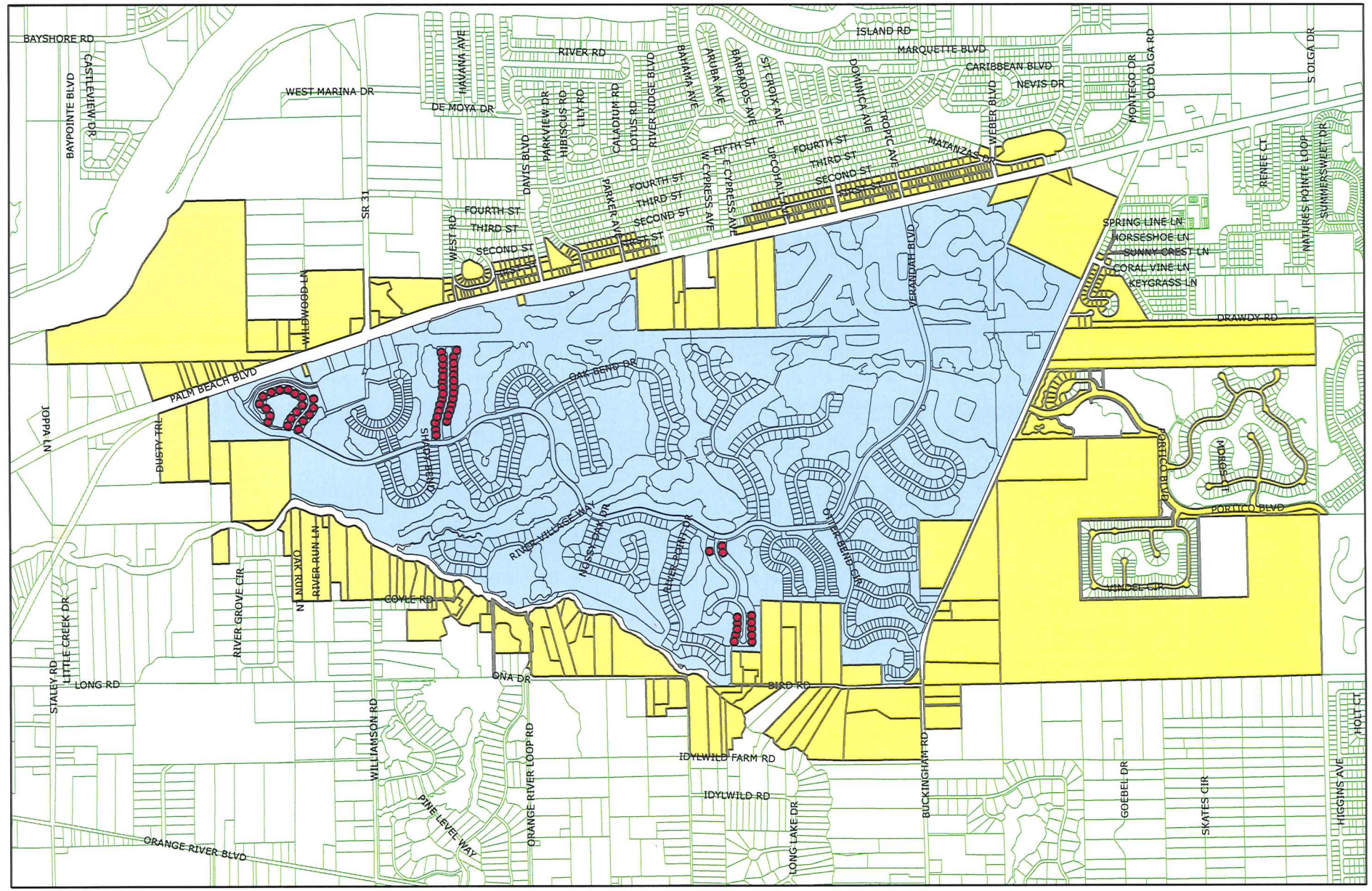
BOARD OF COUNTY COMMISSIONERS

Hearing Date:	September 23, 2009
Case Number:	CPA2006-00012
Case Name:	North River Village Comprehensive Plan Amendment
Request:	This amendment affects two separate areas. The first request is to amend the Future Land Use Map Series; Map 1 to change 1,232 acres of land designated "Rural" and "Outer Islands" to the "River Village," "Inner Islands," and "Conservation Lands" future land use categories. The second request is to amend 1,456 acres of land designated Suburban to the Sub-Outlying Suburban future land use category.
Location:	The 1,232-acre property in the first request is located in Sections 16, 17, 18, 19, and 20 of Township 43 South Range 26 East. The property is generally located east of State Road 31 south of North River Road and north of the Caloosahatchee River. The 1,456-acre property in the second request is in the residential development known as Verandah, bordered by State Road 80 on the north, Buckingham Road on the east and the Orange River on the southwest. It is located in sections 28, 29, 30, 31, and 32 of Township 43 South Range 26 East.
APPLICANT:	North River, LLC
APPLICANT'S REPRESENTATIVE:	DeLisi Fitzgerald, Inc. 1500 Royal Palm Square Blvd., Suite 101 Fort Myers, FL 33919
Lee County Planner:	Matthew Noble (239) 533-8548

The file may be reviewed Monday through Friday between the hours of 8:00 am and 4:30 pm at the Lee County, Planning Division, 1500 Monroe Street, Fort Myers, Florida 33901. Call (239) 533-8583 for additional information. This is a courtesy notice that the Board of County Commissioners will meet on September 23, 2009 at 9:30 a.m. in the Old Lee County Courthouse, 2120 Main Street, Fort Myers, Florida 33901.

OWNERSHIP REPORT

1/9/2009



PROPERTY OWNERSHIP REPORT

Date of Report: January 09, 2009

Parcels Selected: 404

Source: Lee County Property Appraiser

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
FIFTH THIRD BANK MD 10ATA1 CORP FAC 38 FOUNTAIN SQUARE PLAZA CINCINNATI OH 45263	**25-43-25-00-00002.0120** 16101 SR 31 FORT MYERS FL 33905	PAR IN SE1/4 OF SE1/4 DESC OR 1398 PG 554 LESS OR 1673 PG 4025 + OR 1918 PG 1850 SR80
STATE ROAD 80 COMMERCIAL LLC 9990 COCONUT RD STE 202 BONITA SPRINGS FL 34135	**25-43-25-00-00002.0150** 16241 SR 31 FORT MYERS FL 33905	PARL IN E 1/2 OF S E 1/4 AS DESC IN OR 1056 PG 1688 + 2.12A 16 22 26 + 27
SNOWLICK MOUNTAIN RANCH LLC 9200 BONITA BEACH RD #105 BONITA SPRINGS FL 34135	**25-43-25-00-00002.0170** 2960 WILDWOOD LN FORT MYERS FL 33905	PARL IN S 1/2 OF S E 1/4 AS DESC IN OR 0514 PG 0170
SNOWLICK MOUNTAIN RANCH LLC 9200 BONITA BEACH RD #105 BONITA SPRINGS FL 34135	**25-43-25-00-00002.0230** 2970 WILDWOOD LN FORT MYERS FL 33905	PARL IN S 1/2 OF S E 1/4 AS DESC IN OR 0514 PG 0460
SNOWLICK MOUNTAIN RANCH LLC 9200 BONITA BEACH RD #105 BONITA SPRINGS FL 34135	**25-43-25-00-00002.0240** 2950 WILDWOOD LN FORT MYERS FL 33905	PARL IN S 1/2 OF S E 1/4 AS DESC IN OR 0581 PG 0632
SNOWLICK MOUNTAIN RANCH LLC 9200 BONITA BEACH RD #105 BONITA SPRINGS FL 34135	**25-43-25-00-00002.0250** 2990 WILDWOOD LN FORT MYERS FL 33905	PARL IN S 1/2 OF S 1/2 OF S E 1/4 DESC IN OR 0581 PG 0766
FLORIDA POWER + LIGHT CO PROPERTY TAX DEPT PO BOX 14000 JUNO BEACH FL 33408	**25-43-25-00-00005.0000** ACCESS UNDETERMINED FORT MYERS FL 33905	PARL IN GOVT LOT 5 + 6 + PT OF S W 1/4 + S E 1/4 AS DESC IN OR 0271 PG 0181
FLORIDA COMMUNITY BANK 155 N BRIDGE ST LABELLE FL 33935	**36-43-25-00-00005.0000** 11390 PALM BEACH BLVD FORT MYERS FL 33905	FRM NW COR OF SEC E 1905.22 TO POB THEN E 215.77 SE 497.17 SW 205.8 THN NW 562.00 + PARL DESC IN OR 524 PG 565
SHARP PATRICIA L + 20921 JOSHUA DR ALVA FL 33920	**36-43-25-00-00006.0000** 11420/424 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN NE 1/4 OF NW 1/4 AS DESC IN INST#2008000208639
LETTER CONRAD J 235 SOUTH BEACH BLVD #57 ANAHEIM CA 92804	**36-43-25-00-00006.0010** 11400 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN NE 1/4 OF NW 1/4 AS DESC IN INST#2008000208640
GROSSE GEORGE R TR 8691 COMMONWEALTH AVE JACKSONVILLE FL 32220	**36-43-25-00-00007.0000** 11480/484 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN NE 1/4 OF NW 1/4 AS DESC IN OR 0571 PG 0427
KEYSE EUGENE C + SONJA D 11500 PALM BEACH BLVD FORT MYERS FL 33905	**36-43-25-00-00007.0010** 11500/520 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN NE 1/4 OF NW 1/4 AS DESC IN OR 1216 PG 0268
GROSSE GEORGE R TR 8691 COMMONWEALTH AVE JACKSONVILLE FL 32220	**36-43-25-00-00007.0020** 11550 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN NW 1/4 OF NE 1/4 AS DESC IN OR 0663 PG 0391
GROSSE GEORGE TR 8691 COMMONWEALTH AVE JACKSONVILLE FL 32220	**36-43-25-00-00008.0000** 11570 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN NW 1/4 OF NE 1/4 AS DESC IN OR 0498 PG 0152
FLORIDA POWER + LIGHT CO PROPERTY TAX DEPT PO BOX 14000 JUNO BEACH FL 33408	**36-43-25-00-00009.0000** 11580 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN NW 1/4 OF NE 1/4 AS DESC IN OR 0762 PG 0449
HOFFMAN PATRICIA A 1/2 + 420 INGLEWOOD DR LAKE WORTH FL 33461	**36-43-25-00-00009.0010** 11590 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN NW 1/4 OF NE 1/4 AS DESC IN OR 1024 PG 0472
WILLIAMITIS ANTHONY J 2850 WILDWOOD LN FORT MYERS FL 33905	**36-43-25-00-00010.0000** 11650 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN NW 1/4 OF NE 1/4 AS DESC IN OR 1120 PG 1062
HOFFMAN JAMES W 1/3 + 420 INGLEWOOD DR LAKE WORTH FL 33461	**36-43-25-00-00010.0010** 11600 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN NE 1/4 OF NW 1/4 AS DESC IN OR 1010 PG 1834

