9. City of Goodyear

The City of Goodyear is a suburban community located near the City of Phoenix in the Southwest Valley. The City of Goodyear is located in the SRV, west of Phoenix, north of the Gila and Salt Rivers and southeast of the White Tank Mountains. The City of Goodyear MPA is located north of Rainbow Valley, west of Litchfield Road, east of Perryville Road, and south of Camelback Road. Goodyear's strong economic base and access to transportation and proximity to the metropolitan area have led to the city's rapid growth. According to the ADWR Annual Water Withdrawal and Use Report, in the City of Goodyear in 1998, a total of 2,326 af of groundwater were pumped and delivered.

A. Plans to Take and Use CAP Water

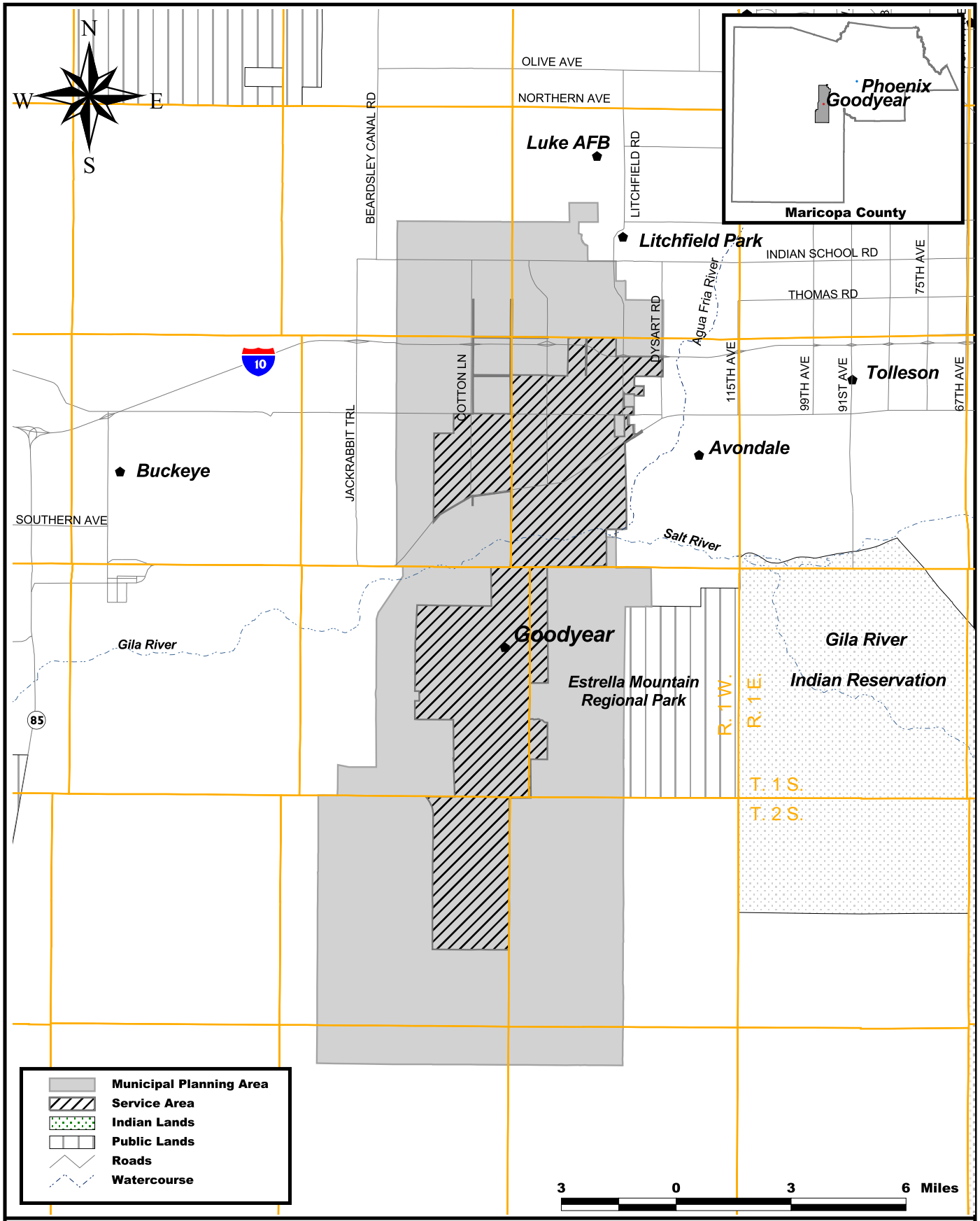
The City of Goodyear currently has a contract for 3,381 af of CAP water. The allocation includes 1,007 af of water which were transferred from McMicken Water District. Under the Settlement Alternative, the City of Goodyear would receive 7,211 af of CAP water. That CAP water would be delivered for a 50-year contract period (i.e., from 2001-2051). The CAP water would be used to supplement both current and projected water supply demands over the next 50 years and would help reduce the continuing dependence on pumping groundwater from an overdrafted groundwater system. Table L-M&I-51 outlines the proposed allocations by alternative.

