IX. CONSERVATION ELEMENT

PURPOSE

The purpose of this element is to promote the conservation, use, and protection of natural resources within New Smyrna Beach.

STANDARDS

The data and analyses contained in this element have been provided for New Smyrna Beach and surrounding areas, as depicted on the Natural Resources Inventory (see Map IX-1). This has been done to provide a broader picture of conditions that exist beyond the current City limits, so as to provide a sound basis for future decisions and actions within the City.

As defined by Rule 9J-5, *Florida Administrative Code*, conservation uses are "... activities within land areas designated for the purpose of conserving or protecting natural resources or environmental quality, including areas designated for such purposes as flood control, protection of quality or quantity of groundwater or surface water, floodplain management, fisheries management, or protection of vegetative communities or wildlife habitats."

The *Natural Resources Summary Report* for the *Volusia County Coastal Management Element* prepared by Kevin L. Erwin Consulting Ecologist, Inc. (September 1988) is the primary source for the natural resource inventory and analysis. The study area, including the estuaries, was mapped using the Florida Land Use Cover and Forms Classification System (FLUCFCS) Level III criteria (Florida Department of Transportation, 1985). More detailed information is provided in the Natural Resource Inventory (Map IX-1), and in the Volusia County Coastal Management Element.

NATURAL RESOURCES INVENTORY AND ANALYSIS

Although the various habitats are mapped individually, they should not be considered as separate entities. Each of the habitats represented within the complex mosaic of natural systems within each ecosystem are interdependent. The movement of organisms and materials between different types of habitats means that terrestrial and marine communities are not defined simply by their physical boundaries.

SURFACE WATER

Water habitat is comprised largely of the Intracoastal Waterway (i.e., the Indian River), bays, canals, marshes, and coastal creeks. In the *Natural Resources Summary Report* (Erwin, 1988), Volusia County estuaries were considered as one (1) entity extending from the ~~north (~~Volusia County/Flagler County line~~)~~ to the ~~south (~~Volusia County/Brevard County line~~)~~ and encompassing all water and water bodies, not including land forms and emergent wetlands connected with either the mainland (west) and barrier island (east) shorelines. Further analysis, including quality of rivers, bays and lakes, as classified by Florida Department of Environmental Protection (FDEP), can be found in the Coastal Management Element and the Volusia County Conservation Element.

AIR QUALITY

Air quality can generally be defined by the presence of specific pollutants in certain concentrations. The pollutants and concentrations can be measured and compared with the statewide Ambient Air Quality Standards established by the FDEP to determine the extent of air pollution in any given location (see table on following page).

FDEP Ambient Air Quality Standards (micrograms per cubic meter)

Pollutant	Average Annual Allowable	3 Hour Maximum	24 Hour Maximum[1]
Particulates	60	None Given	150
Sulfur Dioxide	60	1,300	260
Nitrogen Oxide	100	160	None Given

Note: [1]These standards cannot be exceeded more than once per year.

Based on these standards, no violations have occurred in New Smyrna Beach; however, it is anticipated that air quality problems will occur as traffic increases on major arterial roadways within the City. At this time, it appears that motor vehicles are the only major source of air pollution in New Smyrna Beach.

FLOODPLAINS

The majority of New Smyrna Beach is located in the 100 year floodplain, as identified on the 100 Year Flood Map appearing in the Future Land Use Element. These areas are based on the Flood Insurance Rate Map (FIRM).

KNOWN SOURCES OF COMMERCIALLY VALUABLE MINERALS

There are no known sources of commercially valuable minerals within the New Smyrna Beach planning area. Although minerals certainly exist, none have been identified in sufficient quantities to make commercial mining worthwhile.

VEGETATION, FISH AND WILDLIFE

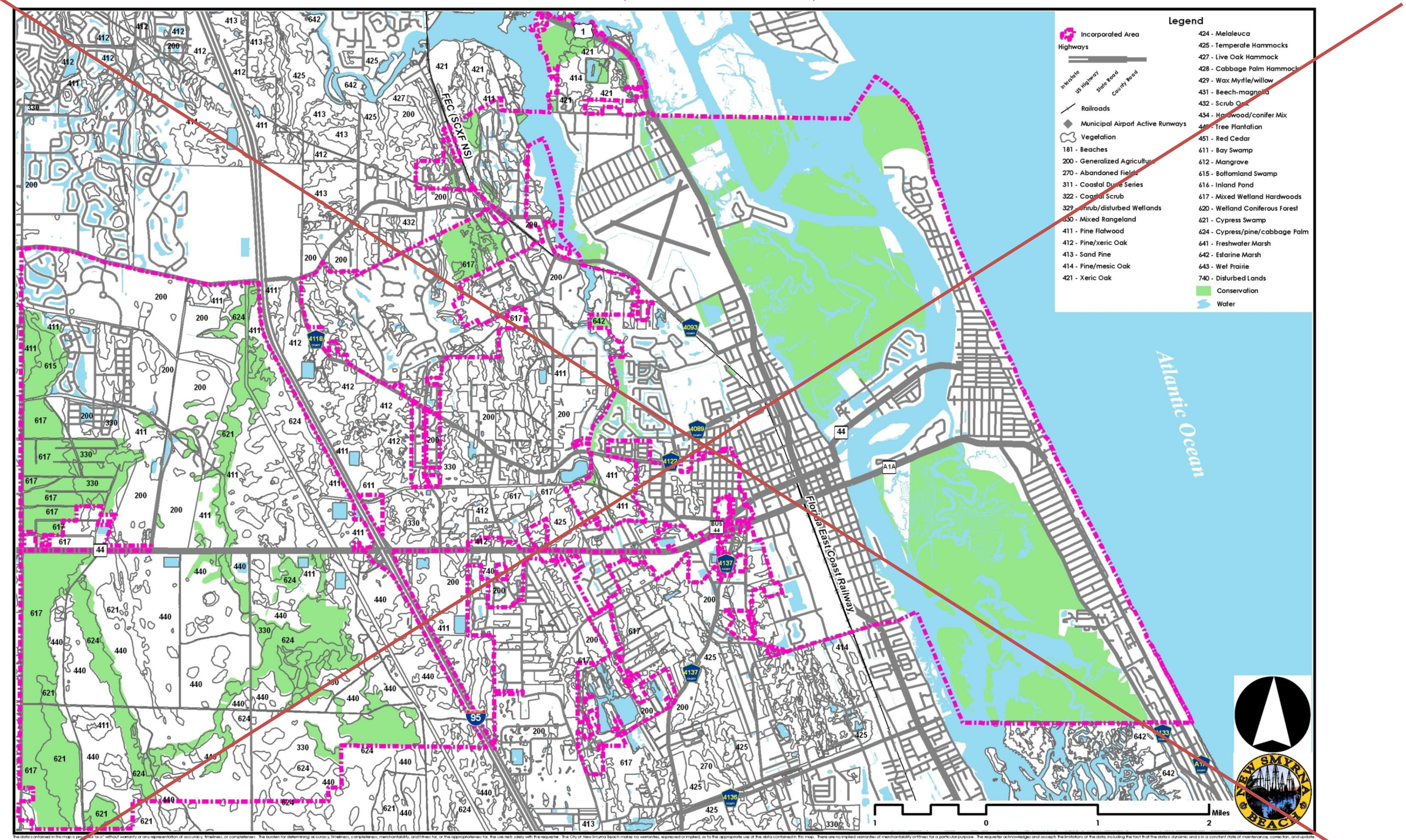
Natural vegetation within the planning area includes:

- Palmetto prairie (slash pine, cabbage palm, live oak, dahoon holly, scrub live oak, wax myrtle, saw palmetto)
- Coastal scrub (cabbage palm, sand live oak, buttonwood, saw palmetto, cordgrass, spanish bayonet, buckthorn, wax myrtle)
- Longleaf pine/xeric oak (longleaf pine, wiregrass, turkey oak, paupaw, runner oak)
- Sand pine (chapman oak, myrtle oak, sand live oak, turkey oak, saw palmetto, common prickly pear)
- Wet pine flatwood (slash pine, bald cypress, wax myrtle, goldenrod)
- Oak/pine/hickory (laurel oak, cabbage palm southern magnolia, red maple, sweetgum, cedar, slash pine, longleaf pine, pignut hickory, water oak)
- Cabbage palm (cabbage palm, live oak, red mulberry, wax myrtle, red maple)
- Embayments (turtle grass, shoalweed, red mangrove, white mangrove, black mangrove)
- Stream swamp (laurel oak, bald cypress, sweetgum, tupelo, water hickory, dahoon holly)
- Mixed wetland hardwoods (cabbage palm, buckthorn, swamp fern, Florida elm)
- Cypress (bald cypress, loblolly bay, water tupelo, slash pine, willow elm)
- Cypress/pine/cabbage palm, cypress dominant overstory (slash pine, saw palmetto, saltbush)
- Freshwater marsh (sawgrass, iris, cattail, maidenweed, duckweed~~, water hyacinth~~)
- Saltwater marsh (red mangrove, sand cordgrass, marsh hay, false willow)
- Wet prairie, fresh (sawgrass, St. Johns wort, wax myrtle, maidencane)

The *Natural Resources Summary Report* (Erwin, 1988) summarizes all the plant species for each of the vegetative communities within the Volusia County coastal planning area. ~~,~~

The Florida Fish and Wildlife Conservation Commission's *Florida's Endangered Species, Threatened Species, and Species of Special Concern, July 2009* ~~and~~ indicates those species listed by the State of Florida and the US Fish and Wildlife Service as threatened, endangered, or species of special concern. Only two plants on the FWCC list are found within the planning area: American chaffseed (*Schwalbea Americana*) and Rugel's pawpaw (*Deeringothamnus rugelii*).

~~Map IX-1 Natural Resources Inventory~~



The data contained in this map is provided "as is" without warranty or any representation of accuracy, timeliness, or completeness. The burden for determining accuracy, timeliness, completeness, merchantability, and fitness for, or the appropriateness for, the use rests solely with the requester. The City of New Smyrna Beach makes no warranties, expressed or implied, as to the appropriate use of the data contained in this map. There are no implied warranties of merchantability or fitness for a particular purpose. The requester acknowledges and accepts the limitations of the data, including the fact that the data is dynamic and is in a constant state of maintenance, correction, and update.

* Sources: Volusia County Growth and Resource Management and Volusia County Property Appraiser's Office

~~Table IX-1 Plant Species within the Planning Area Listed as Threatened, Endangered, or Sp[ecies of Special Concern~~

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~~*Source: Natural Resources Summary Report, Volusia County Coastal Management Element, Erwin, 1988*~~

Natural vegetation serves several important functions. Among them are:

- Bird and animal habitats
- Air purification
- Noise reduction
- Retardation of runoff, and retention of soil moisture
- Prevention of shoreline erosion
- Buffering of storm surges
- Prevention of wind erosion
- Utilization of excess nutrients
- Filtration of sediments and pollutants which may endanger water quality in adjacent areas

The importance of preventing unnecessary ground clearing cannot be overstressed, particularly in shoreline areas and on slopes. Lot clearing not associated with permitted development activities should also be avoided as it depletes the environmental benefits provided by the vegetation and dislocates animals using the land as habitat for undertermined amounts of time. Retention of as much natural vegetation as possible will aid considerably in protecting water quality, marine life, and living conditions in the area.