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
CALVARY TEMPLE ASSEMBLY OF GOD 11431 PALM BEACH BLVD FORT MYERS FL 33905	**36-43-25-00-00012.0000** 11431 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN E 400 FT OF NW 1/4 AS DESC IN OR 1156 PG 1277 LESS RD R/W + S 10 FT
ROUTE 80 STORAGE COMPANY LLC 11351 PALM BEACH BLVD FORT MYERS FL 33905	**36-43-25-00-00012.0010** 11351 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN NW 1/4 AS DESC IN ORS 1840 PG 1481+ 2348 PG 4644 LESS RD R/W
FIRST BANK PO BOX 1237 CLEWISTON FL 33440	**36-43-25-00-00013.0090** 11761 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN NE 1/4 OF NE 1/4 AS DESC IN INST#2008000288724
KING LOUISE ANN 3491 DUSTY TRL FORT MYERS FL 33905	**36-43-25-00-00015.0000** 3491 DUSTY TRL FORT MYERS FL 33905	W 1/4 OF SW 1/4 OF NE 1/4 + S 10 FT OF PARL 12.000 LES S 630 FT OF W1/4
BAUCOM DONALD L + 28232 TUNG OIL RD KINSTON AL 36453	**36-43-25-00-00016.0000** EASEMENT FORT MYERS FL 33905	E 3/4 OF SW 1/4 OF NE 1/4 LES OR3226/2847
SHANTY BOAT CRUISES INC STANLEY V MAURER + SALLY 3935 HARMONY DR FORT MYERS FL 33905	**36-43-25-00-00017.0000** 3935 HARMONY DR FORT MYERS FL 33905	PARL IN NE 1/4 OF SE 1/4 AS DESC IN OR 370 PG 826 + OR 1034 PG 1889
SMITH SAMUEL W + HATTIE L 3460 RIVER RUN LN FORT MYERS FL 33905	**36-43-25-00-00017.0010** 3460 RIVER RUN LN FORT MYERS FL 33905	W 260 FT OF E 1175 FT OF GOVT LOT 5 TOGETHER WITH EASE FOR RD
MARGERUM WILLIAM GREGORY + 2650 OLD LAKEPORT RD NW MOORE HAVEN FL 33471	**36-43-25-00-00017.0020** 3471 RIVER RUN LN FORT MYERS FL 33905	PARL IN GOVT LT 5 W 264.16 FT OF E 915 FT DESC IN OR 1689 PG 1806
MARGERUM WILLIAM GREGORY 2650 OLD LAKEPORT RD NW MOORE HAVEN FL 33471	**36-43-25-00-00017.0050** 3481 RIVER RUN LN FORT MYERS FL 33905	PARL IN GOVT LOT 5 W 264.16 FT OF E 915 FT DESC IN OR 1689 PG 1808
SCHRADER WM E + DORIS A CO-TRS 10944 WATKINS CALIFORNIA RD MARYSVILLE OH 43040	**36-43-25-00-00018.0020** 11751 OAK RUN LN FORT MYERS FL 33905	PARL IN NE 1/4 OF SE 1/4 AS DESC IN OR 0694 PG 0599
WILSON WANDA J TR 3570 WILLIAMSON RD FORT MYERS FL 33905	**36-43-25-01-00001.0000** 3570 WILLIAMSON RD FORT MYERS FL 33905	HARMONY GARDENS PB 5 PG 79 GOVT LOT PT 5
HOWELL ROGER S + JULIA T 3160 RIVER GROVE CIR FORT MYERS FL 33905	**36-43-25-03-00000.0160** 3160 RIVER GROVE CIR FORT MYERS FL 33905	RIVER GROVE ESTATES PB 32/145 LOT 16 + INT IN PARK + OR1049/1141 + OR 3226/2847
RIVER GROVE ESTATES 3200 RIVER GROVE CIR FORT MYERS FL 33905	**36-43-25-03-0000A.00CE** COMMON ELEMENTS FORT MYERS FL 33905	RIVER GROVE ESTATES PB 32 PG 145 TRACTS A + B PARK AREA
CROSSWINDS AT BUCKINGHAM 22920 VENTURE DR NOVI MI 48375	**28-43-26-00-00013.0000** SAL R R R/W FORT MYERS FL 33905	STRIP OF LAND FORMER RR R/W THRU SEC 28 LESS W 1580 FT
CROSSWINDS AT BUCKINGHAM 22920 VENTURE DR NOVI MI 48375	**28-43-26-00-00014.0000** 2951 BUCKINGHAM RD FORT MYERS FL 33905	THAT PT OF S 1/2 OF S 1/2 OF S 1/2 S OF SAL RWY + E OF PALM BEACH HWY
PRITCHARD GWENDOLYN C 14260 DRAWDY CT FORT MYERS FL 33905	**28-43-26-00-00015.0000** 14260 DRAWDY CT FORT MYERS FL 33905	E 100 FT OF W 150 FT OF N 200 FT OF S 700 FT IN S E 1/4 OF S W 1/4
PRITCHARD LESLIE E III 14260 DRAWDY CT FORT MYERS FL 33905	**28-43-26-00-00015.0010** 14250 DRAWDY CT FORT MYERS FL 33905	N 200 FT OF S 700 FT + E 250 FT MEAS S LI E OF SR 25 IN S W 1/4
PRITCHARD J D 14250 DRAWDY CT FORT MYERS FL 33905	**28-43-26-00-00015.0020** 14270 DRAWDY CT FORT MYERS FL 33905	E 100 FT OF W 250 FT OF N 200 FT OF S 700 FT IN S E 1/4 OF S W 1/4
LEE COUNTY DIST SCHOOL BOARD 2855 COLONIAL BLVD FORT MYERS FL 33966	**28-43-26-00-00017.0010** 2600 BUCKINGHAM RD FORT MYERS FL 33905	PARL W 1/2 LYING BETWEEN SR 80 + BUCKINGHAMRD DESC OR 2439/2271+OR 646/663
COX BRIAN C + TIFFANY F 24300 LOBLOLLY BAY RD LABELLE FL 33935	**28-43-26-00-00017.002A** 14381 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN W 1/2 OF S OF SR 80 SEC 28 TWP 43 RGE 26 DESC IN OR 1407 PG 1606
SALVIA ENTERPRISE INC 60% + 3359 TAMIAMI TRL N NAPLES FL 34103	**28-43-26-00-00017.0030** 14021 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN W 1/2 SEC S OF SR 80 DESC IN OR 867 PG 613

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
WISHER LAVON P 3800 WILLIAMSON RD FORT MYERS FL 33905	**28-43-26-06-00057.0010** 14002/014 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 6 BLK 57 PB 17 PG 75 LOTS 1 THRU 10
HAAS JAMES P + LOOKCHUP CPA TAX SERVICES OF SW FL 11741 PALM BEACH BLVD UNIT 202 FORT MYERS FL 33905	**28-43-26-06-00057.0110** 14018-024 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 6 BLK 57 PB 17 PG 75 LOTS 11 THRU 14
WALLIN TROY 14032 PALM BEACH BLVD FORT MYERS FL 33905	**28-43-26-06-00057.0150** 14030/32 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 6 BLK 57 PB 17 PG 75 LOTS 15 16 + 17
TEDDER D E + MARY JOYCE 8848 135TH LOOP LIVE OAK FL 32060	**28-43-26-06-00057.0180** 14036-048 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 6 BLK 57 PB 17 PG 75 LOTS 18 19 20 + 21
PATEL BROTHERS LLC 14078 PALM BEACH BLVD FORT MYERS FL 33905	**28-43-26-06-00057.0220** 14078 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 6 BLK 57 PB 17 PG 75 LOTS 22 THRU 26
PATEL BROTHERS LLC 14078 PALM BEACH BLVD FORT MYERS FL 33905	**28-43-26-06-00057.0270** 14088 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 6 BLK 57 PB 17 PG 75 LOTS 27 THRU 31
OLIVER GUILLERMO + ANGELINA 2808 WEBER BLVD FORT MYERS FL 33905	**28-43-26-06-00058.0840** 2808 WEBER BLVD FORT MYERS FL 33905	FT.MYERS SHORES UNIT 6 BLK.58 PB 17 PG 75 LOTS 84 + 85
OLGA-FORT MYERS SHORES DBA GRACE CHURCH 14036 MATANZAS DR SE FORT MYERS FL 33905	**28-43-26-06-00058.0880** 14036 MATANZAS DR FORT MYERS FL 33905	FT MYERS SHORES U 6 BLK 58 PB 17 PG 75 LOTS 86 THRU 103 + PARK AREA IN BLK 58 AKA FUGATE PARK
ELLIS MICHAEL R + SANDE L 14119 REFLECTION LAKES DR FORT MYERS FL 33907	**28-43-26-08-00001.0010** 15517 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 1
MADISON JOSEPH J III + MARCIA 15515 SPRINGLANE FORT MYERS FL 33905	**28-43-26-08-00001.0020** 15515 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 2
JENKINS TANYA 15513 SPRINGLINE LN FORT MYERS FL 33905	**28-43-26-08-00001.0030** 15513 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 3
BANNISTER PAMELA S 15511 SPRINGLINE LN FORT MYERS FL 33905	**28-43-26-08-00001.0040** 15511 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 4
HERBERT EMILY J TR 15507 SPRING LINE LN FORT MYERS FL 33905	**28-43-26-08-00001.0050** 15507 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 5
PACHECO PEDRO A + MARIA J 15503 SPRINGLINE LANE FORT MYERS FL 33905	**28-43-26-08-00001.0060** 15503 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 6
PEGUERO JUAN 13444 4TH ST FORT MYERS FL 33905	**28-43-26-08-00001.0070** 15501 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 7
PACHECO ARMANDO JR 10028 SALINA ST FORT MYERS FL 33905	**28-43-26-08-00001.0080** 15497 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 8
CHURCHILL SALLY + 348 FOREST HILLS BLVD NAPLES FL 34113	**28-43-26-08-00001.0090** 15493 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 9
GRADY SHAWN B 15489 SPRING LINE LN FORT MYERS FL 33905	**28-43-26-08-00001.0100** 15489 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 10
ELLIS BERNADINE A 15483 SPRING LINE LN SE FORT MYERS FL 33905	**28-43-26-08-00001.0110** 15483 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 11
SANDERS JAMES R + MELODY A 185 BERRY GARDEN LN SOUTH SHORE KY 41175	**28-43-26-08-00001.0120** 15479 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 12
PRESTON MATTHEW 15475 SPRING LINE LN FORT MYERS FL 33905	**28-43-26-08-00001.0130** 15475 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 13

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
RICE ELIZABETH M 15474 SPRING LINE LN FORT MYERS FL 33905	**28-43-26-08-00001.0140** 15474 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 14
SANTOS ROBSON DE OLIVEIRA + 3704 BROADWAY #205 FORT MYERS FL 33901	**28-43-26-08-00001.0200** 15488 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 20
WELLS DANIEL J + DELORES M 15492 SPRINGLINE LN SE FORT MYERS FL 33905	**28-43-26-08-00001.0210** 15492 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 21
CARUSO JOSEPH J + 15496 SPRING LINE LN FORT MYERS FL 33905	**28-43-26-08-00001.0220** 15496 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 22
HOWARD MITCHELL JR + MYRNA D 1810 MITCHELL AV ALVA FL 33920	**28-43-26-08-00001.0230** 15500 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 23
MORROW BRENDA W 15814 KEYGRASS LN FORT MYERS FL 33905	**28-43-26-08-00001.0240** 15502 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 24
LUSK WILLIAM DANIEL + KATHY R 15506 SPRING LINE LN FORT MYERS FL 33905	**28-43-26-08-00001.0250** 15506 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 25
DUFF JAMES W + RUBY L 15510 SPRING LINE LN FORT MYERS FL 33905	**28-43-26-08-00001.0260** 15510 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 26
MARTINEZ MARTY 15514 SPRING LINE LN FORT MYERS FL 33905	**28-43-26-08-00001.0270** 15514 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 27
LLOYD THOMAS + JULAINE 15518 SPRING LINE LN FORT MYERS FL 33905	**28-43-26-08-00001.0280** 15518 SPRING LINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 28
CHISUM DONALD + KATHLEEN 17521 FRANK RD ALVA FL 33920	**28-43-26-08-00001.0290** 15702 CORAL VINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 29
WHITE ERNEST L + BOBBI JO 15706 CORAL VINE LN FORT MYERS FL 33905	**28-43-26-08-00001.0300** 15706 CORAL VINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 1 PB 33 PG 56 LOT 30
WHITNEY MATTHEW D + SHARON L 15701 CORAL VINE LN FORT MYERS FL 33905	**28-43-26-08-00005.0010** 15701 CORAL VINE LN FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 BLK 5 PB 33 PG 56 LOT 1
LEE COUNTY PO BOX 398 FORT MYERS FL 33902	**28-43-26-08-0000A.0000** RIVERDALE SHORES TRACT A FORT MYERS FL 33905	RIVERDALE SHORES UNIT 1 PB 33 PG 56 TRACT A RETENTION AREA
YOUSIF SAFEADDIN A + 15519 SPRING LINE LN FORT MYERS FL 33905	**28-43-26-10-00008.0010** 15519 SPRING LINE LN FORT MYERS FL 33905	RESERVE AT BUCKINGHAM PB 59 PG 83 BLK 8 LOT 1
VILLAGES OF BUCKINGHAM ASSN 15604 SUNNY CREST LN FORT MYERS FL 33905	**28-43-26-10-0000A.01CE** RESERVED FORT MYERS FL 33905	RESERVE AT BUCKINGHAM PB 58 PG 83 PT OF TR A AS DESC IN OR 2843/1878
ASSEMBLIES OF GOD LOAN FUND 1661 NORTH BOONVILLE AVE SPRINGFIELD MO 65803	**29-43-26-00-00002.0000** 13151 PALM BEACH BLVD FORT MYERS FL 33905	E 634 FT OF W 1384.1 FT IN S W 1/4 S OF SR 80 LESS S 591.2 FT
ROSA DE SARON ASSEMBLY OF GOD PO BOX 50204 FORT MYERS FL 33994	**29-43-26-00-00003.0010** 13235 PALM BEACH BLVD FORT MYERS FL 33905	E 296.33 FT OF W 1680.43 FT IN S W 1/4 S OF SR 80 LESS S 591.2 FT
ST VINCENT DE PAUL HOUSING INC 13071 PALM BEACH BLVD FORT MYERS FL 33905	**29-43-26-00-00006.0010** 13071 PALM BEACH BLVD FORT MYERS FL 33905	PARCEL IN SW 1/4 SOF SR 80 DESC IN OR 4031 PG 301
TINDALL ELIZABETH + 23151 TUCKAHOE RD ALVA FL 33920	**29-43-26-00-00007.0000** 13005 PALM BEACH BLVD FORT MYERS FL 33905	DESC OR 1157 PG 65 S OF SR 80 LESS PARL 7.002 7.002
SOUTHEAST SPREADING 3550 WORK DR UNIT B1 FORT MYERS FL 33916	**29-43-26-00-00007.0020** 13011 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN SW 1/4 DESC IN OR 1602 PG 2007

