



11. ENVIRONMENTAL PLANNING

The Environmental Planning Element of the General Plan examines environmental issues within and around the City of Cottonwood and establishes policies intended to help accomplish local objectives related to community sustainability, protection of the natural environment, managing and conserving resources for present and future generations. These policies are intended to address the anticipated effects on air quality, water quality and natural resources associated with proposed development under the General Plan. Physical conditions are not the only influences on land use. Existing patterns of land development as well as literal supply and demand each shape land use in a community. This plan addresses both physical and social influences on land use within the study area, as well as land use policies which may be associated with nearby communities and within adjacent unincorporated areas of Yavapai County, the National Forest and State Trust lands.

A. VISION AND FOCUS

The General Plan is devoted in large part to striking a balance between the community's small town qualities and providing the amenities often associated with larger urban areas. Fundamentally, the General Plan encourages development, which addresses very real and significant needs related to jobs, commerce, industry, housing and recreation. The Plan also recognizes that continued development in response to those needs will result in additional impacts on the community. The General Plan therefore encourages planned development over random development wherever possible and establishes specific criteria that contribute to public safety and community sustainability.

Sustainable communities encourage a business climate where better goods and services are provided using less energy, with less waste and less pollution, thereby protecting and maintaining the quality and quantity of a community's natural resources and its built environment.

Cottonwood recognizes there is a need to support a sustainable way of life that safeguards our natural resources and ensures a safe environment for our residents and visitors. Cottonwood is committed to encouraging development that preserves its physical and cultural environments; and to taking the actions necessary to achieving a healthy environment without placing unfair burdens on any geographic or socioeconomic sectors of the population.

The Environmental Planning Element specifically encourages development standards that address air and water quality, the reduction of urban heat islands, integrity of soils and slopes, viewsheds and other natural resources. The General Plan also ensures that the community will have enough water to support growth that

may occur over the time frame of the plan and beyond.

The General Plan addresses public safety and sustainability by encouraging focused development that consolidates the greatest development impacts within smaller areas. Aside from reducing costs for infrastructure, focused development provides for a scale of development which better enables more pedestrian friendly environments and sets up opportunities for preserving open areas, connective trails, viewsheds, and scenic backdrops. Beyond land use planning, one of the methods the General Plan uses to encourage more focused development is supporting provisions which tie the impacts of growth to the cost of development, discouraging sprawl which may otherwise occur in response to cheaper land costs at the fringe of a community.

The General Plan also seeks to reduce traffic hazards by offloading congested areas, encouraging more efficient traffic routes, and street standards that slow traffic in neighborhoods and other pedestrian areas. The Plan also encourages neighborhood design



standards through the subdivision review process, which result in safer and more secure streetscapes.

B. RELATED LEGISLATION AND STUDIES

Arizona Revised Statutes (ARS 9-461.05.3) specifies that a general plan must have an Environmental Planning Element that contains analysis, policies and strategies to address anticipated effects, if any, of plan elements on air quality, water quality and natural resources associated with proposed development under the general plan. The policies and strategies to be developed under this element shall be designed to have community-wide applicability and shall not require the production of an additional environmental impact statement or similar analysis beyond the requirements of state and federal law. The Environmental Planning Element identifies:

- The existing physical conditions of air quality, surface water quality and natural resources and how those physical elements have contributed to the positive and healthy quality of life in Cottonwood.
- Policies, goals, objectives and strategies to ensure continuance of a safe and healthy environment recognizing that the City is continuing to grow and expand with new residents and businesses, which could have a negative impact on the quality of community sustainability without implementing strategic environmental preservation measures.
- Goals and strategies to overcome pollution, noise, erosion, urban heat island effects, adverse air quality and sub-standard water quality.

C. REGIONAL SETTING

Cottonwood is located in Yavapai County near the geographic center of the state of Arizona, approximately 100 miles north of Phoenix and 50 miles south of Flagstaff, with major access from I-17 via SR 260. The central location enhances the City's importance as the retail and service center of the Verde Valley. The medical and senior living community has a major presence in the form of the newly expanded Verde Valley Medical Center campus and surrounding commercial buildings, housing doctors, laboratories and related medical and clinical services.

The Verde Valley region offers a very pristine and tranquil living environment that is readily accessible from Arizona's metropolitan areas. The mostly sunny weather and pleasant year round temperatures are attractive to part-time residents, retirees and tourists in addition to a local population of over 30,000 people in the greater Cottonwood area.

Urban areas exist as islands amid the National Forest connected by State highways. The Coconino and Prescott National Forests offer abundant outdoor recreational opportunities throughout the Verde Valley which is populated

with critical habitat areas for numerous endangered species of wildlife.

The region features a very diverse topography characterized by mountains, ridges and mesas. The Verde Valley also contains the last free-flowing river in Arizona and five additional free-flowing perennial streams. The Verde River hydrological system is very dynamic and yet very fragile. Wash corridors in some locations are occasionally subject to severe flooding from nearby canyons during rainfalls.