The Indian River ~~and Halifax rivers~~ and the Atlantic Ocean provide opportunity for commercial and sport fishing and shellfish harvesting. The most prevalent types of fish caught in the area include mullet, ~~red snapper,~~ sea trout, grouper, whiting, and bass. Shellfish include blue crabs, oysters, clams, and shrimp. A complete listing of dominant species is provided in the Coastal Management Element, which also identifies marine habitats below the mean high tide line.

The *Natural Resources Summary Report* (Erwin, 1988) presents a list of wildlife species that are known to be, or suspected to be, present in the planning area. Table IX-~~2~~ 1 presents a list of wildlife species in the New Smyrna Beach planning area that are considered to be threatened, endangered or species of special concern. A list of dominant species is included in the Coastal Management Element.

KNOWN SOIL EROSION PROBLEMS

No areas of significant inland soil erosion have been identified. However, several areas along the rivers, coastal creeks, and drainage canals have banks of sufficient slope conducive to erosion under certain weather conditions. Therefore, vegetation on these banks must be maintained.

GROUNDWATER RECHARGE AREAS

These are areas suited for capture and infiltration of precipitation and stormwater runoff into underground limestone formations that replenish groundwater resources. There are two (2) basic types of recharge areas:

PRIMARY

Primary areas are used as potable water sources, which recharge deep groundwater aquifers often. These primary recharge areas generally contain well-drained, sandy soils; a thick unsaturated zone having a low water table; little or no confining layers to impede leakage; and adequate storage capacity available in the artesian system.

SECONDARY

Areas that are capable of groundwater recharge but, with hydrologic modifications, can be induced to perform more efficiently. These areas generally occur five (5) to ten (10) feet below the ground surface, and recharge the surficial aquifer via percolation of rainfall. Consequently, this aquifer does not supply large quantities of water; and what water it does supply is not of adequate quality for drinking.

There are no primary recharge areas in the New Smyrna Beach planning area. However, there are some secondary recharge areas that recharge the surficial aquifer, which provides some prevention of lateral saltwater intrusion.

Areas of New Smyrna Beach in which the surficial aquifer occurs include the Atlantic Coastal Ridge on the beachside and the US Highway 1 / Florida East Coast Railway area on the mainland. The existing land uses in this area are a mixture of residential and commercial, with some industrial uses in the railroad corridor. The impact these land uses have on the aquifer's recharge area is primarily that of stormwater runoff from streets, parking lots, sidewalks, etc. However, the natural function of the recharge areas has not been adversely impacted; and the natural filtering ability of the soils tends to mitigate any major impact from oil, grease, or other pollutants contained in the runoff.

Table IX-~~2~~ 1 Wildlife Species within the Planning Area Listed as Threatened, Endangered, or Species of Special Concern[1]

Common Name	**Scientific Name**
Birds	
Florida scrub jay	*Aphelocoma coerulescens*
Least tern	*Sterna albifrons*
Southeastern kestrel	*Falco sparverius paulus*
Bald eagle	*Heliaeetus leucocephalus*
Scrub jay	*Aphelocoma coerulescents coerulescen*
Wood stork	*Mycteria americana*
Snowy egret	*Egretta thula*
Swallow-tailed kite	*Elanoides forficatus*
Limpkin	*Aramus guarauna*
Little blue heron	*Egretta caerulea*
Tricolored heron	*Hydranassa tricolor*
Osprey	*Pandion haliaetus carolinensis*
Southern bald eagle	*Heliaeetus leucocephalus leucocephalus*
Sandhill crane	*Grus canadensis pratensis*
Roseate spoonbill	*Ajaia ajaia*
Mammals	
Pallid beach mouse	*Peromyscus polionotus decoloratus*
Florida mouse	*Permyscus floridanus*
Florida panther	*Felis concolor coryi*
Everglades mink	*Mustela vision evergladensis*
Florida weasel	*Mustela frenata peninsulae*
Round tailed muskrat	*Neofiber alleni*
Brown pelican	*Pelecanus occidentalis*
Pintail	*Anas acuta*
Blue-winged teal	*Anas discors*
Green winged teal	*Anas crecca*
American wigeon	*Anas americana*
Northern shoveler	*Anas clypeata*
Reddish egret	*Dichromanassa rufescens*
Reptiles	
Eastern indigo snake	*Drymarchon corais couperi*
Gopher tortoise	*Gopherus polyphemus*
Atlantic loggerhead turtle	*Chelonia mydas mydas*
Atlantic ridley turtle	*Lepidochelys kempii*
Leatherback turtle	*Dermochelys coriacea*
Bluetailed mole skink	*Eumeces egregius lividus*
Short tailed snake	*Stilosoma extenuatum*
American alligator	*Alligator mississippiensis*
Amphibians	
Gopher frog	*Rana areolata aesopus*