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
JIMENEZ OSCAR 13806 PALM BEACH BLVD FORT MYERS FL 33905	**29-43-26-03-00037.0010** 2840 UPCOHALL AVE #42 FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 37 PB 10 PG 27 LOTS 1 THRU 4
JIMENEZ OSCAR 13806 PALM BEACH BLVD FORT MYERS FL 33905	**29-43-26-03-00037.0050** 13249/51 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK.37 PB 10 PG 27 LOTS 5 THRU 9
MUCERINO DENNIS SR 18548 EASTSHORE DR FORT MYERS FL 33967	**29-43-26-03-00037.0100** 13243/45 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK.37 PB 10 PG 27 LOTS 10 AND 11
WARE BILLY J SR + BARBARA L 16401 RIVER MIST LN ALVA FL 33920	**29-43-26-03-00037.0120** 13239/241 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 37 PB 10 PG 27 LOTS 12 + 13
WARE BILLY J + BARBARA L 16401 RIVER MIST LN ALVA FL 33920	**29-43-26-03-00037.0140** 13235/237 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 37 PB 10 PG 27 LOTS 14 + 15
WARE BILLY J SR + BARBARA L 16401 RIVER MIST LN ALVA FL 33920	**29-43-26-03-00037.0160** 13231/233 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 37 PB 10 PG 27 LOTS 16 + 17
FELICIANO JIMIRO + LUCY 13843 MATANZAS DR FORT MYERS FL 33905	**29-43-26-03-00037.0180** 13229 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UT 3 BLK 37 PB 10 PG 27 LOTS 18 + 19
EQUITY TRUST COMPANY MICHAEL MCBRIDE 649 TRAVERS AVE FORT MYERS FL 33919	**29-43-26-03-00037.0200** 13223/25 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 37 PB 10 PG 27 LOTS 20 21+ 22
ERWIN + JONES INVESTMENTS LLC 14568 RIVERSIDE DR FORT MYERS FL 33905	**29-43-26-03-00037.0230** 13217/19 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK.37 PB 10 PG 27 LOTS 23 + 24
LINK FRANK F 15075 BUCKEYE DR FORT MYERS FL 33905	**29-43-26-03-00037.0250** 13213/15 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 37 PB 10 PG 27 LOTS 25 + 26
DCC HOLDINGS INC 850 SW 14TH CT POMPANO BEACH FL 33060	**29-43-26-03-00037.0410** 13214 PALM BEACH BLVD FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK.37 PB 10 PG 27 LOTS 35 THRU 46
LABS3 LLC 17040 PRIMAVERA CIR CAPE CORAL FL 33909	**29-43-26-03-00037.0470** 13232 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 37 PB 10 PG 27 LOTS 47 THRU 56
PARARONS LLP 5245 RAMSEY WAY STE 8 FORT MYERS FL 33907	**29-43-26-03-00037.0570** 13250 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 37 PB 10 PG 27 LOTS 57 THRU 68
AVELO MORTGAGE LLC LAURA LAYNE WALKER 9204 KING PALM DR TAMPA FL 33619	**29-43-26-03-00038.0290** 13226 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 38 PB 10 PG 27 LOTS 29 + 30
JIMENEZ OSCAR 13806 PALM BEACH BLVD FORT MYERS FL 33905	**29-43-26-03-00038.0310** 13232 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 38 PB 10 PG 27 LOTS 31 + 32
HAINES HOLLY + 2525 PARKWAY ST FORT MYERS FL 33901	**29-43-26-03-00038.0330** 13238 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK.38 PB 10 PG 27 LOTS 33 + 34
MILLENIUM MANAGEMENT TEAM LLC 14037 NEVIS DR FORT MYERS FL 33905	**29-43-26-03-00038.0350** 13244 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 38 PB 10 PG 27 LOT 35
MILLENIUM MANAGEMENT TEAM LLC 14037 NEVIS DR FORT MYERS FL 33905	**29-43-26-03-00038.0360** 13246 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 38 PB 10 PG 27 LOT 36
RENDA CATHERINE A T/C 13250 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00038.0370** 13250 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES U 3 BLK 38 PB 10 PG 27 LOTS 37 + 38
PRICE GEORGIE M 424 LINCOLN AVE ALAMEDA CA 94501	**29-43-26-03-00038.0390** 2830 UPCOHALL AVE FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK.38 PB 10 PG 27 LOTS 39 + 40
SWENSON JOHN E + MARILYN S 13300 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00045.0210** 13300 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 45 PB 10 PG 27 LOTS 21 + 22

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
VARGAS PORFIRIO + 13308 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00045.0230** 13308 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 45 PB 10 PG 27 LOTS 23 + 24
LOPEZ ANTONIO 13314 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00045.0250** 13314 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES U 3 BLK 45 PB 10 PG 27 LOTS 25 + 26
LABISSIERE VALME + 13320 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00045.0270** 13320 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 45 PB 10 PG 27 LOTS 27 + 28.
BATEWELL RICHARD K JR 13326 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00045.0290** 13326 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 45 PB 10 PG 27 LOTS 29 + 30.
BATEWEL RICHARD EST 13332 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00045.0310** 13332 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 45 PB 10 PG 27 LOTS 31 +32
LESSIG GREGORY S 3225 31ST ST W LEHIGH ACRES FL 33971	**29-43-26-03-00045.0330** 13336 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 45 PB 10 PG 27 LOTS 33 + 34
PINTUS RICARDO F 5077 NORTHAMPTON DR FORT MYERS FL 33919	**29-43-26-03-00045.0350** 13344 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 45 PB 10 PG 27 LOT 35 + W 20FT OF LT36
PINTUS RICARDO F 5077 NORTAMPTON DR FORT MYERS FL 33919	**29-43-26-03-00045.0370** 13348 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UT 3 BLK45 PB 10 PG 27 LT 37 + THE E 20FT LT 36
CARTER ANNER E 13350 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00045.0380** 13350 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 45 PB 10 PG 27 LOTS 38 THRU 40
COSTANTINI DOMENIC + 3359 TAMIAMI TRL N NAPLES FL 34103	**29-43-26-03-00046.0010** 13361/63 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 1 + 2
FLANAGAN MAYRA + 18041 MARQUETTE BLVD FORT MYERS FL 33905	**29-43-26-03-00046.0030** 13351/53 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 3 4 5 + 6
REYNOSO MARCELINO LARIOS 13456 1ST ST FORT MYERS FL 33905	**29-43-26-03-00046.0070** 13347/49 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK.46 PB 10 PG 27 LOTS 7 + 8
SHEALY MICHAEL B + JOHANNA E 5751 SW 8TH CT PLANTATION FL 33317	**29-43-26-03-00046.0090** 13339/341 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 9 + 10
SHEALY MICHAEL B + JOHANNA E 5751 SW 8TH CT PLANTATION FL 33317	**29-43-26-03-00046.0110** 13335/37 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 11 + 12
SHEALY MICHAEL B + JOHANNA E 5751 SW 8TH CT PLANTATION FL 33317	**29-43-26-03-00046.0130** 13331/33 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 13 + 14
SHEALY MICHAEL B + JOHANNA E 5751 SW 8TH CT PLANTATION FL 33317	**29-43-26-03-00046.0150** 13327/29 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 15 + 16
SHEALY MICHAEL B + JOHANNA E 5751 SW 8TH CT PLANTATION FL 33317	**29-43-26-03-00046.0170** 13323/25 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 17 + 18
MOLINA WILLIAM E + WENDY 121 CAMDEN ST METHUEN MA 01844	**29-43-26-03-00046.0190** 13321 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 19 THRU 22
MILLIKEN RHONDA 16580 GOLDENROD LN UNIT 201 ALVA FL 33920	**29-43-26-03-00046.0230** 13313/15 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 23 + 24
CARDONA JOSE A + ROSA E 323 NW 7TH PL CAPE CORAL FL 33993	**29-43-26-03-00046.0250** 13311 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 25 + 26
REYES JOSE JR 13309 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00046.0270** 13309 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 27 + 28
MORGAN D S + BARBARA A 330 SHORE DR FORT MYERS FL 33905	**29-43-26-03-00046.0290** 13301 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 29 THRU 32.

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
URBAN INVESTMENT PARTNERS INC 13302 PALM BEACH BLVD FORT MYERS FL 33905	**29-43-26-03-00046.0330** 13302 PALM BEACH BLVD FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 33 THRU 36
EMMERT FRANK O TR + 9833 N MIAMI AVE MIAMI FL 33150	**29-43-26-03-00046.0370** 13314 PALM BEACH BLVD FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 37 + 38.
13320 PALM BEACH BLVD LLC 21212 WAYMOUTH RUN ESTERO FL 33928	**29-43-26-03-00046.0390** 13320 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 39 THRU 42
WERAB MICHAEL J + LISA L 1/2 + 3359 TAMIAMI TRAIL N NAPLES FL 34103	**29-43-26-03-00046.0430** 13326 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 43 THRU 50
WERAB MICHAEL J + LISA L 1/2 + 3359 TAMIAMI TRL N NAPLES FL 34103	**29-43-26-03-00046.0510** 13338 PALM BEACH BLVD FORT MYERS FL 33905	FT.SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 51 THRU 54
BOSS MANLEY L TR 3308 NW PERIMETER RD PALM CITY FL 34990	**29-43-26-03-00046.0550** 13346 PALM BEACH BLVD FORT MYERS FL 33905	FT SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 55 THRU 58
BOSS HELEN P TR 3308 PERIMETER RD PALM CITY FL 34990	**29-43-26-03-00046.0590** 13350 PALM BEACH BLVD FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 46 PB 10 PG 27 LOTS 59 THRU 64.
SULLIVAN DENISE M + VIRGIL R 4197 SKATES CIR FORT MYERS FL 33905	**29-43-26-03-00047.0010** 13473/475 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 1 2 3 + 4.
SPEER ROBERT E + JUDITH M 13468 PALM BEACH BLVD FORT MYERS FL 33905	**29-43-26-03-00047.0050** 13469/471 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 5 + 6
SPEER ROBERT E + JUDITH M 13468 PALM BEACH BLVD FORT MYERS FL 33905	**29-43-26-03-00047.0070** 13465/67 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 7 + 8.
CRAIG THOMAS TERRY + 13361 ISLAND RD SE FORT MYERS FL 33905	**29-43-26-03-00047.0090** 13461/463 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 9 + 10.
CRAIG THOMAS T 13361 ISLAND RD SE FORT MYERS FL 33905	**29-43-26-03-00047.0110** 13455/457 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 11 THRU 13.
CRAIG THOMAS T 13361 ISLAND RD SE FORT MYERS FL 33905	**29-43-26-03-00047.0140** 13447/449 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 14 THRU 16
CRAIG THOMAS T 13361 ISLAND RD SE FORT MYERS FL 33905	**29-43-26-03-00047.0170** 13443 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 17 THRU 19
SHERRY MARKUS + DIANE 25 CARROTWOOD CT FORT MYERS FL 33919	**29-43-26-03-00047.0200** 13437/439 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 20 THRU 22
WARE B J + BARBARA L BARBARA L WARE REALTY 16401 RIVER MIST LN ALVA FL 33920	**29-43-26-03-00047.0230** 13433/435 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 47 PB 10 PB 28 LOTS 23 + 24
WARE BILLY J + BARBARA L 16401 RIVER MIST LN ALVA FL 33920	**29-43-26-03-00047.0250** 13427/429 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 47 PB 10 PG 18 LOTS 25 + 26
WARE B J + BARBARA L BARBARA L WARE REALTY 16401 RIVER MIST LN ALVA FL 33920	**29-43-26-03-00047.0270** 13421/423 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 47 PB 10 PG 18 LOTS 27 + 28
WARE BILLY JAMES + BARBARA 16401 RIVER MIST LN ALVA FL 33920	**29-43-26-03-00047.0290** 13413/19 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK.47 PB 10 PG 28 LOTS 29 THRU 32
RHODY DEVELOPMENT INC TR 325 CHATHAM WAY MOUNTAIN VIEW CA 94040	**29-43-26-03-00047.0330** 13405/09 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 33 THRU 36
RAIBLE PAUL 1530 AVALON PL FORT MYERS FL 33901	**29-43-26-03-00047.0370** 13401 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 37 THRU 40.

