



# Appendix

*Shaping the Future of San Antonio*

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# Public Involvement Process

The North Sector Plan was prepared through the use of a communicative planning method utilized by City of San Antonio Planning and Development Services Department staff, other City staff, a Sector Planning Team, a technical committee, private planning and website consultants, and input from the public and other invested stakeholders. A comprehensive public involvement program was executed throughout the seven month planning process as summarized below and illustrated on Chart A-1: Project Timeline.

- Planning Team Meetings (8)
- Public Meetings (4)

- Postcards and Flyers (3)
- E-mails (450+ per meeting)
- Twitter Postings (3)
- Facebook Postings (3)
- Community Meetings (4)
- Website (continually updated throughout the process)
- Technical Meetings (16)
- Planning Commission Briefings/Hearings (4)
- City Council Briefings/Hearings (2)
- Press Releases (3)
- Television Coverage by Media (4)

**Chart A-1: Project Timeline**

| Project Timeline   | 2009   | 2010 |      |       |       |     |      |      |        |
|--|--|------|------|-------|-------|-----|------|------|--------|
|  | DEC.   | JAN. | FEB. | MARCH | APRIL | MAY | JUNE | JULY | AUGUST |
| <b>PROJECT INITIATION</b>  | [Timeline bar from Dec 2009 to Jan 2010]           |      |      |       |       |     |      |      |        |
| <ul style="list-style-type: none"> <li>• Select Consultant Team</li> <li>• Contract Review / Approval</li> <li>• Confirm Information Requirements</li> <li>• Confirm Study Area Boundary</li> </ul>  | [Timeline bars for each task in Dec 2009]          |      |      |       |       |     |      |      |        |
| <b>GENERAL REPORTS / VISIONING, POLICY</b>   | [Timeline bar from Jan 2010 to Apr 2010]           |      |      |       |       |     |      |      |        |
| <ul style="list-style-type: none"> <li>• Review and Evaluate Regional Visioning Results</li> <li>• Conduct Master Plan Policy Review</li> <li>• Review JLUS / Other Baseline Data</li> </ul>   | [Timeline bars for each task from Jan to Apr 2010] |      |      |       |       |     |      |      |        |
| <b>KEY PLANNING BOUNDARIES</b>   | [Timeline bar from Jan 2010 to Jun 2010]           |      |      |       |       |     |      |      |        |
| <ul style="list-style-type: none"> <li>• Define MIOD</li> <li>• Define Geographical Boundaries</li> <li>• Define Compatible Land Use Areas</li> <li>• Identify Safety Zones</li> </ul>   | [Timeline bars for each task from Jan to Jun 2010] |      |      |       |       |     |      |      |        |
| <b>COMPREHENSIVE LAND USE PLAN / SECTOR PLAN</b>   | [Timeline bar from Mar 2010 to Jul 2010]           |      |      |       |       |     |      |      |        |
| <ul style="list-style-type: none"> <li>• Prepare Land Use Analysis</li> <li>• JAZB Recommendations</li> <li>• BASH Recommendation</li> <li>• Compatible Development Standards</li> <li>• Prepare and Submit Draft Sector Plan</li> <li>• Prepare and Submit Final Draft Sector Plan</li> </ul> | [Timeline bars for each task from Mar to Jul 2010] |      |      |       |       |     |      |      |        |
| <b>PUBLIC INVOLVEMENT PROGRAM</b>  | [Timeline bar from Jan 2010 to Aug 2010]           |      |      |       |       |     |      |      |        |
| Sector Planning Team Meetings (8)  |  | *    | *    | *     | *     | *   | *    | *    |        |
| Public Meetings (4)  |  |      |      | □     | □     |     | □    | □    |        |
| Planning Commission Briefing (1) / Hearing (1)   |  |      |      |       |       |     | ◆    | ◆    |        |
| City Council Briefing (1) / Hearing (1)  |  |      |      |       |       |     |      | ◆    | ◆      |

# Issues and Values

This listing of Issues and Values was identified by a wide cross section of stakeholders during public meetings, planning sector team meetings, and through e-mail and the project website.

| Topic              | Issues and Values  |
|--------------------|--|
| <b>1. Land Use</b> | <ul style="list-style-type: none"> <li>• A partnership established among the City and its adjacent counties to support the future land use map within the City’s Extraterritorial Jurisdiction (ETJ).</li> <li>• Regulations outside the City limits established</li> <li>• Lack of regulation outside the City limits</li> <li>• Locate single family residential away from industrial uses and retail centers but near parks and open space</li> <li>• Northwest District better left as open space or very low density due to limitations of the terrain and water/sewer availability</li> <li>• Less growth located outside Loop 1604</li> <li>• Existing growth outside Loop 1604</li> <li>• Focus new development within Loop 1604</li> <li>• Encourage infill development not rapid growth of greenfields</li> <li>• Within densely developed areas convert old/vacant housing into open space</li> <li>• Upgrade or retrofit existing apartment houses</li> <li>• UTSA expansion developed sensibly with plenty of bike lanes and no increased congestion</li> <li>• High density mixed use and walkable between the Medical Center and UTSA</li> <li>• Desire to see UTSA expansion /develop sensible – with plenty of bike lanes for students, less congestion</li> <li>• Mixed use nodal centers at 281 and Loop 1604 and IH-10 and Loop 1604</li> <li>• Locate density near transportation</li> <li>• Focus development near employment centers</li> <li>• Focus new employment centers near developed areas</li> <li>• High density mixed use located near economic centers</li> <li>• Establish compatible land uses to support the Camp Bullis mission</li> <li>• No housing in floodplains</li> <li>• Limit development out of respect for natural environment and limitations of the land</li> <li>• Encourage very low density of 10 or more acres per unit, ranching or open space over the aquifer</li> <li>• Preserve ranches</li> <li>• Lucrative alternatives for property owners to preserve land rather than selling it for development</li> <li>• Desire to see less density, more open space, compatible land use</li> <li>• Appreciates appropriate new development</li> <li>• Make it appropriate-should not be able to skirt the system</li> <li>• New development in area</li> <li>• Land use (compatibility), too much density, need more open space</li> <li>• Commercial/residential buffers needed</li> <li>• Too much space used for retail</li> <li>• Need to balance land uses</li> <li>• Alternative to sprawl is density and alternative to density is sprawl: "we will either have density or sprawl"</li> <li>• Do not allow any billboards-including digital</li> <li>• Uncontrolled/unrestrained development</li> <li>• Inability of property owners to resist money offered by developers</li> <li>• Ownership</li> </ul> |

| Topic                            | Issues and Values  |
|----------------------------------|--|
| <p><b>2. Zoning</b></p>          | <ul style="list-style-type: none"> <li>• Implementation of new development standards rather than allowing property to vest against new standards</li> <li>• No digital billboards</li> <li>• Less retail commercial zoning</li> <li>• Less dense residential zoning in order to preserve the natural landscape</li> <li>• Military lighting overlay district that is mindful of the need for public safety at night</li> <li>• Mixed use areas bordering UTSA along UTSA Blvd.</li> <li>• Zoning for newly annexed land should be consistent with the future land use plan</li> <li>• Compatible uses</li> <li>• Don't want incompatible uses</li> <li>• Proper/inappropriate zoning</li> <li>• Zoning, too much retail commercial, too much density residential</li> <li>• Lighting for public safety (MLOD a concern)</li> <li>• Densities are restricted by terrain and zoning code</li> <li>• County and ETJ have no regulations and no design/land use – perhaps annex</li> <li>• No county zoning ability</li> <li>• Grandfathered property major issue since they do not have to abide by new standards</li> <li>• To provide for mixed use areas bordering UTSA along UTSA Blvd.</li> <li>• No digital billboards</li> <li>• Do not make it incompatible</li> <li>• Compatible uses</li> </ul> |
| <p><b>3. Property Rights</b></p> | <ul style="list-style-type: none"> <li>• Concept of “Highest and best use” reconcile original intent with future unconstrained ideas - PRO-V-2</li> <li>• Balance the rights of individual vs. neighbors vs. community - PRO-V-3</li> <li>• Provide general guidelines of land uses - PRO-V-7</li> <li>• “If you want to protect your view (or other aspects of the land) – Buy It - PRO-V-10</li> <li>• Taxes rising and causing families to fracture and divide lands - PRO-I-1</li> <li>• Value of property is a function of the surrounding lands - PRO-I-2</li> <li>• Control developers and control development - PRO-I-3</li> </ul>   |
| <p><b>4. Urban Design</b></p>    | <ul style="list-style-type: none"> <li>• The inclusion of non-vehicular transportation facilities (trails and bike paths) that improve the look and feel of the sector</li> <li>• Office development as a campus style that provides for greater pedestrian, bicyclist, and transit access</li> <li>• A well designed built environment that is environmentally responsive without clear cutting forested areas and blasting hilltops</li> <li>• Retail lot coverage no more than 25%</li> <li>• Industrial lot coverage no more than 40%</li> <li>• Implement low impact development over the aquifer</li> <li>• Do not allow any billboards-including digital</li> <li>• The inclusion of non-vehicular transportation facilities (trails and bike paths) can improve the look and feel of the community</li> <li>• Like the campus style of office development</li> </ul>   |

| Topic                          | Issues and Values   |
|--------------------------------|---|
| <b>5. Utilities</b>            | <ul style="list-style-type: none"> <li>• Lack of water/sewer infrastructure to support future growth (lack of SAWS service area)</li> <li>• No sewers affect the aquifer</li> <li>• Protect the water aquifer / Recharge Area</li> <li>• Pursue smart ways to utilize and provide utilities</li> <li>• Control rush to obtain CCNs to get utilities prior to development or which drives development</li> <li>• Provide the truth about septic systems – properly operated and maintained</li> <li>• Lack of control or location of transmission lines and associated right of way</li> <li>• Utilities selling power outside of county</li> <li>• Use of eminent domain on lands less densely used</li> <li>• Control storm runoff (flooding &amp; drainage) related to development</li> <li>• Allowing developers to develop islands of homes that become islands when subjected to 100 year floods.</li> <li>• Control expansion of utilities</li> <li>• Utilities / public services, infrastructure, need a smart way to plan the placement of utilities to plan for future growth</li> <li>• Lack of good water connections</li> <li>• Water supply</li> <li>• BexarMet</li> <li>• Storm water - flood prevention</li> </ul>   |
| <b>6. Economic Development</b> | <ul style="list-style-type: none"> <li>• Keep major jobs in other areas</li> <li>• Concerned about more density</li> <li>• Camp Bullis is strongly supported</li> <li>• Would like 100 Acres next to Eisenhower Park</li> <li>• Stormwater is a big issue – do not take away sponges at northern part of the City</li> <li>• Topography, drainage, and rock make development difficult</li> <li>• Too much too fast</li> <li>• Northern area is not a conducive economy – disincentivized</li> <li>• Medical supply loop 281, I-10 corridor is strong</li> <li>• Hendricks Road, Blanco road , Crossroads Road</li> <li>• Perrin Beitel – Thousand Oaks to 410</li> <li>• Blighted area Nacogdoches is underutilized</li> <li>• Wonderland Mall is getting face lift</li> <li>• Revitalization needs to happen along 410 corridor</li> <li>• The Colonies Mall needs help Keep eye on recharge zone – it’s not to pave over</li> <li>• Attract white collar jobs – Medtronic at Rim, NH star – coming too</li> <li>• East side tri-county office park</li> <li>• Tier 1 - UTSA, Texas A&amp;M, Research connected to medical</li> <li>• \$45 million – trolley, BRT express</li> <li>• Light rail good – but no related development</li> <li>• Transportation – east-west connectivity is tough</li> <li>• Commercial development difficult due to lack of adequate utility and transportation infrastructure</li> <li>• Put jobs on corridors</li> <li>• Goes where market wants it to go</li> <li>• Regulation should not hinder economic growth and new educational facilities</li> <li>• Staying stagnate with what have, no new companies coming in</li> <li>• Need more commercial, but need to develop consistently Crime – has to be a critical factor</li> </ul> |

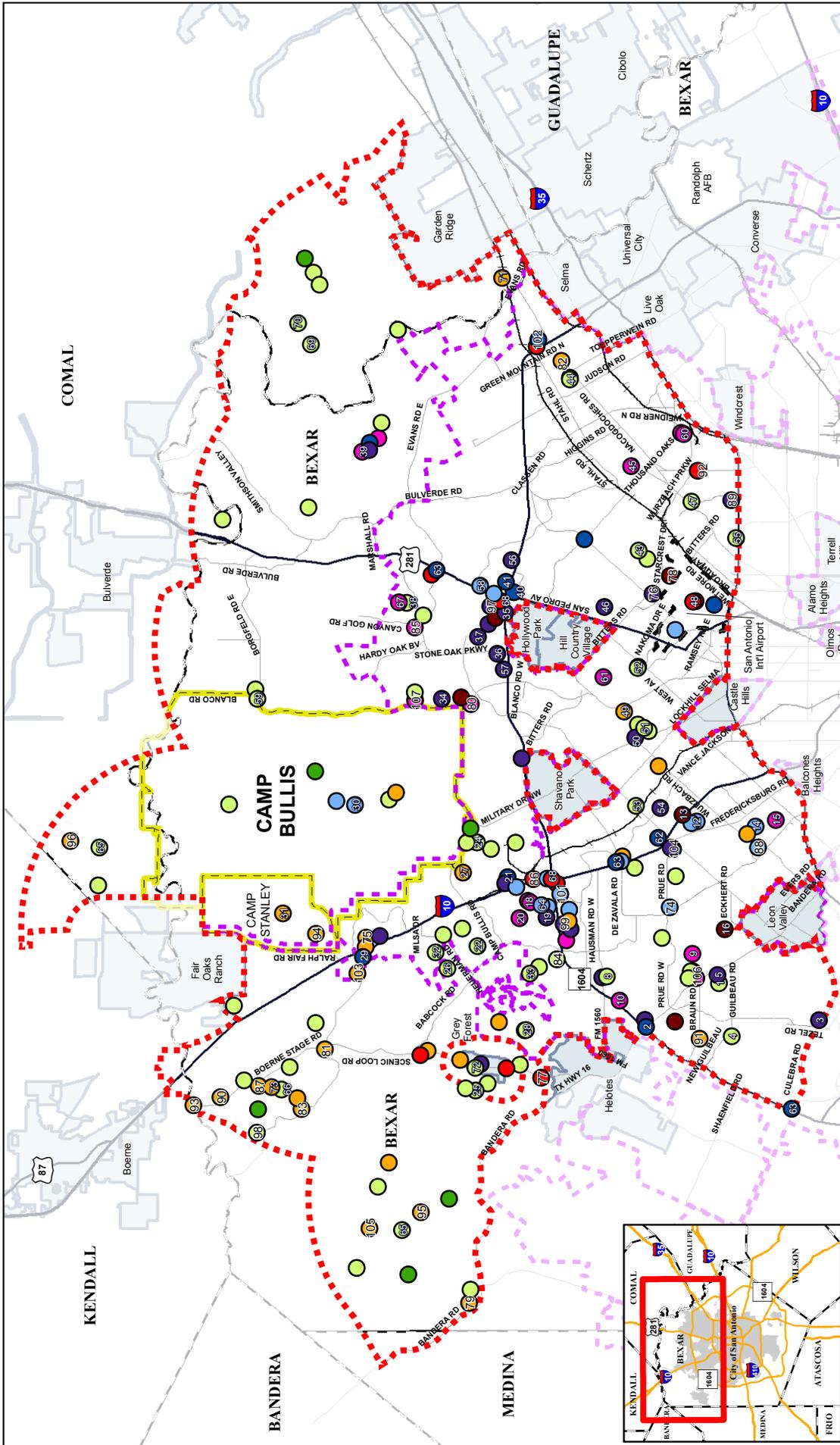
| Topic                    | Issues and Values  |
|--------------------------|--|
| <p><b>7. Housing</b></p> | <ul style="list-style-type: none"> <li>• Encroachment of housing and development adjacent to Camp Bullis – developers do not coordinate efforts</li> <li>• Continue to preserve Camp Bullis with low density residential</li> <li>• Desirable place to live – beautiful views, breezes, cooler than other areas of the city</li> <li>• Maintain large lot housing in NE &amp; NW</li> <li>• NW low density due to topography, utilities</li> <li>• Preserve residential</li> <li>• Housing diversity needs to be maintained – not just large lots</li> <li>• Large lots create sprawl and doesn't support transit</li> <li>• Garden homes on larger lots</li> <li>• Cluster homes and more open spaces</li> <li>• Keep low density as foundation</li> <li>• Limit density of housing</li> <li>• Too much cookie cutter homes, but not over recharge zone</li> <li>• Developers do not coordinate high density development - too much high density housing and no open space or inadequate facilities</li> <li>• Wide diversity of housing and values (\$100K to \$Million), old and new, multi-family and single-family</li> <li>• Maintain the diversity of housing densities</li> <li>• Not a lot of choices – standard single-family or multi-family</li> <li>• Provide diversity of housing – small and big homes</li> <li>• Good quality housing that is affordable which attracts good employment firms</li> <li>• Keep high density along major corridors</li> <li>• Make very dense cores and intersections</li> <li>• Homes are built to last for 20 years</li> <li>• There is affordable housing and also very expensive housing</li> <li>• Affordable housing is an issue – HUD definition</li> <li>• If regulation continues, it will affect affordable of exist</li> <li>• Large multi-family along Evans Road, which is already congested, Stonecreek new multi-family impact</li> <li>• New multi-family with appropriate infrastructure will continue to deteriorate</li> <li>• Too many multi-family apartments near medical – want single-family in order</li> <li>• We have plenty of apartments</li> <li>• Do not rezone for multi-family</li> <li>• No more multifamily housing near Babcock and Camp Bullis Rd</li> <li>• Multi-family is most affordable way to get into school districts</li> <li>• School issue – more apartments means more school demand and it is difficult to manage</li> <li>• Balance single family and multi-family</li> <li>• Better integration of housing in community</li> <li>• Also more congestion on existing congested streets.</li> <li>• I-10 &amp; 281 congested</li> <li>• Traffic associated with ingress and egress from homes which make quality housing areas become undesirable</li> <li>• Preserve trees and open space – recreation areas</li> <li>• Linear park corridor</li> <li>• Need to preserve topography</li> <li>• Too many variances for flood permit building in single-family, low density</li> <li>• Connectivity with bike paths within housing. New developers need to provide a well balanced</li> <li>• Over regulations with proportionality of trees preserved ordinance / endangered species recharge. Fees in lieu of detention fees, etc</li> <li>• Land owners adjacent to developed lands <ul style="list-style-type: none"> <li>• Better housing standards</li> </ul> </li> </ul> |

| Topic                       | Issues and Values  |
|-----------------------------|--|
| <b>8. Natural Resources</b> | <ul style="list-style-type: none"> <li>• Water is the biggest issue</li> <li>• Protect creeks, improve tree ordinance, and include more parks</li> <li>• Have developers include more parks in projects</li> <li>• Create more effective tree ordinance</li> <li>• Protect Edwards Aquifer</li> <li>• Get rid of grandfathering</li> <li>• Ensure more inspections taking place, i.e. tree inspections</li> <li>• Build less on steep slopes – no retaining walls</li> <li>• Do not build small, cheap homes over Recharge and Contributing Zone</li> <li>• Have a minimum lot size over Zone, i.e. R-20</li> <li>• Have larger lot requirement</li> <li>• When obtain green space, install walking trails</li> <li>• Need impervious cover restrictions</li> <li>• County cover limit is lots lower than City's</li> <li>• Need to keep commercial development away from Camp Bullis</li> <li>• La Cantera was a good development – took care of the environment</li> <li>• Saved heritage trees</li> <li>• Saved caves</li> <li>• Created great landscaping</li> <li>• Interior of site is walkable (more pedestrian friendly than most, i.e. the Rim – not walkable)</li> <li>• Need better interior designs of developments</li> <li>• Place parking along outside and development together in interior</li> <li>• No strips like the Rim</li> <li>• Return to live – work concept (ensure each community has a grocery store)</li> <li>• Developers should not be able to count backyards as open space contribution</li> <li>• Maintain less impervious cover – utilize pervious pavement</li> <li>• Make clustered housing a requirement (Kingwood, TX good example)</li> <li>• Need more pocket parks in developed areas</li> <li>• Each development should donate land</li> <li>• Need to have passive recreational uses in parks for kids</li> <li>• Need to have a place to walk to</li> <li>• City needs to be more open to taking on land that HOA wants to donate as park space</li> <li>• Need to have more inspections</li> <li>• Developers need to plant more trees</li> <li>• Enhance tree ordinance</li> <li>• No grandfathering</li> <li>• Encourage ranchers to preserve land in conservation easement</li> <li>• Make development more restrictive</li> <li>• Ensure developers obey the Endangered Species Act</li> <li>• Protect Recharge Zone – it is an asset for the entire region</li> <li>• Need to consider those areas needing less impervious cover</li> <li>• Impose impact fee for any type of development over the Recharge Zone</li> <li>• Strengthen TDR ordinance</li> <li>• Need to create incentives to strengthen recharge zone</li> <li>• Create communities – mixed use – high density – which reduces car trips</li> <li>• Protect flood plains and slopes</li> <li>• No high density development on slopes greater than 15%</li> <li>• Preserve more trees</li> <li>• Strengthen floodplain ordinance</li> </ul> |

| Topic  | Issues and Values   |
|--|---|
| <p><b>8. Natural Resources</b><br/>(continued)</p> | <ul style="list-style-type: none"> <li>• Protect recharge features</li> <li>• Utilize low density residential in area</li> <li>• Utilize TDR</li> <li>• Educate people</li> <li>• Edwards Aquifer Authority going to place impervious cover restriction over Recharge Zone</li> <li>• Need to improve water treatment requirements</li> <li>• Continue Proposition 1 and 3</li> <li>• Retrofit older developments to treat stormwater – need to encourage</li> <li>• Save trees and vegetation</li> <li>• Saving trees and vegetation</li> <li>• Tree preservation ordinance, not enforced</li> <li>• Control development within the recharge area (EARZ)</li> <li>• Protection of Edwards Aquifer recharge and water supply</li> <li>• More open natural areas for walking/hiking/biking</li> <li>• Few parks and open space</li> <li>• Good water quality</li> <li>• Good rural views</li> <li>• Good air quality</li> <li>• Sustainable development</li> <li>• Air quality, water quality, and aquifer protection</li> <li>• Protect environmental quality (e.g. no blasting of land)</li> <li>• Environmental protection</li> <li>• Environmentally sensitive areas</li> <li>• Edwards Aquifer</li> <li>• Aquifer protection</li> <li>• Endangered species, natural environment</li> <li>• Endangered species</li> <li>• Habitat</li> <li>• Habitat preservation</li> <li>• Trees, which are also an issue because they can hinder development (La Cantera good at developing and yet keeping trees and landscaping)</li> <li>• Rural views</li> <li>• Hill Country (vistas)</li> <li>• Hill country vistas</li> <li>• More open space</li> <li>• Not much parks and open space</li> <li>• Parks</li> <li>• Open space for public parks</li> <li>• Open Space</li> <li>• Air quality</li> </ul> |

| Topic                           | Issues and Values  |
|---------------------------------|--|
| <b>9. Historic Preservation</b> | <ul style="list-style-type: none"> <li>• Extend Scenic/Urban Corridors north and south along IH-10 and 281</li> <li>• During redevelopments – must retrofit to conform to corridors</li> <li>• Add 1604 to Scenic Corridor list</li> <li>• Address landscaping</li> <li>• Tree preservation (transplants)</li> <li>• Shade parking lots</li> <li>• Need to have all inspectors do their job</li> <li>• Preserve Scenic Loop – 13 miles</li> <li>• Preserve Old Spanish Trail</li> <li>• Value the National Historic Registrar</li> <li>• Maintain historic sites</li> <li>• Need landscaping standards across City to only use natives</li> <li>• Need to stop truck dumpers from dumping fill on sites in area</li> <li>• Need urban design standards in Scenic Corridors</li> <li>• Historic Office needs more clout</li> <li>• Improve process for getting a site designated as historic</li> <li>• Make less complicated</li> <li>• Give County more power</li> <li>• Stage Coach worth preserving</li> <li>• Greg Moss Inn and Herb Farm worth preserving</li> <li>• Identify historic sites and publicize them</li> <li>• Get historic sites listed in National Registrar</li> <li>• Rural views, scenic corridors, caves, bridges, trails, creeks.</li> <li>• Rubber Baron Cave</li> <li>• Scenic loop / Boerne Stage</li> <li>• Leon Springs</li> <li>• CCC Bridge</li> <li>• Maverick Ranch</li> <li>• State HWY 9</li> <li>• Nivesbach Road</li> <li>• San Saba Trail</li> <li>• Historic ranch near Stone Wall Rd</li> <li>• Babcock scenic drive north of 1604 and south of Scenic Loop / Boerne Stage</li> <li>• Madla Preserve (just west of Rancho Diana)</li> <li>• Cultural heritage</li> </ul> |

| Topic                                  | Issues and Values   |
|--|---|
| <p><b>10. Community Facilities</b></p> | <ul style="list-style-type: none"> <li>• Libraries are cornerstone of communities, although not as important with on-line availability</li> <li>• Need connectivity through area with linear parks</li> <li>• Would like to see pocket parks as a requirement for future residential developments (don't permit buying out)</li> <li>• NW area community Center values schools as a gathering center</li> <li>• Minimal YMCA facilities</li> <li>• Major traffic jam with YMCA during soccer season</li> <li>• 2 Life Time Fitness always full, one near Rim</li> <li>• Ronald Reagan and library dual purpose</li> <li>• Public safety (fire, police, EMS)</li> <li>• Lack of access to healthcare</li> <li>• High emergency response time</li> <li>• City needs to acquire more open space</li> <li>• Support biking facilities to enhance quality of life</li> <li>• Increase/strengthen community facilities for recreation and arts</li> </ul>   |
| <p><b>11. Education</b></p>            | <ul style="list-style-type: none"> <li>• Fast growth equals more parking, UTSA is transitioning from commuter college to regular college, 30,000 – 40,000 with no dorms</li> <li>• Lack of planning near UTSA creates negative feeling – like it is just a problem</li> <li>• Type of development generated by UTSA – Large amounts of multi-family and large sports complex</li> <li>• Could use a bus shuttle service park and ride to solve UTSA (possibly in another area) dedicated park and ride for UTSA</li> <li>• Traffic issues with UTSA during peak time along 1604 &amp; I-10 &amp; UTSA boulevard, 1604 &amp; 281</li> <li>• UTSA is important to community - need to be more accessible to community – need transit</li> <li>• Community supports universities to educate youth and adults</li> <li>• Northeast and Northside school districts – fast growing - Good and Bad, it is difficult to keep up with growth regarding facilities</li> <li>• Good property tax and school bond issues pass due to quality schools and importance</li> <li>• Exemplary school, good student / teacher ratios. Plus good facilities, high parent involvement</li> <li>• Most parents have high educational degrees</li> <li>• Maintain and preserve the school districts</li> <li>• Need to acquire land for more schools in future</li> <li>• Support educational institutions to grow and thrive</li> <li>• Protect the development of school districts TMI moved out here due to land and demographics</li> <li>• Large mega schools loose small community sense – students get lost</li> <li>• Not integrated environment – many apartments, need to make more walkable</li> </ul> |



**Asset Type**

- Commercial Center
- Community Gathering Center
- Cultural/Historic Sites
- Employment Center
- Endangered Species
- Natural Resources/Open Space
- Other
- Recreation/Tourism
- Transportation Facilities

**North Sector**

- Planning Area
- Incorporated City
- Camp Bullis/St Stanley
- County
- A-1 Airport
- Highway
- Major Road
- Railroad

**Community Assets**

source: Bexar County, Comal County, Kendall County / 2010; TNRI / 2009

# Planning Area Profile

## Demographic Overview

Demographic data shows that the North Sector enjoys relative affluence. This is reflected by its high educational attainment, higher than average household incomes, and lower rates of poverty. The number of families in poverty, however, is increasing at a faster rate than all the sectors combined.

### Total Population and Age

The North Sector comprised approximately 33 percent of the total population of all sectors in 2000 and rose to 37 percent in 2008 as shown in **Table A-1: Age Distribution**. The total population of the North Sector increased by over 100,000 people (26 percent difference) between 2000 and 2008. The population segments that experienced the greatest increase were persons 35 to 64 (32 percent difference), and 65 and over (35 percent increase). This implies that in the North Sector, the 35 and over segment of the population is growing at a slightly faster rate than the younger segments. The same trend applies to all other sectors as well. The median age of the North Sector is only slightly above the average for all sectors.

**Table A-1: Age Distribution**

| Variable         | 2000 All Sectors |         | 2000 North |         | 2008 All Sectors |         | 2008 North Sector |         |
|------------------|------------------|---------|------------|---------|------------------|---------|-------------------|---------|
|                  | Population       | Percent | Population | Percent | Population       | Percent | Population        | Percent |
| 17 and under     | 380,354          | 28%     | 118,250    | 26%     | 426,439          | 28%     | 149,070           | 26%     |
| 18 to 34         | 346,190          | 26%     | 118,958    | 26%     | 375,592          | 25%     | 136,254           | 24%     |
| 35 to 64         | 470,645          | 35%     | 174,559    | 39%     | 559,877          | 37%     | 231,280           | 41%     |
| 65 and Over      | 139,307          | 10%     | 37,915     | 8%      | 157,323          | 10%     | 51,417            | 9%      |
| Total Population | 1,336,496        |         | 449,682    |         | 1,519,230        |         | 568,020           |         |
| Persons per Acre | 1.90             |         | 2.00       |         | 2.20             |         | 2.50              |         |
| Median Age       | 32.8             |         | 34.4       |         | 33.9             |         | 35.9              |         |
| Average Age      | 34.0             |         | 34.1       |         | 34.8             |         | 35.9              |         |

*Sources: 2008 Data derived from Block Group data provided by the Nielsen Company Claritas 2008 PopFacts dataset of projections, which are based on 2000 Census data. 2000 Data derived from Block Group data from 2000 Census. Note: "All Sectors" include only the portions of Bexar County that fall within the sector boundaries. Therefore, "All Sectors" include incorporated cities.*

## Gender

In the North Sector, women outnumber men. In 2000, the male/female ratio for this sector was 0.93; in 2008, 0.94 as shown in **Table A-2: Gender Distribution**. These ratios are very similar to the ratios for the population of all sectors. It is also important to note that between 2000 and 2008, the North Sector added population at a faster rate than all sectors combined; in that time period, all sectors combined grew by 182,735 people, while the North Sector alone expanded by 118,338 residents. This means that the North Sector captured nearly 65 percent of the total population gain for all sectors, even though it contained only about a third of the total population for all sectors in 2000.

**Table A-2: Gender Distribution**

| Variable          | 2000 All Sectors |         | 2000 North Sector |         | 2008 All Sectors |         | 2008 North Sector |         |
|-------------------|------------------|---------|-------------------|---------|------------------|---------|-------------------|---------|
|                   | Population       | Percent | Population        | Percent | Population       | Percent | Population        | Percent |
| Male              | 649,347          | 49%     | 217,162           | 48%     | 739,939          | 49%     | 274,693           | 48%     |
| Female            | 687,148          | 51%     | 232,520           | 52%     | 779,291          | 51%     | 293,327           | 52%     |
| Male/Female Ratio | 0.94             |         | 0.93              |         | 0.95             |         | 0.94              |         |

*Sources: 2008 Data derived from Block Group data provided by the Nielsen Company Claritas 2008 PopFacts dataset of projections, which are based on 2000 Census data. 2000 Data derived from Block Group data from 2000 Census. Note: "All Sectors" include only the portions of Bexar County that fall within the sector boundaries. Therefore, "All Sectors" include incorporated cities.*

## Race and Ethnicity

The North Sector consists of a higher percentage of White non-Latinos, Asians, and other race or ethnic groups than all the sectors overall. The representation of Latinos and African Americans in the North Sector is lower than the citywide average, with the largest group identifying itself as White non-Latino, as shown in **Table A-3: Racial Ethnic Distribution**. In contrast, the largest group by a substantial margin across the City as a whole identifies itself as Hispanic/Latino, with White non-Latinos comprising a much smaller share of the total population. However, even in the North Sector, Hispanics/Latinos are the fastest growing segment of the population, and the gap between that segment and White non-Latinos is closing quickly. Latinos increased by over 74,000 between 2000 and 2008 in the North Sector, while White non-Latinos increased by only 26,000. The Latino percentage of population increased from 33 percent in 2000 to 40 percent in 2008. The White population declined from 56 percent in 2000 to 49 percent in 2008.

**Table A-3: Racial / Ethnic Distribution**

| Variable                                   | 2000 All Sectors |         | 2000 North |         | 2008 All Sectors |         | 2008 North Sector |         |
|--|------------------|---------|------------|---------|------------------|---------|-------------------|---------|
|  | Population       | Percent | Population | Percent | Population       | Percent | Population        | Percent |
| Hispanic or Latino                         | 739,755          | 55.4%   | 151,385    | 33.7%   | 890,262          | 58.6%   | 225,414           | 39.7%   |
| Black or African American                  | 91,711           | 6.9%    | 21,329     | 4.7%    | 100,675          | 6.6%    | 29,222            | 5.1%    |
| White                                      | 463,796          | 34.7%   | 256,069    | 56.9%   | 470,733          | 31.0%   | 281,762           | 49.6%   |
| Other                                      | 16,788           | 1.3%    | 7,665      | 1.7%    | 22,818           | 1.5%    | 11,381            | 2.0%    |
| Native American                            | 3,248            | 0.2%    | 1,209      | 0.3%    | 4,751            | 0.3%    | 1,884             | 0.3%    |
| Asian                                      | 20,328           | 1.5%    | 11,666     | 2.6%    | 28,849           | 1.9%    | 17,879            | 3.1%    |
| Native Hawaiian and Other Pacific Islander | 869              | 0.1%    | 361        | 0.1%    | 1,142            | 0.1%    | 478               | 0.1%    |

*Sources: 2008 Data derived from Block Group data provided by the Nielsen Company Claritas 2008 PopFacts dataset of projections, which are based on 2000 Census data. 2000 Data derived from Block Group data from 2000 Census. Note: "All Sectors" include only the portions of Bexar County that fall within the sector boundaries. Therefore, "All Sectors" include incorporated cities.*

## Educational Attainment

In 2008, the North Sector contained the largest share of college educated persons, representing over 64 percent of people with advanced degrees. In several cases, the percentage of advanced degree attainment is even higher. Among all persons with doctoral degrees, 67 percent live in the North Sector, as shown in **Table A-4: Educational Attainment**. The same is true for persons with professional degrees. In 2008, the percentage of persons with college degrees (bachelor, master, doctoral, and professional) age 25 and over was 24 percent for all sectors. In the North Sector, this figure was 40 percent.

**Table A-4: Educational Attainment**

| Variable                           | 2000 All Sectors |         | 2000 North |         | 2008 All Sectors |         | 2008 North Sector |         |
|------------------------------------|------------------|---------|------------|---------|------------------|---------|-------------------|---------|
|                                    | Number           | Percent | Number     | Percent | Number           | Percent | Number            | Percent |
| Population Age 25+                 | 813,517          |         | 287,646    |         | 933,054          |         | 363,644           |         |
| Less than 9 <sup>th</sup> Grade    | 93,708           | 11.5%   | 7,653      | 2.7%    | 97,531           | 10.5%   | 9,129             | 2.5%    |
| Some High School, No Diploma       | 97,121           | 11.9%   | 13,614     | 4.7%    | 103,586          | 11.1%   | 16,596            | 4.6%    |
| High School Graduate or Equivalent | 196,788          | 24.2%   | 52,694     | 18.3%   | 220,397          | 23.6%   | 64,458            | 17.7%   |
| Some College, No Degree            | 193,452          | 23.8%   | 80,140     | 27.9%   | 226,862          | 24.3%   | 100,569           | 27.7%   |
| Associate Degree                   | 48,326           | 5.9%    | 21,786     | 7.6%    | 57,910           | 6.2%    | 27,499            | 7.6%    |
| Bachelor's Degree                  | 116,109          | 14.3%   | 70,082     | 24.4%   | 142,871          | 15.3%   | 91,103            | 25.1%   |
| Master's Degree                    | 45,080           | 5.5%    | 27,220     | 9.5%    | 55,820           | 6.0%    | 35,361            | 9.7%    |
| Professional School degree         | 16,571           | 2.0%    | 10,452     | 3.6%    | 20,373           | 2.2%    | 13,701            | 3.8%    |
| Doctorate Degree                   | 6,361            | 0.8%    | 4,004      | 1.4%    | 7,804            | 0.8%    | 5,228             | 1.4%    |

Sources: 2008 Data derived from Block Group data provided by the Nielsen Company Claritas 2008 PopFacts dataset of projections, which are based on 2000 Census data. 2000 Data derived from Block Group data from 2000 Census. Note: "All Sectors" include only the portions of Bexar County that fall within the sector boundaries. Therefore, "All Sectors" include incorporated cities.

## Household Income and Poverty

The relative affluence of the North Sector seems to have increased between 2000 and 2008. In 2000, median household income of the North Sector was 11 percent higher than all the sectors combined. In 2008, this figure increased to 29 percent, as shown in **Table A-5: Household Income and Poverty**. Approximately 70 percent of households with annual incomes greater than \$250,000 for all sectors resided in the North Sector in 2008. Not surprisingly, the poverty rate among families is less than average. In 2000, 4.8 percent of families in the North Sector earned below poverty income, compared to 13 percent for all sectors. However, the family poverty rate in the North Sector has held steady at 4.8 percent between 2000 and 2008, while it dropped slightly among all sectors as a whole, from 13 percent to 12.3 percent.