Common Name	Scientific Name
FISH	
shortnose sturgeon	Acipenser brevirostrum
Atlantic sturgeon	Acipenser oxyrinchus
bluenose shiner	pteronotropis welaka
rivulus	Rivulus marmoratus
AMPHIBIANS	
Gopher frog	Rana capito
REPTILES	
American alligator	Alligator mississippiensis
Atlantic loggerhead seaturtle	Caretta caretta
Green seathurtle	Chelonia mydas
leatherback seaturtle	Dermochelys coriacea
Eastern indigo snake	Drymarchon corais couperi
hawksbill seaturtle	Eretmochelys imbricata
Gopher tortoise	Gopherus polyphemus
Kemp's ridley seaturtle	Lepidochelys kempii
Atlantic salt marsh water snake	Nerodia clarkii taeniata
Florida pine snake	Pituophis melanoleucus mugitus
BIRDS	
Florida scrub jay	Aphelocoma coerulescens
limpkin	Aramus guarauna
piping plover	Charadrius melodus
little blue heron	Egretta caerulea
reddish egret	Egretta rufescens
snowy egret	Egretta thula
tricolored heron	Egretta tricolor
white ibis	Eudocimus albus
Southeastern American kestrel	Falco sparverius paulus
Florida sandhill crane	Grus canadensis pratensis
American oystercatcher	Haematopus palliatus
woodstork	Mycteria americana
osprey	Pandion haliaetus
brown pelican	Pelecanus occidentalis
roseate spoonbill	Platalea ajaja
black skimmer	Rynchops niger
least tern	Sterna antillarum
MAMMALS	
Southeastern beach mouse	Peromyscus polionotus niveiventris
Florida mouse	Podomys floridanus
Florida manatee (West Indian manatee)	Trichechus manatus latirostris
Florida black bear	Ursus americanus floridanus
Florida panther	Felis concolor coryi

Note: [1]Listed by ~~State of Florida and U.S. Fish and Wildlife Service~~Florida Fish and Wildlife Conservation Commission *Florida's Endangered Species, Threatened Species, and Species of Special Concern, July 2009*
~~*Source: Natural Resources Summary Report, Volusia County Coastal Management Element, Erwin, 1988*~~

STORMWATER MANAGEMENT

The historical practice of collecting and discharging stormwater runoff to surface water bodies and

channeling natural drainage corridors to remove excess rainfall has created severe environmental problems. These problems include, but are not limited to:

- Saltwater intrusion
- Diminished water quality
- Flooding
- Loss of valuable recharge to groundwater supplies
- Erosion of topsoil
- Sedimentation of receiving water bodies
- Lowering of the water table

The City's existing Stormwater Management and Conservation Ordinance requires that post-development stormwater runoff rates and volumes must approximate pre-development conditions; and that precautions must be taken to prevent erosion, sedimentation, and flooding. In particular, the ordinance requires that:

1. On-site retention shall be provided for no less than one and one-half (1½) inch of runoff from roofed, paved, and other impervious surfaces caused by or resulting from the project.
2. The peak discharge rate and total runoff volume leaving the developed or redeveloped site for a 25 year storm of 24 hours duration shall be limited to 110 percent of the pre-development or pre-redeveloped discharge rate and total discharge volume.
3. Stormwater runoff shall be subjected to "best management" practices prior to discharge into natural or artificial drainage systems. Best management shall mean a practice or combination of practices determined by the City Engineer to be the most effective practical means of preventing or limiting the pollution generated by the project to a level compatible with Florida water quality standards found in Rule 17-3, *Florida Administrative Code*.
4. Runoff computation shall be based on the most critical situation and conform to acceptable engineering practices using rainfall data and other local information applicable to the affected area.
5. No site development or alteration shall cause siltation of wetlands, pollution of downstream wetlands, reduction in the natural retention or filtering capabilities of wetlands, or reduction in the elevation of the existing water table.
6. No site alteration shall allow water to become a health hazard or contribute to the breeding of mosquitoes.
7. Site development or alteration activities shall include construction or installation of such water retention facilities, settling structures, and/or flow attenuation devices as may be necessary to ensure that the foregoing standards and requirements are met.
8. Design of water retention or detention structures and flow attenuation devices shall be subject to the approval of the City Engineer.
9. In subdivisions and on parcels where stormwater retention meeting current standards is not provided, filling of low lots shall not be allowed within required yard areas except that a minimum amount of fill may be allowed for:

    a. A driveway and up to five (5) feet on either side of the driveway; and

    b. No more than six (6) inches of fill may be allowed within the required yard areas provided an adequate drainage scheme is constructed to not allow stormwater onto adjacent lots. Construction techniques allowed to elevate the first floor of a structure include use of stem wall and pier foundations.

KNOWN POLLUTION PROBLEMS

The largest percentage of pollutants, which enter surface waters, are introduced by stormwater runoff. The Volusia County 208 Study, published in 1980, states: "Urban stormwater runoff (is) a significant source of pollutants in the Indian River," and "in particular, the accumulation of sediment deposits was identified as having a significant detrimental effect on water quality due to the flushing and re-suspension of

bottom deposits during wet weather flows."

Urban land use pollution sources in New Smyrna Beach include subdivision, commercial, and industrial developments close to central business districts, and developments adjacent to commercial centers along main arterial roads. The most significant constituents of urban pollution found in surface waters are petroleum hydrocarbons (grease, oil), which are transported in stormwater runoff. Metals are also significant constituents of urban pollution, and are known to cause toxicity. Ninety percent (90%) of metals found in the City's surface waters are transportation-related.

Aside from these ~~minor~~ water quality problems, there are no known pollution problems of major concern in the New Smyrna Beach planning area. The potential for conservation and protection of the City's surface water resources is discussed in the Goals, Objectives, and Policies section at the end of this element.

POTABLE WATER

Sources of information presented in this section include the Utilities Commission, City of New Smyrna Beach, and the *City of New Smyrna Beach Code of Ordinances*.

EXISTING WATER NEEDS AND SOURCES

CURRENT DEMAND AND LEVEL-OF-SERVICE

According to the Utilities Commission, City of New Smyrna Beach, current peak-day demand at the water treatment plant is 7.12 million gallons per day (mgd), serving a population of ~~some 24,818~~31,856, based on the ~~traffic analysis zone data in the *Central Florida Regional Planning Model* (CFRPM), version 4.02~~ population projections from the 2008 *St. Johns River Water Management District Revised Population and Demand Projections for Draft Water Supply Assessment*. Average day demand is ~~4.53~~5.27 mgd. This information is based on the latest available data from the Utilities Commission, City of New Smyrna Beach ~~for Fiscal Year 2004~~.