The Verde River Watershed Study prepared by the Arizona Department of Water

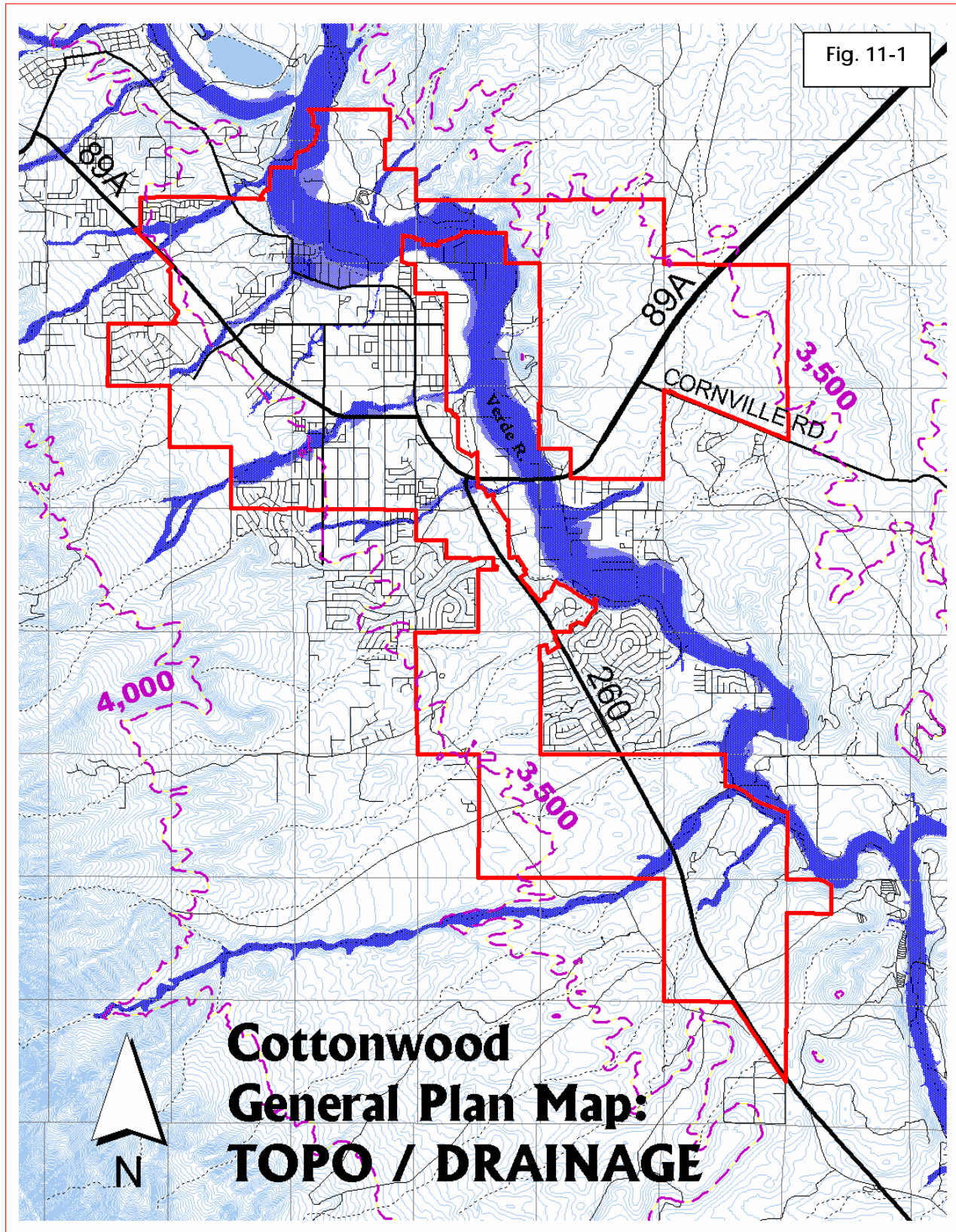


Resources, April 2000, estimates that the current state of the Middle Verde watershed is in a steady status, however, the actual status of the water resources within the entire Verde Watershed is unknown. Water quality varies at different locations around the Valley.

Although the local air quality is generally good, the region is subject to occasional inversions similar to other valleys in the State.

Cottonwood's moderate desert climate, proximity to the nearby riparian habitat of the Verde River, Mingus Mountain range and red rock canyon country combine to provide Cottonwood with a special setting. The topography, hydrology and soils also significantly impact the City's character and land uses. The following is a summary of Cottonwood's physical attributes.

D. LOCAL OVERVIEW





PHYSIOGRAPHY AND CLIMATE

Prevailing winds are primarily from the southwest. Average total annual precipitation is 12.21 inches. Most rainfall occurs in the summer months and the annual average temperature ranges from a low of 45°F to an annual average high of 79°F.

TABLE 11.1 TEMPERATURE AND PRECIPITATION	AVG. TEMP. (F)		TOTAL (INCHES)
	MAX.	MIN.	
January	58.2	28.4	0.85
February	63.2	31.8	0.77
March	68.4	35.5	.085
April	76.6	42.4	0.57
May	85.1	49.4	0.35
June	94.6	57.7	0.58
July	98.4	66.0	2.02
August	95.4	64.1	2.43
September	91.6	57.5	1.12
October	82.3	46.7	0.80
November	68.6	36.0	0.74
December	59.0	29.0	1.11
YEAR	78.8	45.4	12.21

Cottonwood’s elevation ranges from 3,300 feet to 3,600 feet above sea level. The Black Hills, including prominent Mingus Mountain, are a scenic backdrop to the west, while the red rock area of the Mogollon Rim and Sedona provide other major view corridors to the north and east.