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
FISCHER THOMAS E + CHERYL L 13440 PALM BEACH BLVD FORT MYERS FL 33905	**29-43-26-03-00047.0410** 13400 PALM BEACH BLVD FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK.47 PB 10 PG 28 LOTS 41 THRU 56
SHERRY MARKUS + 25 CARROTWOOD CT FORT MYERS FL 33919	**29-43-26-03-00047.0570** 13432 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 57 THRU 60
SAHADEO SEOKUMAR 15663 SPRINGLINE LN FORT MYERS FL 33905	**29-43-26-03-00047.0610** 13438 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 61 + 62
POKORNY JOSEPH + KATHERINE TR 13510 ISLAND RD SE FORT MYERS FL 33905	**29-43-26-03-00047.0630** 13440 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 63 THRU 72
B N V INVESTMENTS INC PO BOX 5271 HIALEAH FL 33014	**29-43-26-03-00047.0730** 13462 PALM BEACH BLVD FORT MYERS FL 33905	FT.MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 73 + 74.
SPEER ROBERT E + JUDITH M 13468 PALM BEACH BLVD FORT MYERS FL 33905	**29-43-26-03-00047.0750** 13468 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 75 + 76
SULLIVAN DENISE M + VIRGIL R 4197 SKATES CIR FORT MYERS FL 33905	**29-43-26-03-00047.0770** 13474 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 47 PB 10 PG 28 LOTS 77 THRU 80
COURSEN GLEN H 13402 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00048.0260** 13402 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 48 PB 10 PG 28 LOTS 26 + 27
ALLEN CARLOS M 14040 CHANCELLOR ST FORT MYERS FL 33905	**29-43-26-03-00048.0280** 13408 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 48 PB 10 PG 28 LOTS 28 + 29
BOUTH MICHAEL P + AMALIA PETER BOUTH 3542 SOTO GRANDE CT PENSACOLA FL 32504	**29-43-26-03-00048.0300** 13414 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK.48 PB 10 PG 28 LOTS 30 + 31
STEELE REX L + DEBRA A 13420 1ST ST SE FORT MYERS FL 33905	**29-43-26-03-00048.0320** 13420 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 48 PB 10 PG 28 LOTS 32 + 33
VARGAS RAMON 13426 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00048.0340** 13426 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 48 PB 10 PG 28 LOTS 34 + 35
BOYER KEAN D TR 212 SE 43RD TER CAPE CORAL FL 33904	**29-43-26-03-00048.0360** 13432 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 48 PB 10 P 28 LOTS 36 + 37
SILVERA ANGEL E 13438 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00048.0380** 13438 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 48 PB 10 PG 28 LOTS 38 THRU 40
NICOLAI DOMINICK DECEASED ROSEMARY CONNER 18061 INTERLOCHEN LN ALVA FL 33920	**29-43-26-03-00048.0410** 13450 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 48 PB 10 PG 28 LOTS 41 THRU 44
LARIOS MARCELINO + MARIA 13456 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00048.0450** 13456 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 48 PB 10 PG 28 LOTS 45 + 46
WEINACHT HEATHER I HEATHER DRIGGERS PO BOX 44 LOGANVILLE GA 30052	**29-43-26-03-00048.0470** 13462 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 48 PB 10 PG 28 LOTS 47 + 48
DELRIO JACQUELINE 13474 FIRST ST FORT MYERS FL 33905	**29-43-26-03-00048.0490** 13474 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 3 BLK 48 PB 10 PG 28 LOTS 49 + 50
WELCH WILLIAM 13114 CARIBBEAN BLVD FORT MYERS FL 33905	**29-43-26-05-00055.0010** 13802 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PB 70 LOTS 1 + 2
BROWN GARY J + DEBRA A 13808 FIRST ST FORT MYERS FL 33905	**29-43-26-05-00055.0030** 13808 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOTS 3 + 4
PRINCE SHANNON 39 LUGAR CRT BEDFORD NS B4A 3K1 CANADA	**29-43-26-05-00055.0050** 13814 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOTS 5 6 7

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
CLEVENGER HELEN E 2810 WEST RD FORT MYERS FL 33905	**29-43-26-05-00055.0080** 13820 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOTS 8 + 9
BANDY ELLERY W 13826 FIRST ST FORT MYERS FL 33905	**29-43-26-05-00055.0100** 13826 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOTS 10 + 11
HAINSWORTH TERRIE O 2134 ST CROIX AVE FORT MYERS FL 33905	**29-43-26-05-00055.0120** 13832 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOT 12
HAINSWORTH TERRIE O 2134 ST CROIX AVE FORT MYERS FL 33905	**29-43-26-05-00055.0130** 13834 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOT 13
NAPIERALA MARK J + 13838 FIRST STREET SE FORT MYERS FL 33905	**29-43-26-05-00055.0140** 13838 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOTS 14 + 15
ZAMORA JOSE 13900 FIRST ST FORT MYERS FL 33905	**29-43-26-05-00055.0160** 13900 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOTS 16 + 17
NASH JOHN R 13902 FIRST ST FORT MYERS FL 33905	**29-43-26-05-00055.0180** 13902 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOTS 18 + 19
LEASURE ROBERT LAWRENCE + PO BOX 51587 FORT MYERS FL 33994	**29-43-26-05-00055.0200** 13908 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOTS 20 21 22
TEETER KIMBERLY 13914 FIRST ST SE FORT MYERS FL 33905	**29-43-26-05-00055.0230** 13914 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOTS 23 24 25
REED SHAWN 13926 FIRST ST FORT MYERS FL 33905	**29-43-26-05-00055.0260** 13926 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOTS 26 THRU 27
MIRANDA JUAN + 13932 1ST ST FORT MYERS FL 33905	**29-43-26-05-00055.0280** 13932 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOTS 28 THRU 30
PORTALATIN JOSE + CLAUDIA 13938 FIRST ST FORT MYERS FL 33905	**29-43-26-05-00055.0310** 13938 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 55 PB 16 PG 70 LOTS 31 + 31A
JIMENEZ OSCAR + CARMEN 2500 HAWKS PRESERVE FORT MYERS FL 33905	**29-43-26-05-00056.0010** 13806 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 1 THRU 5
GADGIL VERENA PO BOX 50399 FORT MYERS FL 33994	**29-43-26-05-00056.0060** 13814 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 6 THRU 10
PALACIOS JOSEPH M 32 BAYVIEW BLVD FORT MYERS BEACH FL 33931	**29-43-26-05-00056.0150** 13828 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 15 + 16 + 16A + LOTS 11 THRU 14
MAJKA JOHN 1728 SE 46TH ST CAPE CORAL FL 33904	**29-43-26-05-00056.0170** 13832 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 17 THRU 20
MAJKA JOHN 1728 SE 46TH ST CAPE CORAL FL 33904	**29-43-26-05-00056.0210** 13838 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 21 + 22
MAJKA JOHN 1728 SE 46TH ST CAPE CORAL FL 33904	**29-43-26-05-00056.0230** 13844 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 23 + 24
MILLER HARRY E 13850 PALM BEACH BLVD FORT MYERS FL 33905	**29-43-26-05-00056.0250** 13850 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 25 THRU 29
R-80 RIB CITY INC DINA GREEN 1429 COLONIAL BLVD STE 203 FORT MYERS FL 33907	**29-43-26-05-00056.0300** 13908 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 30 THRU 39
LAUTENBACH PROPERTIES LLC 14651 PALM BEACH BLVD SE #100 FORT MYERS FL 33905	**29-43-26-05-00056.0400** 13920 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 40 41 42 + 43

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
AKIN-DAVIS FUNERAL HOMES PA 560 E HICKPOCHEE AVE LABELLE FL 33935	**29-43-26-05-00056.0440** 13926 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 44 + 45
AKIN-DAVIS FUNERAL HOMES PA 560 E HICKPOCHEE AVE LABELLE FL 33935	**29-43-26-05-00056.0460** 13932 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 46 47 + 48
AKIN-DAVIS FUNERAL HOMES PA 560 E HICKPOCHEE AVE LABELLE FL 33935	**29-43-26-05-00056.0490** 13938 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 49 THRU 51
AKIN-DAVIS FUNERAL HOMES 560 E HICHPOCHEE AVE LABELLE FL 33935	**29-43-26-05-00056.0520** 13944 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 52 + 53
SPRINT FLORIDA INC BEATRICE BAILEY PO BOX 7909 OVERLAND PARK KS 66207	**29-43-26-05-00056.0540** 13946 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 54 THRU 56
SPRINT FLORIDA INC BEATRICE BAILEY PO BOX 7909 OVERLAND PARK KS 66207	**29-43-26-05-00056.0570** 13950 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 57 + 58
MELNICK STUART L 262 MONTEREY DR NAPLES FL 34119	**29-43-26-05-00056.0590** 13955-957 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 59 + 60
MELNICK STUART L 262 MONTEREY DR NAPLES FL 34119	**29-43-26-05-00056.0610** 13949/951 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 61 + 62
MELNICK STUART L 262 MONTEREY DR NAPLES FL 34119	**29-43-26-05-00056.0630** 13943/945 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 63 + 64
MELNICK STUART L 262 MONTEREY DR NAPLES FL 34119	**29-43-26-05-00056.0650** 13939/941 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 65 + 66
RADEMAKERS ROBERT R + VIRGINIA 15550 IDALIA DR ALVA FL 33920	**29-43-26-05-00056.0670** 13935/37 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 67 + 68
RADEMAKERS ROBERT R + VIRGINIA 15550 IDALIA DR ALVA FL 33920	**29-43-26-05-00056.0690** 13933/31 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UT 5 BLK 56 PB 16 PG 70 LOTS 69 THRU 71
RADEMAKERS ROBERT R + VIRGINIA 15550 IDALIA DR ALVA FL 33920	**29-43-26-05-00056.0720** 13927/29 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 66-70 LOTS 72 + 73
RADEMAKERS ROBERT R + VIRGINIA 15550 IDALIA DR ALVA FL 33920	**29-43-26-05-00056.0740** 13923/25 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 74 + 75
RADEMAKERS ROBERT R + VIRGINIA 15550 IDALIA DR ALVA FL 33920	**29-43-26-05-00056.0760** 13915/21 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 76 THRU 79
RANEY KENLEY PMB 393 10300 W CHARLESTON BLVD STE 13 LAS VEGAS NV 89135	**29-43-26-05-00056.0800** 13911/13 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 66 LOTS 80 + 81
CARR TAMI + 1950 OAK DR ALVA FL 33920	**29-43-26-05-00056.0820** 13907/09 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 66 LOTS 82 + 83
GRIFFIN PHILLIP J + JUDITH F 2101 SE 19TH LN CAPE CORAL FL 33990	**29-43-26-05-00056.0840** 13901/03 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 66 LOTS 84 + 85
GRIFFIN PHILLIP J + JUDITH F 2101 SE 19TH LN CAPE CORAL FL 33990	**29-43-26-05-00056.0860** 13881/83 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 66 LOTS 86 + 87
GRIFFIN PHILLIP J + JUDITH F 2101 SE 19TH LN CAPE CORAL FL 33990	**29-43-26-05-00056.0880** 13861/63 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 66 LOTS 88 + 89
GRIFFIN PHILLIP J + JUDITH F 2101 SE 19TH LN CAPE CORAL FL 33990	**29-43-26-05-00056.0900** 13855/57 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 66 LOTS 90 + 91