Table L-M&I-51
CAP Allocation Draft EIS
City of Goodyear – Proposed CAP Allocation

Alternative	Allocation (in afa)	Priority
Settlement Alternative	7,211	M&I
No Action	0	-
Non-Settlement Alternative 1	7,211	M&I
Non-Settlement Alternative 2	0	-
Non-Settlement Alternative 3A	0	-
Non-Settlement Alternative 3B	7,889	NIA
Existing CAP Allocation	3,381	-

Figure L-M&I-26 shows the service area and MPA for the City of Goodyear. The service area covers approximately 28,659 acres and the MPA is estimated at approximately 96,430 acres.

The City of Goodyear plans to take and use their current and proposed CAP allocations through the White Tanks recharge facility. The CAP water would be wheeled through the MWD Beardsley Canal to the proposed recharge site east of the canal at Bethany Home Road. The White Tanks recharge facility would consist of spreading basins on previously irrigated lands. At full scale, the site would encompass approximately 80 acres and have a recharge capacity of 13,000 afa. The permit application for the pilot scale facility



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CAP Allocation Draft EIS
General Location Map
City of Goodyear

Figure #L-M&I-26

(consisting of approximately 8.5 acres of spreading basins) has been filed with ADWR. The City of Goodyear intends to recover the water with wells on-site and convey the water in a proposed pipeline heading south with an alignment approximately one-half mile east of the Beardsley Canal. The recovered water would be blended with additional well water at a storage facility south of Interstate 10 and delivered to the city's water distribution system. Construction of the four-mile long pipeline from Bethany Home Road to Interstate 10 would disturb approximately 50 acres, assuming a 100-foot wide construction easement (Allen 2000).

B. Population Projection

The population in 1985 for the City of Goodyear was 3,530. The estimated 2001 population level is 19,640, and the estimated 2051 population level is 293,050.

C. Water Demand and Supply Quantities

As previously shown in Appendix C– M&I Sector Water Uses, it is estimated that water demand in the City of Goodyear would increase from 5,108 af in year 2001 to 76,218 af in year 2051. The projected water uses both by water source and alternatives are provided below in Table L-M&I-52. Based on anticipated water demands, the CAP water which would be allocated under the Settlement Alternative would provide over 100 percent and 14 percent of the current estimated water supply required for the City of Goodyear for the years 2001 and 2051, respectively.

Table L-M&I-52
CAP Allocation Draft EIS
City of Goodyear – Projected Water Use

Alternative	Total CAP Deliveries		Groundwater		Effluent		CAGRD (Groundwater)		Others Surface Water*		Total Demand	
	2001	2051	2001	2051	2001	2051	2001	2051	2001	2051	2001	2051
Settlement Alternative	3,378	16,449	648	648	0	3,360	0	32,753	1,082	23,008	5,108	76,218
No Action	3,378	3,381	648	648	0	3,360	0	45,821	1,082	23,008	5,108	76,218
Non-Settlement Alternative 1	3,378	10,592	648	648	0	3,360	0	38,610	1,082	23,008	5,108	76,218
Non-Settlement Alternative 2	3,378	3,381	648	648	0	3,360	0	45,821	1,082	23,008	5,108	76,218
Non-Settlement Alternative 3A	3,378	3,381	648	648	0	3,360	0	45,821	1,082	23,008	5,108	76,218
Non-Settlement Alternative 3B	3,378	10,592	648	648	0	3,360	0	38,610	1,082	23,008	5,108	76,218

*SRP and other ID water
Note: A more detailed breakdown of supplies may be found in Appendix C.