DRAINAGE

West of the Verde River, the City slopes from west to east at grades between 2 and 15 percent (excluding wash areas). The Verde River and its primary tributaries and washes are prone to seasonal flooding. Drainage impacts land use because certain areas designated by Federal Insurance Rate Maps (FIRM) as within the 100-year flood zones have limits on development within these areas.

Five major natural washes occur north of the SR 260 / Fir Street intersection, including Mescal Gulch, Silver Springs Wash, Railroad Wash, Del Monte Wash and Little Oak Wash. These channels carry storm water intermittently, with volumes peaking at 16,744 cubic feet per second (cfs) during 100-year storm conditions.¹ Major culverts, generally concrete box culverts from 6' by 6' to 10' by 10', cross main roadways.

TABLE 11.2: DRAINAGE CAPACITIES						
FLOODING SOURCE, LOCATION & DRAINAGE AREA (SQ.MI.)	PEAK DISCHARGES (CFS)					
	10YR	25YR	50YR	100YR	500YR	
DELMONTE UPSTREAM OF N. MAIN ST.	5.7	3,086		4,537	5,627	15,000
RR WASH AT:						
CONFLUENCE WITH CTWD DITCH	1.2	397		506	570	680
E. MINGUS CULVERT	1.1	398		507	572	685
E. MINGUS AVE & 10TH ST.	0.9	245		312	353	420
E. MINGUS AVE & PAULA ST.	0.8	245		310	345	410
BYPASS 89A	0.5	46**		59**	66**	80**
AIRPORT RUNWAY	0.5	172		297	347	518
SILVER SP. GULCH AT CONFLUENCE WITH VERDE R.	5.3	2,541		3,737	4,634	12,500
OAK WASH AT CONFLUENCE WITH VERDE R.	5.3	2,320		3,411	4,230	11,500
OAK WASH @ SR 260 CULVERT	3-8'X10' BOXES					
CHERRY HILLS @ SR 260	1.2		525	621	717	
RIO MESA @ SR 260	.7		501	554	603	
OAK WASH @ FIR ST.	4.6		1,281	1,382	1,483	
CHRISTINA DRAW @ OLD 279	3.8		1,315	1,576	1,820	

** Discharge is less because of a detention basin.



GEOLOGY AND SOILS

The Verde Valley was formed by faulting and subsequent filling of the valley with lacustrine sediments which include hard limestone strata with sandstone layers of variable hardness. This lacustrine deposit is called the Verde Valley Formation. The Verde Valley Formation has been eroded away in most of the valley but a large part of it can still be seen. On the western side of the valley, the Verde Valley Formation has been buried by alluvium coming from the Black Hills.

Stream terraces formed by the Verde River cross the study area and include fan terraces formed by alluvial sediments coming from the Black Hills and outcrops of the Verde Valley Formation.

Following is a summary of USDA soil maps detailed on the following page. It should be stressed that the general soil map should not be used for detailed land use planning without further on-site evaluation.

AREA 1: Consists of very deep sandy and rocky soils formed in the Verde River floodplain. They are subject to occasional flooding.

AREA 2: Consists of very deep soils with low rock fragment content. Most of the soils are loamy and silty. These soils are above the flood plain and flooding is very unlikely except in very unusual circumstances.

AREA 3: Consists of soils that are shallow and moderately deep to hard limestone or sandstone of the Verde Valley Formation. There are large amounts of rock fragments in the soil and the calcium carbonate content is very high.

AREA 4: Extremely variable in soil textures and rock fragment content. This map unit occurs at the bottom end of the fan terraces. Much of the high clay soils have been eroded off and most of the remaining soils are low in clay. There are many old river channels that have a large amount of rock fragments but just a few feet away the soils may not have any rock fragments at all. All of the soils in this map unit have moderate to high amounts of calcium carbonate in the soil but calcium carbonate

cemented hardpans are rare. Outcrops of the Verde Valley Formation are common.

AREA 5: The largest soil types occur on fan terraces. Most of these soils are high in clay and contain large amounts of rock fragments. There is a layer of calcium carbonate with varying degrees of cementation. In some areas cementation may be an obstacle in construction. Some soils also occur in drainage ways or "gulches" with very steep slopes and very rocky soils in the bottom that are susceptible to flash flooding. Small outcroppings of the Verde Valley Formation are also common in this map unit.

AREA 6: Consists of very deep, steeply sloping soils formed in limestone alluvium on fan terraces. There are large amounts of rock fragments, very low amounts of clay, and large amounts of calcium carbonate throughout the soil profile.

HYDROLOGY

GROUND WATER: The regional water source is an aquifer that underlies all of the upper Verde area, except west of the Verde Fault from Chasm Creek to Jerome. Various formations contribute to the ground water source. These yields equate to a median low of 14,400 gallons per day (gpd) to a median high of 216,000 gpd. Overall, the annual yield from all formations equals 178 million gallons or .49 million gallons per day (mgd). At present, Cottonwood is not in an "Active Water Management Area" (areas where a 100 year water supply must be assured for new development) but is considered by the state to be in an "Adequacy Area" (an area with adequate water supply).