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
ERWIN RAYMOND R + 14568 RIVERSIDE DR FORT MYERS FL 33905	**29-43-26-05-00056.0920** 13847/49 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 92 + 93
FLANAGAN MAYRA A + 14041 MARQUETTE BLVD FORT MYERS FL 33905	**29-43-26-05-00056.0940** 13841/43 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 94 + 95
PISCITELLI FRANCESCO + 1955 INDIAN CREEK DR NORTH FORT MYERS FL 33917	**29-43-26-05-00056.0960** 13837/39 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 96 + 97
FLANAGAN MAYRA A + 14041 MARQUETTE BLVD FORT MYERS FL 33905	**29-43-26-05-00056.0980** 13833/35 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 98 THRU 100
SCHUTT DAVID P + PAMELA S 7745 VICTORIA COVE CT FORT MYERS FL 33908	**29-43-26-05-00056.100A** 13827/31 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 100-A 101 + 102
LINK BROTHERS LLC 3914 W DALE AVE TAMPA FL 33609	**29-43-26-05-00056.1030** 13823/25 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 103 + 104
VAZQUEZ FRANCISCO + RAYMA 2457 BRIDGE RD NORTH FORT MYERS FL 33917	**29-43-26-05-00056.1050** 13817/19 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UT 5 PB 16 PG 70 BLK 56 LOTS 105 + 106
MAYS EVELYN K ROBERT G MAYS JR 8810 FIRST BLOOM RD CHARLOTTE NC 28277	**29-43-26-05-00056.1070** 13813 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 107 THRU 109
COMBS MIKE + DEBBIE 13809 FIRST STREET SE FORT MYERS FL 33905	**29-43-26-05-00056.1100** 13809 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 110 + 111
MESSANA FRANK L + LINDA + 5201 BROOKS RD FORT MYERS FL 33905	**29-43-26-05-00056.1120** 13803 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 5 BLK 56 PB 16 PG 70 LOTS 112 THRU 116
CRUZ SANTIAGO 13974 MATANZAS DR FORT MYERS FL 33905	**29-43-26-06-00067.0500** 13974 MATANZAS DR FORT MYERS FL 33905	FT MYERS SHORES UNIT 6 BLK 67 PB 17 PG 75 LOTS 50 + 51 + 52 + 53
EVANGELISTIC WORKS INC 12925 PALM BEACH BLVD FORT MYERS FL 33905	**30-43-26-00-00003.0020** 12925 PALM BEACH BLVD FORT MYERS FL 33905	THE E 600 FT OF THE SE 1/4 N OF OLD RR R/W AND SOUTH OF STATE ROAD 80
FORT MYERS SHORES FIRE 12345 PALM BEACH BLVD FORT MYERS FL 33905	**30-43-26-00-00003.0030** 12345 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN S E 1/4 S OF SR 80 DESC IN OR 1200 PG 710
LEE COUNTY PO BOX 398 FORT MYERS FL 33902	**30-43-26-00-00003.0040** 12901 PALM BEACH BLVD FORT MYERS FL 33905	PARC S OF ST RD 80 DESC OR 1418 PG 2194
OKEECHOBEE INN LTD 802 NW 1ST ST SOUTH BAY FL 33493	**30-43-26-00-00007.0000** 12002/10 PALM BEACH BLVD FORT MYERS FL 33905	PARL IN SW 1/4 OF SW 1/4 DESC IN OR 1729 PG1553 THR 1566
AM + GW LLC 8841 W TERRY ST BONITA SPRINGS FL 34135	**30-43-26-00-00007.0010** 12020 PALM BEACH BLVD FORT MYERS FL 33905	S W 1/4 OF S W 1/4 OF S W 1/4 N OF SR 80 LESS W 200 FT
AM + GW LLC 8841 W TERRY ST BONITA SPRINGS FL 34135	**30-43-26-00-00008.0000** 16190 SR 31 FORT MYERS FL 33905	PORTION OF N 1/2 OF SW 1/4 OF SW1/4 DESC OR 1240/1269 LESS OR 1890 PG 996 RD R/W LESS 8.0010 + OR 4543/1707
AM + GW LLC 8841 WEST TERRY ST BONITA SPRINGS FL 34135	**30-43-26-00-00008.0020** ACCESS UNDETERMINED FORT MYERS FL 33905	PARL LOC IN N 1/2 OF SW 1/4 DESC IN OR 4543 PG 1707
TOWLE PETER C + 1475 N TAMIAMI TRL NORTH FORT MYERS FL 33903	**30-43-26-01-00001.0010** 12156 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 1 PB 9 PG 151 LOTS 1 THRU 4 INCL.
RUANE JEAN E TR 1725 SE 14TH ST CAPE CORAL FL 33990	**30-43-26-01-00001.0050** 12150 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 1 PB 9 PG 151 LOTS 5 + 6 7 8 + 9
HERNANDEZ ACACIO 2901 WEST RD FORT MYERS FL 33905	**30-43-26-01-00001.0100** 2901 WEST RD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 1 PB 9 PG 151 LOTS 10 + 11

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
WILSON ROI 2831 WEST RD FORT MYERS FL 33905	**30-43-26-01-00001.0120** 2831 WEST RD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 1 PB 9 PG 151 LOTS 12 + 13
HUSZ BILLIE K L/E 2761 LAKEVIEW DR SE FORT MYERS FL 33905	**30-43-26-01-00004.0190** 2761 LAKEVIEW DR FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 4 PB 9 PG 151 LOTS 19 + 20
VILLAFANE HERMINO + DAMARIS 12320 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00004.0210** 12320 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 4 PB 9 PG 151 LOTS 21 AND 22
DOAN 2 LLC 3316 BATH HEIGHTS DR CUYAHOGA FALLS OH 44223	**30-43-26-01-00004.0230** 12326 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 4 PB 9 PG 151 LOTS 23 + 24
DELORME JEAN MARCEL + 12340 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00004.0250** 12340 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 4 PB 9 PG 151 LOTS 25 + 26
PINTUS RICK 5077 NORTHAMPTON DR FORT MYERS FL 33919	**30-43-26-01-00004.0270** 12350 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 4 PB 9 PG 151 LOTS 27 + 28
JARAMILLO ISAIAS 12364 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00004.0290** 12364 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 4 PB 9 PG 151 LOTS 29 + 30
GARCIA OFELIA G + 12374 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00004.0310** 12374 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 1 BLK.4 PB 9 PG 151 LOTS 31 + 32
CROSTREET ARMOND W + MARGIE C 2849 DAVIS BLVD FORT MYERS FL 33905	**30-43-26-01-00004.0330** 2849 DAVIS BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 4 PB 9 PG 151 LOTS 33 + 34
D + M ACQUISITIONS LLC 12206 1ST ST FORT MYERS FL 33905	**30-43-26-01-00005.0010** 12206 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 5 PB 9 PG 151 LOT 1
BILDZUKEWICZ ALAN 12220 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00005.0020** 12220 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 5 PB 9 PG 151 LOT 2
DEMCZAK DANIEL K 6549 CHESTNUT CIR NAPLES FL 34109	**30-43-26-01-00005.0030** 12228 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 5 PB 9 PG 151 LOT 3
JD CUSTOM HOMES INC 14651 PALM BEACH BLVD #106B FORT MYERS FL 33905	**30-43-26-01-00005.0040** 12236 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 5 PB 9 PG 151 LOT 4
SEYMORE JOHN C 12242 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00005.0050** 12242 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 5 PB 9 PG 151 LOT 5 + W 1/2 OF LOT 6
NEIGHBORS PAUL J + ELAINE D 8699 PASEO DE VALENCIA FORT MYERS FL 33908	**30-43-26-01-00005.0070** 12256 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 5 PB 9 PG 151 LOT 7 + E 1/2 LOT 6
HENNING THOMAS 5866 NAPA WOODS WAY NAPLES FL 34116	**30-43-26-01-00005.0080** 12268 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 5 PB 9 PG 151 LOT 8
DEMCZAK DANIEL K + 6549 CHESTNUT CIR NAPLES FL 34109	**30-43-26-01-00005.0090** 12274 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 5 PB 9 PG 151 LOT 9
FORT MYERS SHORES OWNERS ASSN PO BOX 50993 FORT MYERS FL 33994	**30-43-26-01-00005.00CE** COMMON ELEMENTS FORT MYERS FL 33905	FT MYERS SHORES UT 1 BLK 5 PB 19 PGS 151-154 LAKE ARROWHEAD C/E
RAYNER WILLIAM + SANDRA 2770 LAKEVIEW DR FORT MYERS FL 33905	**30-43-26-01-00005.0100** 2770 LAKEVIEW DR FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 5 PB 9 PG 151 LOT 10 LESS DESC OR 0390 PG 0516
RAULERSON BETTY C 2826 WEST RD FORT MYERS FL 33905	**30-43-26-01-00005.0260** 2826 WEST RD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 5 PB 9 PG 151 LOT 26
BOOMGAARD PAUL GREGORY + 14174 CARIBBEAN BLVD FORT MYERS FL 33905	**30-43-26-01-00005.0270** 12200 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 5 PB 9 PG 151 LOT 27
MURPHY CAROLE SUE TR 4838 CORAL RD FORT MYERS BEACH FL 33931	**30-43-26-01-00006.0010** 12202 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 6 PB 9 PG 151 LOTS 1 THRU 3 INCL

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
MURPHY CAROLE SUE TR 4838 CORAL RD FORT MYERS BEACH FL 33931	**30-43-26-01-00006.0040** 12208 PALM BEACH BLVD FORT MYERS FL 33905	FT.MYERS SHORES UNIT 1 BLK.6 PB 9 PG 151 LOTS 4 + 5
MURPHY CAROLE SUE TR 4838 CORAL RD FORT MYERS BEACH FL 33931	**30-43-26-01-00006.0060** 12214 PALM BEACH BLVD FORT MYERS FL 33905	FT.MYERS SHORES UNIT 1 BLK.6 PB 9 PG 151 LOTS 6 + 7
CONLEY CECIL + NAOMI L 2020 ARUBA AVE FORT MYERS FL 33905	**30-43-26-01-00006.0080** 12220 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 6 PB 9 PG 151 LOTS 8 + 9
CONLEY CECIL + NAOMI L 2020 ARUBA AVE FORT MYERS FL 33905	**30-43-26-01-00006.0100** 12226 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 6 PB 9 PG 151 LOTS 10 + 11
80 AUTO SERVICE CENTER INC 12232 PALM BEACH BLVD FORT MYERS FL 33905	**30-43-26-01-00006.0120** 12232 PALM BEACH BLVD FORT MYERS FL 33905	FT.MYERS SHORES UNIT 1 BLK.6 PB 9 PG 151 LOTS 12 THRU 16
HWY 80 INVESTMENTS INC PO BOX 52085 DC-17 PHOENIX AZ 85072	**30-43-26-01-00006.0170** 12250 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 6 PB 9 PG 151 LOTS 17 THRU 21
12262 PALM BEACH BLVD LLC 13709 BRYNWOOD LN FORT MYERS FL 33912	**30-43-26-01-00006.0220** 12262 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 6 PB 9 PG 151 LOT 22 THRU 27
LESLIE BRADFORD + CHRISTINE TR 7910 TWIN EAGLE LN FORT MYERS FL 33912	**30-43-26-01-00007.0010** 12383 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 1 BLK 7 PG 9 PG 151 LOTS 1 + 2
ROCORE LLP 2121 W 1ST ST STE 200 FORT MYERS FL 33901	**30-43-26-01-00007.0030** 12369-77 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 7 PB 9 PG 151 LOTS 3 THRU 5 INCL
LESLIE BRADFORD + CHRISTINE TR 7910 TWIN EAGLE LN FORT MYERS FL 33912	**30-43-26-01-00007.0060** 12357/59 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 7 PB 9 PG 151 LOTS 6 THRU 8 INCL
RAHMAN MOHAMMED + MAHMUDA 521 S 1ST ST IMMOKALEE FL 34142	**30-43-26-01-00007.0090** 12343/47 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 7 PB 9 PG 151 LOTS 9 + 10
MENA MELINDA E 12601 SEVENTH ST FORT MYERS FL 33905	**30-43-26-01-00007.0110** 12325/29 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 7 PB 9 PG 151 LOTS 11 + 12
RIVERA WILFREDO + CHRISTINA 12313 FIRST ST #19 FORT MYERS FL 33905	**30-43-26-01-00007.0130** 12313/19 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 7 PB 9 PG 151 LOTS 13 + 14
BEATON JOSE A 132 SHADOW CREEK LN MEDINA TN 38355	**30-43-26-01-00007.0150** 12305 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 7 PB 9 PG 151 LOTS 15 + 16
LIGHTHOUSE PROPERTIES LLC 15811 EDGEWOOD DR MONTCLAIR VA 22025	**30-43-26-01-00007.0170** 12302 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 7 PB 9 PG 151 LOTS 17 THRU 20
DOUGLAS FOX PLUMBING LLC 13081 HICKORY GROVE CT FORT MYERS FL 33905	**30-43-26-01-00007.0210** 12314 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 7 PB 9 PG 151 LOTS 21 THRU 26
RD FOX LLC 12338 PALM BEACH BLVD FORT MYERS FL 33905	**30-43-26-01-00007.0290** 12338 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 7 PB 9 PG 151 LOTS 29 + 30 + 27 + 28
NEASE LLC 1601 JACKSON ST STE 202 FORT MYERS FL 33901	**30-43-26-01-00007.0310** 12344 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 7 PB 9 PG 151 LOTS 31 + 32
NEASE LLC 1601 JACKSON ST STE 202 FORT MYERS FL 33901	**30-43-26-01-00007.0330** 12350 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UIT 1 BLK 7 PB 9 PG 151 LOTS 33-36 LESS E 4 FT LOT 36
NEASE LLC 1601 JACKSON ST STE 202 FORT MYERS FL 33901	**30-43-26-01-00007.0370** 12356 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 7 PB 9 PG 151 LOTS 37-39 + THE E 4 FT LOT 36
LIGHTHOUSE PROPERTIES LLC 16245 NEABSCO RD WOODBRIDGE VA 22191	**30-43-26-01-00007.0400** 12370 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 7 PB 9 PG 151 LOTS 40 THRU 42
FORT MYERS SHORES OWNERS ASSN PO BOX 50993 FORT MYERS FL 33994	**30-43-26-01-00008.00CE** COMMON ELEMENTS FORT MYERS FL 33905	FT MYERS SHORES UT 1 BLK 8 PB 19 PGS 151 -154 LAKE LUCILLE C/E