**Table A-5: Household Income and Poverty**

| Variable                | 2000 All Sectors |         | 2000 North |         | 2008 All Sectors |         | 2008 North Sector |         |
|-------------------------|------------------|---------|------------|---------|------------------|---------|-------------------|---------|
|                         | Number           | Percent | Number     | Percent | Number           | Percent | Number            | Percent |
| Total Households        | 469,048          |         | 176,311    |         | 535,973          |         | 221,374           |         |
| Less than \$25,000      | 149,119          | 31.8%   | 34,383     | 19.5%   | 143,162          | 26.7%   | 37,588            | 17.0%   |
| \$25,000-\$49,999       | 148,109          | 31.6%   | 51,367     | 29.1%   | 156,937          | 29.3%   | 56,533            | 25.5%   |
| \$50,000-\$99,999       | 126,243          | 26.9%   | 61,112     | 34.7%   | 158,240          | 29.5%   | 76,137            | 34.4%   |
| \$100,000-\$149,999     | 29,766           | 6.3%    | 18,683     | 10.6%   | 50,612           | 9.4%    | 31,686            | 14.3%   |
| \$150,000-\$249,000     | 11,766           | 2.5%    | 7,971      | 4.5%    | 19,011           | 3.5%    | 13,799            | 6.2%    |
| \$250,000 or More       | 4,352            | 0.9%    | 2,788      | 1.6%    | 8,011            | 1.5%    | 5,630             | 2.5%    |
| Median Household Income | \$41,809         |         | \$46,511   |         | \$48,968         |         | \$63,266          |         |
| Per Capita Income       | \$18,300         |         | \$20,517   |         | \$21,448         |         | \$30,143          |         |
| Total Families          | 330,364          |         | 118,222    |         | 377,507          |         | 149,158           |         |
| Families Below Poverty  | 42,968           | 13.0%   | 5,669      | 4.8%    | 46,299           | 12.3%   | 7,179             | 4.8%    |

*Sources: 2008 Data derived from Block Group data provided by the Nielsen Company Claritas 2008 PopFacts dataset of projections, which are based on 2000 Census data. 2000 Data derived from Block Group data from 2000 Census. Note: "All Sectors" include only the portions of Bexar County that fall within the sector boundaries. Therefore, "All Sectors" include incorporated cities.*

In summary, the demographic data reveal that the North Sector has a higher percentage of White non-Latinos than any other sector by a substantial margin; residents are prepared to accept and excel in higher wage occupations due to their higher levels of education.

Trends between 2000 and 2008 show that the North Sector is also growing faster than the other sectors as a whole, its ethnic makeup in 2008 appears to track with all sectors, in that Latinos and Hispanics are comprising an increasing percentage of the North Sector's total population.

## Land Use and Urban Design

### Existing Land Use Pattern

The North Sector contains a variety of land uses, including residential, commercial and industrial. In general, the southern portion has higher density development that transitions from suburban to a rural character in the northern parts of the Sector. Only areas within the City limits have zoning districts, as counties do not have zoning regulatory authority.

There are three major uses in the North Sector: Camp Bullis and Camp Stanley, covering approximately 28,000 acres, roughly ten percent of the North Sector land area, are located in the northwest quadrant; the 2,600-acre San Antonio International Airport is in the northeast quadrant just northeast of the Loop 410/Highway 281 interchange; and the 900-acre South Texas Medical Center lies west of the Loop 410/I-10 interchange.

Low density residential occupies the majority of the northern portion and the North Sector surrounding Camp Bullis. Low density residential is the primary land use along minor and local streets and makes up a large percentage of the acreage in the North Sector. High density residential is generally located in a major cluster around the Medical Center and along major roads, but not substantially outside of Loop 1604. Residential zone districts generally adhere to existing residential areas: low density along local roads and medium and high density interspersed with commercial districts along high-volume roads and in commercial clusters. Planned unit developments are another significant zoning district in the North Sector and are located outside Loop 1604 in more recently developed parts of the City.

Commercial land uses are located along major highways and principal arterials; for example, a significant ribbon of commercially zoned land extends northwest along I-10 from central San Antonio, northeast along Highway 281 from central San Antonio, and east-west along both sides of Loop 1604. Significant clustering of commercial uses also exists in the vicinity of South Texas Medical Center and surrounding the airport.

Industrial uses and zones are primarily located around the airport, specifically along the rail corridor east of the airport in order to provide supportive and compatible uses with aviation.

Park and open space generally follows drainage ways and gulches or is scattered sporadically throughout the North Sector. The majority of park and open space is located in the northern portion of the Sector, around Camp Bullis and near the Sector boundaries.

### Existing Entitlements

Nearly 40 percent of the land in the North Sector has been planned and entitled. A total of 288 master development plans have been reviewed and approved within the North Sector, comprising approximately 58,300 acres or 91 square miles of land. In addition, five neighborhood and/or community plans have also been prepared within the North Sector. These plans have, and will continue to provide the land use guidance for approximately 39,500 acres or 62 square miles of land. The majority of these areas are located north of Loop 1604 and east of Camp Bullis.

## Limited Area to Plan

Even though the North Sector is nearly 400 square miles in size, a significant portion has already been developed, has been approved for development, or is to remain undeveloped. The exclusionary process identified lands with existing and/or future physical and environmental factors, and removed these lands from consideration. These exclusionary factors were organized into six categories which are summarized below.

- **Military** – *excluded due to military ownership or within military operating areas.*
- **Golden-Cheeked Warbler** – *potential habitat for endangered Golden-Cheeked Warblers.*
- **Planned/Approved Development** – *contains pre-existing development plans.*
- **Ownership** – *owned by Federal, State, or municipal governments.*
- **Land Use** – *contains existing development and/or uses.*
- **Natural** – *includes bodies of water, floodplains, preserved open space, and natural topography that inhibits development.*

Effectively, over 85 percent of the land within North Sector, more than 200,000 acres, falls within at least one of the six exclusionary categories, and was therefore removed from consideration for being highly suitable for future development. Although potential Golden-Cheeked Warbler habitat is not necessarily prohibitive to future development, it lowers the overall development suitability of the land it occupies, and therefore the applicable land was no longer considered highly suitable for future development.

## Transportation, Infrastructure, and Utilities

Transportation planning within the San Antonio metropolitan area involves federal, state, regional, and local agencies. The primary agencies that directly impact transportation within the North Sector are: City of San Antonio, Bexar County, Alamo Area Council of Governments, San Antonio-Bexar County Metropolitan Planning Organization, VIA Metropolitan Transit, Alamo Regional Transit Authority, and Texas Department of Transportation.

### Major Thoroughfare Plan

The City's Major Thoroughfare Plan (MTP) is a long-range, future transportation plan for the City and Bexar County adopted in 1978. The MTP designates the location, dimensions, and dedication requirements of expressways, primary arterials, and secondary arterials.

The North Sector includes several MTP streets of various classifications totaling approximately 367 miles. Among these 367 miles, there are approximately 319 miles of constructed roads; although it is not known how many of these 319 miles are constructed per MTP standards. Future roads on the MTP accommodate future demand that is primarily driven by development, increase in motor vehicle ownership, and increase in population density.

## **Transit**

The North Sector has several bus routes and stops. With few exceptions, these routes are located south of Loop 1604. In total, throughout the entire North Sector area, there are 35 bus routes in operation that cover approximately 355 linear miles. Additionally, there are three park and rides and two transit stations which include Parkhills Park and Ride, Blossom Park and Ride, University Park and Ride, Medical Center Transit Center, and Ingram Transit Center. Transit facilities immediately adjacent to North Sector boundaries include the North Star Transit Center, which lies near the southern border of North Sector, along Loop 410 just west of San Antonio International Airport. Similarly, Randolph Park & Ride lies along the southeastern border near the IH-35/Loop 410 interchange, and Crossroads Park & Ride is along the southern border at the Loop 410 / IH-10 interchange.

## **Bicycle and Pedestrian**

The City of San Antonio and Bexar County Commissioners Court both adopted the Bicycle Master Plan. The City of San Antonio adopted this plan by ordinance in 2005. The City of San Antonio is currently working on updating the Bicycle Master Plan. The North Sector currently has approximately 40 miles of dedicated bike lanes.

## **Railroads**

The North Sector includes sections of three railroad lines: Kerville Subdivision Austin Subdivision Mainline 1, and Austin Subdivision Mainline 2.

The Kerville subdivision line starts in downtown San Antonio, parallels IH-10, and ends at Loop 1604 near IH-10. Approximately 15 miles of the line lies within Bexar County, of which approximately 60 percent lies within the North Sector. Union Pacific has indicated that the Kerville Subdivision will likely no longer be needed for freight purposes in three to five years, opening up the potential for reuse<sup>1</sup>. This line appears ideally suited for reuse as a light rail corridor.<sup>2</sup>

Austin Subdivision Mainline 1 line runs from downtown San Antonio parallel to the 281 corridor and then out to New Braunfels. Within Bexar County, this line is approximately 33 miles long with approximately 66 percent inside the North Sector boundary. This line appears to be ideally suited for light rail and commuter rail reuse (Ibid, 38).

Austin Subdivision Mainline 2 line runs from downtown San Antonio parallel to the IH-35 corridor and then out to New Braunfels. Within Bexar County, this line is approximately 34 miles long, of which approximately 33 percent is inside the North Sector boundary. Right now, the line within Bexar County has a heavy industrial character and long distance to residential and commercial developments, therefore reuse options are limited. However, appropriate redevelopment in the future could change that. Long-distance commuter rail appears to be a reuse option.

<sup>1</sup> "Freight Rail Corridors Reuse Study," HDR, Pape-Dawson, RJ Rivera, January 2010, 18

<sup>2</sup> Ibid, 36

## **Gas and Electric**

The City of San Antonio acquired its electric and gas utilities in 1942 from the American Light and Traction Company, today known as CPS Energy. CPS Energy is the nation's largest municipally owned energy company providing natural gas and electric service.<sup>3</sup>

CPS Energy serves almost the entire North Sector area except for a portion of the most northern section of San Antonio's ETJ in Kendall County. CPS Energy is currently the sole provider of electric service within the service area.

## **Water Providers**

The largest water provider in Bexar County is the San Antonio Water System (SAWS), followed by the Bexar Metropolitan Water District (BexarMet). SAWS serves approximately 80 percent of water utility customers in Bexar County and covers an area of approximately 620 square miles (SAWS 2009 Budget Report). SAWS and BexarMet are also the largest water suppliers in the North Sector.

North Sector water providers include: SAWS, BexarMet, Water Services Inc., Oaks WSC, Aqua Texas Inc., 3009 Water Company, Ace Utility Inc., Lackland Water Company, Dobbins & Schweers, Cadillac Water Corporation, City of Fair Oaks Ranch, City of Selma, City of Garden Ridge, City of Bulverde, City of Leon Valley, City of Shavano Park, and City of Live Oak.

## **Wastewater Providers**

In contrast to water providers, there are fewer providers for wastewater in Bexar County and in the North Sector. The largest provider of wastewater service in the North Sector is SAWS. The service area for SAWS follows natural watersheds because SAWS utilizes gravity as a means to transport wastewater to its three wastewater treatment plants in the south of the County. Bexar Metropolitan Water District does not handle wastewater. North Sector wastewater providers include: SAWS, Leon Springs Utility Company Inc., City of Fair Oaks Ranch, Denton Utility Company, City of Leon Valley, and City of Live Oak.

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<sup>3</sup> (Appendix from CoSA Bond Report 2007).

# Housing

## Housing Units

From 2000 to 2008, housing in the North Sector expanded at a faster pace, 20.9 percent, than the overall pace of all the sectors combined, 13 percent. Out of the total number of housing units in all sectors, the North Sector contained 37 percent in 2000, and 41 percent in 2008 as shown in **Table A-6: Housing Units and Occupancy**. The increase in the North Sector’s housing share is the result of its capture of approximately 66 percent of all housing units or 49,304 housing units built between 2000 and 2008 among all Sectors. The Northeast Quadrant experienced the most significant amount of housing growth with a 54.8 percent increase in housing units from 2000 to 2008. The Northwest and Southwest Quadrants also experienced growth that was higher than the sectors overall, 37.5 percent and 18 percent, respectively.

**Table A-6: Housing Units and Occupancy**

|                           | 2000          |          |                  | 2008          |          |                  | % Increase of Housing Units |
|---------------------------|---------------|----------|------------------|---------------|----------|------------------|-----------------------------|
|                           | Housing Units | % Vacant | % Owner Occupied | Housing Units | % Vacant | % Owner Occupied |                             |
| <b>All Sectors</b>        | 500,388       | 6.3%     | 57.1%            | 574,975       | 6.8%     | 57.7%            | 13.0%                       |
| <b>North Sector</b>       | 186,930       | 5.7%     | 56.6%            | 236,234       | 6.3%     | 57.6%            | 20.9%                       |
| <b>Northeast Quadrant</b> | 10,099        | 5.2%     | 89.5%            | 22,349        | 6.3%     | 88.7%            | 54.8%                       |
| <b>Northwest Quadrant</b> | 7,661         | 6.3%     | 80.2%            | 12,250        | 7.4%     | 82.1%            | 37.5%                       |
| <b>Southeast Quadrant</b> | 63,881        | 5.8%     | 60.4%            | 73,078        | 6.2%     | 60.6%            | 12.6%                       |
| <b>Southwest Quadrant</b> | 105,289       | 5.6%     | 55.5%            | 128,469       | 6.3%     | 55.7%            | 18.0%                       |

*Sources: 2008 Data derived from Block Group data provided by the Nielsen Company Claritas 2008 PopFacts dataset of projections, which are based on 2000 Census data. 2000 Data derived from Block Group data from 2000 Census. Note: "All Sectors" include only the portions of Bexar County that fall within the sector boundaries. Therefore, "All Sectors" include incorporated cities.*

## Housing Type

The North Sector contains a higher percentage of multi-family housing than all sectors combined. The Northeast and Northwest Quadrants have higher percentages of single family housing stock at 89 percent and 80 percent, respectively as shown in **Table A-7: Housing Type**. The Southwest Quadrant exhibits the highest percentage, 43 percent, of multi-family housing within the North Sector, followed by the Southeast Quadrant at 36 percent, reflecting the suburban character of the southern half of North Sector.

**Table A-7: Housing Type**

|   | 1990           |               |                   |             | 2000           |                |                   |           | Percent Changed |              |                   |         |
|---|----------------|---------------|-------------------|-------------|----------------|----------------|-------------------|-----------|-----------------|--------------|-------------------|---------|
|   | Single Family  | Multi-family  | Manufactured Home | Other       | Single Family  | Multi-family   | Manufactured Home | Other     | Single Family   | Multi-family | Manufactured Home | Other   |
| <b>All Sectors</b>                                | 173,742<br>63% | 88,381<br>32% | 8,240<br>3%       | 3,941<br>1% | 334,584<br>66% | 154,052<br>30% | 19,692<br>4%      | 685<br>0% | 92.6%           | 74.3%        | 139.0%            | -82.6%  |
| <b>North Sector</b>                               | 33,238<br>51%  | 30,823<br>47% | 690<br>1%         | 391<br>1%   | 115,489<br>61% | 70,397<br>37%  | 2,375<br>1%       | 150<br>0% | 247.5%          | 128.4%       | 244.2%            | -61.6%  |
| <b>Quadrants</b>                                  |                |               |                   |             |                |                |                   |           |                 |              |                   |         |
| <b>Northeast Quadrant</b>                         | 1,714<br>84%   | 293<br>14%    | 22<br>1%          | 5<br>0%     | 9,164<br>89%   | 851<br>8%      | 228<br>2%         | 0<br>0%   | 434.7%          | 190.4%       | 936.4%            | -100.0% |
| <b>Northwest Quadrant</b>                         | 1,696<br>68%   | 421<br>17%    | 345<br>14%        | 21<br>1%    | 7,053<br>80%   | 1,172<br>13%   | 581<br>7%         | 9<br>0%   | 315.9%          | 178.4%       | 68.4%             | -57.1%  |
| <b>Southeast Quadrant</b>                         | 13,755<br>61%  | 8,793<br>39%  | 49<br>0%          | 106<br>0%   | 40,263<br>63%  | 22,879<br>36%  | 733<br>1%         | 99<br>0%  | 192.7%          | 160.2%       | 1395.9%           | -6.6%   |
| <b>Southwest Quadrant</b>                         | 16,252<br>42%  | 21,488<br>56% | 274<br>1%         | 262<br>1%   | 59,214<br>56%  | 45,634<br>43%  | 833<br>1%         | 42<br>0%  | 264.3%          | 112.4%       | 204.0%            | -84.0%  |
| <i>Sources: U.S. Census Bureau, 1990 and 2000</i> |                |               |                   |             |                |                |                   |           |                 |              |                   |         |

San Antonio's Community Building and Neighborhood Planning Program assists citizens in organizing and registering a Neighborhood Association (NA) for their community. Registered NAs can develop a unified voice for its residents that the City responds to, create neighborhood plans with a consensus on goals and priorities, and be the official point of contact between local citizens and City. For example, registered NAs in San Antonio receive notice of proposed rezoning, plan amendments, and demolitions affecting the area within and near their boundaries.

Approximately 240 of San Antonio's total 400 registered NAs are located within the North Sector's boundaries, spanning most of San Antonio's established residential neighborhoods in the Sector's southern half. Some newer subdivisions in the northern portion of the North Sector lack registered NAs, presumably due to both the proliferation of homeowner's associations in these new neighborhoods and also the relatively low level of community organization present in recently constructed areas.

## Occupancy

The percentage of owner-occupied units in the North Sector closely matched that of all sectors. Occupancy from 2000 to 2008 remained nearly the same. There was an approximate 1 percent increase in home ownership in the North Sector overall with the greatest increase, 2 percent, occurring in the Northwest Quadrant coupled with a 1 percent decrease in the Northeast Quadrant. The Northeast and Northwest Quadrants continue to have higher percentages of owner occupied housing than all the sectors combined.

In 2000, the North Sector (for the most part) had lower vacancy rates than all of the sectors combined. In 2008, vacancy rates in the North Sector increased to similar levels of all sectors. The Northwest Quadrant experienced the highest vacancy rate of 7.4 percent compared to the overall sectors rate of 6.8 percent.

## Housing Value

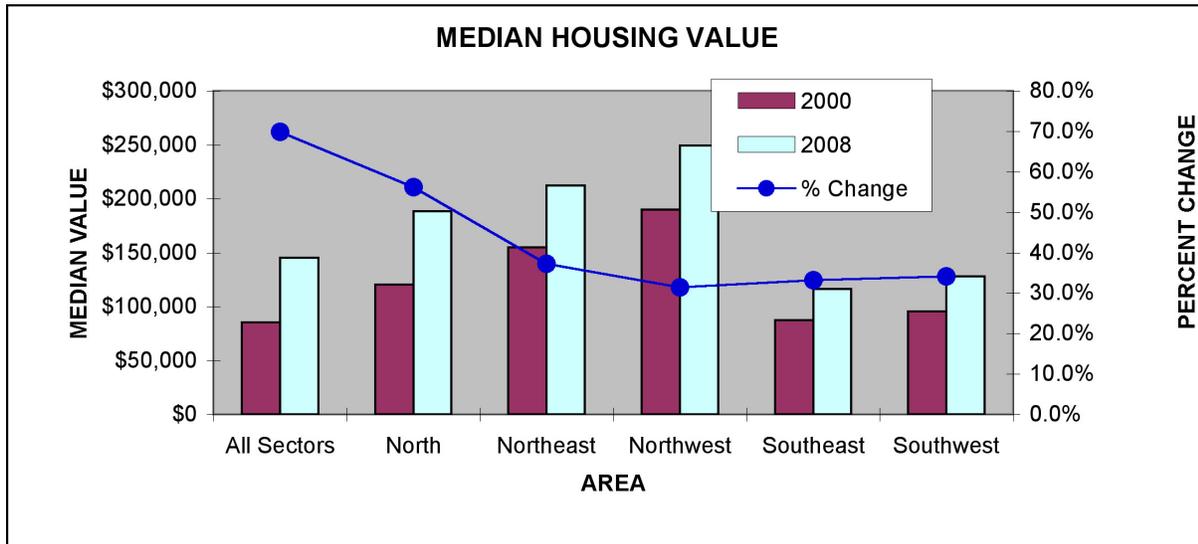
Median housing values in the North Sector are approximately \$40,000 higher than all sectors overall as shown in **Chart A-2: Median Housing Value**. The highest median housing values in the North Sector are located in the Northwest and the Northeast Quadrants with more than half valued between \$200,000 and \$499,999 as shown in **Table A-8: Owner Occupied Median Housing Value**. Median housing values in the Southeast and Southwest Quadrants are generally \$100,000 less than the Northwest and Northeast Quadrants; more than half of the homes are valued between \$80,000 and \$149,999.

**Table A-8: Owner Occupied Median Housing Value**

|   |                       | ALL SECTORS | NORTH SECTOR | Northeast | Northwest | Southeast | Southwest |
|---|-----------------------|-------------|--------------|-----------|-----------|-----------|-----------|
| 2000                                    | Housing Units         | 285,473     | 105,840      | 8,572     | 5,758     | 36,363    | 55,148    |
|   | Median Value          | \$85,528    | \$120,508    | \$154,572 | \$189,773 | \$87,432  | \$95,237  |
|   | LESS THAN \$80,000    | 57.4%       | 24.2%        | 3.6%      | 10.8%     | 30.4%     | 24.7%     |
|   | \$80,000 - \$149,999  | 29.9%       | 51.6%        | 35.0%     | 18.4%     | 55.2%     | 55.4%     |
|   | \$150,000 - \$199,999 | 6.2%        | 12.2%        | 29.4%     | 19.1%     | 9.1%      | 10.8%     |
|   | \$200,000 - \$299,999 | 3.9%        | 7.7%         | 20.8%     | 33.4%     | 3.3%      | 5.8%      |
|   | \$300,000 - \$499,999 | 1.8%        | 3.1%         | 9.0%      | 13.4%     | 1.4%      | 2.1%      |
|   | \$500,000 OR MORE     | 0.9%        | 1.3%         | 2.4%      | 5.7%      | 0.8%      | 1.0%      |
| 2008                                    | Housing Units         | 331,815     | 136,137      | 9,312     | 18,578    | 41,508    | 67,111    |
|   | Median Value          | \$145,313   | \$188,282    | \$212,213 | \$249,339 | \$116,456 | \$127,731 |
|   | LESS THAN \$80,000    | 34.9%       | 7.8%         | 3.9%      | 11.0%     | 9.3%      | 7.5%      |
|   | \$80,000 - \$149,999  | 38.4%       | 44.7%        | 7.0%      | 10.0%     | 55.5%     | 53.5%     |
|   | \$150,000 - \$199,999 | 11.1%       | 19.0%        | 21.9%     | 7.9%      | 20.0%     | 19.2%     |
|   | \$200,000 - \$299,999 | 9.3%        | 17.5%        | 38.2%     | 30.0%     | 11.3%     | 13.7%     |
|   | \$300,000 - \$499,999 | 4.1%        | 7.6%         | 20.5%     | 27.6%     | 2.6%      | 4.4%      |
|   | \$500,000 OR MORE     | 2.1%        | 3.3%         | 8.1%      | 13.5%     | 1.0%      | 1.8%      |
| Percent Increase Change of Median Value |                       | 69.9%       | 56.2%        | 37.3%     | 31.4%     | 33.2%     | 34.1%     |

Sources: The data in this table are derived from Block Group data provided by the Nielsen Company Claritas 2008 PopFacts dataset of projections, which are based on 2000 Census data. Note: Data is only for areas within Bexar County inclusive of incorporated cities not included as part of the North Sector.

**Chart A-2: Median Housing Value**



## Economic Development

The North Sector has a relatively healthy economy partly due its diversity and the stability of several industries such as health care, education, military, and tourism/hospitality.

### Major Employment Centers in the North Sector

The North Sector has several major employers and employment centers, including the South Texas Medical Center, University of Texas at San Antonio, USAA, Valero Energy, Tesoro, NuStar, Kinetic Concepts Inc., West Telemarketing, and San Antonio International Airport.

### Major Retail Centers in the North Sector

The North Sector also has several major shopping centers, including The Shops at La Cantera, The Rim Shopping Center, Huebner Oaks Center, Northwoods Shopping Center, Legacy Shopping Center, Blanco Village, Stone Oak Plaza, The Village at the Summit, Village at Stone Oak, Vineyard Shopping Center, and Rolling Oaks Mall.

**Sales Tax.** A total of nine major shopping centers serve the retail and commercial needs of the North Sector and are located along IH-10, Loop 1604, and US 281. The major shopping centers include The Shops at La Cantera, The Rim Shopping Center, Huebner Oaks Center, , Legacy Shopping Center, Blanco Village, Stone Oak Plaza, The Village at the Summit, Village at Stone Oak, Vineyard Shopping Center, and Rolling Oaks Mall.

**Table A-9: Employment**

| Variable           | 2000 All Sectors |         | 2000 North Sector |         | 2008 All Sectors |         | 2008 North Sector |         |
|--------------------|------------------|---------|-------------------|---------|------------------|---------|-------------------|---------|
|                    | Number           | Percent | Number            | Percent | Number           | Percent | Number            | Percent |
| Population Age 16+ | 997,072          |         | 344,332           |         | 1,138,434        |         | 435,191           |         |
| Not in Labor Force | 367,213          |         | 95,359            |         | 405,385          |         | 119,837           |         |
| Employed           | 593,964          |         | 240,239           |         | 693,503          |         | 304,605           |         |
| Unemployed         | 35,896           | 5.7%    | 8,733             | 3.6%    | 39,547           | 5.4%    | 10,749            | 3.4%    |

*2008 Data derived from Block Group data provided by the Nielsen Company Claritas 2008 PopFacts dataset of projections, which are based on 2000 Census data. 2000 data derived from Block Group data from 2000 Census. Note: "All Sectors" include only the portions of Bexar County that fall within the sector boundaries. Therefore, "All Sectors" include incorporated cities.*

**Employment**

In 2000, 40 percent of employed persons in all sectors as a whole lived in the North Sector. In 2008, this figure was 44 percent, even though the North Sector only contains just over 38 percent of the population, as shown in **Table A-9: Employment**. This disproportionately high share of employed persons relative to population means that the North Sector enjoys an unemployment rate that is lower than average for all sectors. In 2008, the unemployment rate for all sectors was 5.4 percent while for the North Sector unemployment was 3.4 percent.

**Entice Appropriate Job Growth.** The City of San Antonio utilizes a host of incentives to induce economic retention and expansion efforts. Within the North Sector these include the following:

**Tax Abatement.** The adoption of the Inner City Reinvestment Policy (ICRIP) has focused incentives to promote growth and development in the heart of the City. While the majority of the North Sector is located in Tier 3, there are currently two areas within the North Sector that are located within Tier 2 and are eligible for a 10-year tax abatement term at a maximum of 75 percent (the remainder of the Sector is eligible for a six-year term at a maximum of 50 percent). The amount of abatement is based on the investment in real and personal property, targeted industry/job creation, wage rates, and employee health care benefits. These two areas include the San Antonio International Airport and the South Texas Medical Center.

**Texas Enterprise Zone:** There are several areas within the North Sector that exhibit census tract block groups where at least 20 percent of the resident incomes are at or below 100 percent of the federal poverty level. As such, they qualify as State Enterprise Zone areas. The benefits of locating a project in these areas includes eligibility for state sales and use tax refunds on taxes paid for equipment and machinery, materials used in building a new structure, taxable services, and electricity/natural gas use. Additionally, projects may also be eligible for state franchise tax credits based on job creation and capital investment.

**Foreign Trade Zones (FTZ):** The North Sector has one existing FTZ site (Airport Cargo Facilities) and two subzones (Colin Medical and R.G. Barry) within FTZ No. 80. Locating in an FTZ is advantageous in that duties can be reduced/eliminated or deferred so that the import/export of foreign goods can be delivered to the zone without up front costs being paid.

## Military

The Department of Defense (DoD) has a significant economic impact on San Antonio. The DoD spends \$13.3 billion annually in San Antonio. San Antonio has four military installations: 1) Randolph Air Force Base, 2) Fort Sam Houston 3) Brooks City-Base (the Former Brooks Air Force Base) and 4) Lackland Air Force Base. Fort Sam Houston includes Camp Bullis and Brooke Army Medical Center (BAMC). Camp Bullis and Camp Stanley are located in the North Sector providing military readiness facilities for different branches of the United States Armed Forces.

One of the most anticipated economic development initiatives is the expansion of Fort Sam Houston. By 2011, Fort Sam Houston will house almost all military personnel involved in combat medic training in the nation. Training will be held at both Fort Sam Houston and at Camp Bullis. A total of 12,500 new personnel along with their families are expected.

## Parks, Natural Environment, and Historic Resources

The North Sector, which covers the northern part of Bexar County, is characteristic of the Texas Hill Country and includes endangered species, the Edwards Aquifer Contributing and Recharge Zones, the Edwards Plateau, and often-sought view sheds. The North Sector contains a majority of the environmentally sensitive areas in Bexar County.

### Trees

One environmental feature of the North Sector is the incredible amount of tree canopy found in the area. San Antonio and its ETJ currently have 38 percent overall tree canopy. Wildlife utilize tree canopy for protection, foraging, and habitat. Trees also help keep air quality high by sequestering many pollutants from the atmosphere, including nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), ozone (O<sub>3</sub>), carbon monoxide (CO), and particulate matter of ten microns or less (PM<sub>10</sub>).

### Threatened and Endangered Species

Bexar County contains several federally listed threatened and endangered species. Endangered species known to exist in the North Sector include two small song birds, the Golden-cheeked Warbler and Black-Capped vireo, six endangered plant species, and nine karst invertebrates often referred to as “cave bugs”.

Potential habitat for these species can generally be found in the North Sector due to the geology and vegetation of the Edwards Plateau. Golden-cheeked Warblers utilize heavily wooded areas along steep slopes, drainages, and upland areas with a thick tree canopy. The canopy is comprised of both mature Ashe Junipers (cedars) and hardwoods. Black-capped Vireos tend to occupy recently disturbed areas that are relatively open and contain a shrubby component. The Black-capped Vireo nests and raises its young in Texas in the spring and migrates south to tropical areas usually beginning in August. The main threat to the Vireo is loss of habitat and secondly, nest-site parasitism from cowbirds who lay their eggs in Vireo nests. Like the Vireo, the Golden-cheeked Warbler nests in Bexar County in the spring and then migrates south to tropical climates in the fall. The principal threat to the Warbler is also habitat loss.

Karstic limestone outcroppings on the Edwards Plateau usually include karst features, which provide habitat for karst invertebrate species. Frequently, karst invertebrates in Bexar County are single-cave endemic, which means they are found nowhere else but in that single feature. The invertebrates cannot relocate or be relocated to other karst features. If the karst feature is disturbed by development, direct/indirect contamination, or changes to water flow/water availability, the species may be lost at that location. Additionally, karst invertebrates are an indicator of water quality and quantity.

### **Edwards Aquifer**

The Edwards Aquifer, of which the Contributing and Recharge Zones are partially located in the North Sector, is an immense underground reservoir that stores and transports water. Rainfall and streams seep into cracks, fissures, fractures, sinks holes, solution cavities, caves, and other karst features eventually reaching the aquifer. The Edwards Aquifer produces many springs that feed creeks, streams, waterfalls, and rivers throughout Bexar County and Central Texas. In addition, the Edwards Aquifer is able to supply most of Central Texas with drinking water.

### **Watersheds, Rivers, and Streams (Stormwater)**

Bexar County is comprised of 5 different watersheds, four of which are located in the North Sector: Leon Creek, Salado Creek, Cibolo Creek, and San Antonio River. Each watershed contains several waterways and floodplains.

San Antonio has a history of flooding. Flash floods are a serious problem in flood prone areas, including parts of the North Sector. Average annual rainfall can range from 15 inches to 33 inches, which can cause unpredictable droughts and also sporadic flash floods (Texas Parks and Wildlife Department Wildlife Action Plan, 2005). A major cause of flash floods is impervious cover, which impedes rainwater from draining into the ground causing it to run across surfaces and pool in low lying areas. There are approximately 65 low water crossing locations in the North Sector.

### **Topography**

A topography map is a detailed map depicting elevation changes, or relief, and includes the highest points, the steepest slopes, the flattest areas, and valleys in a particular area. The steepest slopes in Bexar County are located in the North Sector. Development on steep slopes can be very costly, environmentally damaging, and if done improperly, very dangerous.

### **Soils**

The landscape of the North Sector is rocky and rugged and is dominated by Ashe juniper and various oaks. The sector contains a range of soils from neutral to slightly acidic sands and sandy loams to thin, rocky calcareous clays and clay loams.

Most of the soils within this area are not recommended for development of single-family homes of three stories or less built on concrete slab. Due to the rocky nature of the area, the soils are also not recommended as farmland for food, feed, fiber, forage, or oilseed crops. Most appropriate uses of the land include cattle ranching, hunting leases, and conservation.

## Air Quality

Ground-level ozone is the greatest challenge to maintaining excellent air quality in the San Antonio region. Air pollution affects each sector equally. Ozone forms readily in the atmosphere during warm, sunny days when sunlight and chemicals from burning fuels and vapors react together. Common sources of emissions include power generation, industrial processes, natural gas furnaces, gasoline stations, motor vehicles, airplanes, trains, boats, petroleum storage tanks, and oil refineries ([www.tceq.state.tx.us](http://www.tceq.state.tx.us)). Cement quarries, cars and trucks traveling the roadways, and coal-fired power generation are the largest contributors to air pollution in Bexar County. Ozone pollution affects the health of all individuals, particularly sensitive groups such as people with lung diseases, children, older adults, and all ages who exercise or work vigorously outdoors.

The federal ozone standard was last set in 2008 by the Environmental Protection Agency (EPA) at 75 parts per billion (ppb). The standard was created to protect human health and the environment. **Table A-10: Air Quality**, shows the ppb readings taken at air monitoring sites over the past three years that were used in the regulatory three-year average. At this time, San Antonio meets the goal and remains in attainment. If, however, the EPA decides to lower the standard again, San Antonio may find itself in non-attainment. Non-attainment could possibly bring about regulations and restrictions to economic, industrial, and transportation interests in the area.

**Table A-10: Air Quality**

| San Antonio                 | Fourth Highest Average |      |   |  |
|-----------------------------|------------------------|------|---|--|
| Monitoring Site             | 2007                   | 2008 | 2009 as of<br>9:19 am CDT<br>12/22/2009 | Current<br>Three-Year<br>Average (ppb) |
| San Antonio Northwest C23   | 71                     | 78   | 75                                      | <b>74</b>                              |
| Camp Bullis C58             | 74                     | 74   | 73                                      | <b>73</b>                              |
| Calaveras Lake C59          | 67                     | 73   | 62                                      | <b>67</b>                              |
| Heritage Middle School C622 | 66                     | 72   | 62                                      | <b>66</b>                              |
| CPS Pecan Valley C678       | 65                     | 75   | 68                                      | <b>69</b>                              |

## Community Facilities and Education

### Active and Passive Recreation

The North Sector contains a total of 60 sites designated as public parks or open space, of which, 35 are parks and 25 are open space areas. These sites include city and county parks, greenways, and natural areas, totaling approximately 7,300 acres (2,456 acres of parkland and 4,989 acres of open space) and comprising roughly 43 percent of the total inventory of park and open space within the entire City (17,349 acres). Based on an existing population (568,020), a current level of service of approximately 4.3 acres of parkland per 1,000 residents and 8.7 acres of open space per 1,000 residents is provided. It should be noted that a large inventory of private parks and open space exists within each quadrant of the North Sector which would significantly add to the overall totals. **Tables A-12: Number of Parks and Acreage in North Sector Quadrants** and **A-13: Number of Open Space Areas and Acreage in North Sector Quadrants** show that the Southeast Quadrant contains the most park acreage and least amount of open space, while the Northwest Quadrant contains the most open space and the Northeast Quadrant contains the least amount of park acreage.

**Table A-11: North Sector Parks** identifies the parks and acreage within each North Sector quadrant.

**Table A-11: North Sector Parks**

| Quadrant            | Total Number of Parks | Total Acreage |
|---------------------|-----------------------|---------------|
| Northwest           | 9                     | 3,133         |
| Northeast           | 5                     | 725           |
| Southwest           | 15                    | 1,738         |
| Southeast           | 11                    | 1,739         |
| NORTH SECTOR        | 41                    | 7,284         |
| CITY OF SAN ANTONIO | 227                   | 17,349        |

**Table A-12: Number of Parks and Acreage in North Sector Quadrants**

| Type of Park   | Northwest Quadrant |              | Northeast Quadrant |             | Southwest Quadrant |              | Southeast Quadrant |                | Total Acreage  |
|----------------|--------------------|--------------|--------------------|-------------|--------------------|--------------|--------------------|----------------|----------------|
|                | #                  | Acres        | #                  | Acres       | #                  | Acres        | #                  | Acres          |                |
| Neighborhood   | 0                  | 0            | 0                  | 0           | 9                  | 97.6         | 5                  | 155.3          | 252.9          |
| Community      | 0                  | 0            | 1                  | 64.7        | 10                 | 214.8        | 2                  | 17.6           | 297.1          |
| Large Urban    | 0                  | 0            | 0                  | 0           | 3                  | 514.6        | 4                  | 1,223.5        | 1,738.1        |
| Sports Complex | 1                  | 167.8        | 0                  | 0           | 0                  | 0            | 0                  | 0              | 167.8          |
| <b>TOTAL</b>   | <b>1</b>           | <b>167.8</b> | <b>1</b>           | <b>64.7</b> | <b>22</b>          | <b>827.0</b> | <b>11</b>          | <b>1,396.4</b> | <b>2,455.9</b> |

Source: Matrix Design Group, June 2010

**Table A-13: Number of Open Space Areas and Acreage in North Sector Quadrants**

| Type of Open Space | Northwest Quadrant |                | Northeast Quadrant |              | Southwest Quadrant |              | Southeast Quadrant |              | Total Acreage  |
|--------------------|--------------------|----------------|--------------------|--------------|--------------------|--------------|--------------------|--------------|----------------|
|                    | #                  | Acres          | #                  | Acres        | #                  | Acres        | #                  | Acres        |                |
| Greenway           | 0                  | 0              | 1                  | 76.7         | 6                  | 534.3        | 4                  | 267.0        | 878.0          |
| Natural Area       | 8                  | 3,109.4        | 2                  | 534.0        | 3                  | 385.5        | 0                  | 0            | 4,028.9        |
| Historic Resource  | 0                  | 0              | 0                  | 0            | 0                  | 0            | 1                  | 82.3         | 82.3           |
| <b>TOTAL</b>       | <b>8</b>           | <b>3,109.4</b> | <b>3</b>           | <b>610.7</b> | <b>9</b>           | <b>919.8</b> | <b>5</b>           | <b>349.3</b> | <b>4,989.2</b> |

Source: Matrix Design Group, June 2010

### **Emergency Services**

All areas of the North Sector within San Antonio’s city limits are served by San Antonio’s police, fire, and emergency medical services (EMS). Areas outside of San Antonio’s city limits are served by various agencies.