It is estimated that the demand for water at the end of the CAP contract period would be approximately 76,218 af. For all alternatives, there is estimated to be no unmet demand. In the Settlement Alternative, Non-Settlement Alternative 1 and 3B, 7,211 afa of demand are

met by the additional CAP allocation. Alternatively, this 7,211 afa of demand are met CAGRD membership under the No Action Alternative and Non-Settlement Alternative 2 and 3A.

D. Environmental Effects

The following sections include a general description of existing conditions relating to land use, water resources and socioeconomics for each entity. The following summaries also include a description of the existing conditions and brief description of the impacts to biological and cultural resources that would result from construction of CAP delivery facilities and conversion of desert and agricultural lands to urban uses.

1. Land Use

According to data from MAG, the land use designations in the City of Goodyear MPA in 1995 consisted of approximately 39,694 acres of agriculture, 15,717 acres of developed land, 594 acres of rural land, 37,610 acres of vacant land and 2,815 acres of water, including lakes, rivers and canals. As described in the introduction to this appendix, the 1995 MAG categories were redefined into three new categories (i.e. agriculture, desert and urban). These 1995 data were also updated and adjusted based on reviews of the 1998 aerial photography and the field surveys that were completed to assess biological resources for this EIS. Table L-M&I-53 provides the projected acres of land within the City of Goodyear MPA that are agriculture, desert or urban and the number of acres expected to change from the existing category for the years 2001 and 2051.

Table L-M&I-53
CAP Allocation Draft EIS Appendix L
City of Goodyear – Projected Land Use Changes Within the MPA (in acres)

Alternative	Year	Agriculture	Agriculture Urbanized	Desert	Desert Urbanized	Urban	Changes to Urban Acreage
Settlement Alternative	2001	25,600	--	46,129	--	24,701	--
	2051	8,683	16,917	33,001	13,128	54,746	30,045
No Action	2001	25,600	--	46,129	--	24,701	--
	2051	8,683	16,917	33,001	13,128	54,746	30,045
Non-Settlement Alternative 1	2001	25,600	--	46,129	--	24,701	--
	2051	8,683	16,917	33,001	13,128	54,746	30,045
Non-Settlement Alternative 2	2001	25,600	--	46,129	--	24,701	--
	2051	8,683	16,917	33,001	13,128	54,746	30,045
Non-Settlement Alternative 3A	2001	25,600	--	46,129	--	24,701	--
	2051	8,683	16,917	33,001	13,128	54,746	30,045
Non-Settlement Alternative 3B	2001	25,600	--	46,129	--	24,701	--
	2051	8,683	16,917	33,001	13,128	54,746	30,045