EXISTING WATER SUPPLY

Currently, the City has sufficient water supply through the Consumptive Use Permit (CUP) #8747, issued by the St. Johns River Water Management District (SJRWMD) on January 10, 2006, and facilities to meet projected demand through 2020. The Utilities Commission has identified a number of strategies to meet this demand including water conservation, re-use, and development of alternative water supply. It annually reviews its facilities and needs and coordinates with the SJRWMD in the regular update of the District Water Supply Plan. The Utilities Commission updates its five (5) year capital improvement plan on an annual basis and changes to that plan are incorporated into the Capital Improvements Element of this *Comprehensive Plan*.

Over the years, New Smyrna Beach has had to continue seeking water supplies farther inland due to saltwater intrusion in its wells. In fact, the City's original Smith Street wellfield is no longer being used, due to this intrusion. Consequently, the City now operates the following three (3) wellfields:

1. water treatment plant about, three (3) miles inland
2. Samsula, approximately seven (7) miles farther west; and
3. Intersection of State Road 44 and Pioneer Trail (County Road 4118)

The water treatment plant wellfield currently has seven (7) wells, providing 3,230 gallons per minute (gpm). The Samsula wellfield has six (6) wells, providing 1,850 gpm. The State Road 44 / Pioneer Trail wellfield has six (6) wells, providing 2,770 gpm. Each of the wells at all sites is 183 to 364 feet deep, drawing water from the Floridan Aquifer. Each well also has a pump house and a fence surrounding it. Ten (10) of the wells have auxiliary engines for emergency pumping in the case of power failure. According to the Utilities Commission, City of New Smyrna Beach, the cone of influence for saltwater intrusion has been reduced at the water treatment plant wellfield due to increased use of the Samsula wellfield and less pumping at the water treatment plant wellfield. Total permitted peak capacity for all three (3) wellfields is 10.5 mgd; the average capacity is 5.00 mgd.

FUTURE WATER NEEDS AND SOURCES

FUTURE DEMAND AND LEVEL-OF-SERVICE

The Utilities Commission, City of New Smyrna Beach increased the water treatment plant peak-flow capacity from 6.2 to 10.38 mgd in the early 1990's. Improvements associated with this increase included: aeration facilities, yard piping, site work, lime softening unit, sludge piping, filtration expansion, fluoridation modification, high-service pumping station, 2.0 mg ground storage reservoir, sludge handling facilities, and electrical/instrumentation systems. The primary constraint limiting the groundwater withdrawals are defined in the Consumptive Use Permit (CUP) #8747, issued by the St. Johns River Water Management District (SJRWMD) on January 10, 2006, which will expire on February 9, 2020. The CUP permits increasing annual average withdrawals up to the year 2012, when it plateaus at 8.33 mgd until the year 2020 and increasing maximum daily average withdrawals up to the year 2018, when it plateaus at 12.75 mgd. Therefore, the wellfields are permitted to withdraw~~al~~ enough water to meet the permitted CUP allowance of 8.33 mgd through the year 2020. However, current plant capacity can only be met by the well output and raw water transmission limitations, which limit maximum capacity to 9.0 mgd.

Table IX-3 Potable Water Wellfields Capacity Projections and Requirements

Year	~~Accounts~~	Population	Average Daily Demand (mgd)		Peak Day Demand (mgd)		Average Daily Flow Per Account (gd)		Existing Wellfields Capacity (mgd)	~~Wellfields Capacity Requirement (mgd)~~	Surplus / (Deficit) (mgd)	
2010	~~27,042~~	31,856	~~6.49~~	5.27	~~9.28~~	7.59	~~240~~	334	10.50	~~12.98~~	~~(2.48)~~	5.23
2015	~~27,958~~	33,331	~~6.71~~	5.52	~~9.60~~	7.94	~~240~~	334	10.50	~~13.42~~	~~(2.92)~~	4.98
2020	~~29,167~~	35,281	~~7.00~~	5.84	~~10.01~~	8.40	~~240~~	334	10.50	~~14.00~~	~~(3.50)~~	4.66
2025	~~29,667~~	37,336	~~7.12~~	6.18	~~10.18~~	8.90	~~240~~	334	10.50	~~14.24~~	~~(3.74)~~	4.32
2030		39,066		6.47		9.30		334	10.50			4.03

Note: Population projections from SJRWMD Revised Population and Demand Projections for Draft Water Supply Assessment, 2008

Source: Utilities Commission, City of New Smyrna Beach ~~Wastewater & Reclaimed Water System Facility Plan, Quentin L. Hampton Associates, 2006~~

FUTURE WATER SUPPLY

Many of the improvements that will be required for meeting future potable water needs (see Table ~~VI~~IX-~~5~~3) in the planning period are contained in the *Utilities Commission, City of New Smyrna Beach Water Plan* (Quentin L. Hampton Associates, 2005). This plan will be continually monitored and modified to provide for new and additional equipment and facilities as demands dictate during the planning increments.