### **Hospitals/Clinics**

The majority of the North Sector hospitals, approximately fourteen, are located in the South Texas Medical Center. However, there are other hospitals and clinics located within other areas of the Sector. The Northwest Quadrant does not currently contain any hospitals or clinics. The Northeast Quadrant contains five hospitals and five clinics. The Southwest Quadrant, as mentioned, contains fourteen hospitals within the Medical Center, two other hospitals located outside of the Medical Center, and approximately sixty-five clinics. The Southeast Quadrant contains two hospitals and approximately forty-five clinics.

### **Libraries**

The North Sector is currently served by eight City of San Antonio public libraries and one is currently under construction. The majority of libraries are located inside Loop 1604 in the southwest and southeast quadrants. The Cody, John Igo, Great Northwest and Maverick Branches are located within the southwest quadrant. The Brook Hollow, Thousand Oaks, and Semmes Branches are located within the southeast quadrant. The Bannwolf Library at Reagan High School and the soon to be completed Parman Branch are located in the northeast quadrant.

### **Primary and Secondary Schools**

Seven independent school districts (ISD) provide public education to residents of the North Sector. Northside and Northeast Independent School Districts are the largest school districts within the Sector. There are approximately 102 elementary schools, 42 high schools, and 19 middle schools within the Sector. The schools consist of approximately 8 charter schools, 46 private schools, 110 public schools, and 2 trade schools.



### **Higher Education and Technical Schools**

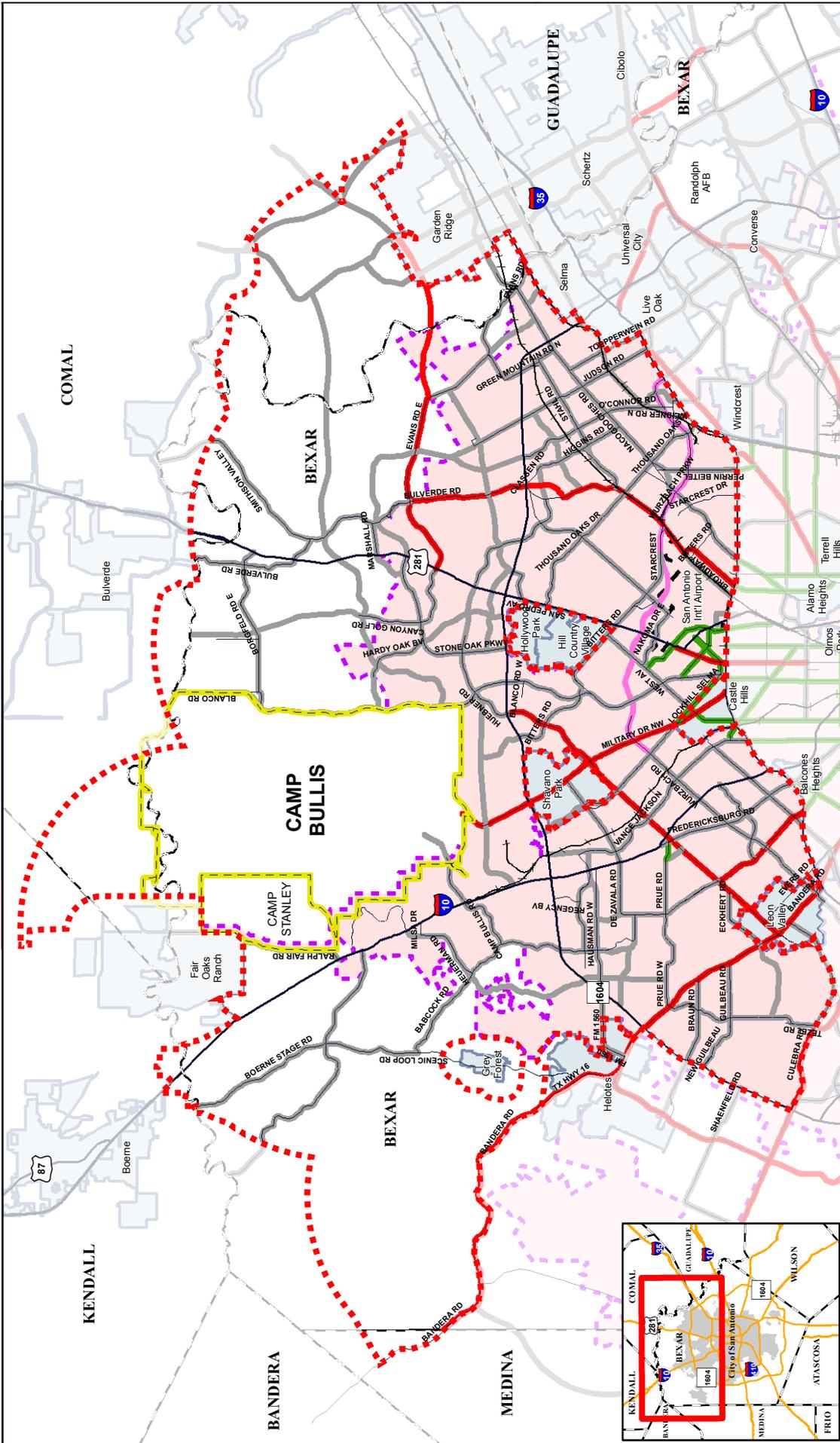
In the North Sector there are two universities (University of Texas San Antonio [UTSA] and University of Texas [UT]Health Science Center San Antonio), and two trade schools (Hallmark, and ITT Technical Institute). UTSA currently has a 2009 enrollment of over 28,000. The UT Health Science Center San Antonio has over 3,000 students.

# Map Atlas

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**Major Thoroughfare Plan**

- Primary Arterial Type A (120' ROW) — Red solid line
- Secondary Arterial Type A (86' ROW) — Pink solid line
- Secondary Arterial Type B (70'-86' ROW) — Green solid line
- Super Arterial Type A (200'-250' ROW) — Yellow solid line

**North Sector**

- Planning Area — Red dashed outline
- San Antonio — Purple dashed outline
- Incorporated City — Blue dashed outline
- Camp Bullis/Stanley — Yellow dashed outline

**County**

- County — Grey outline

**Other Features**

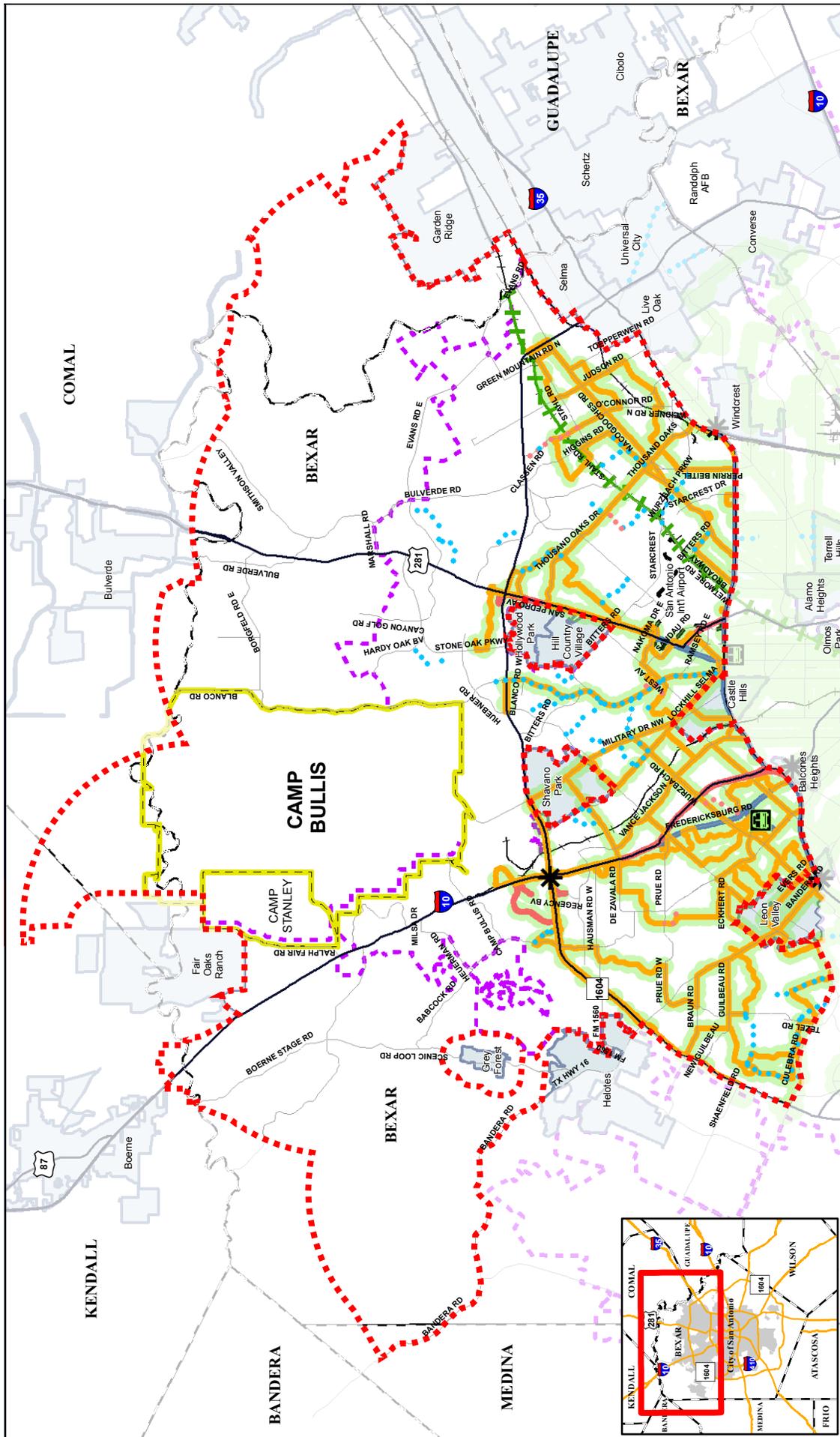
- Airport — Black square with airplane icon
- Highway — Blue line with shield icon
- Major Road — Grey line
- Railroad — Black line with cross-ticks

**Scale and Orientation**

0 1 2 4 Miles

**A-2**

source: Bexar County, Comal County, Kendall County / 2010; TNRS / 2009



**VIA Facility**

- ★ Park and Ride
- 🚏 VIA Transit Center
- 0.25 Mile VIA Service Area
- 🚆 Proposed Commuter Rail

**VIA Bus Route**

- Express
- Frequent
- Metro
- Skip

**Bicycle Facilities**

- Bike Lane
- Bike Route
- Skip

**North Sector**

- Planning Area
- San Antonio
- Incorporated City
- Camp Bullis/Stanley

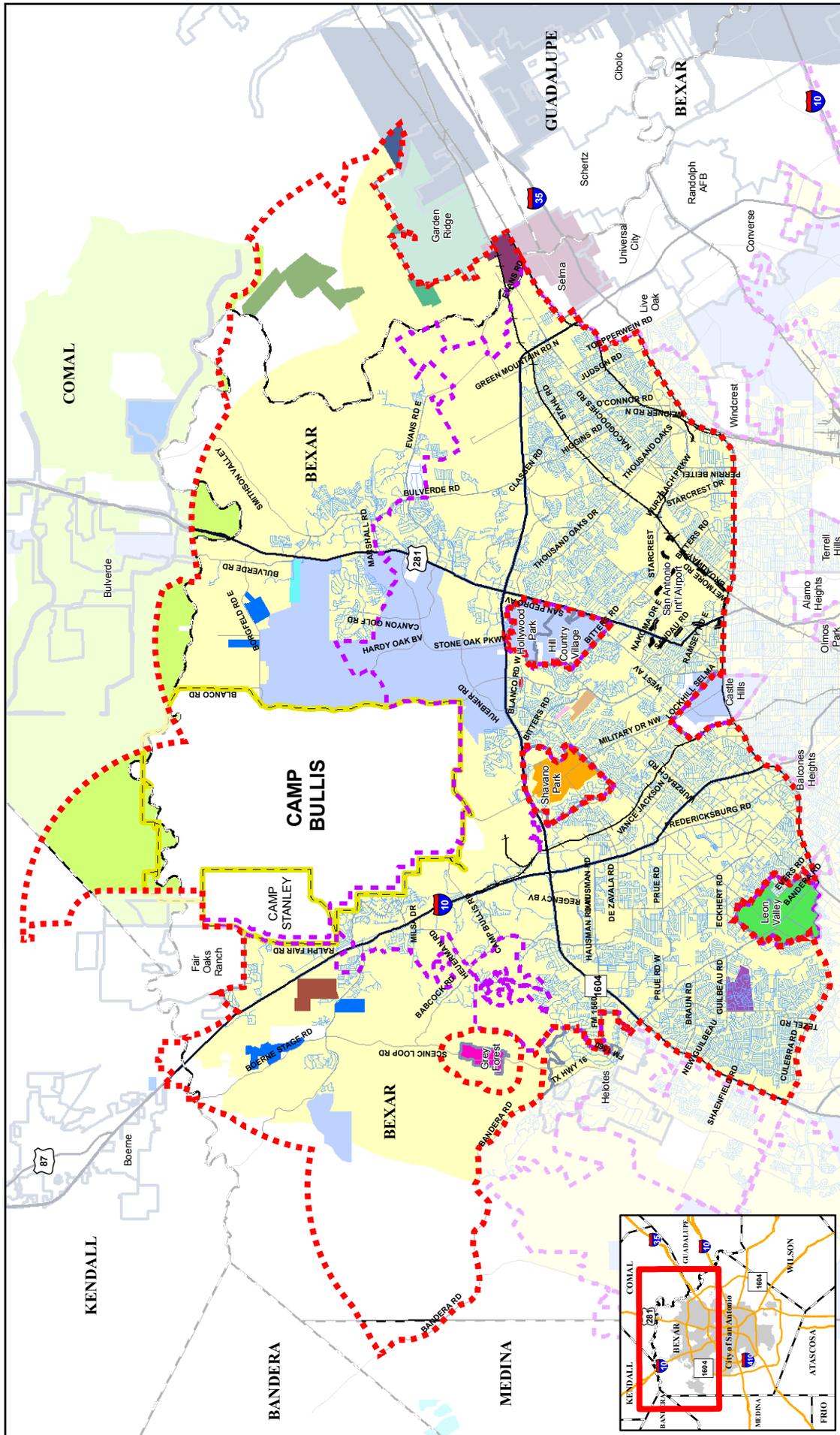
**County**

- County
- Airport
- Highway
- Major Road
- Railroad

**Scale:** 0 1 2 4 Miles

**North Arrow**

**A-3**



**Water Purveyor CCN**

- 3009 Water Company
- Ace Utilities
- Aqua Texas
- Bexar Metro Water Dist.
- Cadillac Water Corp.

**Water Services Inc.**

- Water Services Inc.
- SAWS Water Line

**City of Bulverde**

- City of Garden Ridge
- City of Grey Forest
- City of Leon Valley
- City of Selma
- City of Shavano Park

**Dobbins & Schweers**

- Green Valley SUD
- Lackland Water Co.
- The Oaks WSC
- SAWS

**North Sector Planning Area**

- San Antonio
- Incorporated City
- Camp Bullis/St Stanley

**County**

- Airport
- Highway
- Major Road
- Railroad

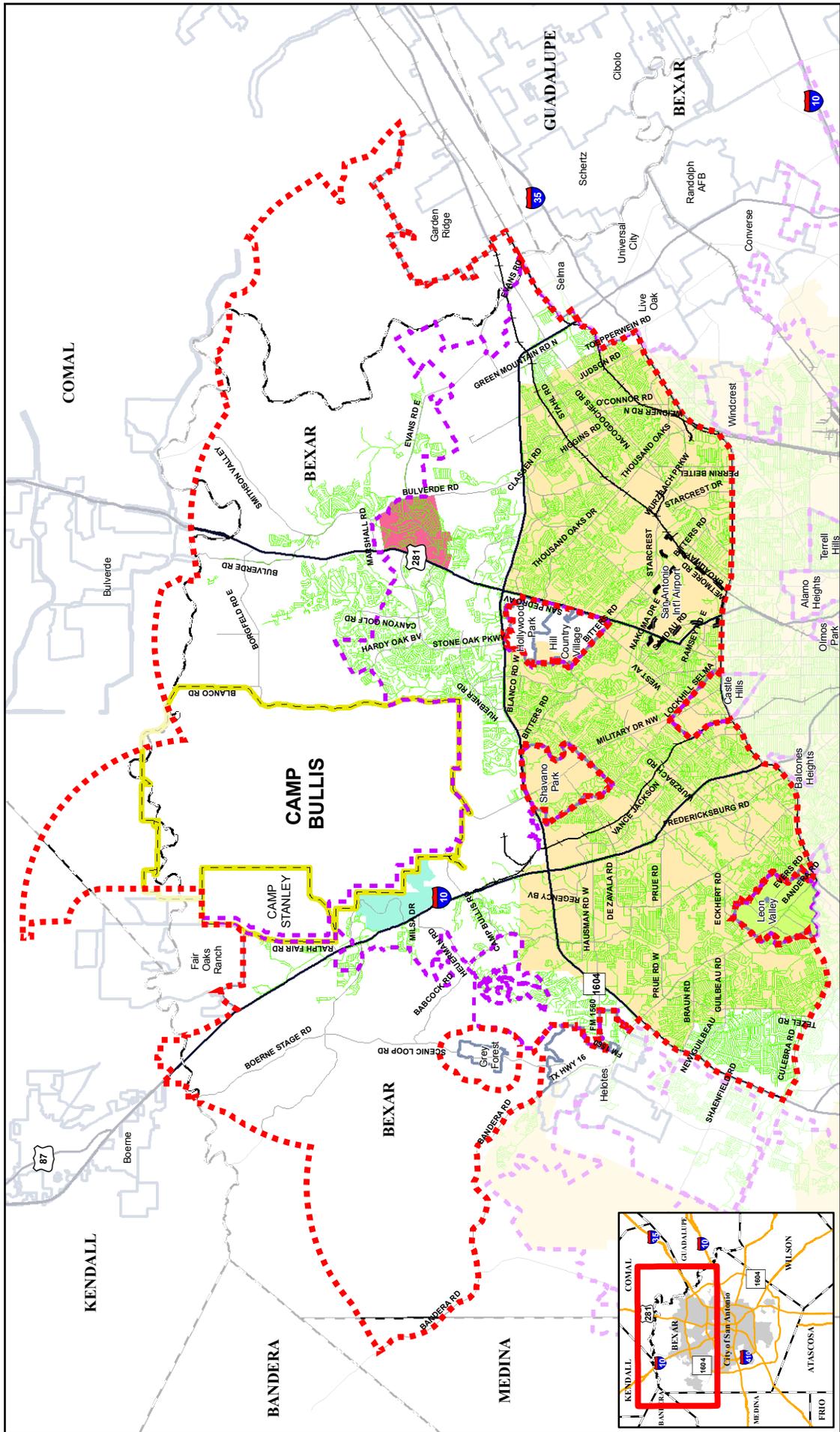
**North Sector Water Service**

Scale: 0 to 4 miles

Compass Rose

**A-4**

source: Bexar County, Comal County, Kendall County / 2010; TNRIS / 2009



**Wastewater Purveyor CCN**

- City of Leon Valley
- Denton Utility Co.
- Leon Springs Utility Co.
- SAWS
- SAWS Sewer Line

**North Sector Planning Area**

- San Antonio
- Incorporated City
- Camp Bullis/Stanley

**County**

- Airport
- Highway
- Major Road
- Railroad

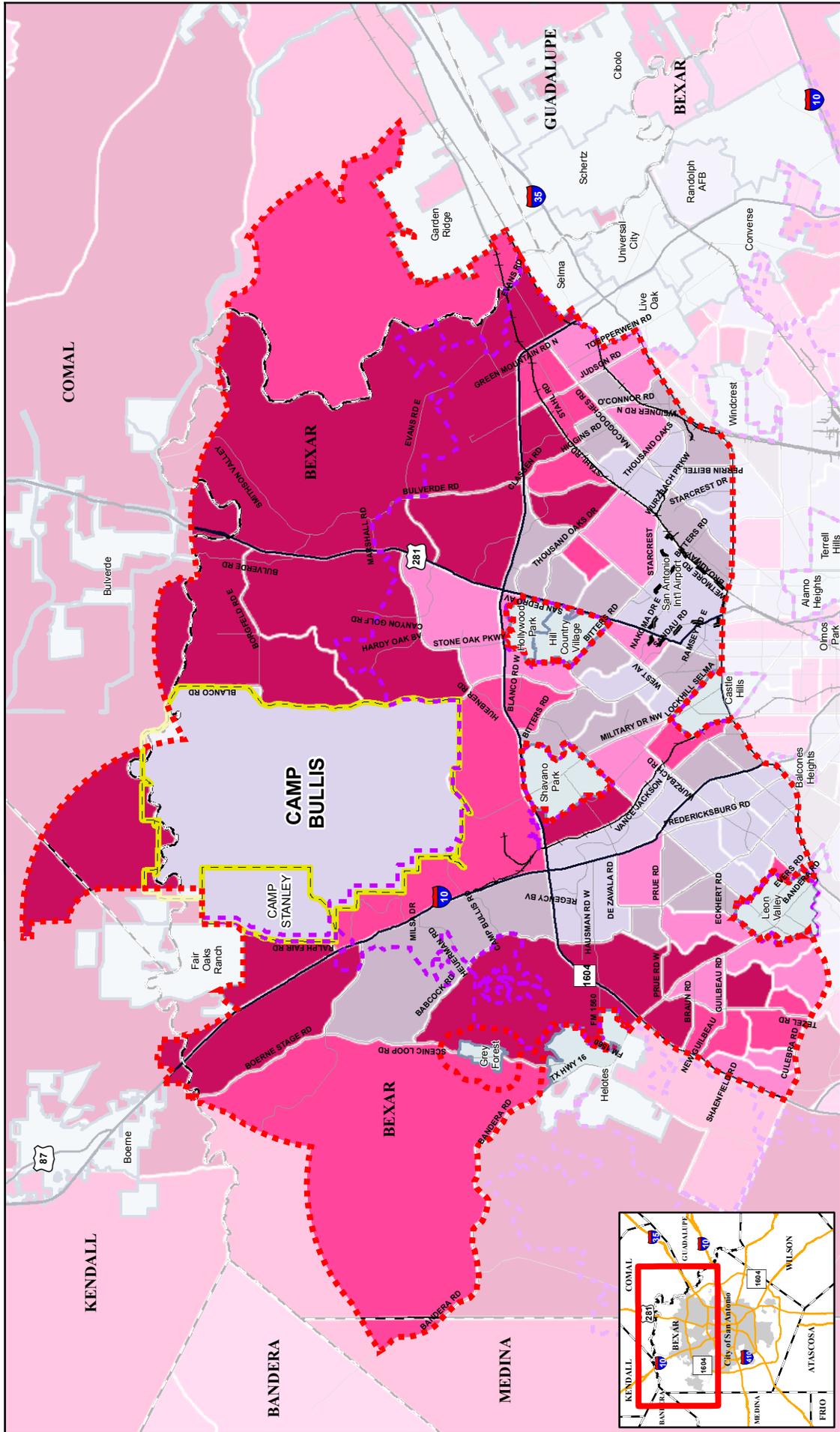
Scale: 0 to 4 Miles

North Arrow

**A-5**

source: Bexar County, Comal County, Kendall County / 2010; TNRIS / 2009





**2009 Percent Owner Occupied Housing Units**

- 80.1% to 100.0%
- 70.1% to 80.0%
- 60.1% to 70.0%

**45.1% to 60.0%**

**0 to 45.0%**

**Zero Population**

**North Sector**

**Planning Area**

**San Antonio**

**Incorporated City**

**Camp Bullis/St Stanley**

**County**

**Airport**

**Highway**

**Major Road**

**Railroad**

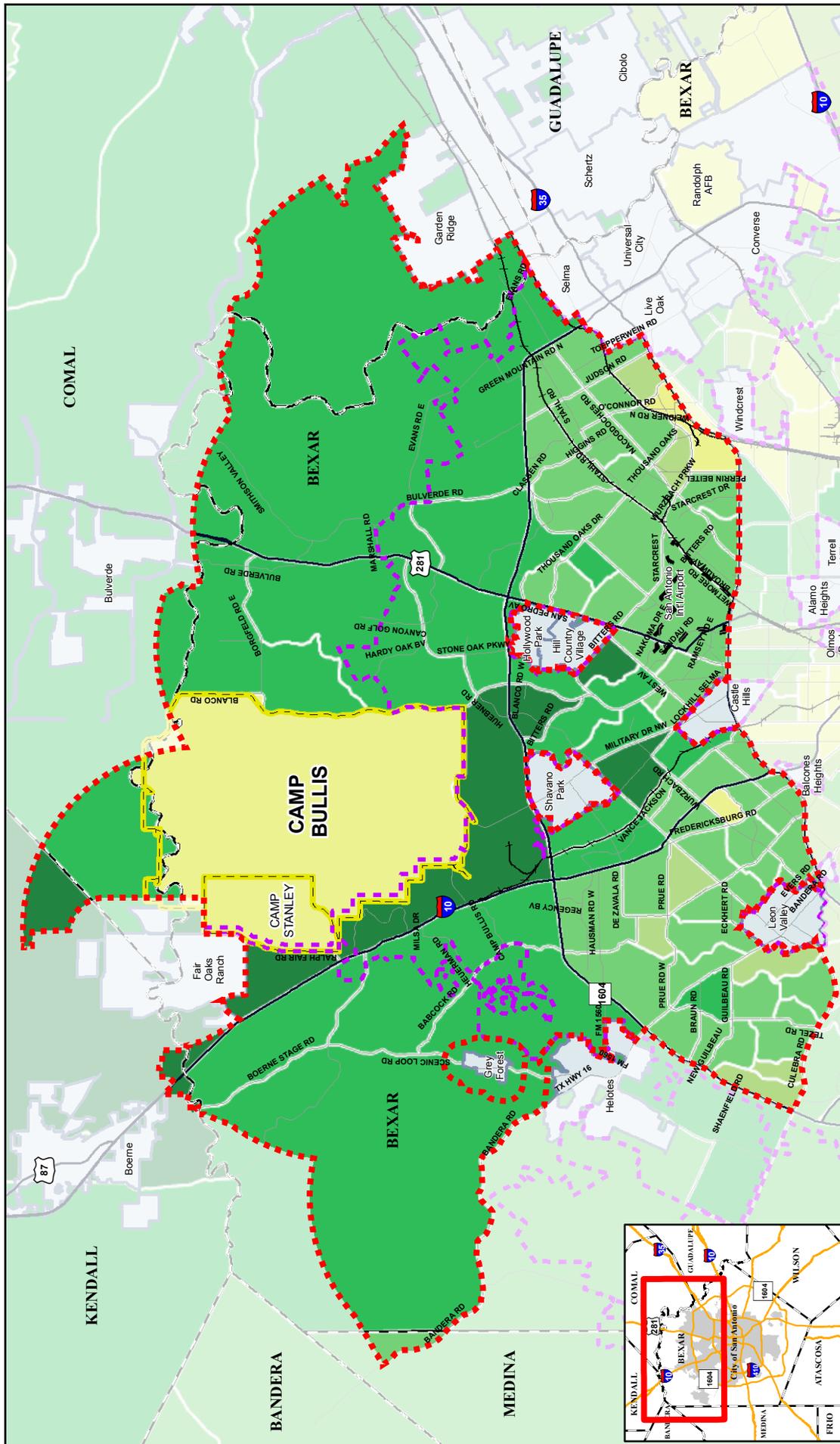
Scale: 0 1 2 4 Miles

Compass Rose

**A-7**

**Housing Ownership**

source: Bexar County, Comal County, Kendall County / 2010; TNRIS / 2009; ESRI / 2009



**2009 Median Home Value**

- Dark Green: More than \$250,000
- Medium Green: \$150,001 to \$250,000
- Light Green: \$100,001 to \$150,000
- Yellow: \$75,001 to \$100,000
- Light Yellow: 0 to \$75,000

**North Sector Planning Area**

- Red Dashed Line: North Sector Planning Area
- Purple Dashed Line: San Antonio
- Blue Dashed Line: Incorporated City
- Yellow Dashed Line: Camp Bullis/Stanley

**Other Features**

- Black Outline: County
- Black Square: Airport
- Black Line: Highway
- Grey Line: Major Road
- Black Line with Cross-Ticks: Railroad

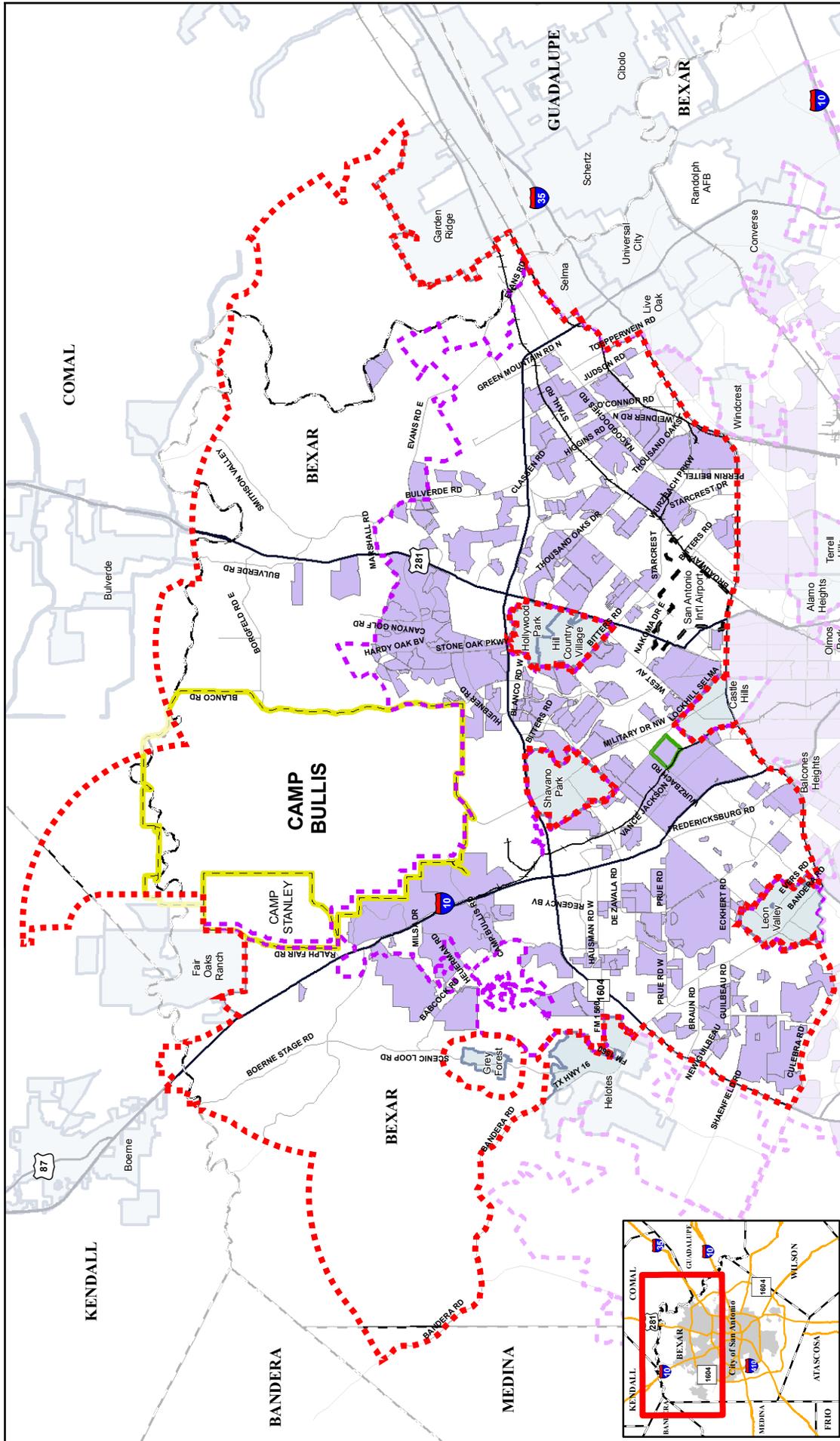
**Scale and Orientation**

0 1 2 4 Miles

**A-8**

**Housing Value**

source: Bexar County, Comal County, Kendall County / 2010; TNRIS / 2009; ESRI / 2009



**Legend**

- County
- North Sector Planning Area
- Neighborhood Conservation District
- San Antonio Incorporated City
- Camp Bullis/Stanley
- Airport
- Highway
- Major Road
- Railroad

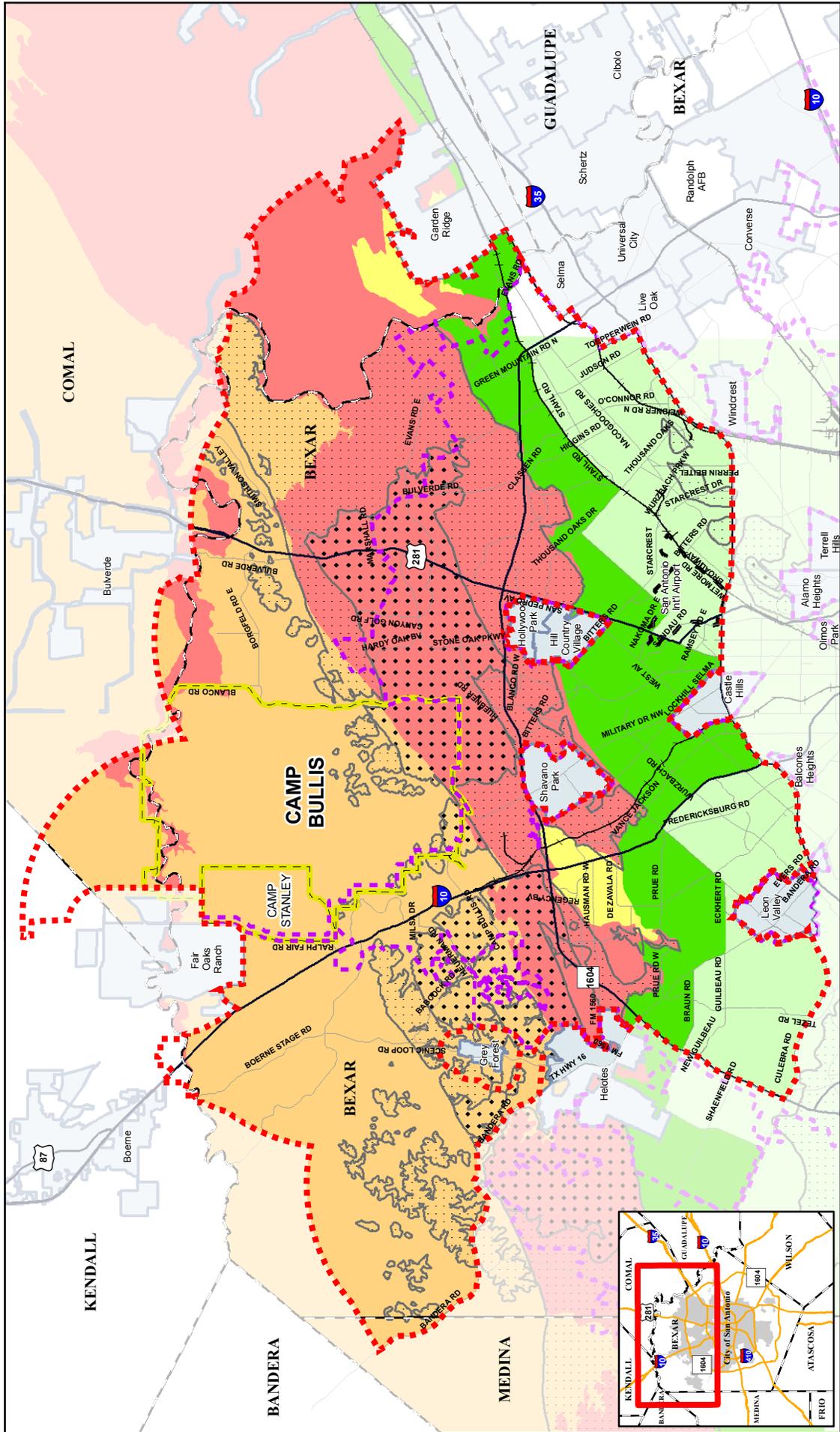
**County A-9**

0 1 2 3 4 Miles

North Sector Neighborhood Organizations

source: Bexar County, Comal County, Kendall County / 2010; TNRIIS / 2009





**Aquifer**

- Edwards Aquifer Recharge Zone
- Edwards Aquifer Contributing Zone
- Edwards Aquifer Contributing Zone within the Transition Zone