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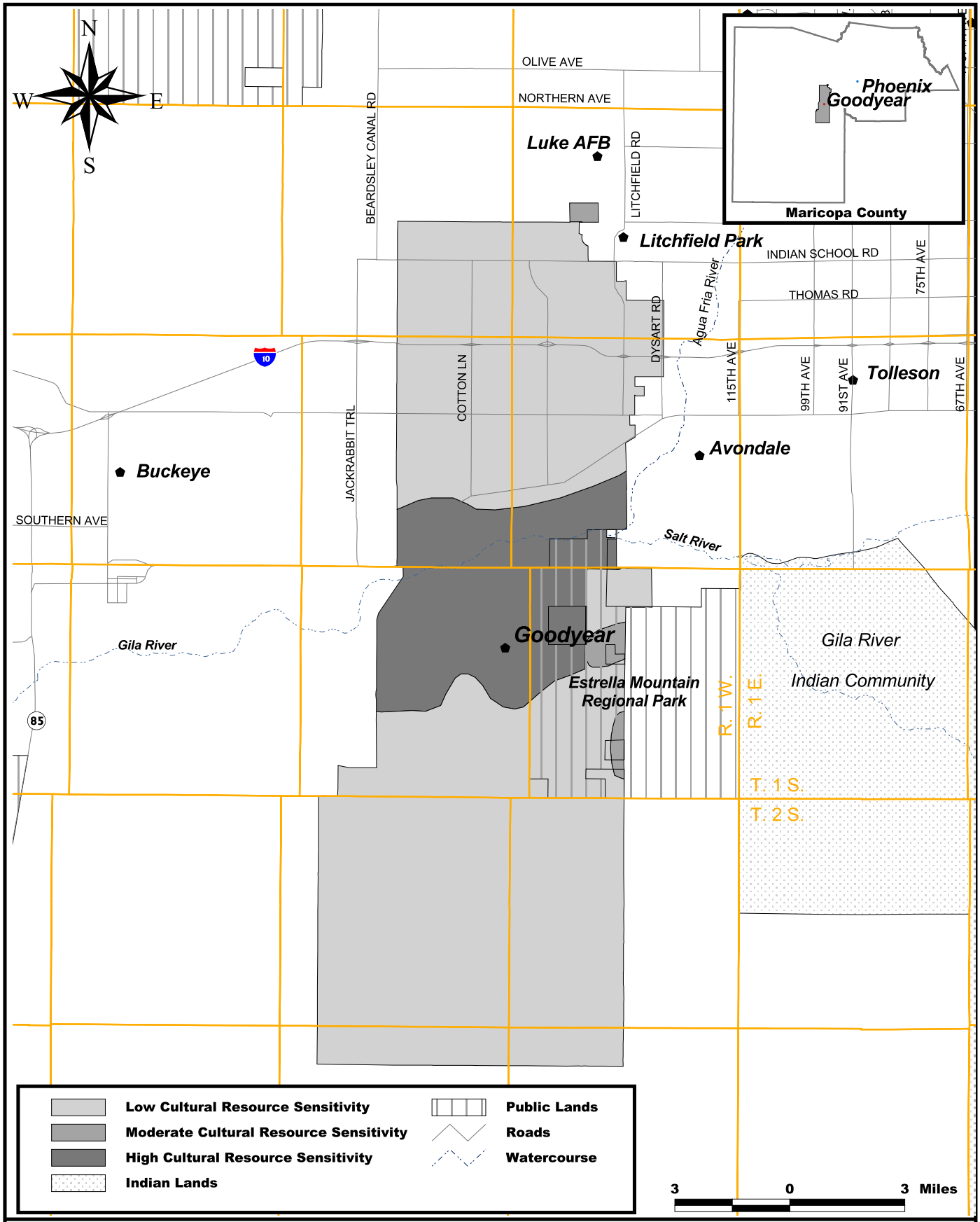
2. Archaeological Resources

Only two small surveys are documented for the southernmost portion of the City of Goodyear MPA; linear (e.g., Tucson Gas & Electric's El Sol-Vail transmission line) and small block surveys characterize coverage of the remainder of the MPA. Many sites have been found in the central portion of the MPA between the Gila River and the Estrella Mountain Regional Park. This area of high cultural resource sensitivity has yielded evidence of human occupation from the Archaic to the Late Historic periods. Prehistoric site types include large Hohokam villages (e.g., Coldwater Ruin, Cashion Site, Alkali Ruin), small habitations, artifact scatters, resource procurement loci, bedrock mortars, trails, petroglyphs, and agricultural features. Protohistoric Pima deposits might also be present. Historic resource types include trash deposits, campsites, farmsteads, water-control features, transportation-related sites, and features associated with ranching. The nature of the depositional environment indicates the potential for buried sites is high.

Cultural resource sensitivity areas in the City of Goodyear MPA are shown on Figure L-M&I-27. Based on the limited data used to generate the cultural sensitivity designations, the potential for cultural resource impacts in the City of Goodyear MPA is low to high. Mitigation of cultural resource impacts due to urban expansion would be determined by local jurisdictions and development of applicable permit requirements (such as the CWA Section 404 permit). Impacts on cultural resources due to future land use changes would be identical for each of the five alternatives. Mitigation for such impacts would be dependent on the requirements of the local jurisdiction. Based on Goodyear's plans to construct a direct recharge facility and recovery pipeline, there is the potential for impacts



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CAP Allocation Draft EIS
Cultural Resources
City of Goodyear

Figure #L-M&I-27

to previously unidentified cultural resources. Reclamation would carry out cultural resource compliance on Goodyear's final plans, prior to construction.