TABLE 11.3: WELL YIELD	Well Yield, in Gallons per Minute			
	Wells	Min.	Max.	Medium
Alluvium	18	12	300	32
Verde Formation	136	2	1,600	30
Coconino Sandstone	14	10	1,000	150
Supai Formation	74	1	225	25
Redwall Limestone	13	0.4	1,078	92
Martin Formation	2	10	10	10



Source: Appraisal of Water Resources in the Upper Verde River Area Yavapai and Coconino Counties, Arizona by Sandra J. Owen-Joyce and C.K. Bell.

The water for the City of Cottonwood is supplied by three private water companies, including Cottonwood Water Works (the largest), Clemenceau Water Company and Cordes Lakes Water Company. Cottonwood Water Works presently has 2,744 residential meters and supplies about 1.2 million gallons per day. The City is presently considering acquisition of these companies and further development of a municipal water system.



SURFACE WATER: The Verde River Watershed is primarily comprised of runoff from the Mogollon Rim to the north and northeast. Fourteen separate watersheds contribute to the Verde River flow and eight of these are upstream of Cottonwood. The surface flow of the river varies considerably due to irrigation diversion and high seasonal differences in evapotranspiration.

The reach of the Verde River that flows through Clarkdale and Cottonwood has a low gradient. Two irrigation ditches along this reach divert surface water from the river, the Hickey Ditch and the Cottonwood Ditch. Together these can divert 72 cubic feet per second (cfs) from the river. The Verde River may then run as low as 100 cfs during peak irrigation use in June and July.

The Verde Valley Watershed Association was initiated to protect the water use and quality of the riparian habitat for the purpose of multiple uses. Numerous studies and draft management plans have been completed for the Verde, but a definitive strategy for management has yet to be adopted by a state or local agency.

WATER QUALITY: Cottonwood's water supply meets both state and federal water quality standards. Water suppliers test water quality as required by the Arizona Department of Environmental Quality and the federal Environmental Protection Agency.

FLORA AND FAUNA

The U.S. Fish and Wildlife Service has given the Verde River protected status as critical habitat for several species of flora & fauna. Additionally, the Department of the Interior has listed the Verde River as one of the most significant rivers in the nation.

Two plant communities occur in the Cottonwood area - a grassland/shrub highland and the riparian plant community along the Verde River. The riparian plant corridor, which provides habitat for the largest faunal diversity, consists of mature stands of fremont cottonwood, Goodding willow, salt cedar, alder and box elder.

Over two hundred species of birds have been recorded in this reach of the Verde, including the threatened bald eagle, endangered southwestern willow fly catcher, and State candidate common black hawk (Sullivan & Richardson, 1993).

The cliffrose (*c. subtinegra*), a federally listed endangered plant, occurs in a small portion of Cottonwood near the river. A large stand is located off Rocking Chair Road and a management plan to protect this species has been proposed. Further, the Verde River is critical habitat for several federally endangered fish, including the razorback sucker, the spikedace and the loach minnow.

Due to the importance of the Verde River and its wet and dry tributaries to flora and fauna, particularly threatened or endangered species, it is important to protect these areas, where possible, from over crowding and further development that could degrade habitat.

AIR QUALITY

Both Federal and State standards have been established to control air quality. Parameters are monitored for particulate matter, sulphur dioxide and nitrogen dioxide. Three monitoring stations near the Phoenix Cement plant in Clarkdale indicate that air quality has improved in recent years.

The Federal Environmental Protection Agency has declared the Yavapai Apache reservation near Clarkdale as a Class 1 airshed. This means that any activity, either on or near the reservation that would degrade reservation air quality is prohibited. By its proximity to the reservation, the city's air quality is also protected. Any industry that would contribute pollutants to the air would have to meet federal emission standards to avoid degrading air quality.