**Karst Zone**

- Karst Species - Exist
- Karst Species - High Probability

**North Sector**

- Planning Area
- San Antonio
- Incorporated City
- Camp Bullis/St Stanley

**County**

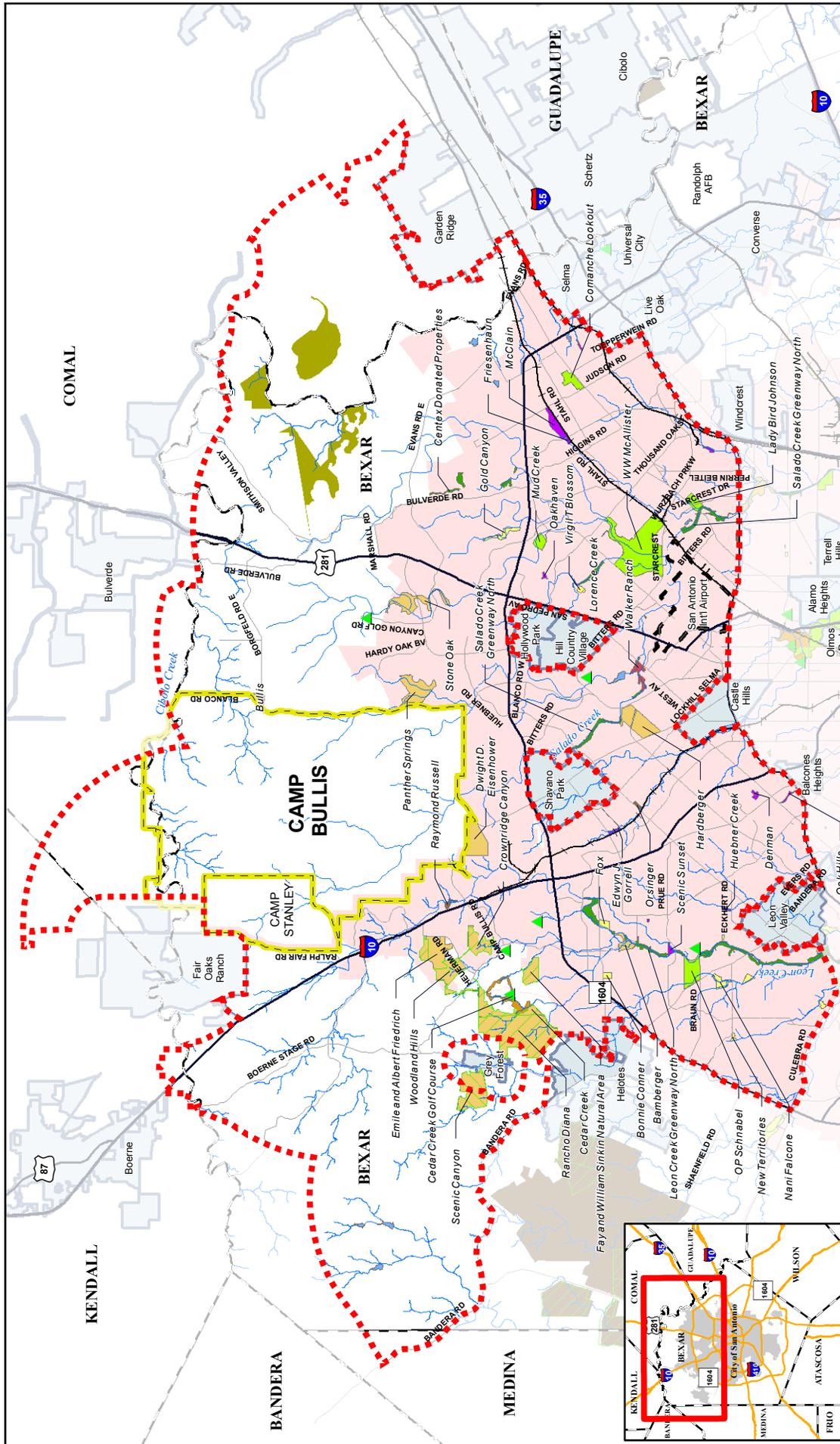
- County
- Airport
- Highway
- Major Road
- Railroad

**A-11**

0 1 2 3 4 Miles

source: Bexar County, Comal County, Kendall County / 2010; TNRS / 2009

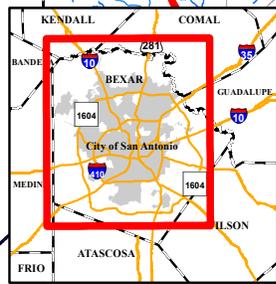
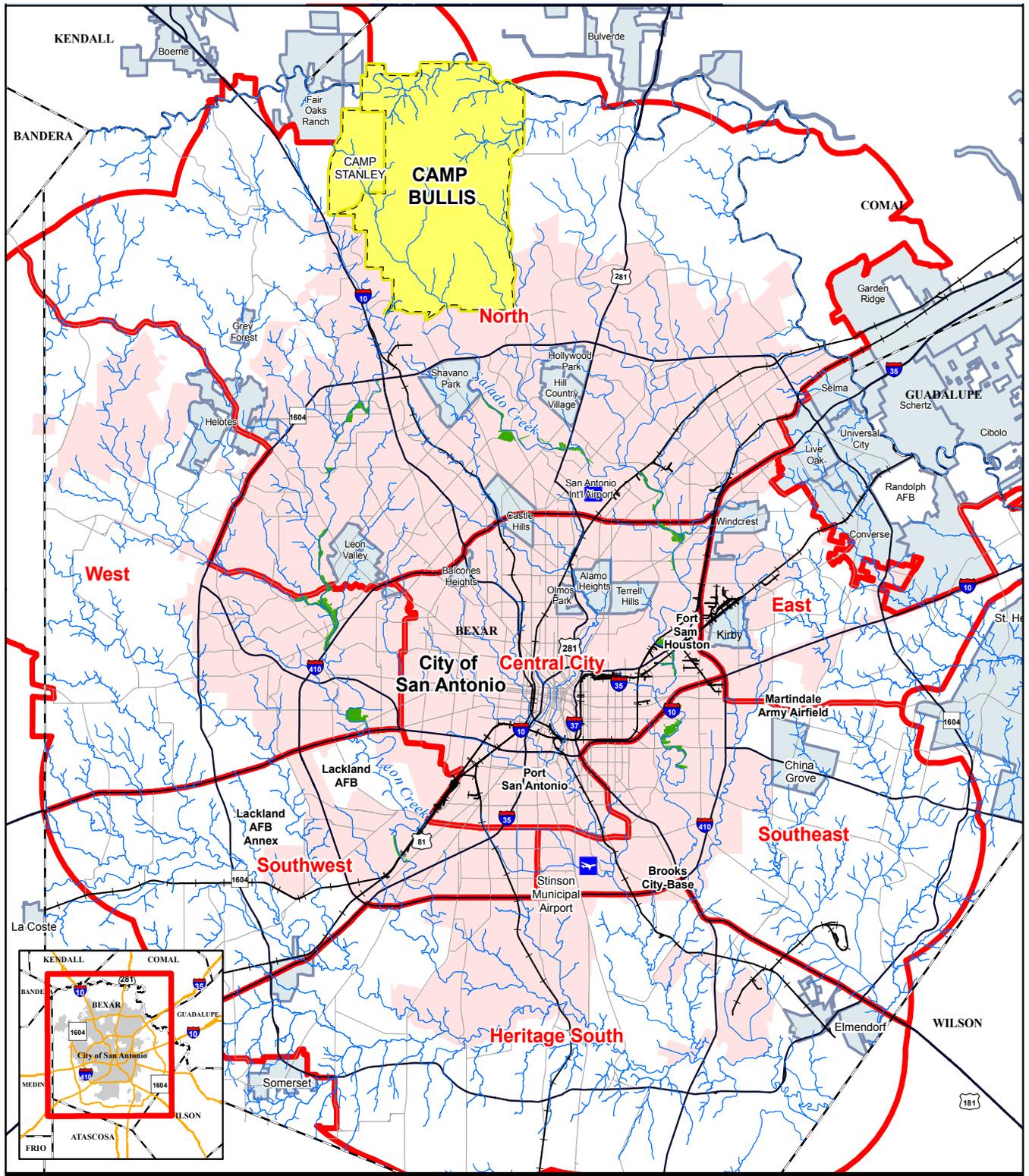
**North Sector Aquifer and Karst Zones**



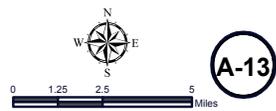
|  |  |  |   |   |
|--|--|--|---|---|
| <p><b>Parks</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">▲</span> Golf Course</li> <li><span style="color: blue;">~</span> Stream</li> <li><span style="color: green;">■</span> Protected Lands</li> <li><span style="color: blue;">■</span> Lake</li> <li><span style="color: green;">▨</span> Proposition 1 Lands</li> <li><span style="color: green;">▨</span> Proposition 3 Lands</li> </ul> | <p><b>Parks</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">■</span> Large Urban</li> <li><span style="color: yellow;">■</span> Community</li> <li><span style="color: purple;">■</span> Neighborhood</li> <li><span style="color: green;">■</span> Greenway</li> </ul> | <p><b>Natural Area</b></p> <ul style="list-style-type: none"> <li><span style="color: brown;">■</span> Historic Resource</li> <li><span style="color: orange;">■</span> Sports Complex</li> <li><span style="color: brown;">■</span> Not Designated</li> </ul> | <p><b>North Sector</b></p> <ul style="list-style-type: none"> <li><span style="color: red; border-top: 2px dashed red;">—</span> Planning Area</li> <li><span style="color: pink;">■</span> San Antonio</li> <li><span style="border: 1px solid blue;">□</span> Incorporated City</li> <li><span style="border: 2px solid yellow;">□</span> Camp Bullis/St Stanley</li> </ul> | <p><b>County</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px solid black;">□</span> County</li> <li><span style="border: 1px solid black; padding: 2px;">✈</span> Airport</li> <li><span style="border-bottom: 2px solid black;">—</span> Highway</li> <li><span style="border-bottom: 1px solid black;">—</span> Major Road</li> <li><span style="border-bottom: 1px dashed black;">—</span> Railroad</li> </ul> |
|--|--|--|---|---|

source: Bexar County, Comal County, Kendall County / 2010; TNRRS / 2009

**North Sector Parks, Natural Environment, and Historic Resources**



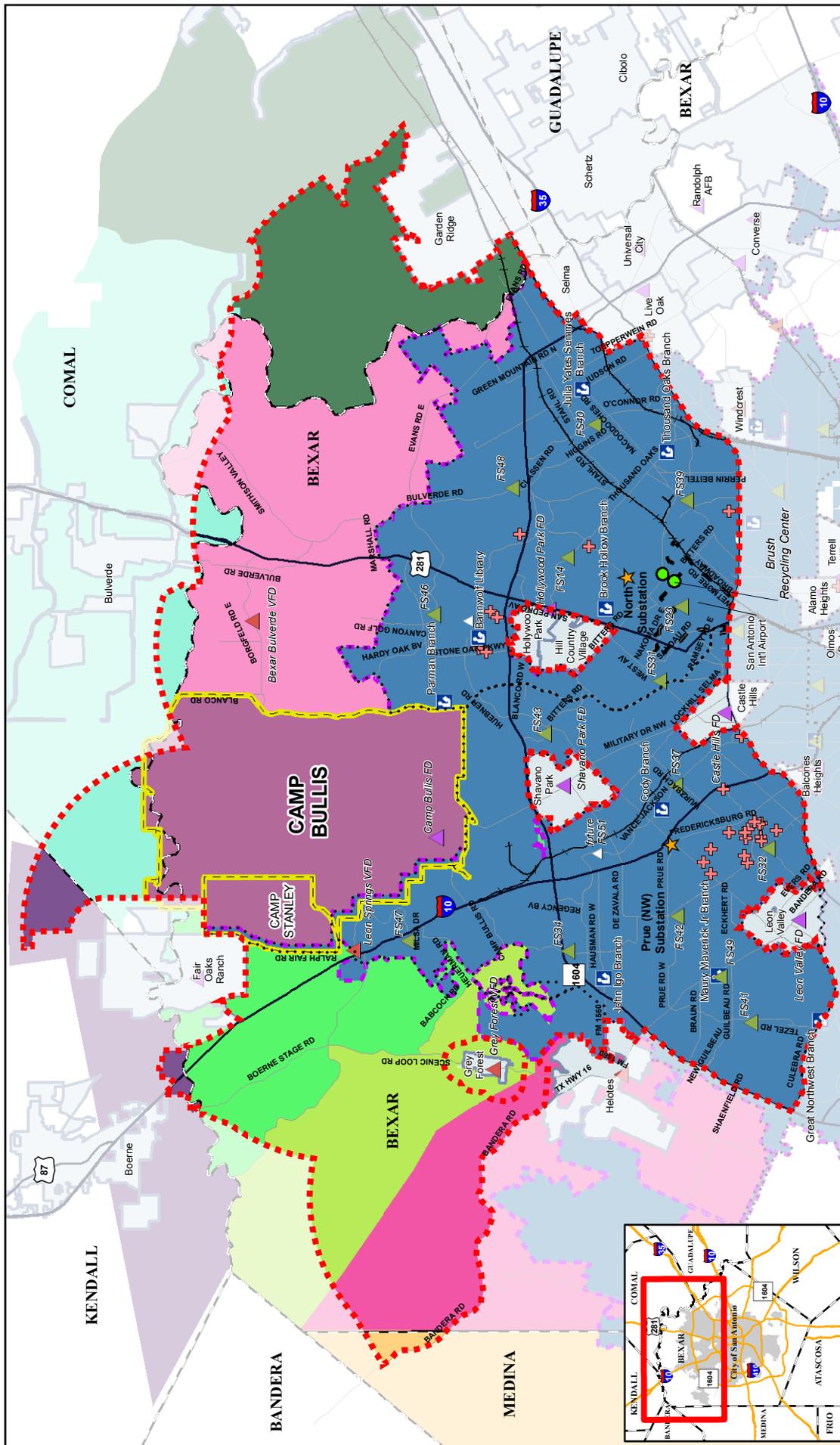
- Stream
- Linear Creekway
- Sector Plan Boundary
- San Antonio
- Incorporated City
- Camp Bullis/Stanley
- County
- Highway
- Major Road
- Railroad
- Airport



**A-13**

**Linear Creekways**

source: Bexar County, Comal County, Kendall County / 2010; TNRIS / 2009



**Community Facility**

- Library
- Hospital
- Solid Waste Transfer Station / Recycling Center
- Police Stations

**Emergency Service District**

- Bexar County, BC3
- Bexar County, BC4
- Bexar County, BC7
- Bexar County, BC8
- Camp Bullis/St Stanley

**Fire Station**

- San Antonio Fire Station
- Other Fire Station
- Volunteer Fire Station
- Future Fire Station

**North Sector**

- Planning Area
- San Antonio
- Incorporated City
- Camp Bullis/St Stanley
- Kendall County
- Medina County
- City of San Antonio

**Community Facility**

- Library
- Hospital
- Solid Waste Transfer Station / Recycling Center
- Police Stations

**Emergency Service District**

- Bexar County, BC3
- Bexar County, BC4
- Bexar County, BC7
- Bexar County, BC8
- Camp Bullis/St Stanley

**Fire Station**

- San Antonio Fire Station
- Other Fire Station
- Volunteer Fire Station
- Future Fire Station

**North Sector**

- Planning Area
- San Antonio
- Incorporated City
- Camp Bullis/St Stanley
- Kendall County
- Medina County
- City of San Antonio

**Community Facility**

- Library
- Hospital
- Solid Waste Transfer Station / Recycling Center
- Police Stations

**Emergency Service District**

- Bexar County, BC3
- Bexar County, BC4
- Bexar County, BC7
- Bexar County, BC8
- Camp Bullis/St Stanley

**Fire Station**

- San Antonio Fire Station
- Other Fire Station
- Volunteer Fire Station
- Future Fire Station

**North Sector**

- Planning Area
- San Antonio
- Incorporated City
- Camp Bullis/St Stanley
- Kendall County
- Medina County
- City of San Antonio

**Community Facility**

- Library
- Hospital
- Solid Waste Transfer Station / Recycling Center
- Police Stations

**Emergency Service District**

- Bexar County, BC3
- Bexar County, BC4
- Bexar County, BC7
- Bexar County, BC8
- Camp Bullis/St Stanley

**Fire Station**

- San Antonio Fire Station
- Other Fire Station
- Volunteer Fire Station
- Future Fire Station

**North Sector**

- Planning Area
- San Antonio
- Incorporated City
- Camp Bullis/St Stanley
- Kendall County
- Medina County
- City of San Antonio

**Community Facility**

- Library
- Hospital
- Solid Waste Transfer Station / Recycling Center
- Police Stations

**Emergency Service District**

- Bexar County, BC3
- Bexar County, BC4
- Bexar County, BC7
- Bexar County, BC8
- Camp Bullis/St Stanley

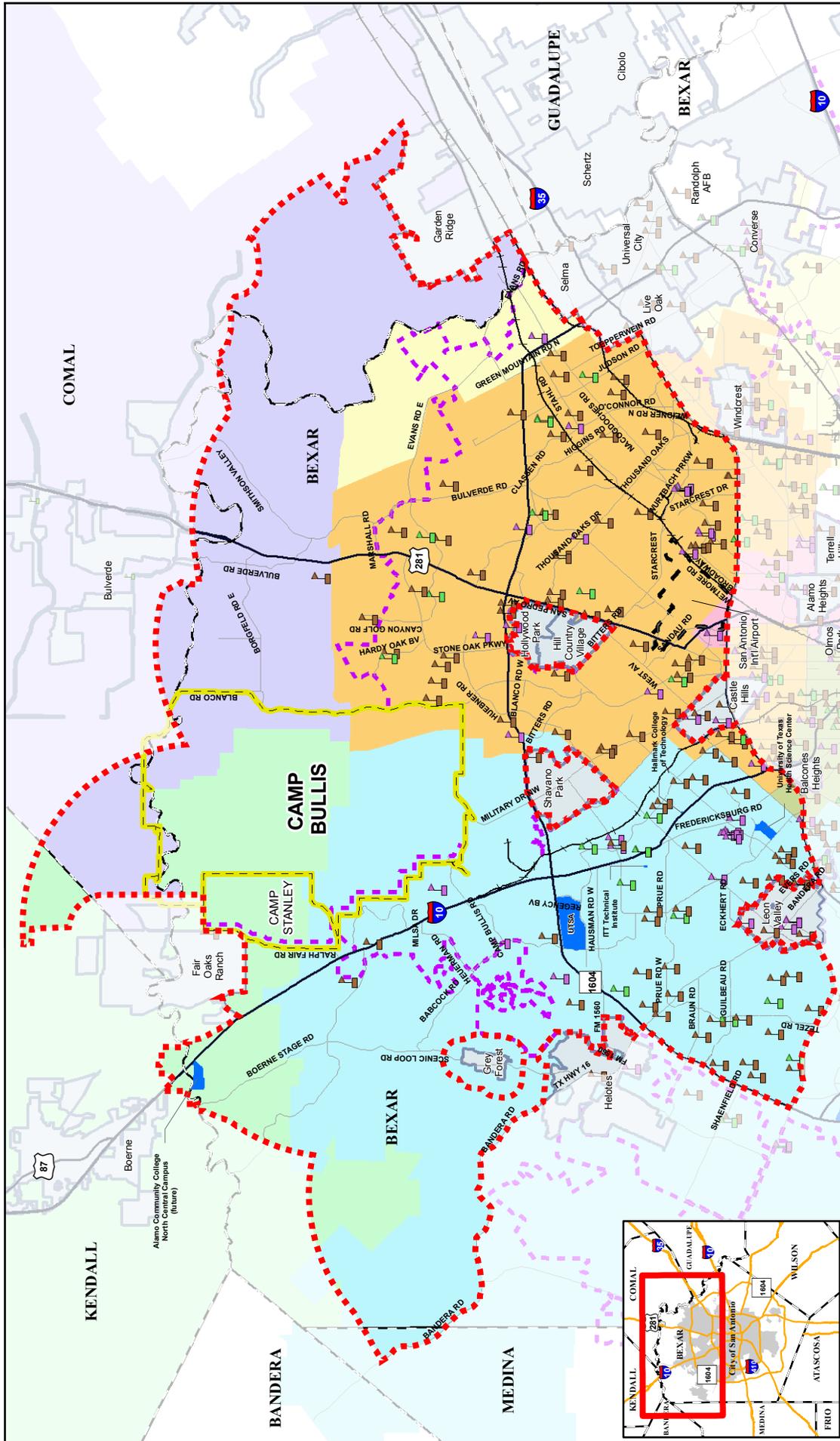
**Fire Station**

- San Antonio Fire Station
- Other Fire Station
- Volunteer Fire Station
- Future Fire Station

**North Sector**

- Planning Area
- San Antonio
- Incorporated City
- Camp Bullis/St Stanley
- Kendall County
- Medina County
- City of San Antonio

source: Bexar County, Comal County, Kendall County / 2010; TNRIS / 2009



**School**

- Elementary
- Middle
- High
- College/University

**School District**

- Alamo Heights ISD
- Boerne ISD
- Comal ISD
- Judson ISD
- North East ISD
- Northside ISD (Bexar)
- San Antonio ISD

**North Sector**

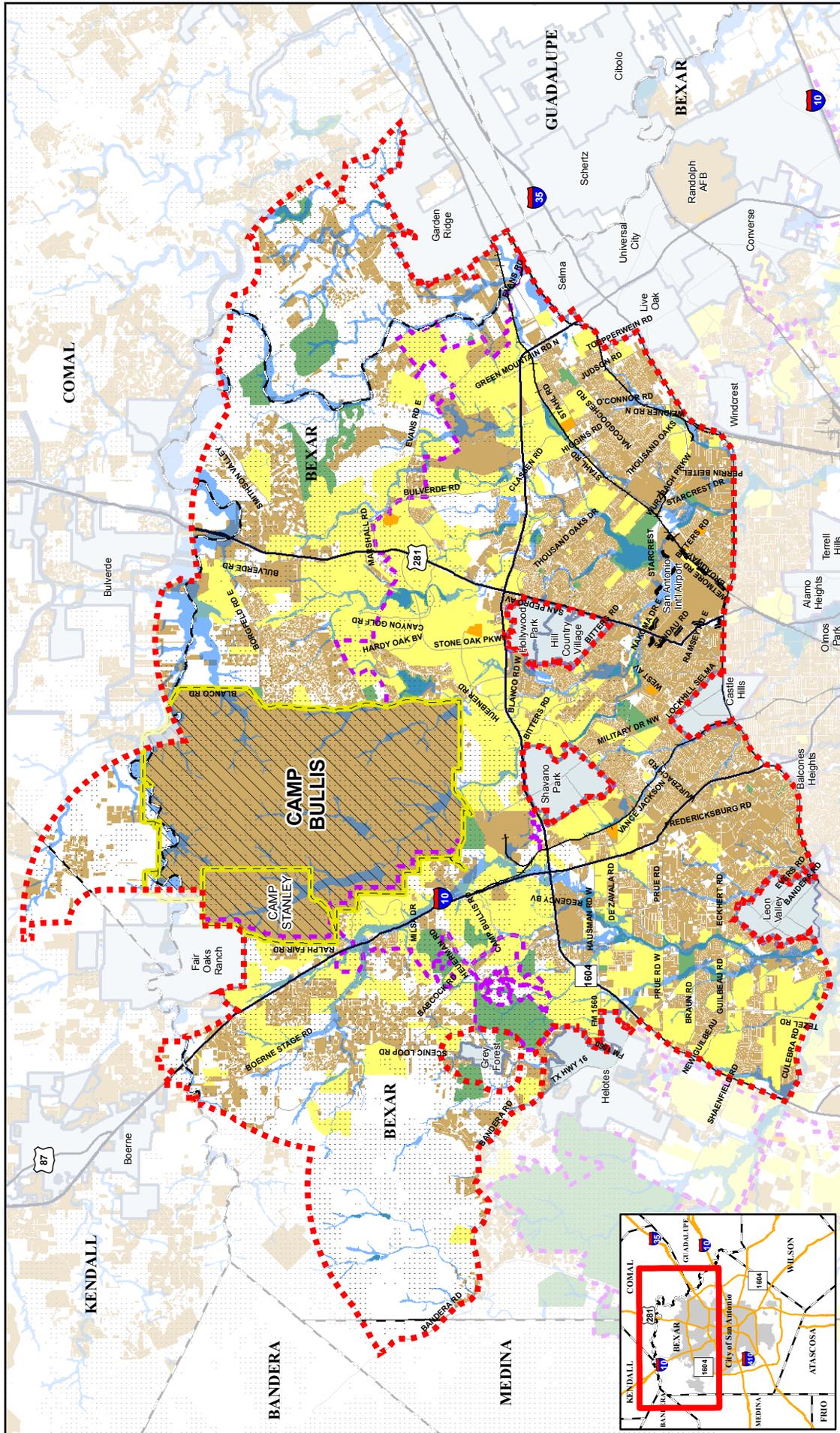
- Planning Area
- San Antonio
- Incorporated City
- Camp Bullis/Stantley

**County**

- Airport
- Highway
- Major Road
- Railroad

**A-15**

source: Bexar County, Comal County, Kendall County / 2010; TNRS / 2009



**A-16**

North Sector Land Use Suitability

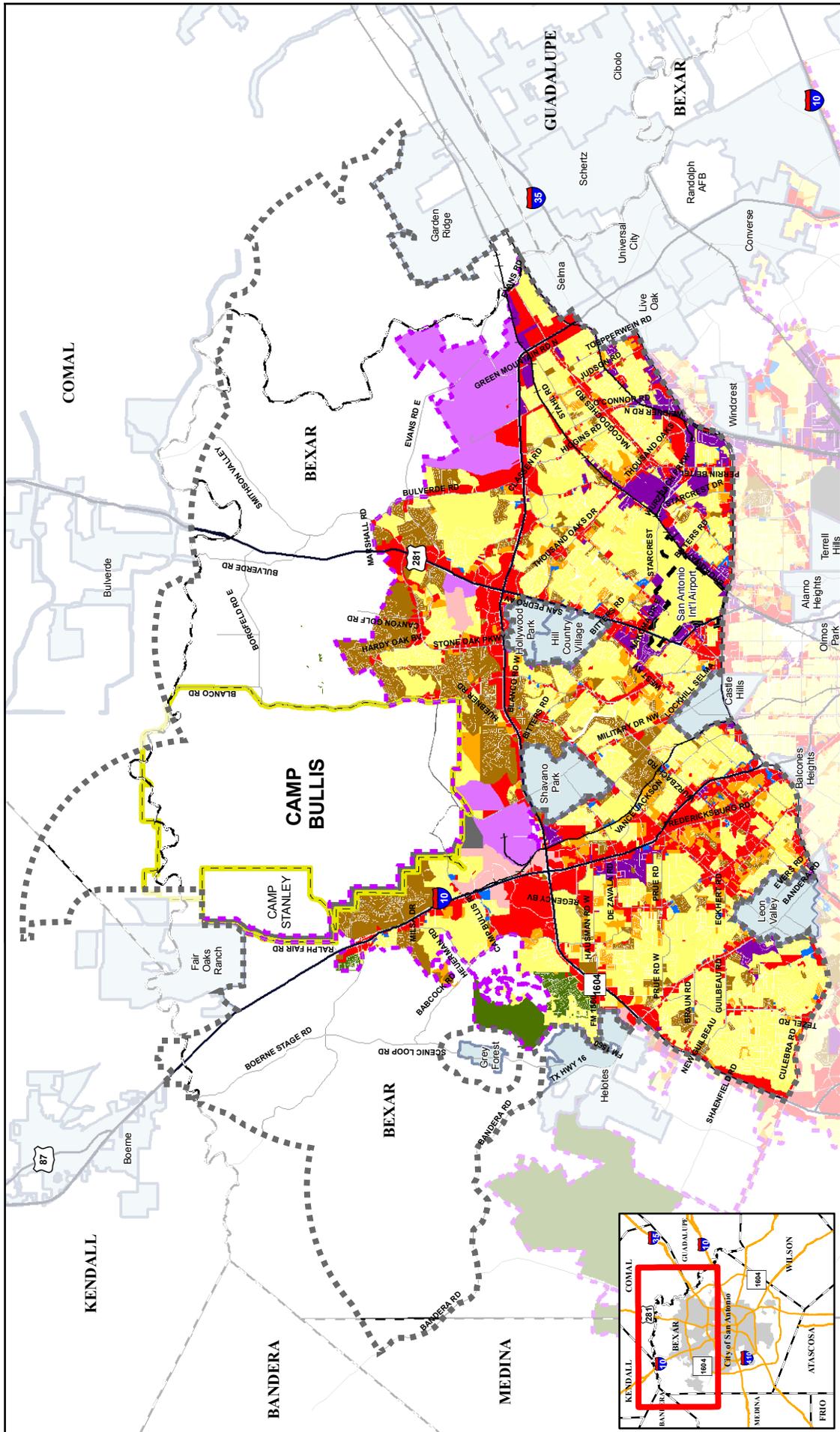
Planned/Approved Development Exclusion  
 Land Use Exclusion  
 Natural Exclusion  
 Potential Golden-Cheeked Warbler Habitat

Military Exclusion  
 High School  
 Floodplain

North Sector  
 Planning Area  
 San Antonio  
 Incorporated City  
 Camp Bullis/St Stanley

County  
 Airport  
 Highway  
 Major Road  
 Railroad

source: Bexar County, Comal County, Kendall County / 2010; TNRS / 2009



0 1 2 3 4  
Miles

**Existing Zoning**

|   |   |  |
|---|---|--|
| <p><b>Zoning</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> Development Reserve</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FFFFE0; border: 1px solid black; margin-right: 5px;"></span> Single Family Residential</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FFD700; border: 1px solid black; margin-right: 5px;"></span> Multifamily Residential</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FFA500; border: 1px solid black; margin-right: 5px;"></span> Planned Unit Development</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FFB6C1; border: 1px solid black; margin-right: 5px;"></span> Mixed Use</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FF0000; border: 1px solid black; margin-right: 5px;"></span> Commercial</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #0000FF; border: 1px solid black; margin-right: 5px;"></span> Office &amp; Business Park</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #800080; border: 1px solid black; margin-right: 5px;"></span> Industrial</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #808080; border: 1px solid black; margin-right: 5px;"></span> Military Reservation</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FFC0CB; border: 1px solid black; margin-right: 5px;"></span> Quarry</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px dashed black; margin-right: 5px;"></span> North Sector</li> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px dotted black; margin-right: 5px;"></span> Planning Area</li> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; margin-right: 5px;"></span> San Antonio</li> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; margin-right: 5px;"></span> Incorporated City</li> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; margin-right: 5px;"></span> Camp Bullis/St Stanley</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; margin-right: 5px;"></span> County</li> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; margin-right: 5px;"></span> Airport</li> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; margin-right: 5px;"></span> Highway</li> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; margin-right: 5px;"></span> Major Road</li> <li><span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; margin-right: 5px;"></span> Railroad</li> </ul> |
|---|---|--|

source: Bexar County, Comal County, Kendall County / 2010; TNRIS / 2009



# Camp Bullis Bird/Wildlife Aircraft Strike Hazard (BASH) Guidelines

The Camp Bullis Bird / Wildlife Aircraft Strike Hazard (BASH) Guidelines provide information and actions to reduce the incidences of wildlife strikes on fixed and rotary-wing aircraft. This document is presented in the six identified sections below:

- A. Overview
- B. Aircraft Operations
- C. Land Uses
- D. Wildlife and Birds On / Around Camp Bullis
- E. Airfield Hazard Control Methods
- F. BASH Plan Actions

## Section A - Overview

### Bird / Wildlife Aircraft Strikes

According to Bird Strike Committee USA, bird and other wildlife strikes to aircraft annually cause well over \$600 million in damage to United States (U.S.) civil and military aviation. Furthermore, these strikes put the lives of aircraft crew members, their passengers, and people on the ground at risk. Over 219 people have been killed worldwide as a result of wildlife strikes since 1988. Additional facts related to bird and animal strikes:

- *The average number of bird strikes at the San Antonio International Airport ranges from 25 to 35 each year; however, pilots have begun to report more bird strikes. Consequently, that number increased to 47 strikes in 2008.*
- *The airport had an average of 260 daily domestic and international departures and arrivals in 2008 and served 8,358,515 passengers.*
- *Over 5,000 bird strikes were reported by the U.S. Air Force in 2007.*
- *Over 780 civil aircraft collisions with deer and 280 collisions with coyotes were reported in the USA, 1990-2008.*
- *About 90 percent of all bird strikes in the U.S. are by species federally protected under the Migratory Bird Treaty Act.*
- *From 1990-2009, 381 different species of birds were involved in strikes with civil aircraft in USA that were reported to the Federal Aviation Administration (FAA).*

Based on information provided by Army and Air Force aviation operations personnel involved with aviation operations at Camp Bullis, no major incidents have occurred involving bird or wildlife striking aircraft. However, as detailed later in this document, a large number of bird species are located at Camp Bullis and the surrounding areas. Between March 2006 and June 2008, there were a reported 40 bird strikes at the San Antonio International Airport,

which is located in the City of San Antonio approximately nine miles southeast of Camp Bullis. There were also three reported mammal strikes in that period.

The primary concern for Camp Bullis is bird activity, more so than ground-based wildlife, interfering with air operations. Although strikes have not impacted aircraft operations at Camp Bullis to this point, it is important to remain vigilant and to ensure development in local communities does not change the environment so that bird and wildlife strikes become an impact to the Camp Bullis mission.

*Source: [www.birdstrike.org](http://www.birdstrike.org); "Bird Strikes Up At SA Int'l – Safety Advocate Says Not Enough Being Done to Mitigate Wildlife Hazards," April Molina, KSAT 12 News, November 24, 2009; Richard Johnson, Public Information Officer, San Antonio International Airport, January 28, 2010; [www.sanantonio.gov/AVIATION/info\\_fastfacts.asp](http://www.sanantonio.gov/AVIATION/info_fastfacts.asp)*

### **Camp Bullis Area**

Camp Bullis is comprised of approximately 28,000 acres and is located about 21 miles northwest of Fort Sam Houston (FSH) (see Figure 1-1). It is generally bound by Interstate-10 (I-10) to the west, Farm-to-Market Road 2696/Blanco Road to the east, Loop 1604 to the south, and West Ammann Road to the north. The training area is situated on the edge of the Edwards Plateau Land Resource Area in a hilly region known as the Texas Hill Country, which is locally called the Balcones Canyonlands. Topography of Camp Bullis consists of numerous hills and valleys that are drained by intermittent streams which flow east and south. The installation is used for firing ranges, maneuver areas for Army, Air Force, and Marine combat units, and for field training of the various medical units from Fort Sam Houston. To support its training mission, the training area supports small arms and large caliber firing ranges, ground and air operations night training (through the use of night vision equipment), air combat drop zones, and fixed-wing (airplane) and rotary-wing (helicopter) training. Air operations include the use of multiple landing zones (LZ) for helicopters, low-level helicopter flight corridors, and air combat drop zones (three for cargo and one for personnel).

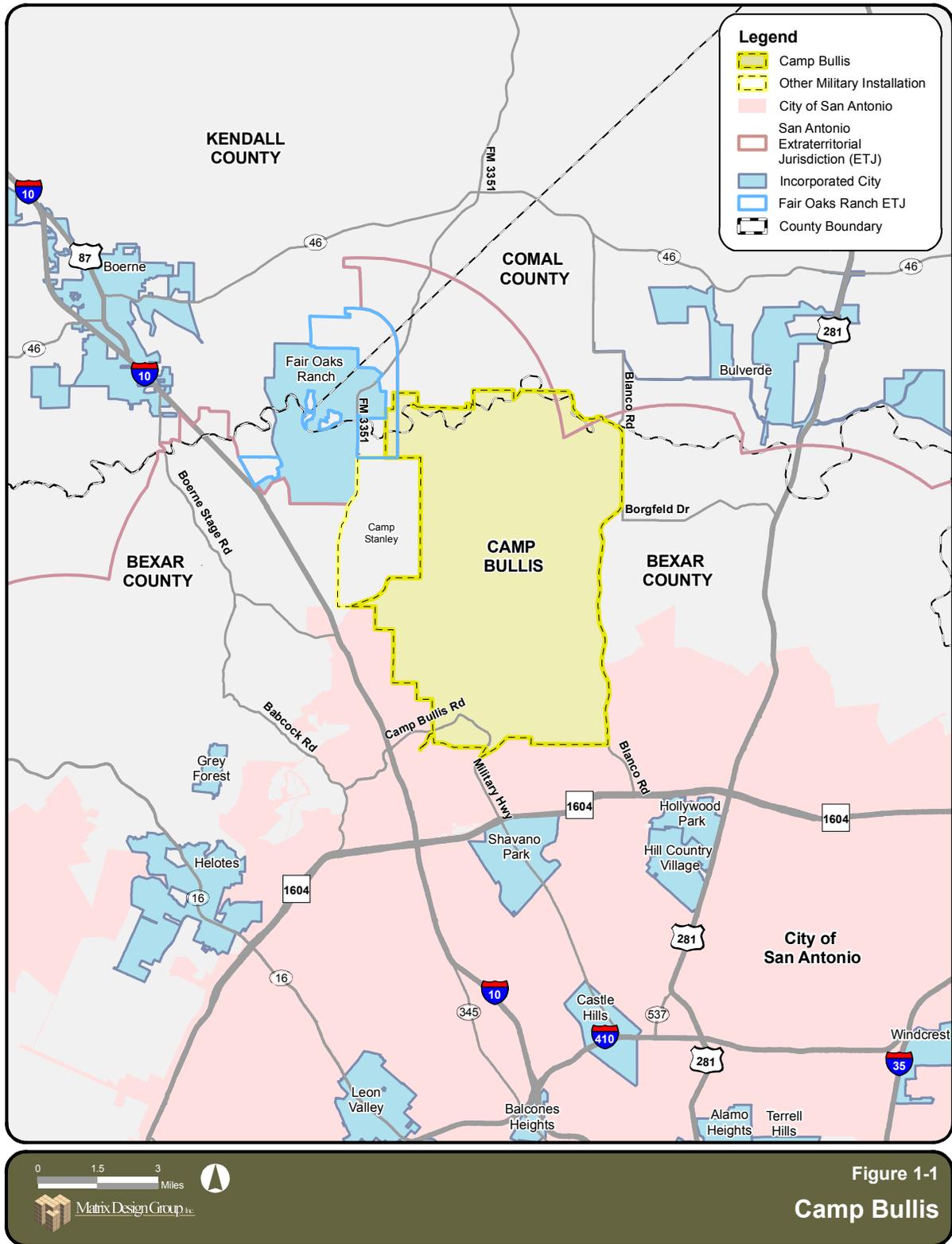
Fort Sam Houston comprises approximately 3,000 acres in a highly urbanized part of San Antonio, severely limiting the ability to conduct on-site field training, especially during the night. Camp Bullis provides nearly 22,000 acres of invaluable field training and maneuver areas for Fort Sam Houston and multi-service medical training.