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
WEBER LESLIE + FRANCIS 2848 DAVIS BLVD FORT MYERS FL 33905	**30-43-26-01-00008.0200** 2848 DAVIS BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 8 PB 9 PG 151 LOTS 20 + 21
PERSAUD DHANPAUL + SREEMATTIE 14801 RANDOLPH CT FORT MYERS FL 33905	**30-43-26-01-00008.0220** 2854 DAVIS BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 8 PB 9 PG 151 LOTS 22 THRU 25
R + S INC 13056 VALE WOOD DR NAPLES FL 34119	**30-43-26-01-00008.0300** 12516 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 8 PB 9 PG 151 LOTS 30 + 31 + 26 THRU 29
R + S INC 13056 VALEWOOD DR NAPLES FL 34119	**30-43-26-01-00008.0320** 12520 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 8 PB 9 PG 151 LOTS 32 THRU 36
SIPES ROBERT L TR 12538 PALM BEACH BLVD FORT MYERS FL 33905	**30-43-26-01-00008.0370** 12538 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 8 PB 9 PG 151 LOTS 37 + 38 + THE W 1/2 OF LOT 39
SIPES ROBERT L TR 12358 PALM BEACH BLVD FORT MYERS FL 33905	**30-43-26-01-00008.0400** 12542 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 8 PB 9 PG 151 E 1/2 OF LOT 39 + LOTS 40 + 41
SIPES ROBERT L TR 12358 PALM BEACH BLVD FORT MYERS FL 33905	**30-43-26-01-00008.0420** 12546 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 8 PB 9 PG 151 LOTS 42 + 43
ABOULAFIA STEVEN 3735 YUCATAN PKWY CAPE CORAL FL 33993	**30-43-26-01-00008.0440** 12550 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 8 PB 9 PG 151 LOTS 44 THRU 51
HEINDL DEIDRE L + 2905 PARKVIEW DR FORT MYERS FL 33905	**30-43-26-01-00008.0520** 2905 PARKVIEW DR FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 8 PB 9 PG 151 LOTS 52 + 53
BLOUGH CHARLES TR + 2901 PARKVIEW DR SE FORT MYERS FL 33905	**30-43-26-01-00008.0540** 2901 PARKVIEW DR FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 8 PB 9 PG 151 LOT 54 + PT 55 DESC OR 0922 PG 0257
CITIBANK NA TR ROBERT A SMITH 2691 E OAKLAND PARK BLVD STE 303 FORT LAUDERDALE FL 33306	**30-43-26-01-00008.0560** 2813 PARKVIEW DR FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 8 PB 9 PG 151 LOT 56 + PT 55 DESC OR 0896 PG 0857
MASON LENOR 13207 TALL PINE CR FORT MYERS FL 33907	**30-43-26-01-00008.0570** 2811 PARKVIEW DR FORT MYERS FL 33905	FT.MYERS SHORES UNIT 1 BLK 8 PB 9 PG 151 LOT 57
DROUIN ALFRED J III 2805 PARKVIEW DR FORT MYERS FL 33905	**30-43-26-01-00008.0580** 2805 PARKVIEW DR FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 8 PB 9 PG 151 LOTS 58 + 59
MILLER TAD K 2034 CLARKE AVE FORT MYERS FL 33905	**30-43-26-01-00009.0010** 2901-2907 PARKER AVE FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 9 PB 9 PG 151 LOTS 1 THRU 4 + N 10 FT OF VAC ALLEY OR 3325 PG 4115
HOWLAND WILLIAM STETSON 430 BONITA ST #B FORT MYERS BEACH FL 33931	**30-43-26-01-00009.0050** 12641 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 9 PB 9 PG 151 LOTS 5 + 6 + N 10 FT OF VAC ALLEY OR 3325 PG 4115
OLIVER KURT W + JENNIFER L PO BOX 15279 LONG BEACH CA 90815	**30-43-26-01-00009.0070** 12633/635 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 9 PB 9 PG 151 LOTS 7 THRU 9 INCL + N 10 FT OF VAC ALLEY OR 3325 PG 4115
MENA MELINDA E 12601 SEVENTH ST FORT MYERS FL 33905	**30-43-26-01-00009.0100** 12629/631 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 9 PB 9 PG 151 LOTS 10 THRU 12 INCL + N 10 FT OF VAC ALLEY OR 3325 PG 4115
CONDEELIS G T + ROSEMARY CARLS T V 1005 N 17TH AVE HOLLYWOOD FL 33020	**30-43-26-01-00009.0130** 12627 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 9 PB 9 PG 151 LOTS 13 THRU 15 INCL + N 10 FT OF VAC ALLEY OR 3325 PG 4115
SCHORTMAN WILLIAM A + MAXINE R 72 BROADBROOK RD BROAD BROOK CT 06016	**30-43-26-01-00009.0160** 12611 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 9 PB 9 PG 151 LOTS 16 THRU 18 INCL + N 10 FT OF VAC ALLEY OR 3325 PG 4115

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
GONZALEZ MANUEL V + CARMEN B 17120 CORAL CAY LN FORT MYERS FL 33908	**30-43-26-01-00009.0190** 12607 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 9 PB 9 PG 151 LOTS 19 THRU 22 INCL + N 10 FT OF VAC ALLEY OR 3325 PG 4115
GIESECKE MICHAEL R + BEVERLY 12604 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00009.0230** 12601 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 9 PB 9 PG 151 LOTS 23 THRU 25
GALAXY FIREWORKS INC 204 E DR MLK JR BLVD TAMPA FL 33603	**30-43-26-01-00009.0260** 12600 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 9 PB 9 PG 151 LOTS 26 THRU 29 INCL
TROPICAL SELF STORAGE LLC 10418 CURRY PALM LN FORT MYERS FL 33966	**30-43-26-01-00009.0470** 12644 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 9 PB 9 PG 151 LOTS 47 THRU 50 + LOTS 30 THRU 46 + N 10 FT OF VAC ALLEY OR 3325 PG 4115
ZAKENS SHELIA 13540 ISLAND RD FORT MYERS FL 33905	**30-43-26-01-00010.0110** 12925/927 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 10 PB 9 PG 151 LOTS 11 THRU 13 INCL
ZAKENS SHELIA 13540 ISLAND RD FORT MYERS FL 33905	**30-43-26-01-00010.0140** 12921/923 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 10 PB 9 PG 151 LOTS 14 THRU 16
ROGGIO ARTHUR G PO BOX 932 CAPE CORAL FL 33910	**30-43-26-01-00010.0170** 12919 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 10 PB 9 PG 151 LOTS 17 THRU 21 INCL
EICHNER STEVE F + HANNELORE 9470 PALM ISLAND CIR NORTH FORT MYERS FL 33903	**30-43-26-01-00010.0240** 12913 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 1 BLK 10 PB 9 PG 151 LOTS 22 THRU 24
EICHNER STEVE F + HANNELORE 9470 PALM ISLAND CIR NORTH FORT MYERS FL 33903	**30-43-26-01-00010.0260** 12903 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 1 BLK.10 PB 9 PG 151 LOTS 25 THRU 28
PRICE J ANTHONY 50% + 12405 DAVIS BLVD FORT MYERS FL 33905	**30-43-26-01-00010.0290** 12902 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 10 PB 9 PG 151 LOTS 29 THRU 34 INCL
TOWLE PETER C + 212 3RD ST FORT MYERS FL 33907	**30-43-26-01-00010.0350** 12914 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 10 PB 9 PG 151 LOTS 35 THRU 37 INCL
MURPHY DEBORAH SUSAN + 1428 PARK SHORE CIR APT 4 FORT MYERS FL 33901	**30-43-26-01-00010.0380** 12920 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 10 PB 9 PG 151 LOTS 38 THRU 41 INCL
FLRG LLC 12928 PALM BEACH BLVD FORT MYERS FL 33905	**30-43-26-01-00010.0420** 12928 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT #1 BLK 10 PB 9 PG 151 LOTS 42 THRU 46
LYONS JACK + 2219 QUEEN ANNE DR FORT MYERS FL 33905	**30-43-26-01-00010.0470** 12936 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 10 PB 9 PG 151 LOTS 47 + 48
BAADER KEN 4271 ORANGE RIVER LOOP RD FORT MYERS FL 33905	**30-43-26-01-00010.0490** 12946 PALM BEACH BLVD FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 10 PB 9 PG 151 LOTS 49 THRU 51 INCL
CLEAR R A + VICTORIA L 2840 PARKER AVE FORT MYERS FL 33905	**30-43-26-01-00011.0180** 2840 PARKER AVE FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 11 PB 9 PG 151 LOTS 18 + 19
ADAMS DANIELLE E + 12908 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00011.0200** 12908 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 11 PB 9 PG 151 LOTS 20 + 21
ELLIOTT JOYCE L 12914 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00011.0220** 12914 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 11 PB 9 PG 151 LOTS 22 + 23
GIESECKE MICHAEL + BEVERLY 12604 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00012.0210** 12604 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 12 PB 9 PG 151 LOTS 21+22+20
ORDONEZ CARLOS 12614 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00012.0230** 12614 FIRST ST FORT MYERS FL 33905	FT.MYERS SHORES UNIT 1 BLK.12 PB 9 PG 151 LOTS 23 + 24
ORTIZ YIDELKA 12620 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00012.0250** 12620 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 12 PB 9 PG 151 LOTS 25 + 26

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
SCALINGI LYNN M EST 12624 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00012.0270** 12624 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 12 PB 9 PG 151 LOTS 27 + 28
GONZALEZ ISAUL + PEGGY 17060 NW 81ST AVE HIALEAH FL 33015	**30-43-26-01-00012.0290** 12628 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 12 PB 9 PG 151 LOTS 29 + 30
RESTO MARIA + 12634 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00012.0310** 12634 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 12 PB 9 PG 151 LOTS 31 + 32
RIOS MARIA 12644 FIRST ST FORT MYERS FL 33905	**30-43-26-01-00012.0330** 12644 FIRST ST FORT MYERS FL 33905	FT MYERS SHORES UNIT 1 BLK 12 PB 9 PG 151 LOTS 33 + 34
RUSSELL WAYNE G TR 4291 FULTON CIR FORT MYERS FL 33905	**31-43-26-00-00004.0000** 4351 ORANGE RIVER LOOP RD FORT MYERS FL 33905	E 1/2 OF SE 1/4 S OF CRK
MARTIN CLAIR E + GUENN C 4321 ORANGE RIVER LOOP RD FORT MYERS FL 33905	**31-43-26-00-00005.0000** 4321 ORANGE RIVER LOOP RD FORT MYERS FL 33905	BEG 1030 FT E OF SW COR SE 1/4 E 280 FT N TO CRK NWLY ALG CRK TO PT N OF BEG S
MARKS JURGEN G + 4295 ORANGE RIVER LOOP RD FORT MYERS FL 33905	**31-43-26-00-00006.0000** 4295 ORANGE RIVER LOOP RD FORT MYERS FL 33905	BEG 595 FT E OF SW COR SE 1/4 E 395 FT N TO RVR WLY ALG RVR OR 0304 PG 0043
CZULEWICZ MARY LU 4281 ORANGE RIVER LOOP RD FORT MYERS FL 33905	**31-43-26-00-00006.0010** 4281 ORANGE RIVER LOOP RD FORT MYERS FL 33905	FR SW COR SE 1/4 E 804 65/100 FT DEFLCT L 107 DEG AS DESC IN OR 1590 PG 355
BAADER KEN + 4271 ORANGE RIVER LOOP RD FORT MYERS FL 33905	**31-43-26-00-00006.0020** 4271 ORANGE RIVER LOOP RD FORT MYERS FL 33905	FR SW COR SE 1/4 E 804 65/100 FT TH DEFLCT L 107 DEG DESC OR 0945 PG 0506
PURCELL P E + SALLY M 15880 SUMMERLIN RD STE 300 PMB 237 FORT MYERS FL 33908	**31-43-26-00-00006.0030** 4261 ORANGE RIVER LOOP RD FORT MYERS FL 33905	FR SW COR SE 1/4 E 804 65/100 FT TH DEFLCT L 107 DEG DESC OR 1246 PG 0332
REYNOLDS DAVID R + 4301 ORANGE RIVER LOOP RD FORT MYERS FL 33905	**31-43-26-00-00006.0060** 4301 ORANGE RIVER LOOP RD FORT MYERS FL 33905	BEG SW COR OF SE 1/4 RUN E 804.65 FT TO POB TH RUN E 225.35 FT OR 0627 PG 0030
BARRACO CARL A JR + 8380 AQUA COVE NORTH FORT MYERS FL 33903	**31-43-26-00-00007.0000** 4251 ORANGE RIVER LOOP RD FORT MYERS FL 33905	BEG 595 FT E OF SW COR SE 1/4 E 200 FT NW 1200 FT TO CRK DESC DB 109 PG 295
MOSS RITA V TR 4231 ORANGE RIVER LOOP RD FORT MYERS FL 33905	**31-43-26-00-00008.0000** 4231 ORANGE RIVER LOOP RD FORT MYERS FL 33905	PARC IN SW 1/4 OF SE 1/4 DESC IN OR 1448 PG 386 + OR 4816 PG 1922 LESS 8.0010
MOSS DANIEL C + DENISE K 4241 ORANGE RIVER LOOP RD FORT MYERS FL 33905	**31-43-26-00-00008.0010** 4241 ORANGE RIVER LOOP RD FORT MYERS FL 33905	PARC IN SW 1/4 OF SE 1/4 AS DESC IN OR 1554 PG 864
BUNDY KIPLING R + TRACEY A 3641 WILLIAMSON RD FORT MYERS FL 33905	**31-43-26-00-00011.0000** 3641 WILLIAMSON RD FORT MYERS FL 33905	W 540 FT NW 1/4 OF SW 1/4 S OF CRK LESS S 18 FT FOR RD R/W OR 0493 PG 0186
FOSS JEFFREY B + ELIZABETH K 12101 COYLE RD FORT MYERS FL 33905	**31-43-26-00-00011.0010** 12101 COYLE RD FORT MYERS FL 33905	E124FT OF W540FT OF NW1/4 OF SW1/4 S OF CRK LESS S18 FT + OR2254/4746
EVERETT PAUL D 12081 COYLE RD FORT MYERS FL 33905	**31-43-26-00-00011.0020** 12081 COYLE RD FORT MYERS FL 33905	W 124 FT OF E 248 FT OF W 540 FT OFGOVT LOT 3 S OF ORANGE RIVER LESS S 25 FT
IVES LONNIE J + KATHLEEN M 12151 COYLE RD FORT MYERS FL 33905	**31-43-26-00-00012.0000** 12151 COYLE RD FORT MYERS FL 33905	PARCEL IN SE 1/4 OF SE 1/4 OF SECT OR 1775-4065 LESS PAR 12.001 + 12.002
SMITH SAWYER C 12131 COYLE RD FORT MYERS FL 33905	**31-43-26-00-00012.0010** 12131 COYLE RD FORT MYERS FL 33905	PARL IN SE 1/4 OF SE 1/4 DESC OR 2113/1060 + OR 2254/4746
GUDVANGEN GUY RANDALL + DAWN M 12171 COYLE RD FORT MYERS FL 33905	**31-43-26-00-00012.0020** 12171 COYLE RD FORT MYERS FL 33905	PARCEL SE 1/4 OF SE 1/4 DESC OR 2146 PG 2335
SHUTA JAMES M TR 2560 GULF TO BAY BLVD STE 300 CLEARWATER FL 33765	**31-43-26-00-00013.0000** 12221 COYLE RD FORT MYERS FL 33905	THAT PART OF GOVT LOT 3 DESC IN OR 1028 PG 1948 LESS PARL 13.001