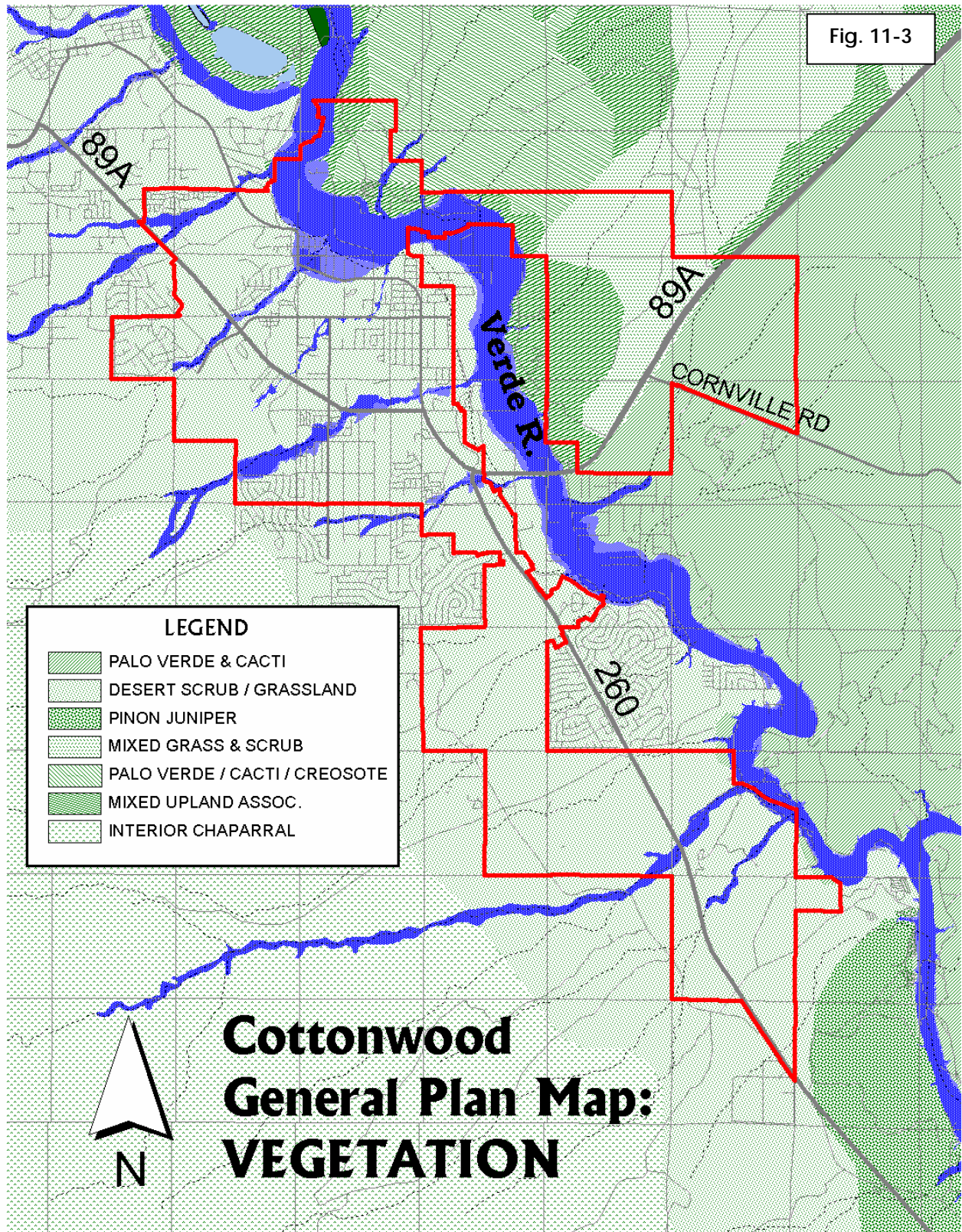
In principal this designation could prevent the location of some industrial activity in Cottonwood and Clarkdale, such as electric generating stations, steel mills, concentrators and large incinerators. As the General Plan's economic development strategies do not include attracting major heavy industrial facilities to the area, the Class 1 airshed designation may not appreciably impact the City until the Verde



Valley's population reaches such numbers that vehicle emissions negatively impact air quality.



Fig. 11-3





E. KEY ISSUES

The City of Cottonwood continues to grow in response to demands for housing, jobs, industry and commerce. The General Plan provides an opportunity to address impacts of new development and to encourage public safety and community sustainability through the planning process. Environmental Planning links the environment, social and economic conditions into practices that benefit present generations without compromising future generations. It encourages growth that does not squander local resources and takes into account the long-term consequences of specific actions and decisions. It is the intent of this element to address the short and long range goals, objectives and strategies that will provide Cottonwood with the tools for long-term community sustainability and enable the City to recognize, respect and preserve the biological systems that form the basis on which all life depends. The following issues were identified in the review of the Environmental Planning Element:

1. Regional environmental planning.

The General Plan acknowledges that Cottonwood exists as part of a larger regional community in the Verde Valley. Due to their common geography, these communities share many environmental interests, particularly with regard to air and water quality, land conservation, open space, viewsheds and other issues of environmental sensitivity. It's therefore essential that these communities work together to cooperatively identify environmental issues and to develop recommendations and programs that address those issues. The General Plan also encourages the continued development of environmentally sensitive codes and planned development which observes those codes and accomplishes further environmental objectives.

2. Air and water pollution and conservation.

Air and water pollution is increasing in the Verde Valley along with development. The principal sources of pollution are related to vehicle emissions, wood smoke, dust, and runoff from developed areas into nearby stream channels.

As there is a direct correlation between vehicle emissions and traffic, the General Plan will help to minimize emissions by encouraging focused development which also minimizes traffic. In addition, the Plan supports alternative forms of transportation (such as transit, bicycles

and walking), which may also help to reduce traffic.

Much of the dust that is generated in the Cottonwood area is the result of construction activity or use of unsurfaced traffic areas. The City can address those impacts with additional surfacing requirements, added review of grading plans for large developments and enforcing watering of sites with reclaimed water produced by the wastewater treatment facility.

The City also has an interest in ensuring that local water supplies are adequate to sustain existing and future development. As all local water companies are privately owned, the City presently has no way to guarantee the development of adequate water supplies, water pressure or distribution. Currently, water pressure for fire flow is inadequate in some portions of Cottonwood. The City is presently considering means to develop a municipal water supply and distribution system, which should adequately address the water issue (see Water Resources Element).

The City wastewater treatment system was recently expanded to about 1.5 million gallons per day. The reclaimed water from this facility represents a substantial resource for groundwater recharge. Some of the discharge is being used to support a riparian channel along Del Monte Wash between Cottonwood Ranch and the Verde River. There may be other applications as time passes and discharge increases, such as irrigating parks or streetscape areas.

There may also be potential to make better use of storm water runoff, which due to the City's proximity to the Verde River and



numerous dry tributaries, may also need to be reviewed more closely for contaminants.