Immediately adjacent to the Camp Bullis west boundary is Camp Stanley, a sub-installation of the McAlester Army Ammunition Plant. Camp Stanley has restricted access due to explosive ordnance storage and testing missions. Camp Stanley is independent of Camp Bullis and Fort Sam Houston.

*Source: Integrated Natural Resources Management Plan for Fort Sam Houston & Camp Bullis Military Reservation San Antonio, Texas, October 1, 2007; Camp Bullis Joint Land Use Study, June 2009*

### **Camp Bullis History**

In 1890, the Army Post at San Antonio was renamed Fort Sam Houston. At the time, it was one of the largest garrison sites for the U.S. Army, but lacked an adequate firing range and maneuver area. The Leon Springs Military Reservation was established on 17,273 acres, to the north of San Antonio. In 1917, Camp Bullis was established and added 16,000 additional acres



to the Leon Springs Military Reservation. The original purpose of Camp Bullis was to train soldiers when the threat of war in Europe was growing. Although no units were stationed at Camp Bullis during World War I, it provided small arms and rifle firing ranges, as well as maneuver areas for troops stationed at Fort Sam Houston, which did not have the capacity for large-area training. In total, the government owned or leased over 33,000 acres at the time. Following World War I, Camp Stanley was used primarily for storage and testing of ordnance materials, while Camp Bullis was used as a site for demobilization.

As the years passed, Camp Stanley and Camp Bullis became permanent fixtures for the Army and the installations were equipped with cantonment areas and new construction and development projects. The relocation of the old arsenal from downtown San Antonio to Camp Stanley in 1931 essentially stopped the use of the camp for soldier training. Camp Bullis continued to be improved and used by various units and groups as a training site through World War II.

During and following World War II, many changing medical needs in the Army brought several new activities and missions to Fort Sam Houston and Camp Bullis. New medical training missions were brought to Camp Bullis and the Brooke Army Medical Center was established at Fort Sam Houston. Training included basic training for Army nurses, combat obstacle courses for stretcher field training and combat medicine, as well as small arms. Camp Bullis was used for medical, combat, and security training throughout the Korean and Vietnam Wars. The Air Force Security Police Training Site, known as Victor Base, was built in 1977, and the Air Force was the largest single user of Camp Bullis until 1987. Since then, the Army has become the primary user of Camp Bullis as a military training site.

*Source: Camp Bullis Joint Land Use Study, June 2009*

## **Units**

Fort Sam Houston, Lackland Air Force Base, and Randolph Air Force Base comprise Joint Base San Antonio, the largest installation in the military and one of 12 joint bases mandated by the 2005 Base Realignment and Closure (BRAC). As the primary training site for Fort Sam Houston, Camp Bullis is under the control of the Commanding General of Fort Sam Houston, U.S. Army Medical Department Center & School (AMEDD C&S), which provides overall leadership, management, and oversight for Camp Bullis activities and the installation. As a joint base, installation management for both Fort Sam Houston and Camp Bullis is provided by the Air Force's Air Education and Training Command (AETC), specifically the 502d Mission Support Group based at Fort Sam Houston. This group is one of three mission support groups under the 502d Air Base Wing responsible for Joint Base San Antonio.

Although the operation of Camp Bullis is under the command of the Fort Sam Houston Garrison Commander located 21 miles to the southeast, the relationship strives to be seamless, making the physical separation between Fort Sam Houston and Camp Bullis transparent. The personnel assigned to the various functions of the Camp Bullis staff are employees of their parent directorates based at Fort Sam Houston, but their place of duty is Camp Bullis with the Camp Bullis Garrison Manager maintaining operational control.

*Source: Camp Bullis Joint Land Use Study, June 2009; [www.af.mil](http://www.af.mil)*

## Mission

The official mission statement of Camp Bullis is: “To provide an unparalleled training infrastructure offering quality range, training facilities, and maneuver areas that facilitate tough, realistic training for military and government agencies.” Camp Bullis currently supports training for several branches of the military, including the U.S. Army, Air Force, and the National Guard, as well as for other federal and local agencies, such as the U.S. Secret Service, U.S. Marshals Service, and the San Antonio Police Department. The installation supported 705,309 person-days of training in Fiscal Year (FY) 2005, with a daily average of 1,932. In FY08, 150,852 personnel were trained at Camp Bullis. The anticipated growth of personnel (in response to BRAC, Army Modular Force [AMF], and other activities) is expected to change these training numbers to 1,000,000 person-days annually and a 2,740 daily average. This is also expected to result in an increase in the number of air operations occurring at Camp Bullis.

*Source: Camp Bullis Joint Land Use Study, June 2009*

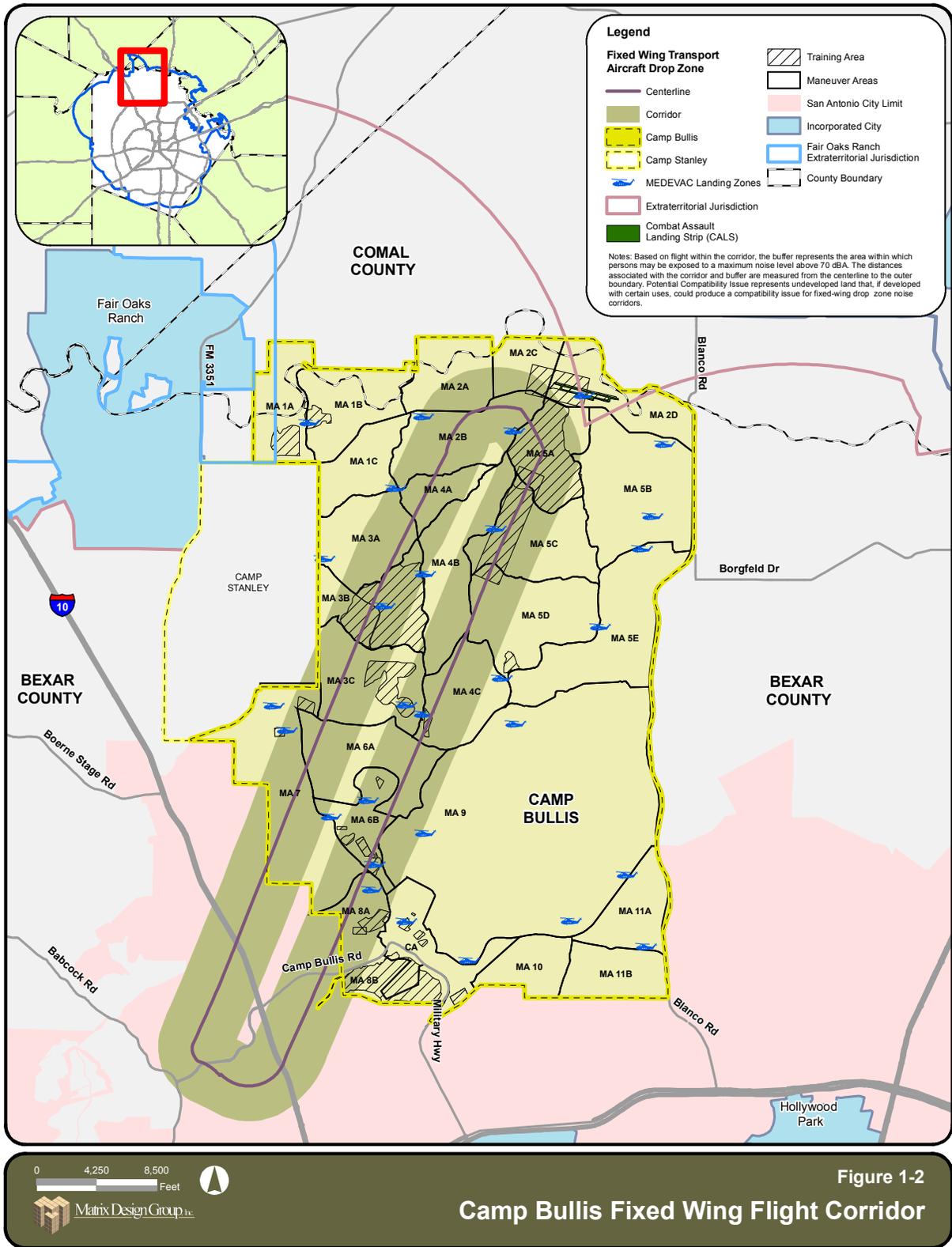
## Section B - Aircraft Operations

### Fixed-Wing: Combat Assault Landing Strip

Camp Bullis currently has one airfield, the Combat Assault Landing strip (CALs), which measures 3,500 feet long and 100 feet wide. The CALs has turnaround areas, a parallel taxiway, and all required safety clearances. Constructed in 1982 of compacted earth, it is located in the far northeastern portion of Camp Bullis in close proximity to the northern and eastern fence lines of the installation (see Figure 1-2). The CALs is used primarily by Air Force C-130 Hercules aircraft, but is also capable of supporting the C-17 Globemaster. The airfield supports Joint Training Exercises (JTX) conducted by the Army and Air Force by accommodating the take-off and landing of fixed-wing cargo aircraft. This airstrip allows the Army and Air Force to meet their training requirements to practice combat assault operations, loading and deploying troops, and tactical landings on an unimproved airstrip, providing realism to military preparedness training. The Camp Bullis CALs is the only certified combat assault landing strip in the state of Texas. In 2008, there were a total of 20 flight operations using the Camp Bullis CALs. This number is limited due to the extensive coordination needed for crash fire rescue support. Because Fort Sam Houston/Camp Bullis does not currently maintain the crash fire rescue equipment required to support C-130 landings at the Camp Bullis CALs, the only crash fire rescue equipment/crew that will provide support is the Air Force crew at Randolph Air Force Base (AFB). The number of CALs operations could reportedly double if the Fort Sam Houston Fire Department obtains the needed equipment.

As shown in Figure 1-2, the CALs is oriented northwest to southeast. Flight patterns are designed to work in coordination with the San Antonio International Airport traffic pattern.

The 400-acre Airborne Operations Drop Zone (DZ Hall) is located in the north-central portion of the camp, and is 2,700 yards long. Although there have been nighttime drops into this area, the majority of the drops are during the daytime. DZ Hall is approved for both personnel and equipment drops. DZ Buck is in maneuver area 2C, and DZ Turkey is located in maneuver area 1B. These are approved for equipment drops only. DZ Cougar is in maneuver area 1A and



is approved for equipment drops only. This DZ is limited to rotary-wing aircraft performing parachute drops.

*Source: Integrated Natural Resources Management Plan for Fort Sam Houston & Camp Bullis Military Reservation San Antonio, Texas, October 1, 2007; Camp Bullis Joint Land Use Study, June 2009*

### **Rotary-Wing**

The primary rotary-wing aircraft used at Camp Bullis for flight training and air-drop operations is the UH-60 Blackhawk helicopter. Other helicopters occasionally used include the UH-1 Iroquois, OH-58 Kiowa, AH-1 Cobra, and the AH-64 Apache. Helicopter flights operating at Camp Bullis originate primarily from Martindale Army Airfield (AAF) located southeast of Fort Sam Houston. Martindale AAF Flight Operations indicate that there are approximately 5 to 10 helicopter training flights at Camp Bullis each week. There are five designated ingress and egress points for helicopters – the northwest corner near the City of Fair Oaks Ranch (County Line Road – West), the northeast corner along Blanco Road (County Line Road – East), the south-central boundary southeast of the cantonment area (Military Highway), the southwestern corner just west of the cantonment area (Bullis Road), and the southeastern corner vicinity of the installation boundary and Blanco Road. Within the Camp Bullis boundaries, there are 29 medical evacuation LZs, which are located at key locations across the training area (see Figure 1-3). Helicopter missions occur in both daytime and nighttime and include aerial reconnaissance, medical evacuation (medevac) by helicopter air ambulance, point-to-point flights, combat air drops of paratroopers, and nap of the earth (NOE) flights where helicopters practice flying at high-speed and at tree-top level, using valleys and hills to hide from visual observation, radar, and hostile fire. The NOE flight corridor extends from the cantonment area north along the installation’s west boundary, along the north boundary, and south along the east boundary to the northern extent of the impact area/no fly zone. According to Martindale AAF Flight Operations, the Cibolo Creek Bed on Camp Bullis’ north boundary is the primary section of this corridor.

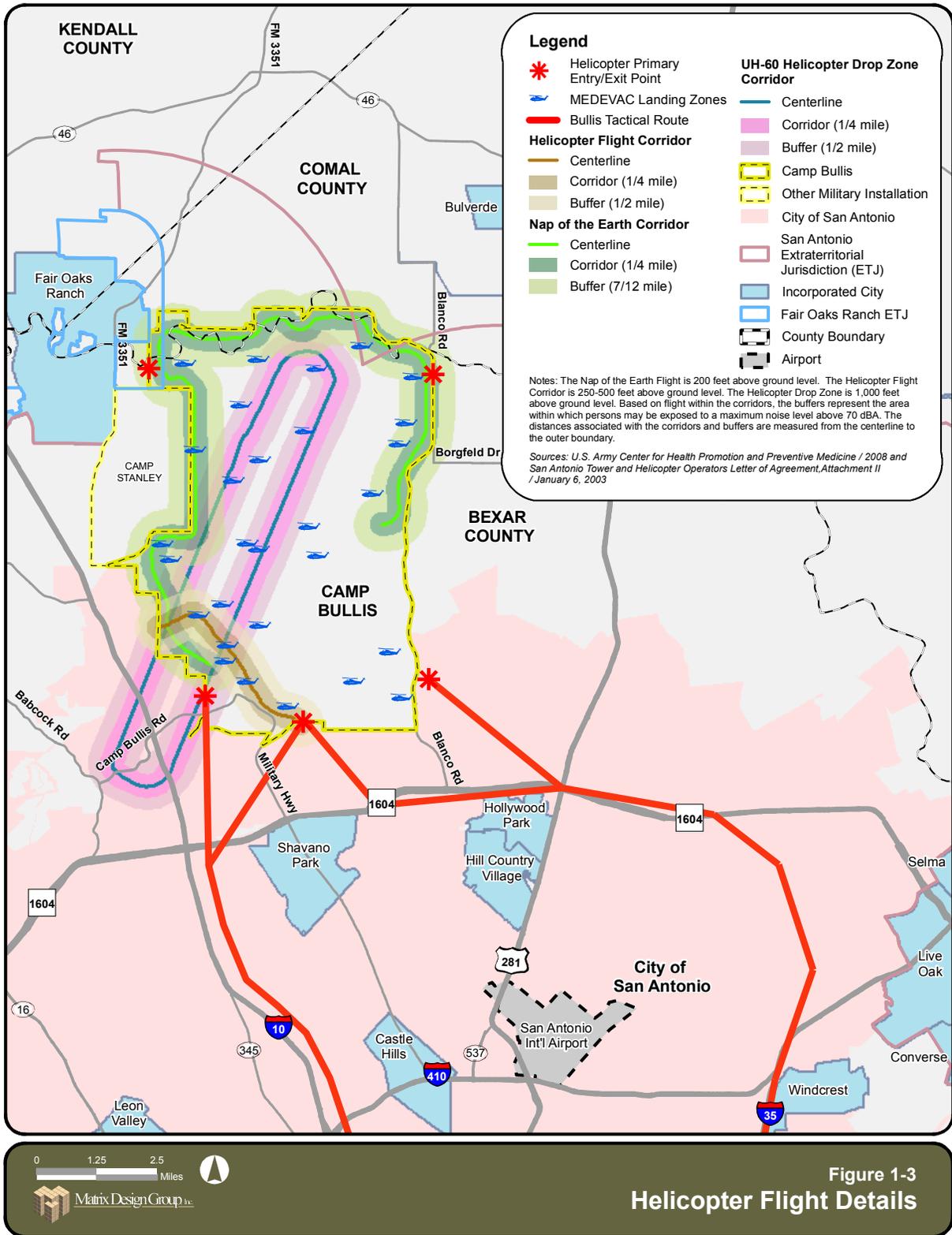
*Source: Integrated Natural Resources Management Plan for Fort Sam Houston & Camp Bullis Military Reservation San Antonio, Texas, October 1, 2007; Camp Bullis Joint Land Use Study, June 2009; CPT Jeremy Eubanks, Martindale AAF, April 20, 2010*

## **Section C - Land Uses**

### **In the Vicinity of Camp Bullis**

The general land use surrounding Camp Bullis used to be primarily rural, but it has become predominantly urbanized through residential development and the expansion of San Antonio’s suburbs. Limited industrial use is present along the southern edge, but the overwhelming use is residential. Higher density residential use comprises the west and east sides of the installation. The northern boundary is the only portion that remains relatively undeveloped, with a combination of open agricultural range land and only one or two small planned subdivisions.

Camp Bullis was originally established in response to a need for training land away from a



growing San Antonio. Currently, it is located in one of the highest residential growth corridors in the San Antonio metropolitan statistical area. Much of the area surrounding Camp Bullis has seen housing growth between 1980 and 1990 of up to 100 percent. This area has substantial capacity for more development, and this trend is anticipated to continue. The smaller communities located in the vicinity of Camp Bullis are rural in nature but are also becoming more urbanized. Although residential development is the primary development in the area, commercial development is likely to follow.

Two of the larger subdivision developments in the area, Roger's Ranch and Greystone, are located to the south of Camp Bullis. The Dominion subdivision abuts the Camp Bullis southwestern boundary. On the southwest corner of the installation is Forest Crest, and Stone Oak is the large housing development on the east side of Camp Bullis.

Directly along the southwest boundary of Camp Bullis is Eisenhower Park, a 320-acre City Natural Resource Park owned and managed by the City of San Antonio providing hiking, primitive camping, picnicking and nature study. To the south and east of Camp Bullis are several large quarries, a cemetery, and small areas of commercial development along the major roadways.

### **Relationship to BASH**

A number of variables factor into determining whether a specific land use will result in BASH issues. Therefore, the location in relation to air operations and the unique development aspects of each land use must be assessed on a case-by-case basis. It is important to note that a BASH issue may be a natural or a man-made bird attractant and may be directly related to a component of the primary land/property use (i.e., stormwater retention ponds in a residential development) or to amenities associated with a land use (i.e., water hazards on a golf course). There are some land uses that have a higher probability than others to attract birds. These uses include, but are not limited to agriculture, conservation, open space, public/semi public, rural residential, and vacant/undeveloped.

Development near the CALS, the CALS flight patterns, established LZs near the Camp Bullis boundary and along the NOE rotary-wing flight corridor can impact aircraft operations. Wildlife habitat and bird attractants may be associated with construction projects or jobsites. Construction areas tend to provide gravel and sand for birds to ingest to aid in digestion of food. Construction equipment staging areas oftentimes will not be mowed or trimmed, resulting in growth of high grasses and broadleaf plants providing excellent cover for birds. Although construction sites are usually temporary, they can be very attractive to wildlife, especially during times when construction activities are not occurring, and can consequently impact aviation activities.

Bird and wildlife attractants may also be present on developed properties where grass is not trimmed along fences and in drainage ways. This enables habitat which provides cover for various species of wildlife. Uncovered dumpsters provide opportunities for scavenging and can attract birds and mammals.

Active and inert landfills can pose compatibility issues to aircraft operations since these operations have the potential to attract wildlife, specifically birds.

Additional attractants include golf courses, wetlands, and agricultural land uses. Golf courses, junk yards, and other uses with large open areas near Camp Bullis also have a potential to accumulate standing water during and after periods of rain. The standing water, temporary or permanent, can be significant bird attractants.

## Section D - Wildlife and Birds On/Around Camp Bullis

### Mammals

Approximately 57 species of mammals are known, or thought, to occur on the installation. Some of the intermediate to larger mammals include coyotes (*Canis latrans*), gray foxes (*Urocyon cinereoargenteus*), and white-tailed deer (*Odocoileus virginianus*).

A number of small mammals (i.e., rabbits) and rodents (several varieties of mice and rats) exist in undeveloped and built-up areas around Camp Bullis. These animals are the food supply for larger carnivores, including the ringtail cat (*Bassariscus astutus*), striped skunk (*Mephitis mephitis*), eastern and western spotted skunks (*Spilogale putorius* and *S. gracilis*, respectively), gray fox, bobcat (*Lynx rufus*), and coyote.

The abundance of prey on the Edwards Plateau occasionally attracts some larger predators such as the mountain lion (*Felis concolor*) and ocelot (*Felis pardalis*).

The white-tailed deer (*Odocoileus virginianus*), axis deer (*Axis axis*), Feral Hog (*Sus scrofa*), and Catalina Goat (*Capra sp.*) are four ungulates that reside on Camp Bullis. The axis deer is an exotic species from India and Ceylon that escaped from private ranches and now lives in the wild, both the feral hog and the Catalina goat are ranch escapees as well.

Camp Bullis supports a variety of wildlife that are considered game animals. These animals currently are or recently have been hunted or trapped. Some of the game animals identified on Camp Bullis include white-tail deer, axis deer, feral hog, Catalina goat, cottontail rabbit, black-tailed jackrabbit, fox squirrel, ring-tailed cat, and raccoon.

*Source: Integrated Natural Resources Management Plan for Fort Sam Houston & Camp Bullis Military Reservation San Antonio, Texas, October 1, 2007*

### Birds

As of 2000, the San Antonio Audubon Society (SAAS) lists 426 species of birds that are known to occur in Bexar County, which is almost half of all species that occur in North America. The reason for this species diversity is Bexar County's location at the juncture of three differing ecological regions: the Edwards Plateau; the Blackland Prairie – a tall grass prairie in its natural state; and the South Texas Plains – originally a grassland savanna but now a brushland considered a part of the Tamaulipan Biotic Province. Historically, 143 species have been known to nest in Bexar County; however, now only 114 species are known to nest. While Camp Bullis has not accomplished a complete bird survey, incidental sightings indicate at least an estimated 203 species as occurring on the camp. Some of the common birds include the scissor-tailed flycatcher (*Muscivora forficata*), mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), cardinal (*Richmondena cardinalis*), eastern bluebird (*Sialia sialis*),

tufted titmouse (*Parus bicolor*), sparrows, finches, warblers, and vireos. Most Fringillids (i.e., sparrows and finches) are not hazardous to aircraft operations, but occasional large flocks can be encountered, particularly during migration. These birds are seedeaters as a rule, and most prefer weedy, brushy, or forested areas.

A total of 157 species of birds were observed on Camp Bullis during surveys for the Golden-cheeked Warbler and Black-capped Vireo. Of the 157 species, 45 species are known to nest at Camp Bullis, 21 species may nest, and the remaining 91 are mostly migratory. The most abundant group is the warbler, with 18 species including two nesting and 16 migrant species. Of special significance are bird species that breed in temperate North America and winter in the tropics (referred to as neotropical migrants). Much of the recent research has documented a decline of many species of neotropical migrants, partly due to destruction and fragmentation of summer breeding habitat. On Camp Bullis, 80 species (51 percent) surveyed were neotropical migrant land birds. Twenty-eight (35 percent) of these migrants nest or potentially nest at Camp Bullis, and the remainder are seen only during migration. These 28 species comprise 42 percent of the 66 species that nest or potentially nest on Camp Bullis.

Raptors known to nest on Camp Bullis are the red-tailed hawk (*Buteo jamaicensis*), eastern screech owl (*Otus asio*), and great horned owl (*Bubo virginianus*), while the red-shouldered hawk (*Buteo lineatus*), Cooper's hawk (*Accipiter gentilis*), and barred owl (*Strix varia*) may nest. Other raptors observed foraging over the installation include the barn owl (*Tyto alba*), Harris hawk (*Parabuteo unicinctus*), turkey vulture (*Cathartes aura*), black vulture (*Coragyps atratus*), and the American kestrel (*Falco sparverius*). These birds can be particularly hazardous to aircraft because of their size and widespread distribution. Raptors are known to use thermals to their advantage in search of prey. These birds become active during mid-morning and remain aloft until late afternoon.

Although Camp Bullis lacks true aquatic habitat, some shorebirds frequenting the installation include the green-backed heron (*Butorides striatus*) and the killdeer (*Charadrius vociferus*). Other aquatic species observed on Camp Bullis include migrant species such as the eared grebe (*Colymbus nigricollis californicus*), pied-billed grebe (*Podilymbus podiceps*) and double-crested cormorant (*Phalacrocorax auritus*), and species that nest or may nest such as the great-blue heron (*Ardea herodias*).

The diversity of waterfowl using the installation is fairly substantial, despite their relatively low abundance. A few of the common waterfowl species identified on Camp Bullis are wood duck (*Aix sponsa*), green-winged teal (*Anas carolinensis*), pintail (*Anas acuta tztzihoa*), American widgeon (*Mareca americana*), canvasback (*Aythya valisineria*), and ruddy duck (*Eristamatur jamaicensis rudida*) (Bruns 1999). Common waterfowl that use the wastewater treatment areas include American coots (*Fulica americana*) and mallards (*Anas platyrhynchos*).

Several upland gamebirds are found on Camp Bullis including the Rio Grande turkey (a subspecies of the wild turkey; *Meleagris gallopavo*), mourning doves (*Zenaidura macroura*), and bobwhite (*Colinus virginianus*). Doves may be a threat to aircraft operations as these birds are seedeaters and are attracted to seed-producing weeds, grasses, and shrubs. The Rio Grande turkey is the major upland game species inhabiting Camp Bullis. All of these species are attracted to agricultural land use and areas with permanent surface water; since this

combination of habitat is uncommon on Camp Bullis, populations fluctuate annually depending on the availability of food.

Source: *Integrated Natural Resources Management Plan for Fort Sam Houston & Camp Bullis Military Reservation San Antonio, Texas, October 1, 2007*; Air Force Pamphlet 91-212 “Bird/Wildlife Aircraft Strike Hazard (BASH) Management Techniques”, February 1, 2004

## Section E - Airfield Hazard Control Methods

Active and passive techniques can successfully reduce threats from hazardous wildlife populations. These techniques vary in cost and effectiveness. Active control involves causing wildlife to disperse from an airfield or LZ to give short-term relief from an immediate safety hazard. Passive techniques are more long-term in nature. They involve managing the airdrome to eliminate or reduce those conditions birds and other wildlife find attractive.

### Active Controls

Birds and other hazardous wildlife in the air around or on runways, taxiways, or infields create a potential safety hazard and should be dispersed before flying operations can safely continue. Birds move quickly and unpredictably. Even when left in a “safe” portion of the airfield, they can move and create an immediate hazard. They may also act as decoys attracting additional birds. No single method of dispersal works for all problems. Using a combination of different dispersal tools, also known as integrated pest management, provides the best line of defense for immediate hazards.

The key to active wildlife dispersal is perseverance. When birds or other wildlife are strongly attracted to an airfield or LZ, several teams may be required to provide continual harassment. Usually, a single trip around the airfield/LZ will not remove all the birds. Some examples of active controls include:

- **Pyrotechnics.** *Pyrotechnics are noise-producing devices, which are effective in bird dispersal. These include 12-gauge (ga) shotgun systems, pistol systems, 15mm bangers or screamers or other off-the-shelf noise generating systems.*
- **Bioacoustics.** *This dispersal technique uses broadcasts of recorded bird distress calls. Depending on the species, the calls may create differing responses; some will come to the calls while others may depart the area. For this reason, the sound source must be properly placed so the birds fly away from the runway. These include the use of vehicle-mounted sound systems producing 30 to 50 watts of distortion-free sound in 90 to 100 decibel (db) with a frequency response between 12,000 and 14,000 Hertz (Hz).*

*NOTE: If the use of pyrotechnics or bioacoustics will have an impact upon a federally listed threatened or endangered species, the U.S. Fish and Wildlife Service (USFWS) must be consulted prior to use.*

- **Depredation.** *In cases where some species grow accustomed to bioacoustic and pyrotechnic techniques, a few birds may have to be taken via lethal means to reinforce the idea that a significant danger exists. A federal depredation permit, available from the USFWS is required before killing any protected birds.*

NOTE: Some states may require additional permits for the take of State protected species. These may be coordinated with the USFWS, as well.

Pyrotechnics, bioacoustics, depredation, and other methods have been effective in dispersing wildlife from airfields. When used together, or in an alternating manner, these techniques remain more effective over a longer period.

- **Propane Gas Cannons.** These devices should be operated, especially at dawn and dusk, as birds come in to feed or roost.
- **Falconry.** A falconry program is not limited to the use of falcons only but can incorporate several species of birds of prey. Falcons trained for airfield bird dispersal may be effective when used in combination with other frightening techniques.
- **Dogs.** The use of Border Collies or other breeds of dogs to disperse geese has been effective under certain circumstances.
- **Radio Controlled Crafts.** Use of radio controlled aircraft, dune buggies, or boats to disperse birds have shown significant results.
- **All-Terrain Vehicle (ATV).** Use of all terrain vehicles in the airfield environment has proven useful in dispersing birds and other wildlife from the aircraft operating area.

NOTE: A depredation permit is not required for non-lethal harassment of migratory birds on the airfield in accordance with 50 Code of Federal Regulations (CFR) 21.41 Migratory Bird Depredation Permits.

Some examples of ineffective active controls include:

- Stuffed owls and rubber snakes have been advertised to rid hangars and buildings of birds.
- Rotating lights have brought conflicting results; but are generally considered ineffective. Birds quickly habituate to these devices, and the problem remains unsolved.
- Eyespots on aircraft components are being studied in the United States and other countries. Early results suggest the addition of eyespots does not significantly reduce the BASH potential.
- Ultra-sonic devices have thus far proven unsuccessful in deterring wildlife from colliding with aircraft as very few bird species can hear ultra-sonic sound.

Source: Air Force Pamphlet 91-212 "Bird/Wildlife Aircraft Strike Hazard (BASH) Management Techniques", February 1, 2004

## Passive Controls

The most permanent methods of discouraging birds from using airfields involve removing attractive habitat features. Some examples of passive controls include:

### Managing Grass

- **Grass Height.** Maintain grass height at 7-14 inches while ensuring faster growing weeds are cut before they go to seed. This will discourage seed eating birds from using the airfield since most grass seeds found on the airfield/LZ are a less desirable food than available weed seeds. Grass kept at this height discourages flocking species from foraging on the airfield/LZ because reduced visibility disrupts inter-flock communication and flock integrity by reducing the ability to detect predators. Mowing of grass should be done far enough in advance of scheduled air operations such that birds attracted by dislodged insects will not present hazards to the air operations.
- **Herbicides and Growth Retardants.** Keep broad-leafed weeds to a minimum on the airfield. Broad-leafed weeds attract a variety of birds, may produce seeds or berries, and may limit grass growth.
- **Planting Bare Areas.** Reduce bare areas as birds frequently use them to pick up grit and as resting sites on the airfield. Birds need grit, or very small rocks, to crush seeds, allowing digestion of the seeds.
- **Fertilizing.** Fertilize as needed to stimulate grasses and promote a uniform cover.
- **Native Vegetation.** In areas where turf growth is not supported, it may be advisable to allow native vegetation to remain in a natural state (above or below the prescribed height of 7-14 inches) as disturbance may provide exotic conditions attractive to some forms of wildlife. The natural state must not supply attractive habitat for wildlife or obstruct views of the airfield/LZ from the tower. Another consideration for airfields/LZs in low-moisture environments is to consider de-vegetation as an option.
- **Removal of Edge Effects.** The greatest numbers of species are found where vegetation types change from forests to brush, or brush to grass (edge effects). Also, single trees, fence posts, snags or open spaces may provide perches or nesting areas for hawks, owls, or other bird species. Remove food, nesting or den building vegetation most attractive to particular species of birds and beasts.
- **Controlling Drainage.** Fresh water is one of the most important wildlife attractants, especially in arid regions. Standing water creates a source of drinking water and a breeding place for insects, amphibians and other food sources for birds. Make drainage ditches as deep as possible to limit the surface area of the water and still allow proper drainage according to civil engineering requirements. Wading birds are less likely to use deep drainage ditches. Grade the banks of the drainage ditches to allow mowing up to the edge of the ditch. Keep drainpipes, culverts, and screens clear of debris so drainage is not impeded. Maintain roadways and paths to eliminate standing water in pot-holes, ruts and swales.

## **Locating Wastewater Treatment Facilities**

- *Waterfowl are often attracted to wastewater holding ponds. Birds use the water for resting and sometimes as a food source. Wastewater lagoons are most attractive in arid climates. Ponds designed with steep sides, little surface area, and no vegetation reduces the attraction to birds.*
- *Locate ponds as far from the runway/LZ and associated traffic patterns as possible and place them so birds moving from off-base areas to the ponds do not cross the runways.*

## **Managing Sanitary Landfills**

Municipal solid waste landfills are the most significant attractant to hazardous bird species. Operate disposal sites according to FAA guidelines and state and federal laws. If an existing landfill impacts aircraft operations, make the site as unattractive to birds as possible. Methods of achieving this include, but are not limited to:

- *Maintain a small working face to minimize exposed wastes*
- *Incinerate waste*
- *Operate the landfill as a pit or trench to limit access to birds*
- *Dump waste at night or during non-flying periods*
- *Cover waste material immediately*
- *Discourage gulls and other birds with overhead wire barriers*
- *Relocate putrescible wastes to a more remote landfill*
- *Use bioacoustics and pyrotechnics to frighten birds away*

## **Managing Agricultural Activities.**

Harvesting and planting schedules can also affect the numbers of attracted birds. When a hay crop is harvested, large numbers of invertebrates may be exposed on the ground, which could provide an intense bird attractant. Therefore, harvesting of crops in close proximity to airfields, LZs, or low-level flight operations should be planned so that those crops are not harvested too close to the time when air operations are scheduled to occur.

Agricultural activities should also consider the local flying schedule. Planting, cultivating, harvesting, or burning may temporarily increase bird attractants; therefore, these activities should be done on weekends or other periods of reduced flying.

Source: Air Force Pamphlet 91-212 "Bird/Wildlife Aircraft Strike Hazard (BASH) Management Techniques", February 1, 2004

## Section F - BASH Plan Actions

The following are guidelines for the mitigation of the potential BASH threat at Camp Bullis.

### City of San Antonio and Surrounding Counties

- *Establish a monitoring plan for areas off of Camp Bullis but where bird and wildlife may impact aircraft operations. These areas include non-military lands in close proximity to the CALS and lands where NOE flights occur – adjacent to the Camp Bullis southwest, north, and northeast boundaries. Also at the far southeast corner of the installation, the Compass LZ Instrument Flight Rules imaginary surfaces extend outside of the installation. The first phase of the monitoring plan should include a study of these lands to determine the current state of potential BASH hazards.*
- *Develop informational materials to educate local landowners and developers of the relationship between land uses and BASH threats. These materials should highlight the importance of maintaining a safe environment for fixed- and rotary-wing aircraft to operate in, as well as the serious consequences of bird / wildlife strikes with aircraft. A key element of these materials would be explaining the mission of Camp Bullis as a training area for all branches of the U.S. Armed Forces and other organizations, as well as the importance of the camp in supporting the Fort Sam Houston mission.*

Review all development applications:

- *for site design to limit their potential to increase the BASH threat at Camp Bullis.*
- *for building design to ensure new or remodeled buildings do not provide attractants to birds.*
- *for infrastructure design to ensure open water, ponds, drainage ditches, stormwater ponds, and poorly drained areas are designed in such a way so as to not attract birds.*
- *to ensure no waste storage or landfills are located in close proximity to the CALS, rotary-wing LZs, or in a location that could impact established aircraft flight patterns.*
- *to ensure no open sewage treatment facilities are planned.*
- *to ensure bodies of standing water are limited.*

Agriculture:

- *Limit planting of hay, alfalfa, soy, fall rye, wheat, barley, and other cereals on lands identified as potentially impacting aircraft operations at Camp Bullis.*
- *Where possible, require night-time plowing or other harvesting controls.*
- *Do not allow standing bales.*

Construction:

- *Require construction equipment staging sites and construction sites take appropriate actions to ensure they do not provide a habitat for birds (i.e., standing water ruts and potholes are eliminated, trash is policed, dumpsters covered, gravel/sand piles are covered, grass is mowed, etc.).*

- All new construction projects should include the stipulation that all silt fences be maintained by regular mowing with weed eaters. Vegetation should not be treated with a herbicide since it serves as a filter for removal of sediments from stormwater and also minimizes soil erosion.

### **Camp Bullis/Fort Sam Houston**

- Establish a bird and wildlife monitoring plan for Camp Bullis focused on camp aircraft operations areas.
- Develop a training program for Camp Bullis staff and users of the CALS and rotary-wing LZs to recognize and report threats to aircraft operations.
- Establish a BASH reaction team equipped with appropriate active control equipment to mitigate noted on-site BASH situations/threats. Include members of the military services that use the CALS and rotary-wing LZs.
- Establish a Camp Bullis BASH team responsible for managing the environment, habitats, and vegetation around the CALS, rotary-wing LZs, and established flight corridors (passive actions).
- Assign a staff person the task of developing and maintaining a daily monitoring log to gain an understanding of the wildlife on Camp Bullis as it pertains to aircraft operations areas.
- Review the impact of mammals on aircraft operations at the CALS and rotary-wing LZs. Should a significant threat be posed by any species, it may become necessary to manage those mammal populations. Coordinate with the City of San Antonio, USFWS, and Texas Parks and Wildlife Department for action.
- Partner with the USFWS, Texas Parks and Wildlife Department, Bexar County Environmental Services Division, and Comal County Engineer's Office to ensure BASH actions meet all current legal requirements.