INDUSTRIAL AND HAZARDOUS WASTES

~~To date, industrial and hazardous wastes have not been a problem in the New Smyrna Beach planning area. Such wastes are fairly limited and consist primarily of hospital X-ray wastes and other items such as paint thinners, paint, oils, and pesticides. The City's Code of Ordinances prohibits the improper disposal of these wastes; and strict enforcement of the ordinances will help insure against contamination of the area's groundwater resources.~~

Brownfields are defined by the Florida Department of Environmental Protection (FDEP) as abandoned, idled, or underused industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination. The primary goals of Florida's Brownfields Redevelopment Act (Ch. 97-277, Laws of Florida, codified at ss. 376.77-.85, F.S.) are to reduce health and environmental hazards on existing commercial and industrial sites that are abandoned or underused due to these hazards and create financial and regulatory incentives to encourage voluntary cleanup and redevelopment of sites. After a local municipality in Florida designates an area as a brownfield to encourage redevelopment and focus upon revitalization, a resolution is passed and property owners within that designated area optionally may remediate or redevelop their property. The Community Redevelopment Agency (CRA) has had the State designation of "Brownfield" applied to the entire CRA District.Executed Brownfield Site Rehabilitation Agreements (BSRAs) are voluntary cleanup agreements between a responsible party and FDEP or a delegated local pollution control program. This agreement provides the FDEP and the public assurance that site rehabilitation will be conducted in

accordance with the statute and the Brownfields Cleanup Criteria rule (Ch. 62-785), and provides liability protection for the responsible person. The agreement contains various commitments by the responsible person, including milestones for completion of site rehabilitation tasks and submittal of technical reports and plans as agreed to by the responsible person and the DEP. It also contains a commitment by the FDEP to review technical reports according to an agreed upon schedule. At this time, no such agreements are in place for any properties within the City. However, in the Summer of 2009, the CRA was awarded a grant through the Federal Environmental Protection Agency's (EPA) "Brownfields 2009 Assessment Grant program in the amount of $400,000. $200,000 of this is to be applied to assessment and cleanup planning for hazardous waste sites and $200,000 is to be applied to sites contaminated with petroleum. Community-wide hazardous substances and petroleum grant funds will be used to conduct 10 Phase I and 5 Phase II environmental site assessments. Grant funds also will be used to support community outreach activities. These activities are to be completed by Summer 2011.

WATER QUALITY AND CONSERVATION / PROTECTION OF RESOURCES

WATER QUALITY

All potable water produced by the Utilities Commission, City of New Smyrna Beach facilities is (and will continue to be) in compliance with both federal and state safe drinking water standards and regulations. The Glencoe Road water treatment plant has received numerous awards, including that of "Best Operated Water Plant, Class A Category, in the St. Johns River Water Management District" (1980, 1981, 1984 and 1986), awarded by the Florida Department of Environmental Protection, and the American Water Works Association's "Award of Recognition for Best Class A/B Water Plant in the State of Florida" (1985 and 1986).

The plant is well maintained, and structures, components, and equipment are in good condition. Daily operation and maintenance and preventive maintenance are performed with the assistance of computerized schedules, with preventive maintenance accounting for ~~nine percent~~12 ~~(9%)~~ of the total O&M budget for Fiscal Year ~~1989~~2009. In addition, regularly scheduled training sessions are held for plant operators and maintenance technicians.

WATER USE CONSERVATION

The Utilities Commission, City of New Smyrna Beach ~~does not currently have a formal water conservation program in; however, it encourages conservation through advertisements in the local newspaper, and provides flow reduction devices to customers upon request and at no charge to the customer~~sees water conservation and re-use as ~~–~~important components of its alternative water supply. Through public information on water saving devices and lawn irrigation rules, customers have cut back on wasteful water use. Through expansion of water re-use facilities, non-potable water can be used for irrigation, thus cutting back on the need for potable water. When conditions require emergency conservation, system pressure is lowered as a conservation measure, and the Utilities Commission, City of New Smyrna Beach cooperates with all conservation policies of the SJRWMD. Additionally, the SJRWMD does have conservation regulations that limit lawn watering to ~~two~~ one (~~2~~1) time per week during the lowest evaporation times of the day.

PROTECTION OF RESOURCES

As previously noted, all of the City's potable water supply is obtained from groundwater sources in Volusia County farther inland. The reason is that much of the planning area is underlain by a mostly impervious "aquitard" which prevents little or no recharge of the Floridan Aquifer from which potable water is obtained. However, there are some recharge areas located in the coastal ridges which do not supply large quantities of water, but which serve to prevent lateral saltwater intrusion into inland groundwater reservoirs. These recharge areas should be protected. Ideally, they should be left in their natural state; and natural vegetation should be maintained to the maximum extent possible.

Since land development is the main threat to these recharge areas, regulation of land use by zoning can control such development. When development does occur, drainage and surface runoff can be

controlled through compliance with stormwater management ordinances. While the City has no specific regulations for maintaining and preserving recharge areas, it does have a stormwater management ordinance and zoning regulations (including planned unit development and landscaping regulations), which accomplish essentially the same purpose.

WASTEWATER REUSE PROGRAM

The City has implemented a program of reusing treated wastewater effluent for irrigation throughout the City. The program was initiated in order to reduce the amount of wastewater effluent that is discharged into the Indian River. The goal of the program is to cease the disposal of treated wastewater into the river altogether. This will be accomplished through the expansion of the reclaimed water system in the City. As of June 1995, the outfall of wastewater effluent into the Indian River had been reduced by 37 percent. By the year 2000, the discharge of secondary treated effluent into the Indian River had been eliminated. Besides reducing wastewater disposal into surface waters, the use of the reclaimed water for irrigation also reduces reliance on the aquifer. Large developments, golf courses, roadway medians, and City parks are now irrigated with reuse water, rather than drawing water from the aquifer. This system results in the conservation of potable water while assisting the recharge of the aquifer.