Given the minimal rainfall that accompanies the high desert climate and unknown status of local water sources, the City should also encourage water conservation through public education and code development, including the concept of gray water reuse systems. Requiring the use of natural plantings and vegetation in landscaping may also help to reduce water demand.

3. Energy conservation

There are very real opportunities to conserve energy by taking advantage of passive energy sources, especially solar energy. The City should consider revising its building codes to encourage "green development (environmentally friendly) and more energy efficient forms of construction. Given the numerous government offices, schools, hospital, etc., there is also an opportunity to readily incorporate alternative energy sources into a large number of local users. Doing so may also help to set an example and encourage use of alternative energy sources throughout the community. The City should also investigate further possibilities to expand local recycling activities.

4. Land conservation and open areas

The City is part of an island of private property located along the Verde River adjacent to the Black Hills and Mingus Mountain, surrounded by National Forest lands. The location affords vast open areas, viewsheds and opportunities for numerous trail corridors. The City should work closely with the U.S Forest Service to designate critical open areas and connective trail corridors.

Due to enclosure by National Forest lands, the amount of land available for

development is limited. As time passes it is also diminishing. The General Plan helps to conserve land by encouraging focused development and urban infill. The City also has an opportunity to reclaim a large area of potential infill adjacent to and including the slag pile, located central to the City.

The desert environment features a very fragile ecosystem and soils that are very prone to erosion and the effects of storm water runoff. It may be beneficial for the City to consider the development of a comprehensive drainage plan and reviewing its building codes for sensitivity to local soils issues.

The Verde River Greenway is one of Arizona's only perennial stream channels and home to a variety of wildlife corridors, habitats and endangered species. The quality of the riparian environment can be impacted by pollutants carried by storm water discharge from nearby developed areas. The General Plan supports the establishment of undeveloped buffer zones of natural vegetation, along the riverside and adjacent to the major flood tributaries, which help to filter pollutants and protect these highly valued environments.

5. Pristine urban and natural environment

Cottonwood is blessed with a very pristine natural setting and a unique urban environment that still experiences a dark sky at night, peaceful and very tranquil surroundings. These amenities are threatened by the impacts of continued urban development, including the noises that accompany increased activities and outdoor lighting that competes with starlit skies at night. The City's lighting code is one of the most progressive in the country. Continued surfacing of the landscape and placement of structures also has a tendency to absorb and re-radiate heat, causing localized increases in temperature. These impacts can be minimized with the development of codes that address noise and surfacing requirements.



F. GOALS & OBJECTIVES

GOAL EP-1 PROVIDE A SAFE AND SUSTAINABLE NATURAL AND URBAN ENVIRONMENT, BOTH LOCALLY FOR COTTONWOOD AND REGIONALLY IN COOPERATION WITH THE OTHER MUNICIPALITIES WITHIN THE VERDE VALLEY.

OBJECTIVE 1.1 Encourage cooperation with local jurisdictions in identifying environmental issues and planning for the conservation of local resources.

- 1.1.A Continue to work closely with regional groups, agencies, municipalities and other land jurisdictions to coordinate efforts to preserve natural resources throughout the Verde Valley.
- 1.1.B Conduct special area planning in order to identify local environmental issues.
- 1.1.C Develop building codes, which encourage green development and energy efficient construction.
- 1.1.D Encourage planned development that addresses environmental objectives and codes.
- 1.1.E Create educational programs and/or brochures that address environmental protection, mitigation measures, and conservation techniques for both residential and commercial properties.
- 1.1.F Help organize neighborhood committees that work to preserve, protect and maintain their properties and enhance their overall neighborhood and property values.
- 1.1.G Support programs to ensure a high level of air and water quality, economically feasible recycling, air, water, land and energy conservation and related public education.

OBJECTIVE 1.2 Develop policies to address the effects of the plan on air quality.



- 1.2.A Continue to isolate and address the issues that contribute to the degradation of air quality and work towards minimizing the issues before air pollution can become a problem.
- 1.2.B Adopt codes that progressively require that all dirt or loose gravel roads, alleys, driveways and parking areas that carry a significant volume of traffic are to be paved or covered with an impervious compacted and/or sealed surface over a specified period of time; and pavement of all parking lots and driveways for new or redeveloped non-residential uses, applicable as ownership changes.
- 1.2.C Ensure that dust control measures are enforced during construction and development operations by submission of a dust control element during approval stages and, if necessary, requiring a bond or letter of credit which guarantees that the dust will be controlled.
- 1.2.D Amend the Zoning Ordinance to regulate air-borne dust and debris generated from vacant lots, poorly maintained open space and parking lots.
- 1.2.E Ensure compliance with the landscaping regulations with regard to ground cover.
- 1.2.F Encourage methods for decreasing automobile dependence including the promotion of pedestrian sidewalks, bicycle paths and the Cottonwood Area Transit (CATS) modes of transportation.

OBJECTIVE 1.3 Develop policies to address the effects of the plan on water quality and quantity.