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## **Camp Bullis Joint Airport Zoning Board (JAZB) Draft Ordinance**

AN ORDINANCE OF THE CAMP BULLIS JOINT AIRPORT ZONING BOARD (JAZB) IN ACCORDANCE WITH STATE LAW REGULATING AND RESTRICTING THE HEIGHT OF STRUCTURES AND OBJECTS OF NATURAL GROWTH, AND OTHERWISE REGULATING THE USE OF PROPERTY IN THE VICINITY OF CAMP BULLIS, TEXAS BY CREATING THE APPROPRIATE ZONES AND ESTABLISHING THE BOUNDARIES THEREOF; PROVIDING FOR RESTRICTIONS OF SUCH ZONES AND THE ENFORCEMENT OF SUCH RESTRICTIONS; DEFINING CERTAIN TERMS USED HEREIN; REFERRING TO THE CAMP BULLIS COMPATIBLE LAND USE ZONING MAP AND TABLE 1, PROHIBITED OR REGULATED LAND USES, BOTH OF WHICH ARE INCORPORATED HEREIN AND MADE A PART OF THESE REGULATIONS BY REFERENCE; PROVIDING FOR A BOARD OF ADJUSTMENT, ENFORCEMENT AND IMPOSING PENALTIES.

WHEREAS, these regulations are adopted pursuant to the authority conferred by the Airport Zoning Act, Texas Local Government Code, §§ 241.001, et seq;

WHEREAS, the Bexar County Commissioners Court has established the Camp Bullis Joint Airport Zoning Board (JAZB) and conferred upon it the powers authorized by the Airport Zoning Act, Texas Local Government Code Annotated §§ 241.001, et seq; and

WHEREAS, the Camp Bullis JAZB has determined that an obstruction has the potential for endangering the lives and property of users of Camp Bullis, and property or occupants of land in its vicinity; that an obstruction may affect existing and future instrument approach minimums of Camp Bullis, and that an obstruction may reduce the size of areas available for the landing, take-off and maneuvering of fixed and rotary-wing aircraft, and that excessive noise levels generated by airport operations disrupt activities and impair the welfare, use and enjoyment of land by the occupants, thus tending to destroy or impair the utility of Camp Bullis, and the public investment therein; and

WHEREAS, the Camp Bullis JAZB has declared that:

1. Camp Bullis fulfills an essential flight training role for the Department of Defense;
2. the creation or establishment of an obstruction or the encroachment of noise sensitive or otherwise incompatible land uses within certain areas set forth herein has the potential of being a nuisance and may injure the owners, occupiers or user of land in the region surrounding Camp Bullis;
3. it is necessary in the interest of public health, public safety, and general welfare that the creation or establishment of obstructions or potential incompatible land uses that are a hazard to air navigation or the public health and safety be prevented; and
4. the prevention of these obstructions should be accomplished, to the extent legally possible, by the exercise of the police power without compensation.

WHEREAS, it is further declared by the Camp Bullis JAZB that the prevention of the creation or establishment of hazards to air navigation, the elimination, removal, alteration or mitigation of

hazards to air navigation, the marking and lighting of obstructions or the prevention of other potential incompatible land uses are public purposes for which a political subdivision may raise and expend public funds and acquire land or interest in land.

THEREFORE, BE IT ORDAINED BY THE JOINT AIRPORT ZONING BOARD OF THE COMMISSIONERS COURT OF THE COUNTY OF BEXAR, TEXAS:

**Section 1. Short Title**

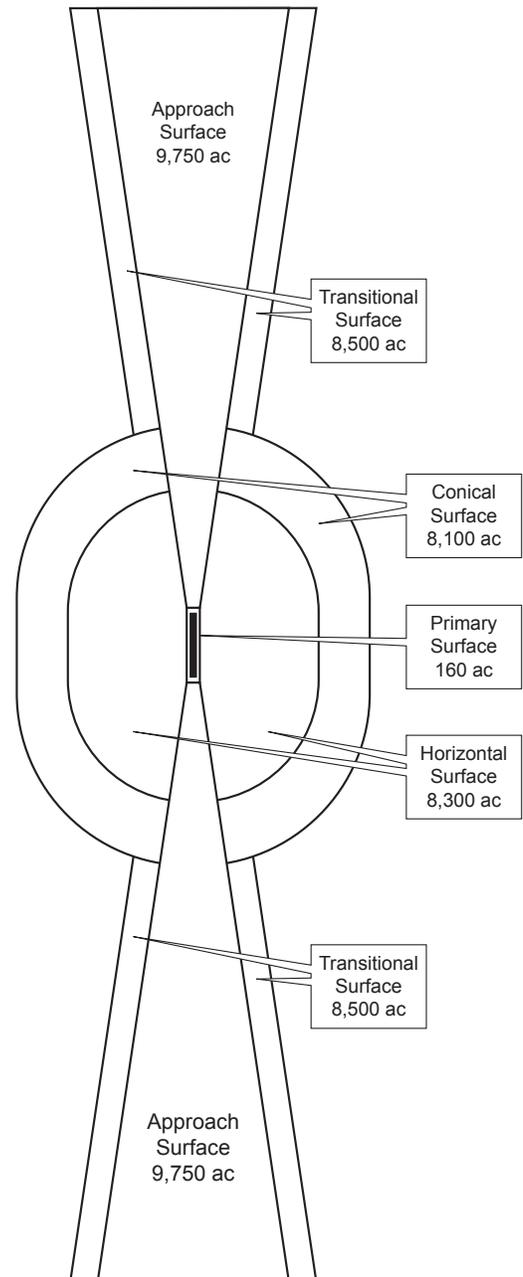
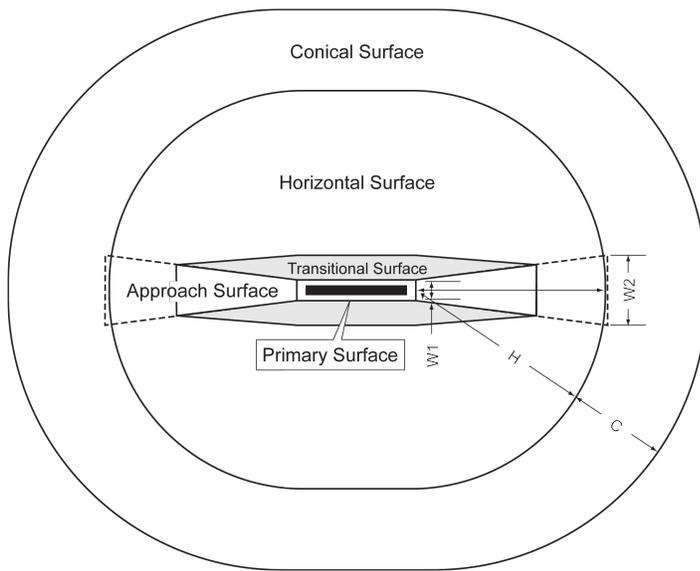
These regulations shall be known and may be cited as the “Camp Bullis Compatible Land Use Zoning Regulations.”

**Section 2. Definitions**

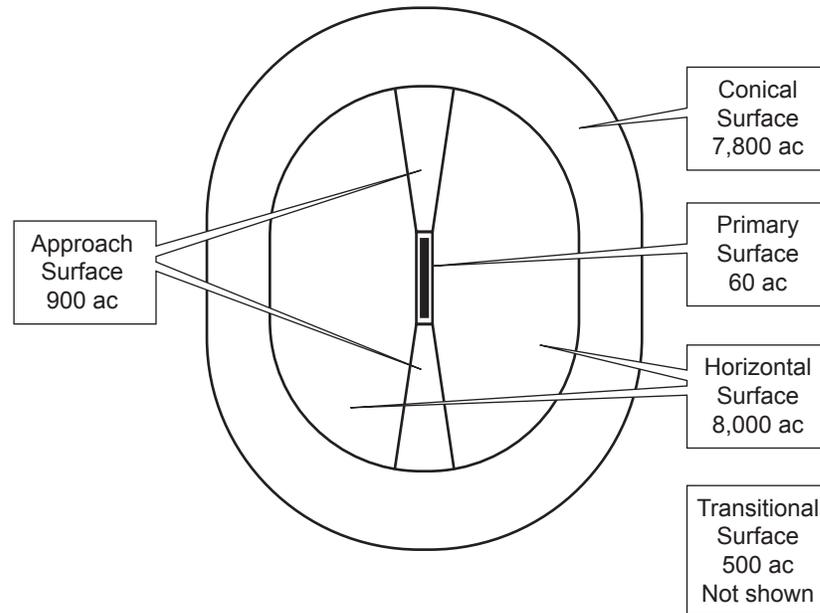
As used in these regulations, unless the context otherwise requires:

- A. Accident Potential Zone (APZ)** – An area of land adjacent to each end of an airport runway where, within the airfield environs, an accident is most likely to take place and how large an impact area is likely to result from any single accident. The dimensions have been determined by the analysis of the DOD accident history.
  - 1. Clear Zone** – A high crash potential area that is a trapezoidal area that extends directly beyond the end of the runway and outward along the extended runway center line for a distance of 500 feet. The Clear Zone is 250 feet in width at the terminus of the runway and 500 feet at its outer edge.
  - 2. APZ-Landing Zone** – The land use control area immediately beyond the clear zone of an airfield or landing zone (LZ) that possesses a significant potential for accidents; therefore, land use is a concern. For Air Force and Army operations, this land area measures 500 feet wide and 2,500 long situated along the runway’s centerline.
- B. Administrative Agency** – The appropriate person or office of a political subdivision which is responsible for the administration and enforcement of the regulations prescribed herein. The administrative agency is set forth in Section 3 of these regulations.
- C. Airport** – Refers to the Combat Assault Landing Strip (CALs) at Camp Bullis, Texas, including the ultimate development of that facility.
- D. Airport Elevation** – The established elevation of the highest point on the usable land area measured in feet above mean sea level (MSL).
- E. Airport Hazard** – Means any structure or tree or use of land which obstructs air space required for the flight of fixed and / or rotary-wing aircraft or which obstructs or interferes with the control or tracking and / or data acquisition in the landing, taking off or flight of an aircraft, or at any installation or facility relating to flight, and tracking and / or data acquisition of the flight craft; is hazardous, interferes with or obstructs such landing, taking off or flight of an aircraft or which is hazardous to or interferes with tracking and/or data acquisition pertaining to flight and flight vehicles.
- F. Airport Hazard Area** – Means any area of land or water upon which an airport hazard might be established if not prevented as provided in these regulations.

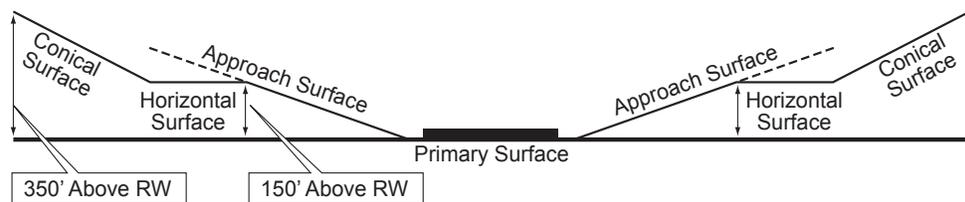
- G. **Airport Noise Zones** – Means any area of land or water between designated noise contours on a noise exposure map where an incompatible use might be established if not prevented as provided in these regulations.
- H. **Airport Reference Point** – Means the point established as the approximate geographic center of the airport landing area and so designated.
- I. **Approach Surface** – A surface longitudinally centered on the extending outward and upward from the end of the primary surface and at the same slope as the approach zone height limitation slope set forth in Section 4 of these regulations. In plan the perimeter of the approach surface coincides with the perimeter of the approach zone.



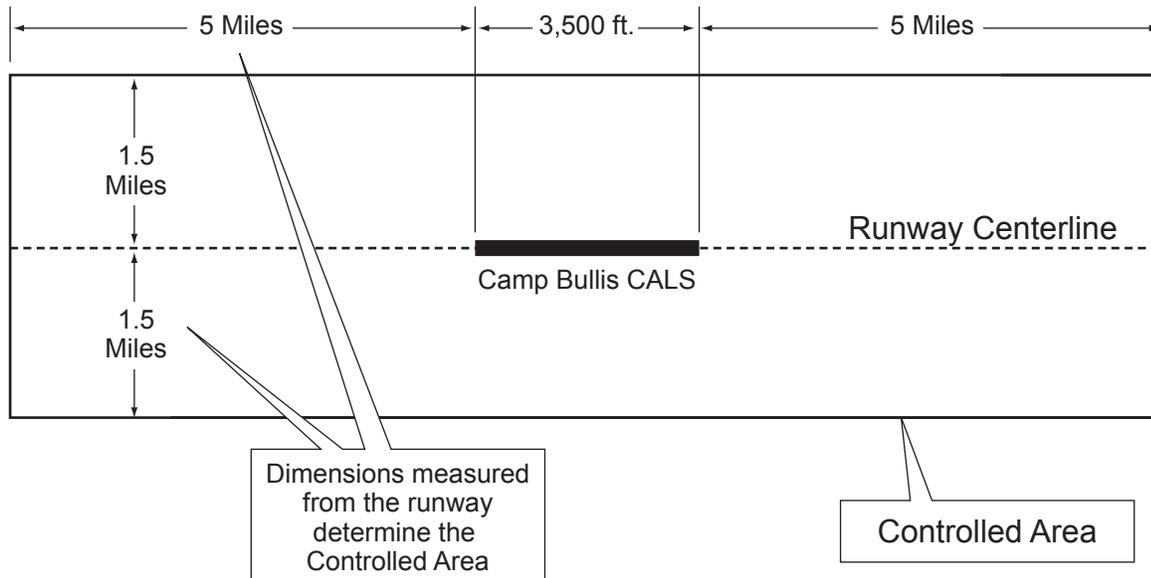
- J. **Approach, Transitional, Horizontal, and Conical Zones** – These zones are set forth in Section 3 of these regulations.



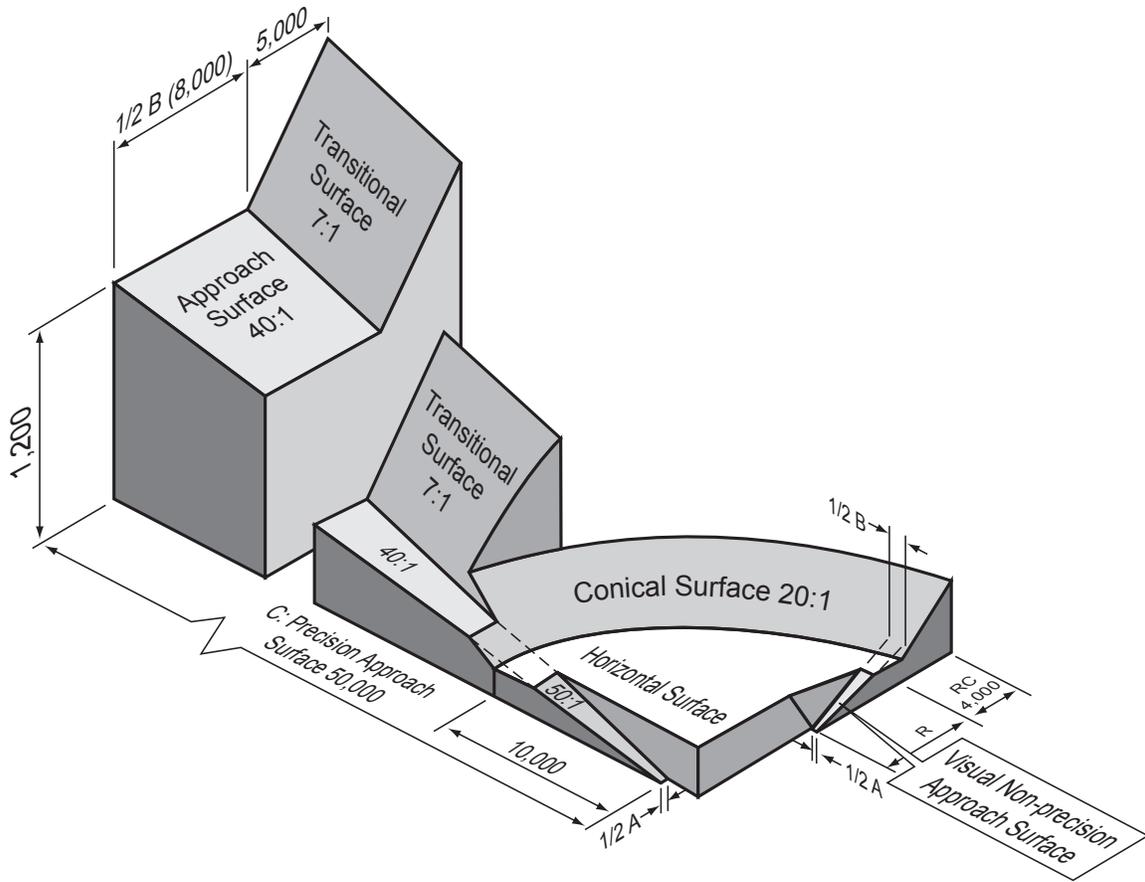
- K. **Board of Adjustment** – A board so designated by these regulations as provided in Texas Local Government Code, §§241.032. Provisions for the board of adjustment are set forth in Section 8 of these regulations.
- L. **Compatible Land Use** – Any use of land adjacent to or in the immediate vicinity of the airport that does not endanger the health, safety, or welfare of the owners, occupants, or users of the land because of levels of noise or vibrations or the risk of personal injury or property damage created by the operations of the airport, including the taking off, landing or flight of aircraft.
- M. **Conical Surface** – A surface extending outward and upward from the periphery of the horizontal surface at a slope of twenty (20) to one (1) for a horizontal distance of seven-thousand (7,000) feet.



**N. Controlled Compatible Land Use Area** – Established by the Texas Local Government Code, Annotated, § 241.031. An area of land located outside airport boundaries and within a rectangle bounded by lines no farther than one and one-half (1 ½) statute miles from the centerline of an instrument or primary runway and lines located no farther than five (5) miles from each end of the paved surface of an instrument or primary runway.



- O. Decibel (db)** – The physical unit commonly used to describe noise levels; a unit for describing the amplitude of sound, as it is heard by the human ear.
- P. Hazard to Air Navigation** – An obstruction determined to have a substantial adverse effect on the safe and efficient utilization of the navigable airspace.
- Q. Height** – For the purpose of determining the height limits in all zones set forth in these regulations and shown on the Camp Bullis Compatible Land Use Zoning Map, the datum shall be mean sea level elevation.
- R. Horizontal Surface** – A horizontal plane one-hundred-fifty (150) feet above the established airport elevation, the perimeter of which in plainview coincides with the perimeter of the horizontal zone.
- S. Joint Airport Zoning Board (JAZB)** – Means a board consisting of eleven (11) members, two (2) members each appointed by the City Council’s of the cities of Fair Oaks Ranch, and Bulverde, Texas; and two (2) members each appointed by the Commissioners Courts of Bexar County, Comal County, and Kendall County, Texas. The ten (10) members so appointed shall elect an eleventh (11) member who shall serve as chairman of said Camp Bullis Joint Airport Zoning board. A Base representative for Camp Bullis shall be appointed as an Ad Hoc member.
- T. Landing Area** – Means the surface area of the airport used for the landing, take-off, or taxiing of aircraft.



- U. **Ldn (Yearly Day-Night Average Sound Level)** – The 24-hour average sound level, in decibels, for the period from midnight to midnight, obtained after the addition of ten decibels to sound levels for the periods between 10:00 P.M. and 7:00 a.m. the following day, averaged over a span of one year. A mathematical definition of Ldn can be found in Federal Aviation Regulation Part 150; Subpart A150.201.
- V. **Noise Contour** – A noise impact line constructed by connecting points of equal noise level measured in decibels Ldn, on a map.
- W. **Noise Exposure Map** – A scaled, geographic depiction of an airport, its noise contours and surrounding area.
- X. **Noise Level Reduction (NLR)** – The amount of reduction in noise for any given point as achieved through the incorporation of noise attenuation measures incorporated into the design and construction of buildings. These reductions may be incorporated during initial construction or as additional construction for existing buildings.
- Y. **Nonconforming Use** – Any use of land which is inconsistent with the provisions of these regulations and which is existing as of the effective date of these regulations.
- Z. **Non-precision Instrument Runway** – A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or approach procedure has been approved or planned.

- AA. Obstruction** – Any structure, growth, or other object, including a mobile object, which exceeds a height set forth in Section 5 of these regulations.
- AB. Person** – An individual, firm, partnership, cooperation, company, association, joint stock association, or body politic, and includes a trustee, receiver, assignee, administrator, executor, guardian, or other representative.
- AC. Primary Surface** – A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends two-hundred (200) feet beyond each end of that runway; but when the runway has no specially hard surface, or planned hard surface, the primary surface ends at each end of that runway. The width of the primary surface of a runway will be that width prescribed in Part 77 of the Federal Aviation Regulations (FAR) for the most precise approach existing or planned for either end of that runway. The elevation of a point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface for other than a utility runway is one-thousand (1,000) feet for a non-precision instrument runway having non-precision instrument approach with visibility minimums as low as three-fourths of a statute mile, and for precision instrument runways.
- AD. Runway** – A defined area on an airport prepared for landing and take-off of aircraft along its length.
- AE. Sound Level (also Noise Level)** – In decibels, the quantity measured by an instrument satisfying requirements of American National Standard Specification for Sound Level Meters SI.4-1971, or the latest revision thereof. Unless explicitly described otherwise, the sound level shall be the frequency-weighted sound pressure level obtained with the frequency weighted A and the standardized dynamic characteristic SLOW. In this order, the sound level is to be understood to be the A-weighted sound level matter is relatively less sensitive to low frequency sound, somewhat in the way the ear is progressively less sensitive to sounds of frequency below 1000 Hertz (cycles per sound).
- AF. Sound Transmission Class (STC)** – A single-figure rating of the sound insulating properties of a partition as determined by methods described in “Determination of Sound Transmission Class”, American Society of Testing and Materials designation E413-73.
- AG. Standard Land Use Coding Manual (SLUCM)** – A standard system for identifying and coding land use activities. “Standard Land Use Coding Manual”, Urban Renewal Administration/ Housing and Home Finance Agency and Bureau of Public Roads, Department of Commerce, First Edition, 1965.
- AH. Structure** – An object, including a mobile object, constructed or installed by man, including, but not limited to, buildings, towers, antennae, communication towers, cranes, smokestacks, earth formations, wind power generation structures, and overhead transmission lines.
- AI. Transitional Surfaces** – These surfaces extend outward at ninety (90) degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces to where they intersect the horizontal surface.
- AJ. Tree** – Any object of natural growth.

**AK. Visual Runway** – A runway intended solely for the operation of aircraft using visual approach procedures.

**AL. Zoning Board of Adjustment** – An established board consisting of eleven (11) members appointed by the City Council of the City of San Antonio, Texas as provided by Texas Local Government Code Annotated, § 241.032 .

### **Section 3. Administrative Agency**

It shall be the duty of the Director of Development Services, City of San Antonio, to administer and enforce the regulations prescribed herein and is hereby designated as the administrative agency.

### **Section 4. Airport Noise Zones**

#### **A. Creation of Airport Zones**

In order to carry out the provisions of these regulations, there are hereby created and established certain Airport Zones for the purposes of regulating and developing uses of land within each zone that do not endanger the health, safety, and general welfare of the owners, occupants, or users of the land because of noise or vibrations or the risk of personal injury or property damage created by the operations of the airport, including the taking off and landing of aircraft.

1. The controlled compatible land use area is hereby divided into five (5) zones, shown on the Camp Bullis Compatible Land Use Zoning Map. These zones are as defined in the current Camp Bullis Joint Land Use Study.
2. Airport Noise Zone One (NZ-1) is that area within the controlled area and outside the 65 dB Ldn noise contour.
3. Airport Noise Zone Two (NZ-2) is that area within the controlled area between the 65 dB Ldn and 70 dB Ldn noise contours.
4. Airport Noise Zone Three (NZ-3) is that area within the controlled area between the 70 dB Ldn and 75 dB Ldn noise contours.
5. Airport Noise Zone Four (NZ-4) is that area within the controlled area between the 75 dB Ldn and 80 dB Ldn noise contours.
6. Airport Noise Zone Five (NZ-5) is that area within the controlled area of the 80 dB Ldn and above noise contours.

Each Airport Noise Zone shall correspond as nearly as is practical to the different noise contours within the controlled area for Camp Bullis. These noise contours are plotted in increments of five (5) dB Ldn on the Airport Noise Exposure Map and said noise contours hereby establish the boundaries of the Airport Noise Zones. Figure 1 illustrates the contours and is made a part hereof.

## **B. Boundaries**

Where uncertainty exists as to the boundaries of the Camp Bullis Compatible Land Use Zoning Map, the following rules shall apply:

1. Boundaries shall be scaled from the nearest physical feature shown on the map.
2. Distances not specifically indicated on the original the Camp Bullis Compatible Land Use Zoning Map shall be determined by a scaled measurement on the map.
3. Where physical features on the ground differ from the information shown on the the Camp Bullis Compatible Land Use Zoning Map or when there arises a question as to how or where a parcel of property is zoned and such questions cannot be resolved by the application of the rules above, the land shall be classified as within the least restrictive the Camp Bullis Compatible Land Use zone.
4. Where a parcel of land lies within more than one (1) Airport Noise Zone or an Accident Potential Zone as herein described, the zone within which each portion of the property is located shall apply individually to each portion of the development.

## **C. Use Restrictions**

Notwithstanding any other provisions of these regulations, no use may be made of land or water within any zone established by these regulations in such a manner as to create electrical interference with navigational signals or radio communication between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, interfere with pilots' night vision equipment using the airport, impair visibility in the vicinity of the airport, create potential bird strike hazards, or otherwise in any way endanger or interfere with the landing, taking off or maneuvering of aircraft intending to use the airport.

Incompatible uses and uses requiring either specific acreage density for development or minimum specified construction standards for noise reduction within structures that are within specific zones are hereby established as shown in Table 1, Land Use Compatibility Guidelines (attached). The entry in Table 1 with the greatest accuracy for defining a land use shall be controlling for purposes of this regulation. Table 1 and all amendments and footnotes thereto are hereby incorporated by reference into this regulation.

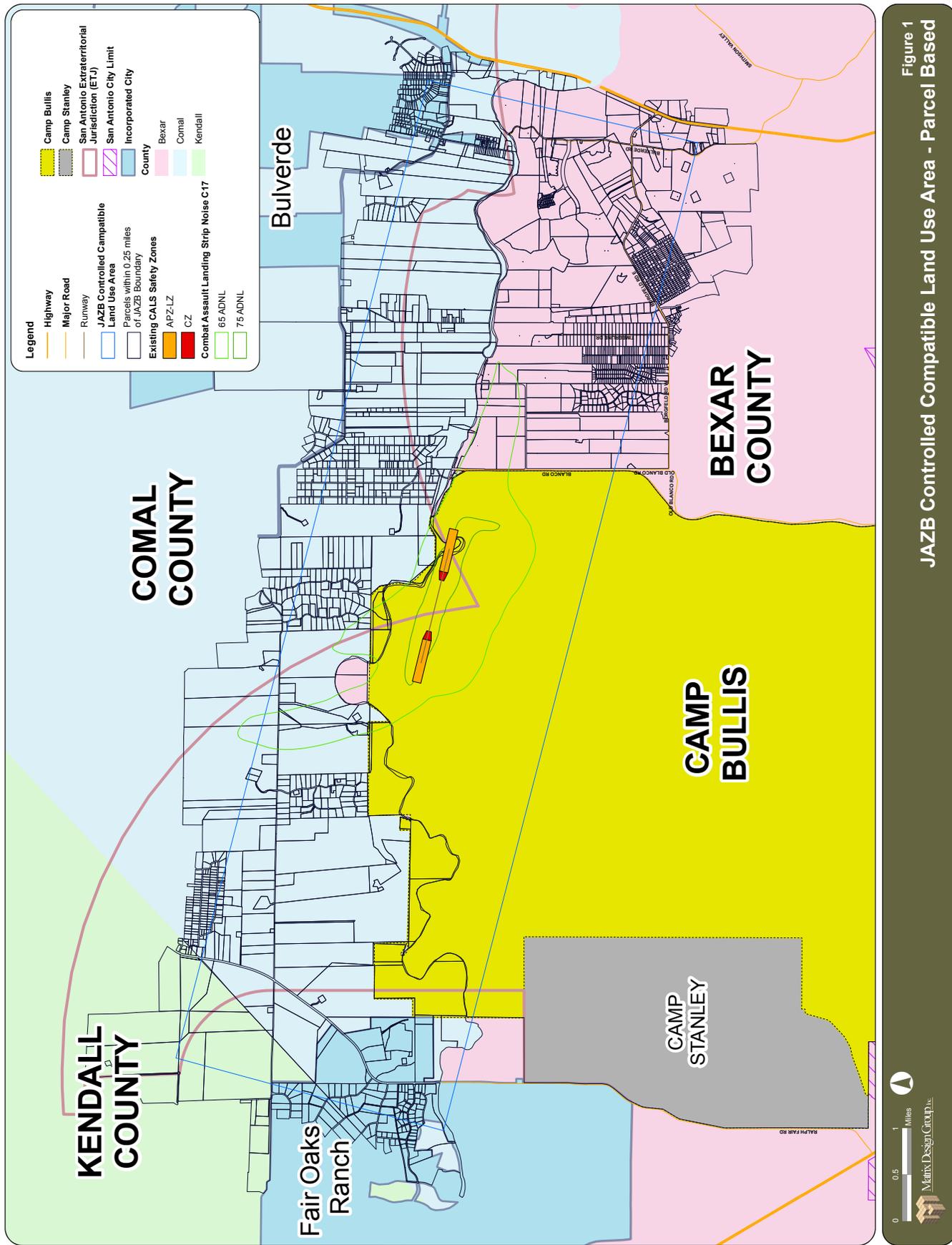


Figure 1  
JAZB Controlled Compatible Land Use Area - Parcel Based

## Section 5. Airport Hazard Abatement Zones and Height Limitations

In order to carry out the hazard abatement provisions of these regulations, there are hereby created and established certain zones which include all of the land lying beneath the approach surfaces, transition surfaces, horizontal surface and conical surface as they apply to Camp Bullis, Texas. Such zones are shown on the Camp Bullis Compatible Land Use Zoning Map. An area located in more than one of the following zones is considered to be only in the zone with the more restrictive height limitation.

Except as otherwise provided in these regulations, no structure shall be erected, altered, or maintained, and no tree shall be allowed to grow in any zone created by these regulations to a height in excess of applicable height limits herein established for such zone. Such applicable height limitations are hereby established for each of the zones in question as follows:

### A. Approach Zones

1. **Combat Assault Landing Strip (CALs)** - Approach zone is established beneath the approach surface at the end of CALs on Camp Bullis of non-precision instrument landings and take-offs with visibility minimums as low as three-fourths statute mile. The inner edge of the approach zone shall have a width of two-hundred-fifty (250) feet which coincides with the width of the primary surface at a distance of two-hundred (200) feet beyond the end of the runway, widening thereafter uniformly to a width of one-thousand-two-hundred-fifty (1,250) feet at a horizontal distance of five-thousand (5,000) feet beyond the end of the primary surface, its centerline being the continuation of the centerline of the runway.

Height Limitations – One (1) foot in height for each twenty (20) feet in horizontal distance beginning at the end of and at the elevation of the primary surface and extending to a point two-thousand-five-hundred (2,500) feet from the end of the primary surface. Then continuing horizontally until it reaches five-thousand (5,000) feet.

- B. **Transition Zones** - Transition zones are hereby established beneath the transition surfaces adjacent to the runway and approach surfaces as indicated on the zoning map. Transition surfaces, symmetrically located on either side of the runway, have variable widths as shown on the zoning map. Transitional surfaces extend outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of seven (7) to one (1) from the sides of the primary surface and from the sides of the approach surfaces.

Height Limitations – Slopes seven (7) feet outward for each foot upward beginning-at the sides and at the same elevation as the primary surface and the approach surface, and extending to a height of one-hundred-fifty (150) feet above the airport elevation which is fifty (50) feet above mean sea level.

- C. **Horizontal Zone** - The area beneath a horizontal plane one-hundred-fifty (150) feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of five-thousand (5,000) feet radii from the center of each end of the primary surface of CALS and connecting the adjacent arcs by lines tangent to those arcs.

Height Limitations – Established at one-hundred-fifty (150) feet above the airport elevation, or a height of two hundred (200) feet above mean sea level.

- D. **Conical Zone** - The area beneath the conical surface extending outward and upward from the periphery of the horizontal surface at a slope of twenty (20) to one (1) for a horizontal distance of one-thousand-two-hundred-fifty (1,250) feet.

Height Limitations – Slopes twenty (20) feet outward for each foot upward beginning at the periphery of the horizontal zone and at one-hundred and fifty (150) feet above the airport elevation and extending to a height of five-hundred (500) feet above the airport elevation which is five-hundred-fifty (550) feet above mean sea level.

- E. **Excepted Height Limitations** - Nothing in these regulations shall be construed as prohibiting the growth, construction, or maintenance of any tree or structure to a height up to fifty (50) feet above the surface of the land.

## **Section 6. Permits**

Before any new structure or use which could be defined as an airport hazard or incompatible land use under this regulation may be constructed or established, and before any such existing use or structure may be increased in height or otherwise altered, a permit to do so must be secured by the owner involved or their agent. All permit applications shall be made to the administrative agency.

Application shall be made and permit procured from the administrative agency created hereunder in each of the following instances and subject to the following conditions:

- A. Where it is desired to erect or locate structures, to increase the height of existing structures, or to plant or transplant trees within the controlled compatible land use area to a height in excess of ten feet below the height limit herein provided (Section 5) with respect thereto.
- B. Where it is desired to replace, substantially alter or repair, rebuild, or relocate any nonconforming structure or tree within the controlled compatible land use area, provided however, that whenever the JAZB determines that a nonconforming structure within the controlled compatible land use area has been abandoned or more than 80% torn down, destroyed, deteriorated or decayed, no permit shall be granted.
- C. No permit shall be granted that would allow the establishment or creation of an airport hazard or that would permit a nonconforming structure or tree or nonconforming use to be made or to become higher or to become a greater airport hazard.
- D. In granting any permit, the administrative agency may, if it deems such action advisable to effectuate the purpose of this regulation and reasonable in the circumstances, so condition such permit as to require the owner of a structure or tree in question to permit

Camp Bullis, the Federal Aviation Administration or Bexar County, Comal County, Kendall County, City of Fair Oaks Ranch and City of Bulverde at its own expense, to install, operate and maintain thereon such markers and lights as may be necessary to indicate to flyers the presence of an airport hazard.

- E. Whenever any person prior to erection, alteration or relocation of structures or planting or transplanting of trees within the controlled compatible land use area makes a report of the contemplated erection, alteration or relocation of structures or the contemplated planting or transplanting of trees within said controlled compatible land use area, to the JAZB, the JAZB shall promptly investigate and determine whether or not there would be a violation of the ordinance, and if a violation is found, the committee shall so advise such person who shall thereupon alter his plans so as to meet the requirements of these regulations.

If the administrative agency issues a permit erroneously allowing the beginning of erection of any structure or tree, such permit shall not constitute a variance or be construed in any manner to allow any person to penetrate the imaginary surfaces established. It will remain incumbent on the sponsor, building, property owner or their agents, as the case may be, to prevent the creation of any object or use that will cause an airport hazard within the meaning of these regulations.

Each application for a permit shall indicate the purpose for which the permit is desired, with sufficient particularity to permit it to be determined whether the resulting use, structure, or tree would conform to the regulations herein prescribed. If such determination is in the affirmative, the permit shall be granted. No permit for a use inconsistent with the provisions of these regulations shall be granted unless a variance has been approved in accordance with Section 8.

In the area lying within the limits of the horizontal zone and conical zone, no permit shall be required for any tree or structure less than seventy-five (75) feet of vertical height above the ground, except when, because of terrain, land contour, or topographic features, such tree or structure would extend above the height limits prescribed for such zones.

In areas lying within the limits of the approach zones, but at a horizontal distance of not less than four-thousand-two-hundred (4,200) feet from each end of the runways, no permit shall be required for any tree or structure less than seventy-five (75) feet of vertical height above the ground, except when such tree or structure would extend above the height limit prescribed for such approach zones. Nothing contained in any of the foregoing exceptions shall be construed as permitting or intending to permit any construction, or alteration of any structure, or growth of any tree in excess of any of the height limits established by these regulations.

Nonconforming Uses Abandoned Or Destroyed - Whenever the Joint Airport Zoning Board, Building Official, or representatives of the Bexar County Commissioners, in consultation with the Commanding Officer of Camp Bullis, determines that a nonconforming use, hazardous structure or tree has been abandoned for a set time period or more than eighty (80) percent torn down, physically deteriorated, or decayed, no permit shall be granted that would allow such structure or tree to exceed the applicable height limit or otherwise deviate from the zoning regulations. Abandonment of a non-conforming use occurs after twelve (12) months of inactivity, or non-use.

## **Section 7. Nonconforming Uses**

The regulations prescribed herein shall not be construed as to require changes in the use of any land or other change or alteration of any structure not conforming to these regulations as of the effective date of these regulations or otherwise interfere with the continuance of any nonconforming use. Nothing contained herein shall be construed as to require any change in the construction, alteration, or intended use of any nonconforming structure, the construction of which was begun prior to the effective date of these regulations and is diligently prosecuted.

## **Section 8. Variances**

Any person who desires to use their property in violation of any of the regulations contained herein may apply to the board of adjustment for a variance. Such variances may be allowed where it is duly found that a literal application or enforcement of these regulations will result in practical difficulty or unnecessary hardship and the granting of relief would result in substantial justice, not be contrary to the public interest, and be in accordance with the spirit of these regulations. Any variance granted may, at the discretion of the board of adjustment, impose any reasonable conditions as may be necessary to accomplish the purpose of these regulations.

Any person who desires to erect, substantially change, or increase the height of any structure or establish or allow the growth of any tree which would exceed the height limitations set forth in Section 5 of these regulations or change the use of property in such a way as to create a hazardous condition as described in Section 4 of these regulations must apply to the board of adjustment and receive a variance. The application for variance must be accompanied by a determination from the Federal Aviation Administration under 14 C.F.R. Part 77 as to the effect of the proposal on the operation of air navigation facilities and the safe, efficient use of navigable airspace.

Such variances shall be allowed where it is duly found that a literal application or enforcement of the regulations will result in practical difficulty or unnecessary hardship and the granting of relief would result in substantial justice, not be contrary to the public interest or impede the military missions, and be in accordance with the spirit of these regulations.