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
SHUTA JAMES M TR 2560 GULF TO BAY BLVD STE 300 CLEARWATER FL 33765	**31-43-26-00-00013.0010** 12201 COYLE RD FORT MYERS FL 33905	W 130 FT OF E 265 FT OF GOVT LOT 3 LYING S OF ORANGE RIVER LESS S 25 FT
KAPLINSKI GEORGE + 12341 COYLE RD FORT MYERS FL 33905	**31-43-26-00-00017.0000** 12341 COYLE RD FORT MYERS FL 33905	SW 1/4 OF SW 1/4 + W 1/2 OF E 1/2 OF SW 1/4 S OF CRK LESS OR 0712 PG 0416
HINSPETER SHERI ANNE TR 12180 COYLE RD FORT MYERS FL 33905	**31-43-26-00-00017.0010** 12180 COYLE RD FORT MYERS FL 33905	PARL IN SW 1/4 OF SW 1/4 RECORDED PB 10 P 53 DESC OR 891 PG 768 UNRECORDED LT 27
GARBER LINDA H 2624 SOUTH POINT LN NEW LONDON NC 28127	**31-43-26-00-00017.0020** 12241 COYLE RD FORT MYERS FL 33905	FR 20 FT S OF SW COR OF NE 1/4 OF SW 1/4 RUN E FOR 72.16 FT OR 1277 PG 1868
SOUTHERLAND F E L/E 12340 COYLE RD FORT MYERS FL 33905	**31-43-26-00-00017.0030** 12340 COYLE RD FORT MYERS FL 33905	FR TH SE COR SW 1/4 RUN W 660 FT TH N 1280 FT TO POB TH S 500 FT OR 0485 PG0159
MARHENKE G L + COLLEEN 1/3 INT 12140 COYLE RD FORT MYERS FL 33905	**31-43-26-00-00017.004C** ACCESS UNDETERMINED FORT MYERS FL 33905	BEG 685FT W + 1080.5 FT N OF SE COR + DESC OR 0685 PG 0456
CAMPBELL ANN L TR CHRISTOPHER S DANN 1027 HARVARD RD OAKLAND CA 94610	**31-43-26-00-00017.0050** 12271 COYLE RD FORT MYERS FL 33905	PARL LYING IN SW 1/4 S OF ORANGE RIVER AS DESC IN INST#2007000166316 LESS INST#2007000307447
CAMPBELL ANN L TR CHRISTOPHER S DANN 1027 HARVARD RD OAKLAND CA 94610	**31-43-26-00-00017.005A** 12251 COYLE RD FORT MYERS FL 33905	PARL LYING IN SW 1/4 S OF ORANGE RIVER AS DESC IN INST#2007000307447
MARHENKE G LAWSON + COLLEEN A 12140 COYLE RD FORT MYERS FL 33905	**31-43-26-00-00017.0080** 12200 COYLE RD FORT MYERS FL 33905	BEG 25 FT S + 100 FT W OF NE COR GOV LOT 4 CONT W 133.92 FT OR 0653 PG 0471
MARHENKE G LAWSON + COLLEEN A 12140 COYLE RD FORT MYERS FL 33905	**31-43-26-01-00000.0260** 12160 COYLE RD FORT MYERS FL 33905	COYLES SUBD. PB 10 PG 53 LOT 26
BUCKINGHAM 225 DEVELOPMENT INC 12860 BANYAN CREEK DR FORT MYERS FL 33908	**31-43-26-11-000L5.0000** HORSE CREEK TRACT L-5 FORT MYERS FL 33905	HORSE CREEK DESC IN PB 82 PGS 11-26 TRACT L-5
BUCKINGHAM 225 DEVELOPMENT INC 12860 BANYAN CREEK DR FORT MYERS FL 33908	**31-43-26-11-000P1.00CE** HORSE CREEK TRACT P-1 FORT MYERS FL 33905	HORSE CREEK DESC IN PB 82 PGS 11-26 TRACT P-1
BUCKINGHAM 225 DEVELOPMENT INC 12860 BANYAN CREEK DR FORT MYERS FL 33908	**31-43-26-11-00CE5.00CE** HORSE CREEK TRACT CE-5 FORT MYERS FL 33905	HORSE CREEK DESC IN PB 82 PGS 11-26 TRACT CE-5
BUCKINGHAM 225 DEVELOPMENT INC 12860 BANYAN CREEK DR FORT MYERS FL 33908	**31-43-26-11-00LS9.00CE** HORSE CREEK TRACT LS-9 FORT MYERS FL 33905	HORSE CREEK DESC IN PB 82 PGS 11-26 TRACT LS-9
BUCKINGHAM 225 DEVELOPMENT INC 12860 BANYAN CREEK DR FORT MYERS FL 33908	**31-43-26-11-0LS10.00CE** HORSE CREEK TRACT LS-10 FORT MYERS FL 33905	HORSE CREEK DESC IN PB 82 PGS 11-26 TRACT LS-10
SANTIN TOM HENRY 50% INT+ 17160 CYPRESS CREEK DR NORTH FORT MYERS FL 33917	**32-43-26-00-00002.0000** 3600 BUCKINGHAM RD FORT MYERS FL 33905	NE 1/4 OF SE 1/4 W OF BLVD LESS S 230 FT
LEE COUNTY HOMES ASSOCIATES STE 300 1600 SAWGRASS CORPORATE PKWY SUNRISE FL 33323	**32-43-26-00-00003.0000** RESERVED FORT MYERS FL 33905	SE 1/4 OF NE 1/4 E OF PALM BEACH BLVD + NE 1/4 OF SE 1/4 E OF BLVD
HENLEY RICKY + MARYLEE PO BOX 50593 FORT MYERS FL 33994	**32-43-26-00-00005.0000** 3771 BUCKINGHAM RD FORT MYERS FL 33905	PARL IN S E 1/4 OF S E 1/4 DESC IN OR 1251 PG 1893 LESS PAR 5.001 + 5.0020 OR 2900/401
PECK DAVID + 3791 BUCKINGHAM RD FORT MYERS FL 33905	**32-43-26-00-00005.0010** 3791 BUCKINGHAM RD FORT MYERS FL 33905	PARL IN N E 1/4 OF S E 1/4 SEC 32 TWP 43 RGE 26 DESC IN OR 1394 PG 0601
CANTRELL RALPH E 3763 BUCKINGHAM RD FORT MYERS FL 33905	**32-43-26-00-00005.0020** 3763 BUCKINGHAM RD FORT MYERS FL 33905	PARL IN THE SE 1/4 OF THE SE 1/4 DESC OR 2900/399

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
INGRAM CEZANNE + 4755 WOODLAWN RD MAURICE LA 70555	**32-43-26-00-00006.0000** 3971 BUCKINGHAM RD FORT MYERS FL 33905	PARL IN SE 1/4 OF SE 1/4 E OF BUCKINGHAM RD AS DESC IN OR 2171 PG 331 LESS RD R/W OR 3326 PG 1608
LEE COUNTY DIST SCHOOL BOARD 2855 COLONIAL BLVD FORT MYERS FL 33966	**32-43-26-00-00006.0010** 3851 BUCKINGHAM RD FORT MYERS FL 33905	PARL IN SE 1/4 OF SE 1/4 E OF BUCKINGHAM RD AS DESC IN OR 1916 PG 1717 LES RD R/W
FUCELLA LAWRENCE J 5201 RIVERSIDE DR PUNTA GORDA FL 33982	**32-43-26-00-00007.0010** 13731/741 BIRD RD FORT MYERS FL 33905	SE 1/4 OF SW 1/4 OF SE 1/4 W OF BUCKINGHAM RD AND N OF BIRD RD OR3535 PG4248
SMITH SIDNEY R TR L/E + 4021 BUCKINGHAM RD FORT MYERS FL 33905	**32-43-26-00-00008.0000** 13631 BIRD RD FORT MYERS FL 33905	S 1/2 OF SW 1/4 OF SW 1/4 OF SE 1/4 LESS R/W DB 242 PG 119
DURRANCE BOBBY P + MARIA G 13341 BIRD RD FORT MYERS FL 33905	**32-43-26-00-00009.0000** 13301 BIRD RD FORT MYERS FL 33905	W 1/2 OF SE 1/4 OF SW 1/4 LESS RD R/W + LESS PARL 9.0030+9.004
DIETRICH E G + FRANCES 13401 BIRD RD FORT MYERS FL 33905	**32-43-26-00-00009.0010** 13511 BIRD RD FORT MYERS FL 33905	THE E 330 FT OF THE SE 1/4 OF THE SW 1/4 LESS RD R/W
DIETRICH E G + FRANCES 13401 BIRD RD FORT MYERS FL 33905	**32-43-26-00-00009.0020** 13401 BIRD RD FORT MYERS FL 33905	W 330 FT OF E 660 FT OF THE SE 1/4 OF SW 1/2 LESS RD R/W
LANG STEPHEN R + LINDA B 1521 SUNKIST WY FORT MYERS FL 33905	**32-43-26-00-00009.0030** 13211 BIRD RD FORT MYERS FL 33905	PARL IN W 1/2 OF SE 1/4 OF SW 1/4 LESS RD R/W DESC OR 2275/0535
DURRANCE BOBBY P + MARIA G 13341 BIRD RD FORT MYERS FL 33905	**32-43-26-00-00009.0040** 13341 BIRD RD FORT MYERS FL 33905	FR SW COR OF SW 1/4 OF SEC W 660 FT N 40 FT TO POB N 1345 W334 S319 E997
BAILEY JOHN S + 13181 BIRD RD FORT MYERS FL 33905	**32-43-26-00-00010.0000** 13181 BIRD RD FORT MYERS FL 33905	SW 1/4 OF SW 1/4 R/W DB 242 PG 116 DESC OR 1930 PG 1757 LESS OR 3791 PG 1327
GAILEY D WAYNE 13141 BIRD RD FORT MYERS FL 33905	**32-43-26-00-00010.0010** 13141 BIRD RD FORT MYERS FL 33905	PARL IN SW 1/4 OF SW 1/4 DESC IN OR 1517 PG 1673
REYNOLDS MICHAEL E + KELLY 13191 BIRD RD FORT MYERS FL 33905	**32-43-26-00-00010.0040** 13191 BIRD RD FORT MYERS FL 33905	PARL IN SW 1/4 OF SEC AS DESC IN OR 3791 PG 1327
CROSSWINDS AT BUCKINGHAM 22920 VENTURE DR NOVI MI 48375	**33-43-26-00-00002.0010** 3021 BUCKINGHAM RD FORT MYERS FL 33905	PARL IN N 1/2 E OF RD DESC OR 1401 PG 1137
LEE COUNTY HOMES ASSOCIATES STE 300 1600 SAWGRASS CORPORATE PKWY SUNRISE FL 33323	**33-43-26-00-00004.0000** RESERVED FORT MYERS FL 33905	S 1/2 OF NW 1/4 + NW 1/4 OF SW 1/4 + NE 1/4 OF SE 1/4 + S 1/2 OF S 1/2 OF SEC 33 LESS E 1/2 OF W 1/2 OF NW 1/4 OF SE 1/4 OF NW 1/4
LEE COUNTY DIST SCHOOL BOARD 2855 COLONIAL BLVD FORT MYERS FL 33966	**33-43-26-00-00004.1000** 3291 BUCKINGHAM RD FORT MYERS FL 33905	PARL IN S 1/2 OF NW 1/4 DESC IN OR 1647 PG 2775
TAYLOR WOODROW COMMUNITIES AT 8430 ENTERPRISE CIR STE 100 BRADENTON FL 34202	**33-43-26-01-00000.0040** 14049 ALEDO CT FORT MYERS FL 33905	PORTICO PHASE I DESC IN INSTR #2006-411756 LOT 4
TAYLOR WOODROW COMMUNITIES 501 N CATTLEMEN RD STE 100 SARASOTA FL 34232	**33-43-26-01-00000.0050** 14043 ALEDO CT FORT MYERS FL 33905	PORTICO PHASE I DESC IN INSTR #2006-411756 LOT 5
TAYLOR WOODROW COMMUNITIES AT 8430 ENTERPRISE CIR STE 100 BRADENTON FL 34202	**33-43-26-01-00000.0060** 14037 ALEDO CT FORT MYERS FL 33905	PORTICO PHASE I DESC IN INSTR #2006-411756 LOT 6
TAYLOR WOODROW COMMUNITIES AT 8430 ENTERPRISE CIR STE 100 BRADENTON FL 34202	**33-43-26-01-00000.0070** 14031 ALEDO CT FORT MYERS FL 33905	PORTICO PHASE I DESC IN INSTR #2006-411756 LOT 7
TAYLOR WOODROW COMMUNITIES AT 8430 ENTERPRISE CIR STE 100 BRADENTON FL 34202	**33-43-26-01-00000.0080** 14025 ALEDO CT FORT MYERS FL 33905	PORTICO PHASE I DESC IN INSTR #2006-411756 LOT 8