- 1.3.A Encourage the use of natural trees, shrubs and natural groundcover in new development, particularly those with little reliance on irrigation.
- 1.3.B Coordinate water and wastewater services in the City of Cottonwood.
- 1.3.C Complete water assessment studies and exploration of the purchase of the privately held water companies to maintain, upgrade, enhance and expand existing water service.
- 1.3.D Expand and add additional capacity to re-claimed water system by expansion of infrastructure.
- 1.3.E Promote the use of re-claimed water for open space, public recreation areas and other non-potable uses.
- 1.3.F Explore storm water and gray water reclamation, for use within residential areas.
- 1.3.G Continue to protect and maintain the City's excellent water quality by utilization of Best Management Practices during any construction activities to control runoff and reduce the potential to degrade surface and groundwater quality.

OBJECTIVE 1.4 Support programs which encourage energy efficiency.



- 1.4.A Develop standards which observe principles of energy conservation, including use of shade trees, building orientation, roof and building colors, architectural shading, use of wind or solar energy, re-claimed water, high efficiency appliances, tempered glass and sky lights to cut down on need for interior electrical fixtures.
- 1.4.B Study and consider options for encouraging green building techniques and materials, fixtures that promote water conservation, and use of re-cycled materials.
- 1.4.C Ensure that City of Cottonwood facilities and equipment operations observe City energy standards. Encourage other government installations, schools, and other large facility plants to do the same.

OBJECTIVE 1.5 Preserve and protect Cottonwood’s land base, natural environment and resources including open areas for wildlife, viewsheds and natural terrain.

- 1.5.A Actively encourage urban in-fill with mixed-use developments in order to conserve land.
- 1.5.B Adopt strategies and incentives to promote revitalization of older neighborhoods where water, sewer, roads, utilities and City services already exist to service the development.
- 1.5.C Study the possible reclamation of the slag pile as a usable property for re-development.
- 1.5.D Actively identify areas of Cottonwood that may be part of a citywide recreational network of trail and public parks and investigate methods for obtaining these properties or easements for the public.
- 1.5.E Develop criteria to protect the mountain view corridors from man-made encroachments.
- 1.5.F Continue to designate critical wildlife and habitat preserves on the Proposed Land Use Map.

OBJECTIVE 1.6 Protect local drainage areas, soils and slopes from erosion and other impacts of new development, while also developing and protecting access to natural amenities.

- 1.6.A Explore better management of storm water runoff to reduce waste of potable water, enhance wildlife and reduce the impact of erosion. Consider a comprehensive drainage plan for the City.
- 1.6.B Protect existing washes from pollution by strengthening City Codes as to the types of run-off prohibited from entering the washes.
- 1.6.C Review existing City Codes and Zoning regulations to encourage new or re-development that is sensitive to local topography including washes, vegetation, hillsides, river frontage, view corridors and solar orientation.



- 1.6.D Promote citywide community group adoption of washes for purposes of solid waste removal and beautification of these resources on a regularly scheduled basis.
- 1.6.E Establish buffer zones adjacent to riparian areas and other critical wash corridors that help to preserve the integrity of the natural setting and serve to filter pollutants from stream channels.

OBJECTIVE 1.7 Protect the peaceful and pristine qualities of the natural setting and Cottonwood's urban environment.

- 1.7.A Continue to develop and administer a sound ordinance as a means to mitigate the effects of vehicular, construction and mechanically generated noise.
- 1.7.B Continue to develop and administer a lighting ordinance that minimizes impacts on the night sky associated with outdoor lighting at night.
- 1.7.C Develop land use guidelines and alternatives to pavement and other surfacing which reduce the re-radiation of heat generally associated with urban development.



G. ACTION PLAN

ENVIRONMENTAL PLANNING ELEMENT			
	DO-ITEM	AGENCY	TIMELINE
EP-1	PROVIDE A SAFE AND SUSTAINABLE NATURAL AND URBAN ENVIRONMENT, BOTH LOCALLY FOR COTTONWOOD AND REGIONALLY IN COOPERATION WITH THE OTHER MUNICIPALITIES WITHIN THE VERDE VALLEY.		
1.1	Encourage cooperation with local jurisdictions in identifying environmental issues and planning for the conservation of local resources.		
1.1.A	Continue to work closely with regional groups, agencies, municipalities and other land jurisdictions to coordinate efforts to preserve natural resources throughout the Verde Valley.	Cottonwood Community Development	On-going
1.1.B	Conduct special area planning in order to identify local environmental issues.	Cottonwood Community Development	ST
1.1.C	Develop building codes that encourage green development and energy efficient construction.	Cottonwood Community Development	ST
1.1.D	Encourage planned development that addresses environmental objectives and codes.	Cottonwood Community Development	On-going
1.1.E	Create educational programs and/or brochures that address environmental protection, mitigation measures, and conservation techniques for both residential and commercial properties.	Cottonwood Community Development	LT
1.1.F	Help organize neighborhood committees that work to preserve, protect and maintain their properties and enhance their overall neighborhood and property values.	Cottonwood Community Development	LT
1.1.G	Support programs to ensure a high level of air and water quality, economically feasible recycling, air, water, land and energy conservation and related public education.	Cottonwood Community Development	LT
1.2	Develop policies to address the effects of the plan on air quality.		
1.2.A	Continue to isolate and address the issues that contribute to the degradation of air quality and work towards minimizing the issues before air pollution can become a problem.	Cottonwood Community Development	ST
1.2.B	Adopt codes that progressively require that all dirt or loose gravel roads, alleys, driveways and parking areas that carry a significant volume of traffic are to be paved or covered with an impervious compacted and/or sealed surface over a specified period of time; and pavement of all parking lots and driveways for new or redeveloped non-residential uses, applicable as ownership changes.	Cottonwood Community Development	ST
1.2.C	Ensure that dust control measures are enforced during construction and development operations by submission of a dust control element during approval stages and, if necessary, requiring a bond or letter of credit which guarantees that the dust will be controlled.	Cottonwood Community Development	On-going
1.2.D	Amend the Zoning Ordinance to regulate air-borne dust and debris generated from vacant lots, poorly maintained open space and parking lots.	Cottonwood Community Development	ST
1.2.E	Ensure compliance with the landscaping regulations with regard to ground cover.	Cottonwood Community Development	On-going
1.2.F	Encourage methods for decreasing automobile dependence including the promotion of pedestrian sidewalks, bicycle paths and the Cottonwood Area Transit (CATS) modes of transportation.	Cottonwood Community Development	LT
1.3	Develop policies to address the effects of the plan on water quality and quantity.		
1.3.A	Encourage the use of natural trees, shrubs and natural groundcover in new development, particularly those with little reliance on irrigation.	Cottonwood Community Development	On-going