## **Section 9. Board of Adjustment**

- A. The Board of Adjustment of Bexar County is hereby designated as the board of adjustment for the purposes of these regulations and shall have and exercise the following powers:
  1. hear and decide appeals from any order, requirement, decision, or determination made by the Administrative Agency in the administration or enforcement of these regulations;

2. hear and decide special exceptions to the terms of these regulations when the board is required to do so; and
  3. hear and decide specific variances.
- B. The board of adjustment shall be comprised of eleven (11) members and shall adopt rules for its governance and procedures in harmony with the provisions of these regulations.

Meetings of the board of adjustment shall be held at the call of the chairman and at such times as the board of adjustment may determine. The chairman, or in his/her absence the acting chairman, may administer oaths and compel the attendance of witnesses. All hearings of the board of adjustment shall be public. The board of adjustment shall keep minutes of its proceedings showing the vote of each member upon each question or if any member is absent or fails to vote, indicating such fact and shall keep records of its examinations and other official actions, all of which shall immediately be filed in the office of the board of adjustment. All such records shall be public records.

- C. The board of adjustments shall make written findings of fact and conclusions of law stating the facts upon which it relied when making its legal conclusions in reversing, affirming, or modifying any order, requirement, decision, or determination which comes before it under the provisions of these regulations.
- D. The concurring vote of nine (9) members of the board of adjustment shall be necessary to reverse any order, requirement, decision, or determination of the administrative agency, to decide in favor of the applicant on any matter upon which it is required to pass under these regulations, or to effect any variation in these regulations.

## **Section 10. Appeals**

- A. Any person aggrieved, or any taxpayer affected, by any decision of the administrative agency made in his administration of these regulations may appeal to the board of adjustment if that person or taxpayer is of the opinion that a decision of the administrative agency is an improper application of these regulations. This same right of appeal is extended to the governing bodies of the Bexar County, Comal County, Kendall County, City of Fair Oaks Ranch, and City of Bulverde Texas, and to the Camp Bullis Joint Airport Zoning Board.
- B. All appeals hereunder must be taken within a reasonable time as provided by the rules of the board of adjustment by filing a notice of appeal with the board of adjustment and the administrative agency specifying the grounds for the appeal. The administrative agency shall forthwith transmit to the board of adjustment all papers constituting the record upon which the action appealed was taken.
- C. An appeal shall stay all proceedings in furtherance of the action appealed unless the administrative agency certifies in writing to the board of adjustment that by reason of the facts stated in the certificate, a stay would, in the opinion of the administrative agency, cause imminent peril to life or property. In such case, proceedings shall not be stayed except by order of the board of adjustment on notice to the administrative agency and on due cause shown.

- D. The board of adjustment shall fix a reasonable time for hearing appeals, give public notice and due notice to the parties in interest, and decide the same within a reasonable time. Upon the hearing, any party may appear in person, by agent, and/or by attorney.
- E. The board of adjustment may reverse or affirm, in whole or in part, or modify the administrative agency's order, requirement, decision, or determination from which an appeal is taken and make the correct order, requirement, decision, or determination, and for this purpose the board of adjustment has the same authority as the administrative agency.

**Section 11. Judicial Review**

Any person aggrieved or any taxpayer affected by any decision of the board of adjustment may present to a court of record a petition stating that the decision of the board of adjustment is illegal and specifying the grounds of the illegality, as provided by the Airport Zoning Act, Texas Local Government Code Annotated, §§ 241.041.

**Section 12. Enforcement and Remedies**

The governing bodies of Bexar County, Comal County, Kendall County, City of Fair Oaks Ranch, and City of Bulverde Texas, or the Camp Bullis Joint Airport Zoning Board may institute in a court of competent jurisdiction an action to prevent, restrain, correct, or abate any violation of these regulations or of any order or ruling made in connection with their administration or enforcement including, but not limited to, an action for injunctive relief.

**Section 13. Penalties**

Each violation of these regulations or of any regulation order, or ruling promulgated hereunder shall constitute a misdemeanor and upon conviction shall be punishable by a fine of not more than \$100.00 and each day a violation continues to exist shall constitute a separate offense.

**Section 14. Conflicting Regulations**

Where there exists a conflict between any of the regulations or limitations prescribed herein and any other regulations applicable to the same area, whether the conflict be with respect to the use of land, the height of structures or trees, or any other matter, the more stringent limitation or requirement shall govern and prevail.

**Section 15. Severability**

If any of the provisions of these regulations or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or applications of the ordinance which can be given effect without the invalid provision or application, and to this end the provisions of these regulations are declared to be severable.

**Section 16. Adherence with State Laws**

Any actions brought forth by any person or taxpayer as a result of the administration, enforcement, or the contesting these regulations will be in accordance with the provisions of Texas Local Government Code, §§241.001 and other applicable State laws.

**Section 17. Effective Date**

WHEREAS, the immediate operation of the provisions of these regulations is necessary for the preservation of the public health, public safety, and general welfare, an emergency is hereby declared to exist, and these regulations shall be in full force and effect from and after its passage by the Camp Bullis Joint Airport Zoning Board and publication and posting as required by law.

Adopted by the Camp Bullis Joint Airport Zoning Board this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_

\_\_\_\_\_  
Chairperson, Camp Bullis Joint Airport Zoning Board

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Attest: \_\_\_\_\_

Secretary of Bexar County, Texas

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# Camp Bullis Rotary-Wing Safety Zones

## Camp Bullis Mission

Fort Sam Houston comprises approximately 3,000 acres in a highly urbanized part of San Antonio, severely limiting the ability to conduct on-site field training, especially during the night. Camp Bullis provides nearly 22,000 acres of invaluable field training and maneuver areas for Fort Sam Houston and multi-service medical training.

*Source: Camp Bullis Joint Land Use Study, June 2009*

## Aircraft Operations

### Overview

Air operations on the installation include the use of multiple landing zones (LZ) for helicopters, low-level helicopter flight corridors, and air combat drop zones (three for cargo and one for personnel). The UH-60 Blackhawk helicopter is the primary rotary-wing aircraft used at Camp Bullis in support of flight training and air-drop operations. The UH-1 Iroquois, OH-58 Kiowa, AH-1 Cobra, and the AH-64 Apache are also occasionally used. Helicopter flights operating at Camp Bullis originate primarily from Martindale Army Airfield (AAF) located southeast of Fort Sam Houston. According to Martindale AAF flight operations, approximately 5 to 10 rotary-wing training flights / missions per week are flown at Camp Bullis.

### Helicopter Operations at Camp Bullis

Helicopter missions occur in both daytime and nighttime (with use of night vision devices) and include aerial reconnaissance, medical evacuation (medevac) by helicopter air ambulance, point-to-point flights, combat air drops of paratroopers, and nap of the earth (NOE) flights. NOE flights are typically at high-speed as close to the earth's surface as vegetation, obstacles, or ambient light will permit (i.e., at tree-top level). Real world medevac operations are currently performed by the not-for-profit entity, San Antonio Airlife. The Army previously conducted the air medevac mission out of Fort Sam Houston; however, this support ceased when the Army medevac unit transitioned to providing support for military operations elsewhere. There is a small Army National Guard medevac unit based out of Martindale AAF; but San Antonio Airlife is currently the primary air ambulance service provider for Camp Bullis.

Helicopters in the Helicopter Drop Zone operate at altitudes of approximately 1,000 feet Above Ground Level (AGL), and the drop zone extends from a northeast to southwest direction. The zone terminates approximately three miles beyond the southwestern boundary of Camp Bullis.

The NOE Flight Corridor extends from the cantonment area north along the installation's west boundary, along the north boundary, and south along the east boundary to the

northern extent of the impact area/no fly zone. However, the primary path followed for NOE is along the northern boundary and the Cibolo Creek Bed. This training is typically conducted at altitudes of approximately 25 feet AGL above the highest obstacle along the route.

The Helicopter Flight Corridor includes flights between 250 and 500 feet AGL, which are conducted in the southwestern portion of Camp Bullis in the vicinity of the cantonment area.

There are five designated ingress and egress points for helicopters (see Figure 1-1):

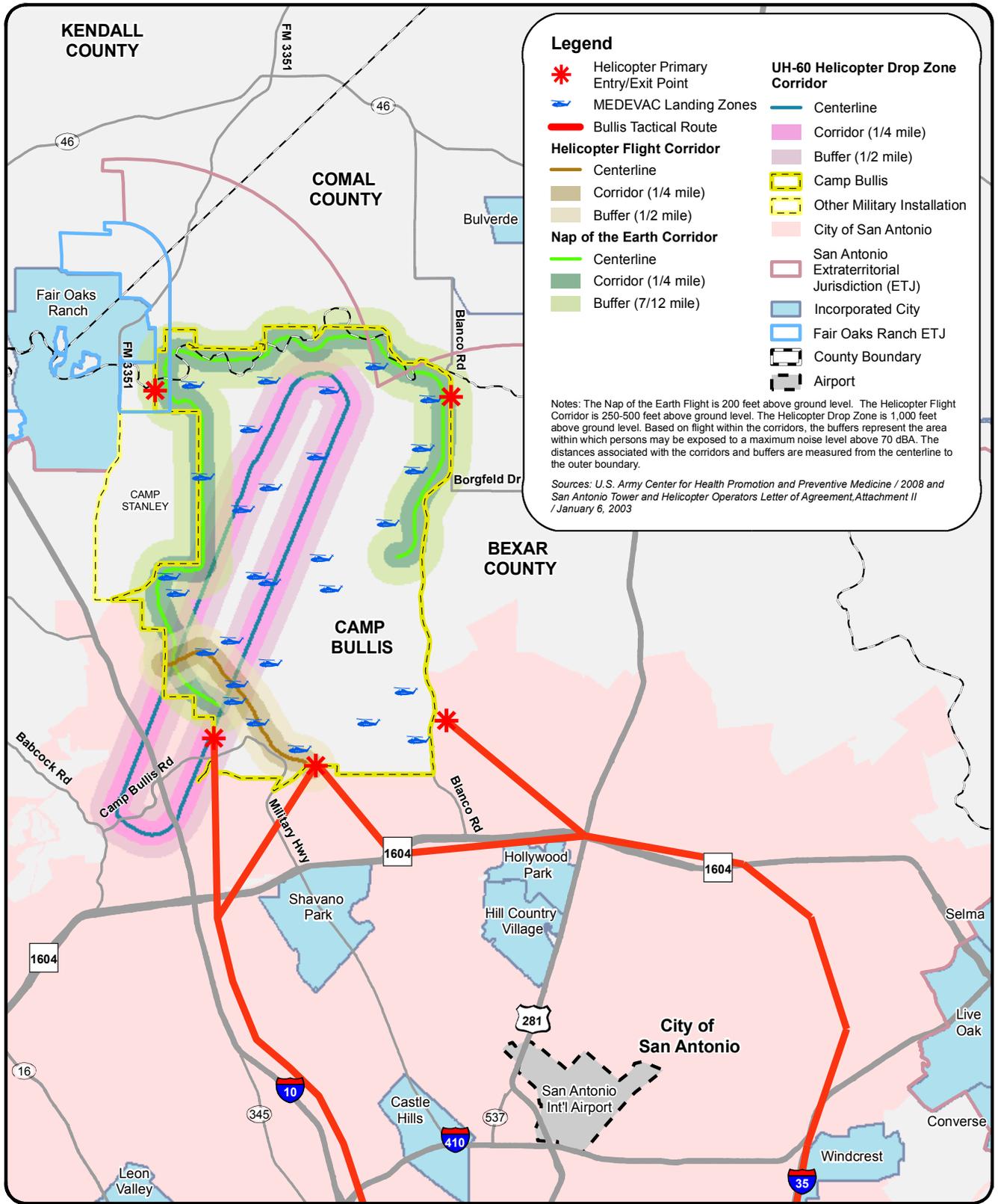
1. northwest corner near the City of Fair Oaks Ranch (County Line Road – West),
2. northeast corner along Blanco Road (County Line Road – East),
3. south-central boundary southeast of the cantonment area (Military Highway),
4. southwestern corner just west of the cantonment area (Bullis Road), and
5. southeastern corner vicinity of the installation boundary and Blanco Road.

Within the Camp Bullis boundaries, there are 29 LZs, which are located at key locations across the training area.

### **Helicopter Support and Flight Routes**

The majority of helicopter support for training at Camp Bullis is provided by the Texas Army National Guard located at Martindale Army Airfield (AAF), southeast of Fort Sam Houston. Helicopters from Martindale AAF fly into Camp Bullis up to six times a week for day and night training missions. This usually includes one to three UH-60 helicopters per mission. A Letter of Agreement (LOA) between the San Antonio International Airport (SAI) and the Texas Army National Guard at Martindale AAF prescribes operating procedures for Army helicopters flying between Camp Bullis and Martindale. Per the LOA, two different routes (Bullis Tactical Route and Interstate 10 [I-10] Route) are used to move between the installations, which follow San Antonio's major highways and attempt to avoid overflight of residential areas.

As a consideration to local communities and to comply with Title 14 of the Code of Federal Regulations (CFR) Part 91 General Operating and Flight Rules, Texas Army National Guard helicopters fly at or above 500 feet AGL when outside of Camp Bullis. This also allows them to avoid civilian medical, media, and safety helicopter traffic. According to 14 CFR Part 91, over any congested area of a city, town, or settlement, or over any open air assembly of persons, the minimum altitude for helicopters is 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft. National Guard Supplement 1 to Army Regulation 95-1, Flight Regulations, allows for a 500-foot AGL slant range over congested areas when aircraft are at 500 feet AGL. For flights over areas that are not considered congested, helicopters must maintain an altitude of 500 feet AGL, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure (§ 91.119 Minimum safe altitudes: General). To avoid SAI commercial traffic, they also do not fly above 1,900 feet



0 1.25 2.5 Miles

Matrix Design Group, Inc.

**Figure 1-1**  
**Helicopter Noise Corridors**

mean sea level (MSL). As a means of comparison, Martindale AAF sits at 674 feet MSL. The routes prescribed in the LOA are general routes that are subject to deviation based on factors such as weather, wind, and operational requirements. Within the Camp Bullis boundaries, Army National Guard helicopters are authorized to operate at or below 200 feet AGL.

The Bullis Tactical Route begins at Martindale AAF and is described in the LOA as follows:

- a. Departing Martindale AAF proceed directly to the intersection of I-35 and Loop 410 at or below 1,900 feet MSL. Helicopters should remain as high as possible (not to exceed 1,900 feet MSL), and avoid residentially developed areas in order to minimize noise pollution. Proceed along I-35 / I-410 north until reaching CP WINDSOR (intersection I-410 and I-35). Follow the railroad track / dry creek bed to intercept Loop 1604 at CP JUDSON (intersection Bulverde Road and Loop 1604) (south of rock quarry), then proceed west over Loop 1604 to south Camp Bullis as indicated. Helicopters flying to north Camp Bullis may depart the route at CP FIESTA (intersection Highway 281 and Loop 1604) as indicated proceeding directly to the east of Camp Bullis remaining clear of the range impact area and residential areas.
- b. Returning to Martindale AAF, the route is reverse of (a) above.

The I-10 Route begins at Camp Bullis and is described in the LOA as follows:

- a. Recovering to Martindale AAF, from the intersection of I-10W and northwest Loop 1604, maintain at or below 1,900 feet MSL. Helicopters should remain as high as possible (not to exceed 1,900 feet MSL), and avoid residentially developed areas in order to minimize noise pollution. Proceed along I-10 east-southeast bound, over CP CROSSROAD (intersection of I-10 and I-410), until reaching the intersection of I-10 and I-35 downtown. Proceed east, over CP DOWNTOWN (vicinity intersection I-10 and Spur 537), along I-35 until reaching the intersection of I-35 and I-410 at Salado Park. Then proceed directly to Martindale AAF.
- b. Departing Martindale AAF, the route is reverse of (a) above.

Active duty helicopters also train at and support operations at Camp Bullis. These aircraft can arrive from a variety of installations other than Martindale AAF, and there are no established tactical routes for these flights.

The approach and departure procedures are described as follows:

- a. Pilots entering the airspace from installations other than Fort Sam Houston or Martindale AAF must share the airspace with other civilian aircraft and fly to Camp Bullis under the direction of the civilian control towers.
- b. When these helicopters get close to Camp Bullis, they make radio contact with Camp Bullis range control to coordinate for, gain entry to, and maneuver within the installation's airspace. Flights from outside facilities are difficult to map since they do not fly over established routes like those noted in the SAI / Texas Army National Guard LOA.

## **Aircraft Operations Safety**

Helicopter routes outside of and within the Camp Bullis boundaries are not exact. As noted above, deviations from the routes shown on Figure 1-1 may be made for any number of reasons. These include, but are not limited to weather, heavy winds, operational requirements, obstacles, other aircraft in the airspace, safety requirements, etc. For this reason, it is important that safety zones be established to support rotary-wing flight operations. Since Army helicopter flights are controlled by civilian air traffic controllers up to the Camp Bullis boundary, the safety zones are primarily focused along the boundaries of the installation where NOE training takes place, where the drop zone flight paths extend into City of San Antonio lands, and where ingress / egress points have been established with the Texas Army National Guard.

## **Flight Paths / Corridors**

### ***Nap of the Earth***

By definition, NOE flights follow the terrain. Although helicopters flying this method should remain within the confines of Camp Bullis, there may be instances where crossing outside of the installation boundary is necessary (i.e., safety, weather, emergencies, etc.). In these situations, a safety buffer would be beneficial for the safety of the helicopter crew and passengers, as well as for people on the ground. As an action step, a 1/4-mile safety buffer should be established from the installation boundary along the NOE Flight Corridor. This would provide for emergency situations where a landing on property outside of the installation is needed.

### ***Drop Zone Flight Paths***

Helicopters performing air drop operations fly at approximately 1,000 feet AGL, which provides sufficient clearance from existing development and structures. Approximately 75 percent of the drop zone corridor is over Camp Bullis. The remaining 25 percent of the corridor is over City of San Antonio lands southwest of the installation. Safety zones beneath the off-installation portion of the corridor could include land use regulations restricting establishment of landfills, water bodies that could attract birds, or development of facilities that are extremely tall, produce steam / smoke, or release decorative objects (i.e., party balloons, large helium-filled balloons promoting attractions / merchandise / housing tied to commercial roofs, etc).

### ***Designated Ingress / Egress Points***

Similar to the flight routes / corridors described previously, the designated ingress / egress points located generally at the corners of the installation are not exact. Helicopters do not necessarily pass directly over a specific point on the ground. Also, the altitudes at which aircraft cross into / out of Camp Bullis vary. Consequently, in the interest of safety, zones measuring 1/4 mile in radius should be established. Land use regulations restricting the establishment of landfills, water bodies that could attract birds, or development of facilities that are extremely tall or produce steam / smoke, or the release of decorative objects would ensure a safe approach and departure.

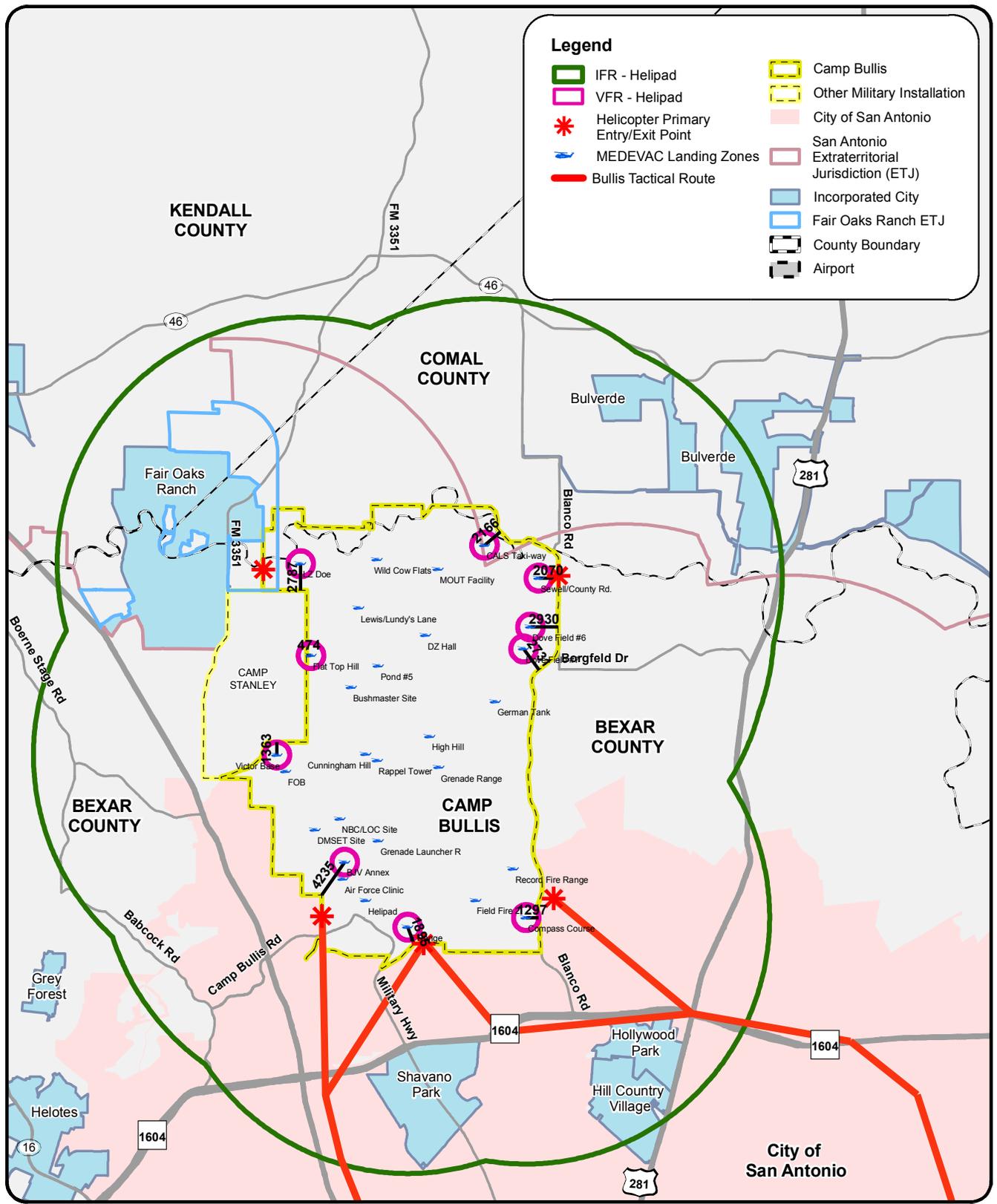
### ***Landing Zones / Helipads***

In addition to the air operations noted above, safety zones related to the 29 LZs need to be evaluated. United Facilities Criteria (UFC) 3-260-01, Airfield and Heliport Planning and Design, November 17, 2008, provides standardized airfield, heliport, and airspace criteria for the geometric layout, design, and construction of runways, helipads, taxiways, aprons, and related permanent facilities to meet sustained operations at Department of Defense military facilities in the United States. For the purposes of this document and related helicopter safety zones, the UFC provides imaginary surface dimensions and details for the Visual Flight Rules (VFR) helipads. Helipads allow for a helicopter hovering, landing, and takeoff. Except at facilities where helicopter runways are provided, helipads are the landing and takeoff locations for helicopters. The following details safety zones and imaginary surfaces for the Army and Air Force standard VFR helipad. Figure 1-2 illustrates the VFR helipads at Camp Bullis.

#### ***VFR Helipads***

To ensure safe helicopter approaches and departures from a helipad while operating under VFR, the UFC calls for obstacle-free areas extending from the center of the helipad and along the approach-departure axis outward to 1,350 feet. This distance includes the helipad's primary surface, Clear Zone (CZ), and Accident Potential Zone I (APZ I) (see Figure 1-2). . The approach-departure clearance surface extends from the edge of the helipad's primary surface at a slope ratio of 8 (horizontal): 1 (vertical). This slope equates to a height of 150 feet at the furthest extents of the approach-departure clearance surface.

Of the 29 established LZs on Camp Bullis, the only LZ with safety zones not completely located within the installation boundary is the Compass Course LZ, which is located in the installation's southeast corner, south of the firing ranges. This LZ is 1,297 feet from the boundary and Blanco Road. A helicopter approaching from or departing to the east will be at a height of 143 feet at the installation boundary. Based on the requirements listed in the UFC, APZ I / the approach-departure clearance surface extends 53 feet outside of the installation boundary, which can be potentially problematic for aircraft approaching from or departing to the east from Compass LZ . Figure 1-3 illustrates the extents of the VFR APZ I / the approach-departure clearance surface for the LZs proximate to the Camp Bullis perimeter.



0 1.25 2.5 Miles

Matrix Design Group, Inc.

**Figure 1-2 Helipad IFR and VFR**

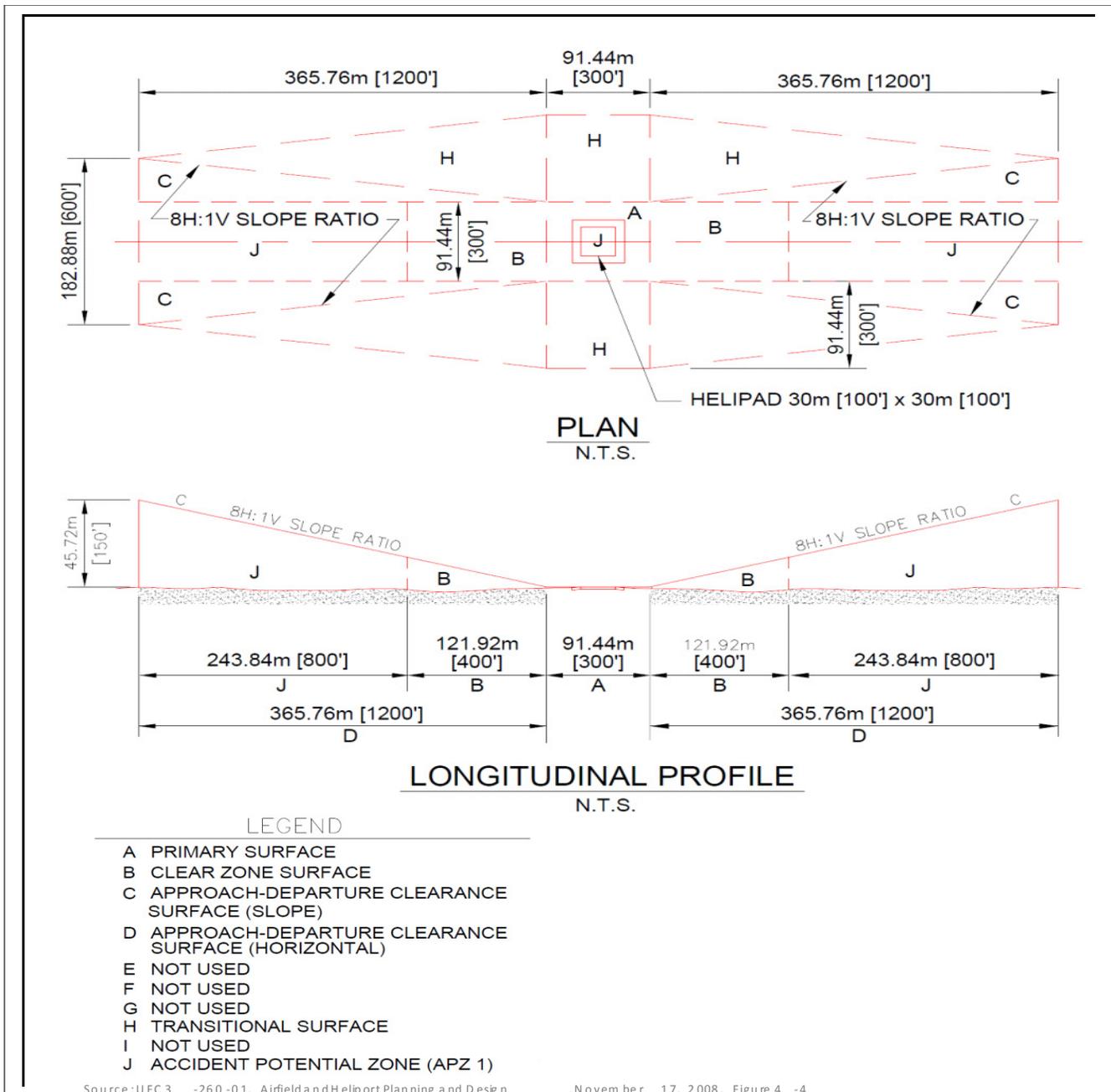


Figure 1-3 VFR Helicopter Helipad Safety and Imaginary Surfaces

# Camp Bullis Joint Land Use Study (JLUS) Implementation Plan Compatibility Standards Report Per Texas House Bill 2919

## Introduction

In 2009, the Legislature of the State of Texas passed House Bill 2919 (HB 2919) in an effort to increase the compatibility of civilian development surrounding military installations. The law prescribes methods for increasing coordination between local jurisdictions and military installations. It also puts in place requirements demonstrating how communities should make decisions about the types of land uses that are approved within certain proximity of a military installation.

The Camp Bullis Regional Sustainability Commission's requirement to develop Compatible Development Standards (CDS) defines the parameters of HB 2919 and provides interpretations that are relevant to the specific communities surrounding Camp Bullis. In addition, this report outlines the specific Compatible Development Standards that the Camp Bullis Regional Compatibility Commission could use in the evaluation of proposed plans, regulations and structures within the area of concern.

## Purpose

In order to ensure that current military facilities remain in use for military, national security, and international training purposes, it is essential that the jurisdictions surrounding military installations encourage compatible development and use, develop and enforce adequate regulation to prevent incompatibilities with military missions that interfere with the proper continued use of those areas as secure locations for military installations and missions; and the effective operation of the military installations and missions. With this goal in mind, the intended purpose of HB 2919 is to:

1. promote the public health, safety, and general welfare;
2. protect and preserve places and areas of military and national security importance and significance;
3. protect critical military missions and operations related to those missions; and
4. ensure state and national security.

## Bill Summary

HB 2919 modifies the Texas Local Government Code in two ways. Primarily, it requires defense communities (as defined by the amendments) to engage in consultation with Base Defense Authorities. The first part of the law does not apply to the Camp Bullis region and therefore will not be discussed here. Secondly, the law allows defense communities (as defined by the amendments) to create Regional Military Sustainability Commissions (RMSC) and endows those commissions with certain planning rights and responsibilities.

## Regional Military Sustainability Commission

Applies to:

- A defense community constituted by a county with unincorporated area located within five miles of the boundary line of a military installation and a municipality of 1.1 million or more with extraterritorial jurisdiction located within five miles of an installation's boundary line, with certain exceptions.

In the case of Camp Bullis, the defense community is comprised of:

- Bexar County
- Comal County
- City of San Antonio

### Process for Establishing a Regional Military Sustainability Commission (RMSC)<sup>1</sup>:

**Step 1:** Each participating governmental entity must hold two public hearings to consider the creation of the proposed commission.<sup>2</sup>

- Hearings must not be earlier than the 60th day or later than the 30th day before the date the governing body of each participating governmental entity establishes a regional military sustainability commission.
- Each governing body is required to prominently post notice of the hearing in the administrative offices of the governmental entity and publish notice of the hearing in a newspaper of general circulation, if any, in the proposed territory at least seven days before each public hearing,.
- The notice must:
  - *state the date, time, and place for the public hearing;*
  - *identify the boundaries of the proposed territory, including a map of the proposed territory; and*
  - *provide a description of the proposed commission's functions.*

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<sup>1</sup> Section 397A.001 and Sections 397A.002-397A.050

<sup>2</sup> Section 397A.053

**Step 2:** Establish and fund a regional military sustainability commission to regulate development in the area that surrounds a military installation according to the following guidelines:

- The regional military sustainability commission may not be composed of more than nine members.
- Participating governmental entities may, by joint agreement, determine the number, qualifications, and method of selecting members of a commission.
- A member of a commission may not be an elected official of a participating county or municipality.<sup>3</sup>
- Defense communities may not establish more than one commission in a county.

### **RMSC's Territory**

- A commission's territory consists of the unincorporated area located within two miles of the boundary line of a military installation designated as the commission's territory when the commission is established.
- If a military installation is engaged in flight training at the time a commission is established under this section, the commission's territory consists of the unincorporated area located within three miles of the boundary line of the military installation.

In the case of Camp Bullis, which is a military installation engaged in flight training, the commission's territory would consist of the unincorporated areas that are both located within an extraterritorial jurisdiction and are located within three miles of the boundary line of the military installation.

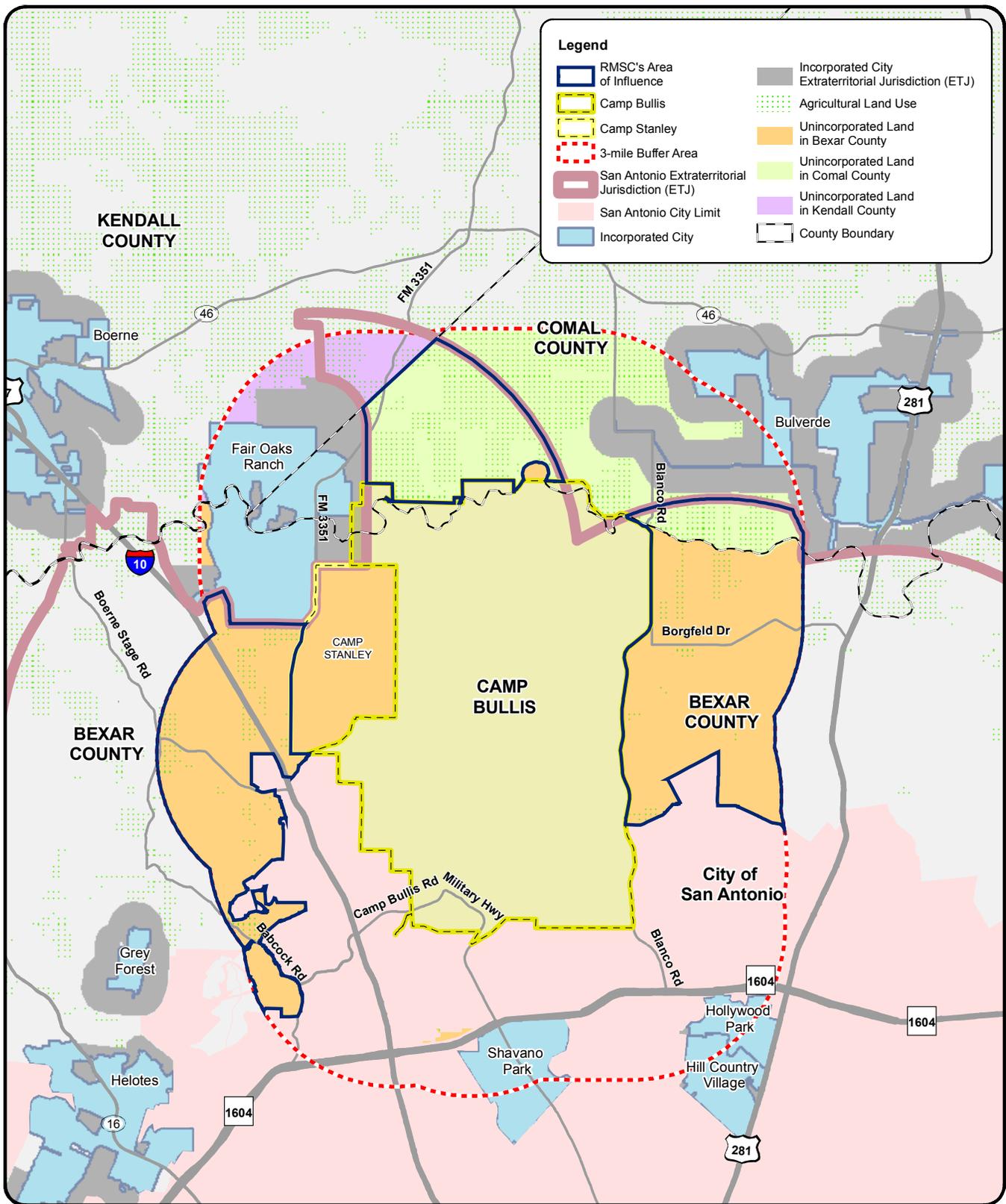
In a legal opinion issued by the City of San Antonio, the City Attorney's office defined the Regional Military Sustainability Commission's "territory" as the area which is located within three miles of Camp Bullis, is in the same county as the active military installation (Bexar and Comal) and in the extraterritorial jurisdiction of the City of San Antonio. 397A.052 (a) and (d).

Therefore, in keeping with this interpretation of HB 2919 the RMSC's Area of Influence (AOI) encompasses the following jurisdictions, as shown on Figure 1:

- Bexar County
- Comal County

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<sup>3</sup> Section 397A.054



**Legend**

|   |   |
|---|---|
| RMSC's Area of Influence                        | Incorporated City Extraterritorial Jurisdiction (ETJ) |
| Camp Bullis                                     | Agricultural Land Use                                 |
| Camp Stanley                                    | Unincorporated Land in Bexar County                   |
| 3-mile Buffer Area                              | Unincorporated Land in Comal County                   |
| San Antonio Extraterritorial Jurisdiction (ETJ) | Unincorporated Land in Kendall County                 |
| San Antonio City Limit                          | County Boundary                                       |
| Incorporated City                               |   |

0 1.25 2.5 Miles

Matrix Design Group Inc.