GOAL, OBJECTIVES, AND POLICIES

GOAL:

To protect, conserve, restore, maintain, and properly manage the natural resources of New Smyrna Beach. This goal will be met by initiating the objectives and policies stated herein, which will be more specifically defined in future *Comprehensive Plan* updates as local needs (and the City's ability to meet those needs) become better established.

OBJECTIVE:

1. To maintain and enhance the quality of the environment through proper land development practices on an ongoing basis.

POLICIES:

a. Utilize the *Land Development Regulations*, in conjunction with this element, to encourage preservation of those areas that have limitations or are environmentally sensitive, such as wetlands, flood hazard areas, or areas with severe soil limitations.

b. Continue to support and enforce existing subdivision regulations, zoning ordinances, and the building permit process to protect natural resources.

c. Continue to encourage soil conservation/preservation and prevention of erosion by enforcement of the Stormwater Management and Conservation Ordinance.

d. Mandate proper disposal of hazardous wastes within the planning area to protect the area's natural resources.

e. Continue to protect designated environmentally sensitive lands identified in the Future Land Use Element.

f. Pursue and encourage county, state, and federal acquisition of key environmentally sensitive areas.

g. Utilize its development regulations to require all new developments to provide open space.

h. Provide for the protection of natural resources identified in the Recreation and Open Space Element through the implementation of policies contained in that element.

i. On a parcel-by-parcel basis, prepare an environmental assessment of the wetland resources and determine specific designations for areas of environmental concern. Once the environmental protection areas and their associated uplands are determined, the approximate boundaries of the conservation designation on the

Future Land Use Map shall be administratively adjusted to accurately depict the environmental areas and the upland buffers. The adjustment shall be completed without requiring a Future Land Use Map amendment. In the event that the area to be changed is greater than five (5) acres in size, Planning and Zoning Board approval shall be required.

OBJECTIVE:

2. To maintain the current high levels of air quality so as not to drop below minimum air quality standards established by United States Environmental Protection Agency and FDEP.

POLICIES:

a. Continue to respond to the goals and objectives as set forth in state and federal regulations pertaining to clean air and water resources.

b. Encourage, through the Future Land Use Element and the *Land Development Regulations*, the type and density of development that is consistent with proper maintenance of clean air and water.

c. Use the ~~Traffic Circulation~~ Transportation and Capital Improvements Elements to ensure that ~~adequate highways~~ alternative methods of transportation are provided to minimize traffic congestion and resultant pollution.

d. Continue to promote conservation of water sources in accordance with the plans and regulations of the SJRWMD.

OBJECTIVE:

3. To continue to enforce the *Land Development Regulations* that prevent the further degeneration of the ambient water quality of surface water resources.

POLICIES:

a. Utilize the *Land Development Regulations* to encourage the use of natural drainage and storage areas, as well as maintenance and preservation of existing vegetation, in order to filter stormwater runoff and help preserve water quality in the planning area.

b. Continue to enforce the Stormwater Management and Conservation Ordinance, which controls the design of stormwater systems in order to protect the quality and quantity of water that flows into estuarine or oceanic waters. Such flows include coastal creeks and rivers, as well as stormwater runoff and drainage.

c. Monitor the effectiveness of the *Land Development Regulations* that were adopted to preserve water quality and update as necessary.

OBJECTIVE:

4. To continue to protect and conserve fisheries, natural areas, wildlife and marine life, and to direct growth away from these areas.

POLICIES:

a. Support the conservation, appropriate use, and protection of the natural functions of existing soils, fisheries, wildlife, wildlife habitats, marine habitats, rivers, bays, floodplains, harbors, and wetlands (including estuarial marshes) through the enforcement of land use regulations. The measure of this policy shall be the number of encroachments into conservation areas. At a minimum, the *Land Development Regulations* will require:

   i. an environmental impact analysis for environmentally sensitive sites

   ii. pre-construction and post-construction erosion controls

   iii. the minimum open space requirements for the City are as follows:

      1. Conservation - 70 percent

2. Single-family, Multifamily, and Mobile Home Residential - 40 percent
3. Commercial - 25 percent
4. Industrial - 25 percent

All development adjacent to and surrounding wetlands shall require a 25-foot wetlands buffer; and

iv. The provisions outlined above are intended to ensure that development will be clustered away from environmentally sensitive portions of the development site, to provide for on-site protection of specimen trees and the habitat of endangered/threatened species.

b. Promote and encourage public awareness of, and private efforts toward, protection and conservation of natural areas within the planning area by maintaining and making available to the public, a mapping inventory of ecological communities by type.

c. Coordinate with other government agencies to encourage protection and preservation of sand dunes by promoting construction of boardwalks for pedestrian access to the beach, and by replanting disturbed areas.

d. Restrict activities known to adversely affect the survival of threatened and endangered wildlife through enforcement of the *Land Development Regulations*.

OBJECTIVE:

5. To provide for a continuing, coordinated intergovernmental management approach to protecting and properly utilizing natural resources, including wildlife and marine habitats, water, and natural vegetation.

POLICIES:

a. Coordinate with appropriate governmental entities to protect environmentally sensitive lands, including those that extend into adjacent jurisdictions.
b. Continue active participation in the Federal Flood Insurance program.
c. Identify and fill gaps in existing resource management processes.
d. Periodically review and update policies and procedures involving management, protection, and utilization of natural resources, including amendments to the Conservation Element of the *Comprehensive Plan*.

OBJECTIVE:

6. To protect, preserve, and maintain as much natural vegetation as possible to protect and maintain water quality, marine life, wildlife, aesthetics, and other valuable functions served by vegetative ground cover, leading to preservation and enhancement of the quality of life in the planning area.