1.3.B	Coordinate water and wastewater services in the City of Cottonwood.	City Management and Public Works	LT
1.3.C	Complete water assessment studies and exploration of the purchase of the privately held water companies to maintain, upgrade, enhance and expand existing water service.	City Management and Public Works	ST
1.3.D	Expand and add additional capacity to re-claimed water system by expansion of infrastructure.	City Management and Public Works	LT
1.3.E	Promote the use of re-claimed water for open space, public recreation areas and other non-potable uses.	City Management, Public Works, Parks & Rec	LT
1.3.F	Explore storm water and gray water reclamation, for use within residential areas.	City Management and Public Works	LT
1.3.G	Continue to protect and maintain the City's excellent water quality by utilization of Best Management Practices during any construction activities to control runoff and reduce the potential to degrade surface and groundwater quality.	Cottonwood Community Development and Public Works	On-going
1.4	Support programs that encourage energy efficiency.		
1.4.A	Develop standards which observe principles of energy conservation, including use of shade trees, building orientation, roof and building colors, architectural shading, use of wind or solar energy, re-claimed water, high efficiency appliances, tempered glass and sky lights to cut down on need for interior electrical fixtures.	Cottonwood Community Development	ST
1.4.B	Study and consider options for encouraging green building techniques and materials, fixtures that promote water conservation, and the use of recycled materials.	Cottonwood Community Development	ST
1.4.C	Ensure that City of Cottonwood facilities and equipment operations observe City energy standards. Encourage other government installations, schools, and other large facility plants to do the same.	City Management	ST
1.5	Preserve and protect Cottonwood's land base, natural environment and resources including open areas for wildlife, viewsheds and natural terrain.		
1.5.A	Actively encourage urban in-fill with mixed-use developments in order to conserve land.	Cottonwood Community Development	On-going
1.5.B	Adopt strategies and incentives to promote revitalization of older neighborhoods where water, sewer, roads, utilities and City services already exist to service the development.	Cottonwood Community Development	ST
1.5.C	Study the possible reclamation of the slag pile as a usable property for re-development.	Cottonwood Community Development	LT
1.5.D	Actively identify areas of Cottonwood that may be part of a citywide recreational network of trail and public parks and investigate methods for obtaining these properties or easements for the public.	Cottonwood Community Development, Parks & Rec	ST
1.5.E	Develop criteria to protect the mountain view corridors from man-made encroachments.	Cottonwood Community Development	ST
1.5.F	Continue to designate critical wildlife and habitat preserves on the Proposed Land Use Map.	Cottonwood Community Development	On-going
1.6	Protect local drainage areas, soils and slopes from erosion and other impacts of new development, while also developing and protecting access to natural amenities.		
1.6.A	Explore better management of storm water runoff to reduce waste of potable water, enhance wildlife and reduce the impact of erosion. Consider a comprehensive drainage plan for the City.	Cottonwood Public Works	LT
1.6.B	Protect existing washes from pollution by strengthening City Codes as to the types of run-off prohibited from entering the washes.	Cottonwood Public Works	ST
1.6.C	Review existing City Codes and Zoning regulations to encourage new or re-development that is sensitive to local topography including washes, vegetation, hillsides, river frontage, view corridors and solar orientation.	Cottonwood Community Development	ST



1.6.D	Promote citywide community group adoption of washes for purposes of solid waste removal and beautification of these resources on a regularly scheduled basis.	Cottonwood Community Development and Public Works	LT
1.6.E	Establish buffer zones adjacent to riparian areas and other critical wash corridors that help to preserve the integrity of the natural setting and serve to filter pollutants from stream channels.	Cottonwood Community Development	ST
1.7	Protect the peaceful and pristine qualities of the natural setting and Cottonwood's urban environment.		
1.7.A	Continue to develop and administer a sound ordinance as a means to mitigate the effects of vehicular, construction and mechanically generated noise.	Cottonwood Community Development	On-going
1.7.B	Continue to develop and administer a lighting ordinance that minimizes impacts on the night sky associated with outdoor lighting at night.	Cottonwood Community Development	On-going
1.7.C	Develop land use guidelines and alternatives to pavement and other surfacing that reduce the re-radiation of heat generally associated with urban development.	Cottonwood Community Development	ST