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
TAYLOR WOODROW COMMUNITIES AT 8430 ENTERPRISE CIR STE 100 BRADENTON FL 34202	**33-43-26-01-00000.0090** 14019 ALEDO CT FORT MYERS FL 33905	PORTICO PHASE I DESC IN INSTR #2006-411756 LOT 9
TAYLOR WOODROW COMMUNITIES AT 8430 ENTERPRISE CIR STE 100 BRADENTON FL 34202	**33-43-26-01-00000.0100** 14013 ALEDO CT FORT MYERS FL 33905	PORTICO PHASE I DESC IN INSTR #2006-411756 LOT 10
TAYLOR WOODROW COMMUNITIES AT 8430 ENTERPRISE CIR STE 100 BRADENTON FL 34202	**33-43-26-01-00000.0110** 14007 ALEDO CT FORT MYERS FL 33905	PORTICO PHASE I DESC IN INSTR #2006-411756 LOT 11
TAYLOR WOODROW COMMUNITIES AT 8430 ENTERPRISE CIR STE 100 BRADENTON FL 34202	**33-43-26-01-00000.0120** 14001 ALEDO CT FORT MYERS FL 33905	PORTICO PHASE I DESC IN INSTR #2006-411756 LOT 12
TAYLOR WOODROW COMMUNITIES AT 8430 ENTERPRISE CIR STE 100 BRADENTON FL 34202	**33-43-26-01-00000.0130** 14018 ALEDO CT FORT MYERS FL 33905	PORTICO PHASE I DESC IN INSTR #2006-411756 LOT 13
PORTICO MASTER PROPERTY 8430 ENTERPRISE CIR STE 100 BRADENTON FL 34202	**33-43-26-01-0000A.00CE** PORTICO PHASE I TRACT A FL 33905	PORTICO PHASE I AS DESC IN INSTR #2006-411756 TRACT A
PORTICO MASTER PROPERTY 8430 ENTERPRISE CIR STE 100 BRADENTON FL 34202	**33-43-26-01-0000D.00CE** PORTICO PHASE I TRACT D FL 33905	PORTICO PHASE I AS DESC IN INSTR #2006-411756 TRACT D
PORTICO MASTER PROPERTY 8430 ENTERPRISE CIR STE 100 BRADENTON FL 34202	**33-43-26-01-000RD.01CE** RIGHT OF WAY FL 33905	PORTICO PHASE I AS DESC IN INSTR #2006-411756 TRACT RD-1
PORTICO CDD RIZZETTA + CO INC 3434 COLWELL AVE STE 200 TAMPA FL 33614	**33-43-26-01-00LKA.0010** SUBMERGED FL 33905	PORTICO PHASE I AS DESC IN INSTR #2006-411756 TRACT LK-A1
PORTICO CDD RIZZETTA + CO INC 3434 COLWELL AVE STE 200 TAMPA FL 33614	**33-43-26-01-00LKA.0020** SUBMERGED FL 33905	PORTICO PHASE I AS DESC IN INSTR #2006-411756 TRACT LK-A2
KEEL W L + SUSAN G 4401 ORANGE RIVER LOOP RD FORT MYERS FL 33905	**05-44-26-00-00001.0010** 4401 ORANGE RIVER LOOP RD FORT MYERS FL 33905	PARL IN N W COR OF N W 1/4 SEC 5 TWP 44 R 26 DESC IN OR 1090 PG 946 + 1.0000
RIPPE JACQUELINE G 13140 BIRD RD FORT MYERS FL 33905	**05-44-26-00-00002.0000** 13140 BIRD RD FORT MYERS FL 33905	NW 1/4 OF NW 1/4 W OF CRK + E OF RIV DESC 0R 1869 PG 774 LES R/W DB 242/116
WEDELES PETER + BETTY 13160 BIRD RD FORT MYERS FL 33905	**05-44-26-00-00002.0010** 13160 BIRD RD FORT MYERS FL 33905	PAR IN NW 1/4 OF NW 1/4 W OF CRK + E OF RIV DESC IN OR 1869 PG 778
ULLMAN STEPHEN T + ANN J 1302 BRAMAN AVE FORT MYERS FL 33901	**05-44-26-00-00003.0000** 13095 IDYLWILD FARM RD FORT MYERS FL 33905	PARL IN N W 1/4 OF N W 1/4 SEC 5 TWP 44 R 26 DESC IN OR 287 PG 459 LESS E 80 FT
NATIONAL TRUST COMPANY TR HARDING + CARBONE INC 3903 BELLAIRE BLVD HOUSTON TX 77025	**05-44-26-00-00003.0010** ACCESS UNDETERMINED FORT MYERS FL 33905	E 80 FT OF PARCEL OF LAND DESC OR 1769/2427 UB NW 1/4 OF NE 1/4 OF SEC
REUTHER ERIC VAL 13101 IDYLWILD FARM RD FORT MYERS FL 33905	**05-44-26-00-00004.0000** 13101 IDYLWILD FARM RD FORT MYERS FL 33905	PARL IN NW 1/4 OF NW 1/4 DESC IN OR 995 PG 90
HUSSEY GALE T + 70 WAGON TRAIL BLACK MOUNTAIN NC 28711	**05-44-26-00-00006.0000** 13550 BIRD RD FORT MYERS FL 33905	PARL IN NW 1/4 OF NE 1/4 + NE OF RVR IN NW 1/4 DES OR 2056/403 LES SPLITS + 6.0060 + 6.0070 + LESS INST#2006-374404 + 2006-374405
HUSSEY DONALD M + GALE T 70 WAGON TRAIL BLACK MOUNTAIN NC 28711	**05-44-26-00-00006.0010** 13190 BIRD RD FORT MYERS FL 33905	PARL IN NW1/4 AS DESC IN OR 1479 PG 0232 LESS OR2230 PG 1833 + R/W
TOMLINSON ASHTON K 3582 BROOKHILL CIR MARIETTA GA 30062	**05-44-26-00-00006.0040** 13400 BIRD RD FORT MYERS FL 33905	FR NE COR SW 2640.50 TO N 1/4 COR SW 303.65 SW 13.11 SW 1160 TO ORANGE RIVER
SMITH DAVID F + RITA E 4180 BUCKINGHAM RD FORT MYERS FL 33905	**05-44-26-00-00006.0050** 4180 BUCKINGHAM RD FORT MYERS FL 33905	PARL LOC IN NE 1/4 AS DESC IN OR 3236/980 + 3237/4157

OWNER NAME AND ADDRESS	STRAP AND LOCATION	LEGAL DESCRIPTION
TACY PAMELA 14630 PALM BEACH BLVD #3 BOX 107 FORT MYERS FL 33905	**05-44-26-00-00006.0060** 13500 BIRD RD FORT MYERS FL 33905	PARL LOC IN NE 1/4 OF SECT DESC IN OR 2927 PG 1797
HUSSEY GALE T TR + 70 WAGON TRL BLACK MTN NC 28711	**05-44-26-00-00006.0080** 13430 BIRD RD FORT MYERS FL 33905	PARL IN NW 1/4 OF NE 1/4 + NE OF RVR IN NW 1/4 DESC IN INST#2006-374404
TOMLINSON JOHN PITT III PO BOX 3782 CHAPEL HILL NC 27515	**05-44-26-00-00006.0090** 13460 BIRD RD FORT MYERS FL 33905	PARL IN NW 1/4 OF NE 1/4 + NE OF RVR IN NW 1/4 DESC IN INST#2006-374405
SMITH SIDNEY R L/E + 4021 BUCKINGHAM RD FORT MYERS FL 33905	**05-44-26-00-00014.0000** 4021 BUCKINGHAM RD FORT MYERS FL 33905	N 198 FT OF N 1/2 OF NW 1/4 OF NE 1/4 OF NE 1/4
SMITH SIDNEY RAY TR 4021 BUCKINGHAM RD FORT MYERS FL 33905	**05-44-26-00-00015.0000** 4051 BUCKINGHAM RD FORT MYERS FL 33905	S 132 FT.OF N 1/2 OF NW 1/4 OF NE 1/4 OF NE 1/4
MASCHMEIER MICHAEL + LORIE W 4131 BUCKINGHAM RD FORT MYERS FL 33905	**05-44-26-00-00016.0010** 4131 BUCKINGHAM RD FORT MYERS FL 33905	S380 FT OF N730 FT OF W 1/2 OF NE 1/4 OF NE 1/4
MASCHMEIER MICHAEL + LORIE W 4131 N BUCKINGHAM RD FORT MYERS FL 33905	**05-44-26-00-00016.001A** RIGHT OF WAY FORT MYERS FL 33905	20 FT STRIP OF LAND LYING 370 S OF SECT LINE LESS N N 330 FT
THOMAS RONALD D + LESLIE L 4420 ORANGE RIVER LOOP RD FORT MYERS FL 33905	**06-44-26-00-00003.0010** 4420 ORANGE RIVER LOOP RD FORT MYERS FL 33905	NE 1/4 OF NE 1/4 OF NE 1/4 LESS PARLS 3.001A THRU 3.001C
WITHSTANDLEY D A + FLORENCE TR 4380 ORANGE RIVER LOOP FORT MYERS FL 33905	**06-44-26-00-00003.001B** 4380 ORANGE RIVER LOOP RD FORT MYERS FL 33905	W 130 FT OF NE 1/4 OF NE 1/4 OF NE 1/4
PEARCE MICHAEL L + MICHELE H 4390 ORANGE RIVER LOOP RD FORT MYERS FL 33905	**06-44-26-00-00003.001C** 4390 ORANGE RIVER LOOP RD FORT MYERS FL 33905	PARL IN NE 1/4 OF NE 1/4 OF NE 1/4 DESC IN OR 1747 PG 4084

404 RECORDS PRINTED