POLICIES:

a. Utilize the site plan review process contained in the *Land Development Regulations* as a tool for preservation of natural vegetation.

b. Preserve, wherever possible, a minimum of fifty percent (50%) of the existing undisturbed native vegetation through the application of cluster development, open space areas, buffer zones, and landscape zones. The City promotes the xeriscape approach to natural vegetation retention. Development will be clustered in order to promote the preservation of specimen trees such as Oaks with trunk diameters 12 inches or greater, or Maple, Sweetgum and Hickory with trunk diameters 18 inches or

greater; and to allow for the continuance of wildlife habitat.

c. Protect the natural hydrologic functions of the areas designated as Conservation on the Future Land Use Map by not allowing non-public agency development in these areas. If future information demonstrates portions of areas designated Conservation are not actually environmentally sensitive, the City ~~Commission~~ will consider redesignating these portions through the process outlined in the Future Land Use Element, Goal 7, Objective 1. Policy d~~plan amendment process~~.

d. Cooperate with county, regional, state, and federal efforts to identify, acquire, and protect habitat corridors that serve as biological connections to existing management areas.

OBJECTIVE:

7. To provide for the protection, maintenance, enhancement, and utilization of wetlands within the City.

POLICIES:

a. Maintain *Land Development Regulations* consistent with the minimum standards for wetland protection as approved by Volusia County in 1989 by Volusia County, Florida, Ordinance No. 89-8 (July 6, 1989). These standards address the identification of wetlands, mitigation requirements to ensure that there is no net loss of wetlands within the City limits, and a minimum 25-foot wide buffer upland and adjacent to wetlands requirements.

b. Restrict development in wetlands unless eliminated wetlands are mitigated at a minimum of one-to-one (1:1) ratio through the enforcement of adopted *Land Development Regulations* that conform to county minimum wetland protection standards adopted in 1989 by Volusia County, Florida, Ordinance No. 89-8 (July 6, 1989), and through land use designations.

OBJECTIVE:

8. To continue to protect and maintain natural groundwater aquifer recharge areas through enforcement of adopted *Land Development Regulations*.

POLICIES:

a. Monitor the *Volusia County Comprehensive Plan* and *Volusia County Land Development Regulations* with respect to the wastewater treatment plant, Samsula, and State Road 44 / Pioneer Trail wellfields, and will advise the county of any existing or potentially adverse conditions with respect to the wellfields and their local recharge areas.

b. Encourage preservation and maintenance of secondary natural groundwater recharge areas to enhance their recharge potential through the adopted *Land Development Regulations*.

OBJECTIVE:

9. To maintain management and control of stormwater runoff for alleviating existing environmental problems and preventing future problems through enforcement of current *Land Development Regulations*.

POLICIES:

a. Maintain *Land Development Regulations* which:

i. Regulate management of stormwater runoff to prevent diminished water quality, flooding, loss of groundwater recharge, soil erosion, sedimentation in receiving surface waters, and lowering of the water table.

ii. Require the use of best management practices to maintain swamps, marshes, floodplains, and other wetlands for stormwater management.

iii. Require that retention areas are designed and located to maximize their effectiveness for flow attenuation and aquifer recharge; to minimize the need for channelization; and to provide for greater safety and reliability.

b. Continue to enforce the Stormwater Management and Conservation Ordinance, and provide for maintenance of stormwater management facilities as part of its stormwater management program.

OBJECTIVE:

10. To incorporate the inherent limitation of existing soils in land planning and development, and to minimize impacts which result in soil erosion.

POLICIES:

a. Prior to any land disturbance, require developers to indicate on their site plans any areas of highly erodible soils, (as defined by the United States Department of Agriculture Natural Resources Conservation Service (NRCS) or the Florida Department of Agriculture), and to take adequate measures to ensure that soil erosion is avoided, including utilization of appropriate best management practices.

b. Regulate construction in soils, which are determined to be hydric in character (as defined by the NRCS and the Florida Department of Agriculture) to the extent that the proposed construction activities will not adversely impact protected resources.

OBJECTIVE:

11. To continue to coordinate efforts to conserve potable water on an annual basis.

POLICIES:

a. Continue to comply with water conservation policies adopted by the SJRWMD.

b. Continue to lower system pressure when conditions require emergency conservation.

c. ~~Develop plans and designs to reuse effluent disposal for irrigation at additional City properties, private residences, and businesses~~Continue to implement a waste-water re-use program designed to eliminate effluent discharge into the Indian River Lagoon and make non-potable water available for irrigation purposes.

d. Continue to ~~freely distribute, upon request, flow restriction devices to water customers to enable them to conserve water~~implement a water conservation program to reduce potable water demand.

e. Maintain the average consumption of potable water at 212 gallons per day per equivalent residential unit.

f. Require, through the *Land Development Regulations*, all new residential subdivisions to install dry lines, or provide payment in lieu, for future connection to reclaimed water systems.

g. Discourage over-watering of lawns and other landscape vegetation, particularly when automatically timed sprinkler systems are used. Furthermore, prohibit the watering of lawns during hours of high evaporation potential.

~~g.~~h. Develop alternative water supplies that will be needed in addition to or instead of groundwater needed to meet water supply demands in the future.

OBJECTIVE:

12. To protect and preserve floodplains.

POLICIES:

a. Investigate the possibility of public acquisition of lands within floodplains, using local and state funded programs ~~such as "Save Our Rivers" and "CARL."~~

b. Prohibit the development of all wetlands located within floodplains ~~, using local and state funded programs such as "Save Our Rivers" and "CARL."~~

c. Continue to rezone floodplains as Conservation, in order to limit development.

d. Where filling of land within the 10 year floodplain is unavoidable, the lost volume shall be made up by excavation of uplands.