3. Biological Resources

Existing Habitats

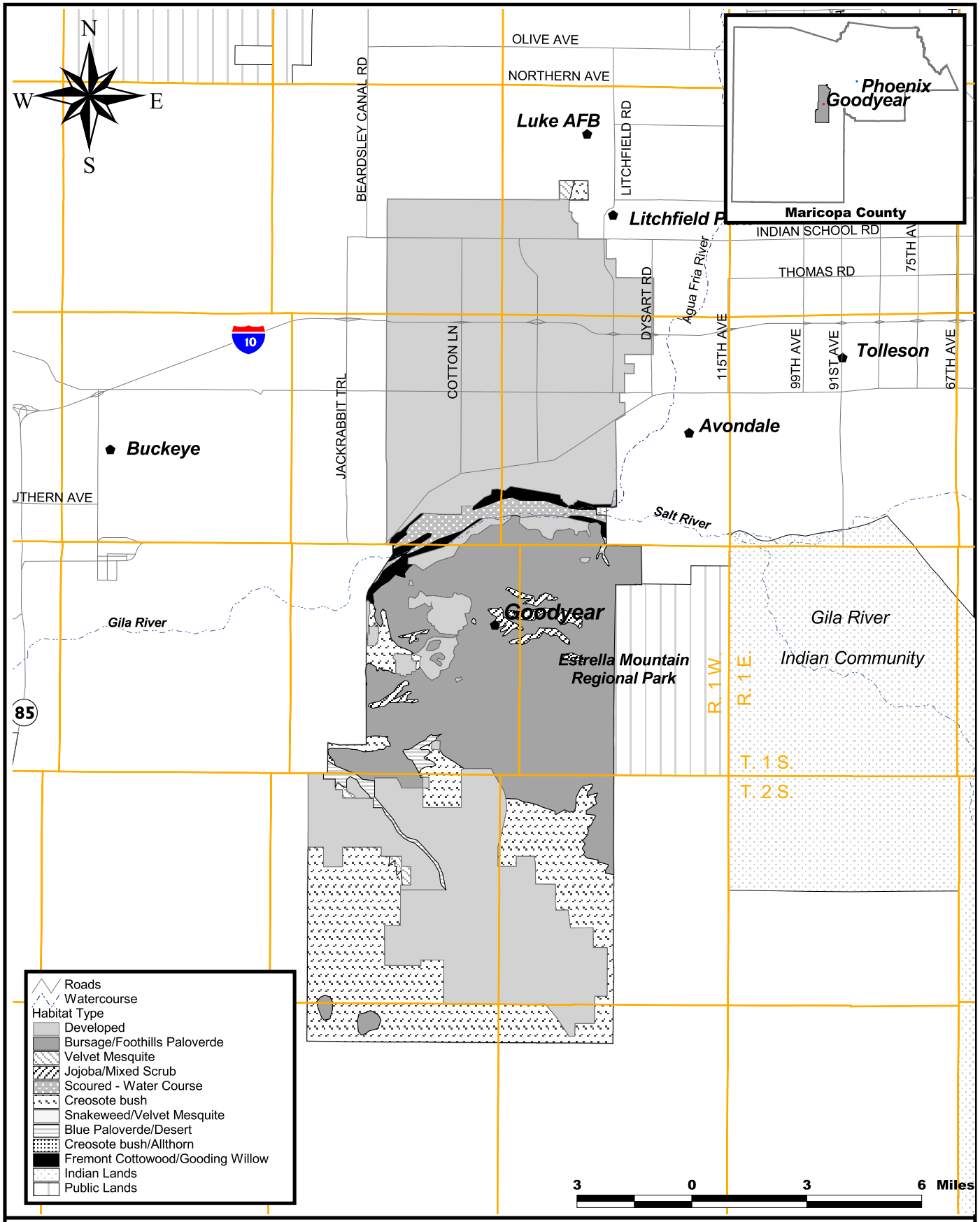
Most of the remaining natural habitat occurs in the southern portion of the City of Goodyear MPA. Bursage-Foothill Paloverde Association dominates the upper bajadas (to approximately 1,700 feet in elevation) of the Estrella Mountains, and Creosote-bush Association dominates the lower bajadas and floodplains. Co-dominants of the Bursage-Foothill Association include creosote-bush and brittlebush. The saguaro density is moderate. The density of saguaros and other trees within the Creosote-bush Association is low. Frémont Cottonwood/Goodding Willow Association occurs along the Gila River. Flows in the Gila River are maintained by effluent from the 91st Avenue Treatment Plant. No T&E fish species have been recorded from this portion of the Gila River. Blue Paloverde/Desert Ironwood Association occurs along Gila River tributaries. The habitat zones are shown on Figure L-M&I-28. Table L-M&I-54 provides the habitat acreages for the habitat zones described above.

TableL-M&I-54
CAP Allocation Draft EIS
City of Goodyear– Habitat Acreages

Vegetation Name	Acres
Developed	50,301
Bursage/Foothills Paloverde	24,218
Velvet Mesquite	291
Jojoba/Mixed Scrub	954
Scoured, Washes and Creekbeds	1,512
Creosote-Bush	17,253
Blue Paloverde/Desert	702
Fremont Cottonwood/Goodding Willow	1,199
Total	**96,430**

Impacts to Biological Resources

Under the No Action Alternative, urban growth within the City of Goodyear MPA over the 50-year study period would result in loss of estimated 13,128 acres of Sonoran Desertscrub, and associated wildlife resources. There may be indirect impacts on wildlife occurring in the adjacent undeveloped habitat. An estimated 16,917 acres of farmland would be urbanized, resulting in the creation of fallow fields for some undetermined length of time. Fallow agricultural fields in the area may be used by burrowing owls, a species protected under the MBTA. Individual developers who convert fallow lands for urban uses would be responsible for ensuring burrowing owls are removed prior to development. Failure to do so would be considered a violation of the MBTA. Under the action alternatives, there is no difference in impacts from the No Action baseline. Goodyear's plans to construct a recharge facility and recovery pipeline are not expected to have significant impacts to biological resources, since the recharge facility would be located on retired farmlands.



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CAP Allocation Draft EIS
Habitat Zones
City of Goodyear

Figure No. L-M&I-28

Additional environmental review would be carried out by Reclamation prior to construction.

Potential T&E Species and Acres of Potential T&E Species Habitat

Because the allocation of CAP water has no effect in urban growth, there would be no effect on T&E species from the CAP allocation. The City of Goodyear would be responsible for complying with the relevant provisions of the ESA as it permits and approves future urban growth. The City of Goodyear MPA is located within Maricopa County for which there are 14 T&E species listed by the USFWS. Potential habitat may exist for cactus ferruginous pygmy-owl, southwestern willow flycatcher and Yuma clapper rail. Approximately 26,410 acres of potentially suitable habitat for the cactus ferruginous pygmy owl were identified within the City of Goodyear MPA. Potentially suitable habitat for southwestern willow flycatcher and Yuma clapper rail may also occur along the Gila River. However, construction within the riparian corridor would require issuance of CWA Section 404 permits by the Corps. As part of the permitting process, the Corps would have to comply with Section 7 of the ESA, and detailed surveys for T&E species would be carried out as necessary.

4. Water Resources

Demands in the City of Goodyear have historically been met by pumping groundwater from the underlying basin fill. In more recent years, CAP water has been used to meet a portion of the demands. The City of Goodyear includes lands in the West SRV (which have been included in the analysis) and lands in the Rainbow Valley located south of the West SRV. For the purpose of this analysis, groundwater from the West SRV was assumed to be used to meet demands in excess of CAP water supplies, and the discussion presented herein focuses on the portions of the City of Goodyear within the West SRV. However, it is noted that some groundwater production would likely occur in the Rainbow Valley.

Groundwater levels in the northerly part of the City of Goodyear have experienced significant declines, while groundwater in the southerly areas (in the vicinity of the Gila River) has been more stable over time. The substantial groundwater level declines in the northern part of the City of Goodyear have resulted in subsidence in this area. The concentration of TDS in the underlying groundwater can exceed 3,000 ppm.

Estimated groundwater level impacts are summarized in Table L-M&I-55, which shows the estimated groundwater level change for the period from 2001-2051 as well as groundwater level impacts or the difference between the change in groundwater levels for each alternative relative to the change for the No Action Alternative. The City of Goodyear falls within four groundwater sub-areas used for the analysis. Table L-M&I-55 shows (in order) estimated groundwater conditions in the northeastern, northwestern, southeastern, and southwestern part of the City of Goodyear in the West SRV area. In general, groundwater level changes in the northeastern and northwestern areas are similar to one another, as are the groundwater level changes in the southeastern and southwestern area.

Under the No Action Alternative, groundwater levels would decline by about 136 to 150

feet during the 2001 to 2051 period in the northern part of the City of Goodyear, and would rise by about 35 to 52 feet in the southern part. The declines in the northern part reflect the continued reliance on groundwater to meet demands, both in the City of Goodyear and in adjacent areas, and the declines have been moderated by the impact of direct recharge of CAP water in the Agua Fria recharge facilities and in future West-side recharge facilities. The rise in groundwater levels in the southern part of the City of Goodyear reflects the impact of recharge from the Gila River. Increases in TDS concentrations could occur in the northern part of the City of Goodyear due to both the northward movement of poorer quality water from the south, and due to lowering of groundwater levels in the vicinity of the Luke salt dome. The lower groundwater levels could also result in continued subsidence in the northerly areas.

Under the Settlement and all Non-Settlement Alternatives, groundwater levels would decline in the northern part of the City of Goodyear over the 2001 to 2051 period. These declines would be greater than the declines under the No Action Alternative and could result in additional subsidence relative to the No Action Alternative. The larger declines in groundwater levels are primarily a result of reduced direct recharge of CAP water in the Agua Fria and future West-side recharge facilities under the Settlement and Non-Settlement Alternatives relative to the No Action Alternative. The declines could also result in greater movement of poor quality water beneath the Gila River northward.

For areas of the City of Goodyear in the southern part of the West SRV, groundwater levels under the Settlement Alternative and all Non-Settlement Alternatives would be similar (within 10 feet) to the groundwater levels under the No Action Alternative. Groundwater quality and subsidence impacts would not be expected in this area.

Table L-M&I-55 CAP Allocation Draft EIS City of Goodyear –Groundwater Data Table		
Alternatives		
	Estimated Groundwater Level Change from 2001-2051 (in Feet)	**Groundwater Level Impact** (in Feet)**
No Action	-136 / -150 / 35 / 52	--
Settlement Alternative	-198 / -231 / 28 / 50	-62 / -80 / -6 / -1
Non-Settlement Alternative 1	-147 / -160 / 36 / 57	-11 / -10 / 1 / 5
Non-Settlement Alternative 2	-157 / -172 / 31 / 49	-21 / -21 / -3 / -3
Non-Settlement Alternative 3A	-185 / -207 / 26 / 47	-49 / -57 / -9 / -4
Non-Settlement Alternative 3B	-172 / -202 / 32 / 51	-36 / -51 / -3 / 0

*Values correspond to the West-side M&I, MWD, Avondale, and East Buckeye sub-areas, respectively, as discussed in Appendix I.
** Computed by subtracting the estimated groundwater decline from 2001 to 2051 for the No Action Alternative from the estimated change in groundwater level for the same period for the alternative under consideration. The estimated impact is considered to be more accurate than the estimated decline in groundwater levels.

5. Socioeconomic

The same population growth is supported under all alternatives, including the No Action Alternative. However, the cost of providing water may vary by alternative. Costs were estimated, on a per af basis, for providing the proposed allocations and, in their absence, alternative water supplies. The alternative water supplies include joining the CAGRD and, if needed, treating and reusing effluent. The difference in cost for this small increment of Goodyear's total water supply is considered insignificant. It should be noted that the increment of demand met by the proposed CAP allocation is approximately 13.6 percent of the total year 2051 demand for the City of Goodyear.

Table L-M&I-56
CAP Allocation Draft EIS
City of Goodyear –Cost of Potable Water for Additional Allocation Increment

Alternative	Cost of Water ($ per af)	Water Source
Settlement Alternative	154[a,c]	CAP Allocation
No Action	277 – 280[b]	CAGRD
Non-Settlement Alternative 1	154[a]	CAP Allocation
Non-Settlement Alternative 2	277 – 280[b]	CAGRD
Non-Settlement Alternative 3A	277 – 280[b]	CAGRD
Non-Settlement Alternative 3B	154[a]	CAP Allocation

Notes:
a. Estimated average unit cost in year 2000 dollars.
b. Estimated range of unit costs in year 2000 dollars. Range is due to estimated change in groundwater pumping lifts during study period and does not include wellhead treatment costs.
c. Does not include monetary contribution to the GRIC Settlement.