**Figure 1**  
**Camp Bullis Regional Military Sustainability Commission's (RMSC) Area of Influence**

## RMSC Requirements

- Recommend compatible development standards<sup>4</sup> for the commission's territory, subject to approval by a majority vote of each participating governmental entity.
- The commission must consider, as part of the regional compatible development standards, standards required by the Federal Aviation Administration regulations for military installations that service aircraft and helicopters.
- The commission shall submit the proposed compatible development standards to the participating governmental entities for approval.
- Before taking action to approve or reject the compatible development standards proposed by the commission, the participating governmental entities shall:
  - *provide notice of the commission's proposed compatible development standards to property owners in the commission's territory, as determined by the most recent county tax roll.*
  - *publish notice of the commission's proposed compatible development standards in a newspaper of general circulation, if any, in the commission's territory<sup>5</sup>*
- The compatible development standards are final after approval by a majority vote of each participating governmental entity.
- Notice of the final compatible development standards must be provided to all appropriate taxing entities for filing in the real property records of the county.
- The commission may include, in the proposed compatible development standards, a recommendation to a participating governmental entity to purchase property in the commission's territory as practical to protect a critical military mission.
- The governing body of the participating governmental entity, on receipt of an application for a permit for a new project in the territory, must review the application and request a report from the commission regarding the proposed project's compatibility with the military installation's mission and related operations.
- Establish an advisory committee, composed of members representing both the military installation and landowners within commission territory, and to consult with that committee in its review of an application.
  - *Three of the members appointed to the committee must represent the military installation for which the commission is established and three members must represent landowners in the area surrounding the military installation.*
- Review the compatibility of the new project with the military installation's military missions and related operations based on the commission's compatible development standards.

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<sup>4</sup> Section 397A.056

<sup>5</sup> The failure of notice to reach each property owner under Subsection (b) does not invalidate compatible development standards adopted under this section.

- Required to submit a report of its findings, including a recommendation regarding compatibility, to the reviewing governmental entity<sup>6</sup> not later than the 30th calendar day after the date the request was made.
  - *The report must include an estimate of the fiscal impact on the affected property of any recommendations submitted by the commission, if the fiscal impact is determinable based on the project description and other information provided by the developer.*

### **RMSC Authorities**

- The reviewing governmental entity can disapprove the permit application based on a recommendation of the commission and a landowner to appeal all or part of the report or permit application decision to a district court, which may reverse or modify the report or permit application.
- The commission can apply for, contract for, receive, and expend for its purposes, a grant or funds from any source, and it authorizes a participating governmental entity to appropriate funds to the commission.
- A participating governmental entity can withdraw from a regional military sustainability commission. For the continuance of a commission and its development standards (in the event of closure of the military installation) the surrounding area remains regulated by the commission.

(Source: Legislative Reference Library <http://www.lrl.state.tx.us/>)

## **Compatible Development Standards (CDS)**

Per HB 2919, the Compatible Development Standards (CDS) must be coordinated with:

- a. the county plan for growth and development of the participating county or a county located in the Regional Military Sustainability Commission 's territory;
- b. the comprehensive plan of the participating municipality;
- c. the most recent Joint Land Use Study (JLUS), if the commission makes a finding that the conclusions of the study accurately reflect circumstances in the territory; and
- d. standards required by the Federal Aviation Administration regulations for military installations that service aircraft and helicopters.

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<sup>6</sup> *The reviewing governmental entity may not take action on the permit application until it receives the report of the commission. If the commission finds that the proposed new project is not compatible with the military installation's missions and recommends denial of the permit application, the reviewing governmental entity may disapprove the permit application.*

*On annexation of an area in the commission's territory for full or limited purposes by a municipality, the area is removed from the commission's territory. If the municipality deannexes the area, the area is included in the commission's territory.*

*On receipt of an application for a permit for a new project in the commission 's territory, the governing body of the participating governmental entity shall review the application and request a report from the commission regarding the proposed*

Per the regulations, the planning documents for each of the participating jurisdictions will have to be factored into the CDS. The Camp Bullis JLUS, completed in 2009, provides a recent and accurate assessment of the various local planning regulations that apply to the area in question and identifies the specific compatibility concerns relating to Camp Bullis. The CDS will correspond directly with the recommendations developed in the JLUS.

## Community Plans

### **Bexar County Development Standards**

Bexar County has adopted development standards for subdividing property into two or more parcels. Minimum standards are set for the provision of potable water, wastewater disposal, and building setbacks. The main purpose of the development standards is to ensure adequate access to water and to establish construction standards. Compatibility issues such as notification of property owners purchasing within proximity to a military installation or sound attenuation standards are not addressed.

### **Comal County Development Standards**

Comal County's minimum lot size is 1 acre for new subdivisions when public water is provided, and 5.01 acres when individual wells are required. Lot size limitations are expected to change as additional water supply and sewage collection and treatment become available. Similar to Bexar County, development standards do not address sound attenuation or require real estate sales disclosure pertaining to proximate military activities.

### **City of San Antonio Comprehensive Plan**

The City has not adopted a city-wide land use plan, but has prepared neighborhood, community, and corridor plans. The City is currently in the process of preparing sector plans, which will collectively comprise the city-wide land use plan. Many of these plans include proposed land uses and zoning districts. Comprehensive plan policies include the following: addressing Growth Management, Economic Development, Community Services, Neighborhoods, Natural Resources and Urban Design. Land use plans have been prepared for the San Antonio International Airport Area and the Stinson Airport Vicinity. Many neighborhood plans and several community plans have also been adopted; however there are also many master development plans that have been prepared within the area surrounding Camp Bullis. The comprehensive plan policies are a conditional planning tool.

## Federal Aviation Act (FAA) Standards

The focus of the FAA Part 77 is to establish standards used to determine obstructions within navigable airspace, typically within a certain distance from an airport or airfield. It defines an obstruction to air navigation as an object that is of "greater height than any of the following heights or surfaces:

- A height of 500 feet AGL at the site of the object.

- A height that is 200 feet AGL or above the established airport elevation, whichever is higher, within 3 nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to maximum of 500 feet.
- A height within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area, which would result in the vertical distance between any point on the object and an established minimum instrument flight altitude within that area or segment to be less than the required clearance.
- A height within an en route obstacle clearance area, including turn and termination areas, of a Federal airway or approved off-airway route that would increase the minimum obstacle clearance altitude.
- The surface of a takeoff and landing area of an airport or any imaginary surface established under 77.25, 77.28, or 77.29. However, no part of the take-off or landing area itself will be considered an obstruction. (For additional information on FAA Part 77, please see Appendix E.)

## Compatibility Issues identified in the Joint Land Use Study

The Camp Bullis JLUS, completed in 2009, identified the following issues listed below to be primary compatibility concerns within the overall JLUS study area. Among the most common factors causing incompatibility with military airfield and weapons training installations are the high levels of noise created by aircraft and firing ranges, heights of civilian structures near the installation, as well as off-installation light pollution that negatively impacts the use of night vision devices (NVD) for military air and ground training. The development of land uses incompatible with the installation's military mission threatens that installation's continued existence. The compatibility factors discussed in the Camp Bullis JLUS include:

- Land Use
- Safety Zones
- Vertical Obstructions
- Infrastructure Extensions
- Noise
- Vibration
- Light and Glare
- Frequency Spectrum Impedance and Interference
- Public Trespassing
- Legislative Initiatives
- Interagency Coordination
- Water Quality
- Threatened and Endangered Species
- Competition for Land, Air and Sea Spaces

- Frequency Spectrum Capacity
- Ground Transportation Capacity

## Compatibility Development Standards

A regulation or compatible development standard does not apply to<sup>7</sup>:

1. A tract of land used for a single-family residence that is located outside the boundaries of a platted subdivision;
2. A tract of land in agricultural use;
3. An activity or a structure or appurtenance on a tract of land in agricultural use; or
4. An area designated as part of the commission's territory that is subject to the jurisdiction of a regulatory agency<sup>8</sup>, and that, on the effective date of the Act adding this chapter, is:
  - A. within the boundaries of a project<sup>9</sup> and any revision to the project that has accrued rights;
  - B. the subject of a permit<sup>10</sup> issued by or a permit application filed with a regulatory agency; or
  - C. subject to a plan for development or plat application filed with a regulatory agency.

As per HB 2919, the above stated requirements for lands, permits, projects, plans for development and plat applications overseen by the following agencies cannot be regulated by the RMSC:

- Bexar County
- San Antonio Water System
- State of Texas Fish and Wildlife
- US Fish and Wildlife Service
- Edwards Aquifer
- School Districts
  - Northside Independent School District
  - North East Independent School District
  - Boerne Independent School District
  - Comal Independent School District

<sup>7</sup> Section 397A.051

<sup>8</sup> "Regulatory agency" means the governing body of, or a bureau, department, division, board, commission, or other agency of, a political subdivision acting in its capacity of processing, approving, or issuing a permit. (Section 245.001)

<sup>9</sup> "Project" means an endeavor over which a regulatory agency exerts its jurisdiction and for which one or more permits are required to initiate, continue, or complete the endeavor. (Section 245.001)

<sup>10</sup> "Permit" means a license, certificate, approval, registration, consent, permit, contract or other agreement for construction related to, or provision of, service from a water or wastewater utility owned, operated, or controlled by a regulatory agency, or other form of authorization required by law, rule, regulation, order, or ordinance that a person must obtain to perform an action or initiate, continue, or complete a project for which the permit is sought. (Section 245.001)

**OBJECTIVE 1: To protect the safety of citizens by discouraging high-density development within Accident Potential Zone (APZ) and Combat Assault Landing Strip (CALs) approach and departure routes (Safety MIA).**

**BACKGROUND:** As shown on Figure 2, the Clear Zone (CZ) for the existing CALs runway does not extend off base. However the APZ I and APZ II for a future Class A expanded runway<sup>1</sup> would extend beyond the installation. APZ I would extend halfway beyond the boundary of Camp Bullis to the east, and APZ II would be located entirely off of the boundary to the east.

**RECOMMENDED DEVELOPMENT STANDARDS:** The portion of the APZs which extend beyond the boundary of the installation and are located within the three mile area of influence (to be compliant with the provisions of the Regional Military Sustainability Commission territory, if implemented in the future) should be subject to the following standards:

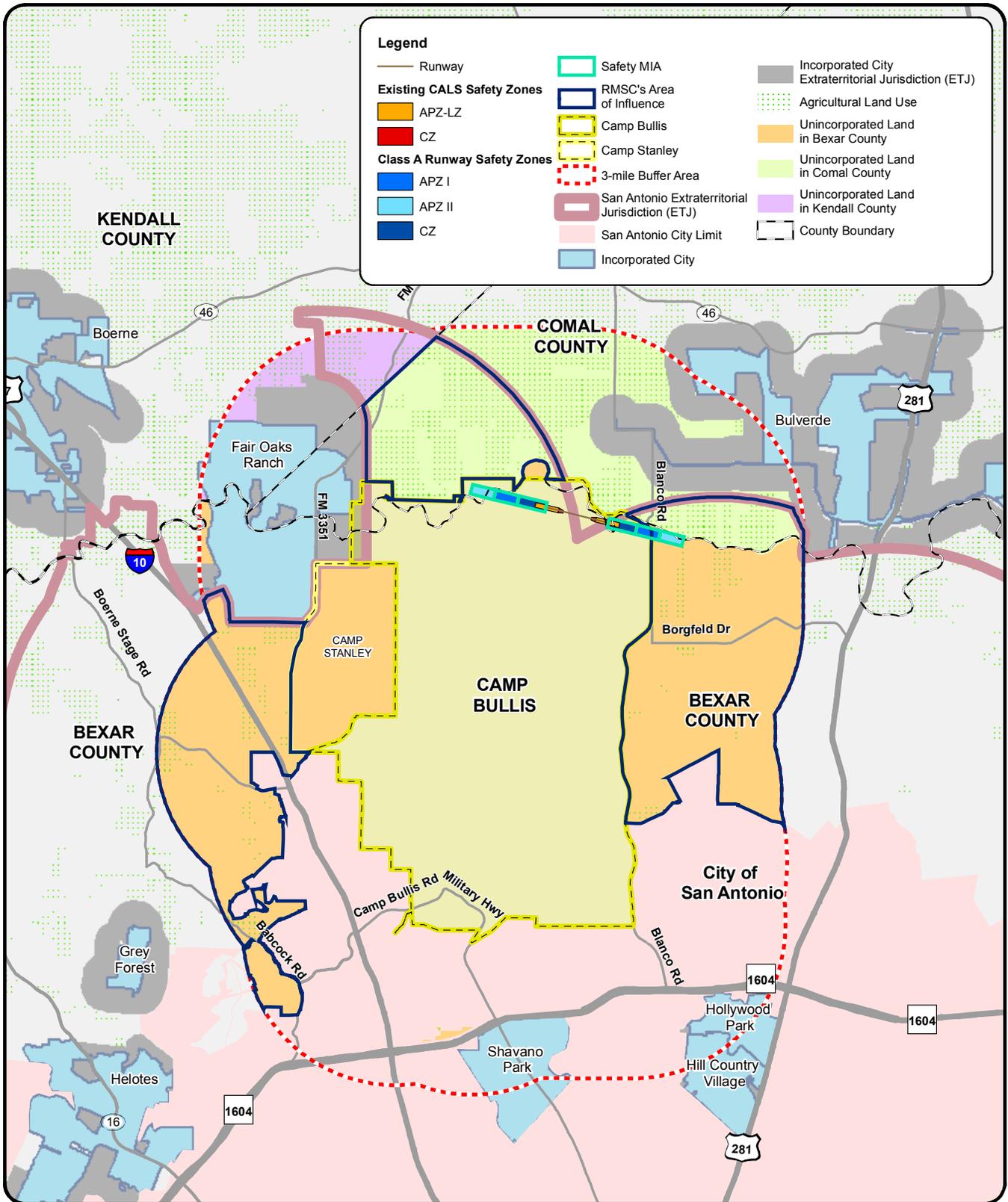
- *Discourage new construction within 150 feet of Camp Bullis' fence line.*
- *Encourage the retention of current agricultural uses and resource protection activities.*
- *Discourage the subdivision of small lots.*
- *Seek opportunities where the transfer of development rights (TDR) can be used.*
- *Seek opportunities where the establishment of limited use easements or conservation easements can be accomplished.*
- *Discourage residential uses within any APZ.*

**RECOMMENDED PERMISSIBLE LAND USES:**

- *Agricultural (farm, ranch and rural development), Open Space, Resource Protection.*  
*Conditionally acceptable uses:*
  - *Office District (1-story height limitation, considered as conditional use)*
  - *Industrial (Light, General, Heavy, Mixed; considered as conditional use)*

---

(1) Although there is possibility to upgrade the CALs to a Class A runway in the future, there is currently no projected timeframe for this to occur nor any plan to do so. The decision to upgrade would need to be preceded by an environmental study, community input, and potential acquisition of easements in those portions of the new APZs that extend off-post.



0 1.25 2.5 Miles

Matrix Design Group, Inc.

**Figure 2**  
Safety Issues in the RMSC's Area of Influence

**OBJECTIVE 2: To avoid the construction of structures that could interfere with Camp Bullis' fixed and rotary-wing aircraft training and/or are within the Vertical MIA, as shown on Figure 3.**

**RECOMMENDED DEVELOPMENT STANDARDS:**

- Discourage new construction within 150 feet of Camp Bullis' fence line.
- Require building elevations of proposed units with height dimensions to be provided at the time of building permit application.
- Allow for the purchase of critically located property by an appropriate governmental entity.
- Per FAA requirements, any structure to be placed within three miles of Camp Bullis will not exceed:
  - A height of 500 feet AGL at the site of the object.
  - A height that is 200 feet AGL or above the established airport elevation, whichever is higher.
  - Within three nautical miles of the established reference point of an airport (excluding heliports), with its longest runway more than 3,200 feet in actual length, height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 500 feet.

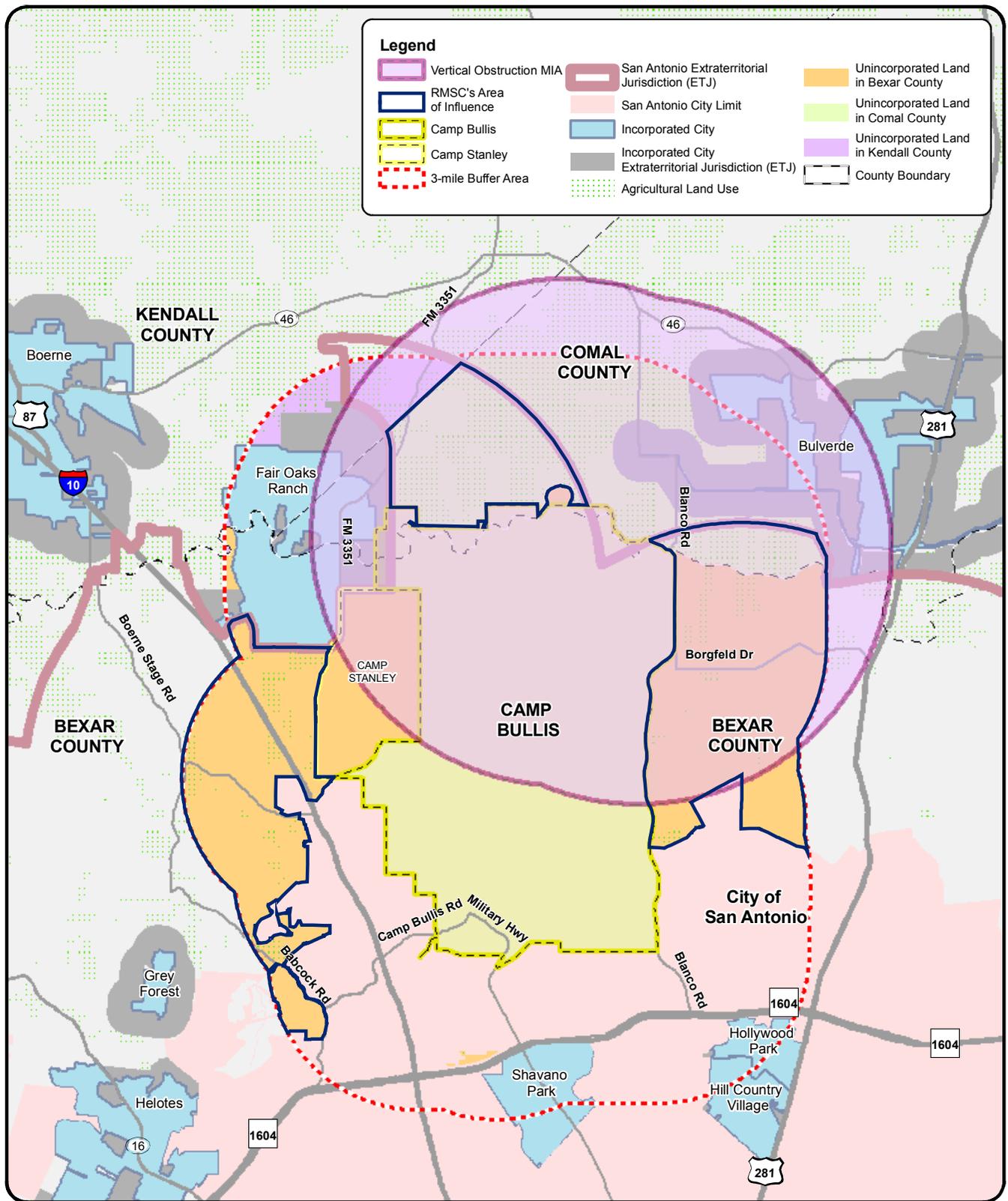
**RECOMMENDED PERMISSIBLE LAND USES:**

- Open Space.
- Conservation Area (pursue conservation easements where possible).
- Low density Residential not to exceed 35 ft. or 2.5 stories providing it is not located in high dB noise contours.
- Community and Neighborhood Commercial Uses (not to exceed 35 feet in height or outdoor lighting restrictions).
- Industrial Uses (not to exceed height restrictions or outdoor lighting restrictions).
- Racetracks and Emergency Vehicle Training Uses (may be appropriate as long as they do not generate excessive dust, frequency interruptions, or light at night, and are consistent with the North Sector Land Use Plan).

**OBJECTIVE 3: Avoid incompatible development in the CALS approach and departure routes.**

**RECOMMENDED DEVELOPMENT STANDARDS:** These standards pertain to lands in Comal County that are also located within the three mile area of influence.

- Discourage new construction within 150 feet of Camp Bullis' fence line.
- Encourage the continued use of existing compatible land uses (agricultural, open space).
- Discourage new development proposed for the areas located to the north and northeast of the boundaries of Camp Bullis, which are currently used for farming or are designated to be retained in their native condition.



**Figure 3**  
**Vertical Obstruction in the RMSC's Area of Concern**

- Pursue conservation easements (where possible).
- Allow for the acquisition of critically located property (by an appropriate governmental entity).
- Seek opportunities where the transfer of development rights can be used.
- Create conservation area buffer zones that protect the Camp Bullis mission by preventing development.
- Discourage residential, industrial, and commercial uses.

**RECOMMENDED PERMISSIBLE LAND USES:**

- Resource protection and open space.
- Livestock farming and animal breeding.
- Agricultural and forestry related activities.
- Fishing activities and related services.
- Mining activities and other resources production and extraction as long as they do not generate excess dust, light pollution, or height restrictions.

**Objective 4: To prevent the attraction of birds across fixed and rotary-wing flight routes and to coordinate land uses with the Camp Bullis Bird Air Strike Hazard (BASH) Plan (if authorized and implemented in the future).**

**BACKGROUND:** As shown on Figure 4, the UH-60 flight paths and their noise contours extend beyond Camp Bullis to the southwest over San Antonio lands in the area of influence. In addition, the rotary-wing Nap of the Earth (NOE) route around the perimeter of the Camp and approach and departure paths to/from the CALS are areas of concern.

**RECOMMENDED DEVELOPMENT STANDARDS.** In order to manage these issues, the following standards should apply:

- Recommend no construction within 150 feet of Camp Bullis' fence line.
- Recommend denial of all projects that include landfills or uncovered outdoor water storage areas.
- All development permits should be determined compatible with the requirements of the Camp Bullis BASH plan (if authorized and implemented in the future) prior to consideration and approval.

**RECOMMENDED PERMISSIBLE LAND USES:**

- Agricultural and open space (may attract birds and if allowed, should be managed to avoid crop flooding, wetlands).
- Residential, as long as wells and outdoor water ponds are managed.
- Non-residential, providing they do not interfere with aviation related ingress and egress routes.
- Conservation easements (pursue where possible).



**OBJECTIVE 5: To mitigate noise concerns and exposure generated by Camp Bullis fixed and rotary-wing aircraft and firing ranges.**

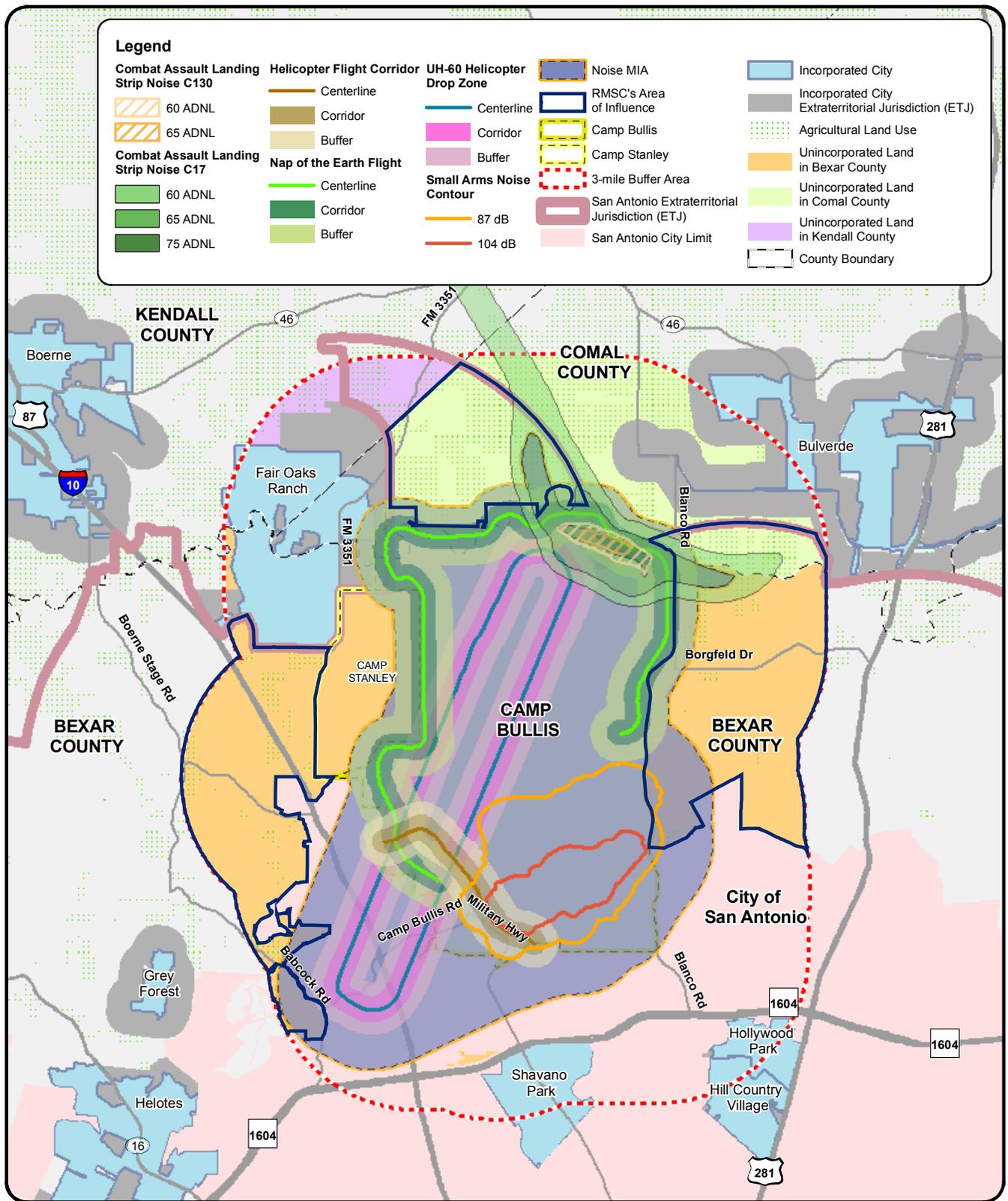
**BACKGROUND:** As shown on Figure 5, both the CALS 65 and 60 decibel contours extend beyond Camp Bullis from the north into Comal County. A majority of the land in this area is in agricultural use.

**RECOMMENDED DEVELOPMENT STANDARDS:** In order to manage these issues, the following standards should apply:

- Discourage new construction within 150 feet of Camp Bullis' fence line.
- Limit noise sensitive land uses, as designated in the Military Sound Attenuation Overlay District (MSAO), including:
  - Single-Family and Multi-family Residential.
  - Assisted living facilities, nursing facilities, adult day care and similar congregate living uses.
  - Schools-primary, secondary, colleges, and universities, with some exceptions.
  - Religious worship and/or study facilities.
  - In-patient medical facilities including hospital and residential treatment centers.
  - Funeral homes.
  - Child care facilities.
  - Senior / community centers / libraries.
  - Habitable portions of the uses identified above will either:
    - Achieve an outside to inside noise reduction of 25 decibels.
    - Utilize construction materials to achieve a sound transmission class (STC) rating of 40 for walls and ceilings; a rating ranging from 30 to 40 (based on window / door composition of wall area) for windows and doors; and comply with provisions for air circulation / fresh air without the need to open windows, doors or other exterior openings.
- Schools and hospitals should not be located in this area.

**RECOMMENDED PERMISSIBLE LAND USES:**

- Resource and Agricultural (allowed in all noise contours).
- The following are acceptable uses within the 65 to 74 dB noise contours:
  - Commercial- Neighborhood, Community and Regional.
  - Industrial-Heavy, Light, Business Park – providing light and vertical obstructions are not generated.
  - Office District (High-Rise, Mid-Rise) – providing vertical obstructions are not generated.
  - Conditionally acceptable uses are:
    - Residential (Single Family, Mixed) between 1 and 11 units per acre - with the appropriate sound attenuation design or real estate disclosures.



0 1.25 2.5 Miles

Matrix Design Group, Inc.

**Figure 5**  
**Noise Issues and Flight Paths**  
**in the RMSC's Area of Influence**

**OBJECTIVE 6: To avoid additional light generation, especially by structures that are located at a higher elevation than Camp Bullis and to reduce light pollution and glare generated by existing and new development that would negatively impact night vision device (NVD) training.**

**BACKGROUND:** The cities of San Antonio and Shavano Park, as well as the counties of Comal and Bexar have all adopted dark sky ordinances to protect the missions at Camp Bullis. Camp Bullis uses night vision devices in training areas near the perimeter of the installation's boundary for both ground and air training operations.

As shown on Figure 6, the Light MIA Zone 1 is a one-mile area surrounding Camp Bullis. The Light MIA Zone 1 regulations recommend mitigating point source light at elevations in excess of 1,200 feet. Communities located within the one-mile radius of Camp Bullis include portions of Bexar County directly adjacent to the installation to the northeast, portions of Comal County directly north of Camp Bullis and portions of the City of San Antonio adjacent to the western and southern boundaries of Camp Bullis.

**RECOMMENDED DEVELOPMENT STANDARDS:** The Light MIA Zone 2 encompasses a five-mile area around the border of Camp Bullis, where ambient light generation should be managed. Light generation from development in these areas should be closely monitored so that it does not interfere with night training. The following standards should apply:

- *Recommend no new construction within 150 feet of Camp Bullis' fence line.*
- *Where possible, limit density within the one mile area of influence to less than or equal to six units per acre, especially near Fair Oaks Ranch and Hollywood Park.*
- *Limit light and glare from existing structures within Comal County, which are sited at a higher elevation than Camp Bullis.*
- *Consider applying high-intensity lights and military filters to block the spectra of ambient light.*
- *Discourage outdoor sports complexes, sports arenas, and similar uses that produce ambient light located within 0.5 miles of the southwest corner of Camp Bullis, where a large amount of field training and night training operations occurs.*

**RECOMMENDED PERMISSIBLE LAND USES:**

- *Within 0.5 miles of Camp Bullis, the following are compatible land uses:*
  - *Agriculture.*
  - *Heavy Industrial / Light industrial / Business Park.*
  - *Wilderness type parks.*
- *Agriculture, open space and conservation.*
- *Such land uses are compatible as long as they abide by design standards of lighting, are consistent with the standards listed above, and do not exceed vertical height limitations.*

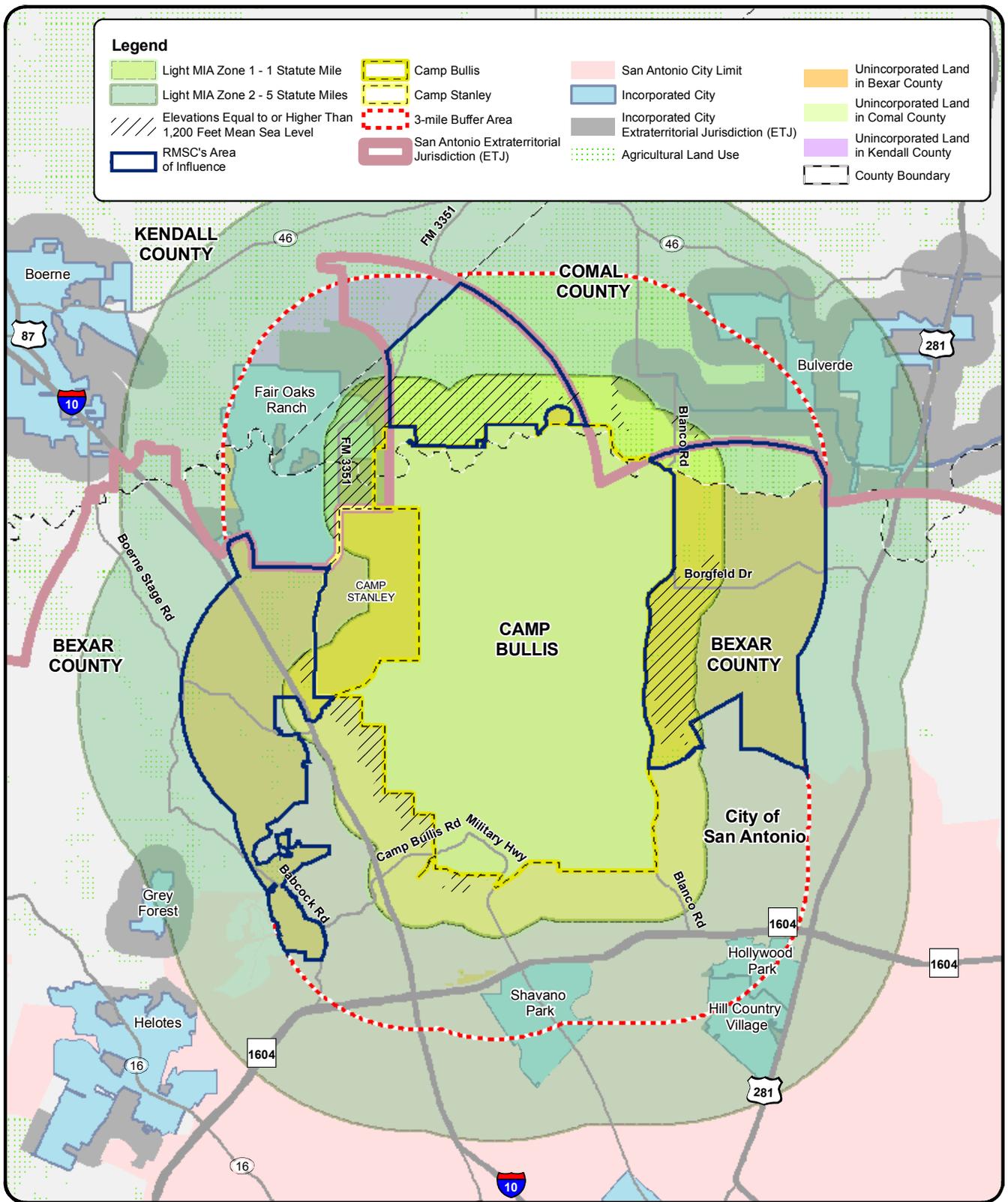


Figure 6  
**Light Issues in the RMSC's Area of Influence**

**OBJECTIVE 7: To comply with the Endangered Species Act and prevent the reduction of karst invertebrate habitat.**

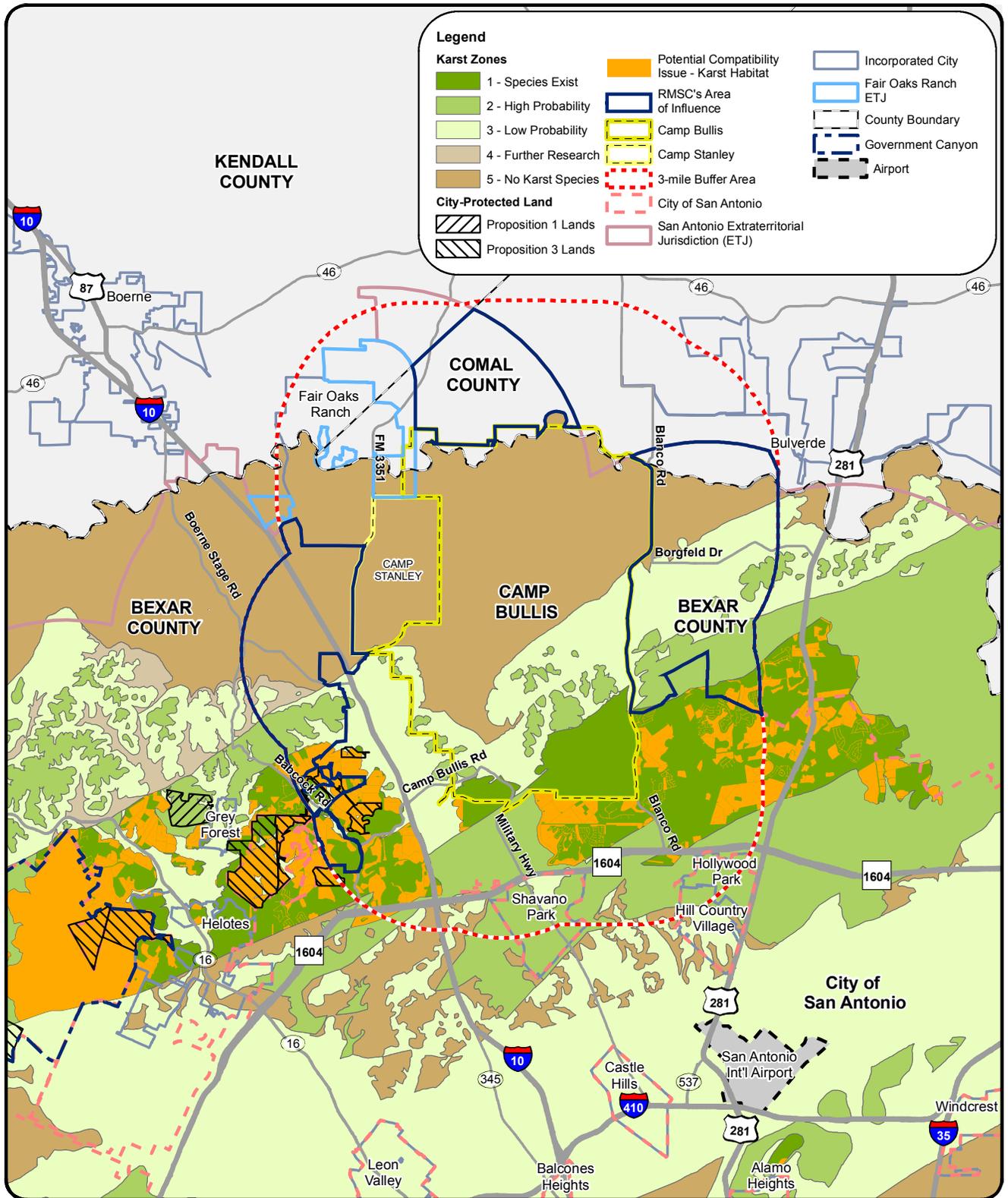
**BACKGROUND:** As shown in Figure 7, critical karst habitat includes a significant portion of land south of Camp Bullis in Bexar County, Hollywood Park and Shavano Park, within the three mile area of influence (to be compliant with the provisions of the Regional Military Sustainability Commission territory, if implemented in the future).

**RECOMMENDED DEVELOPMENT STANDARDS:** Strict development limitations should be imposed on areas designated Karst Zone 1 and 2. The following standards should apply:

- *Analysis of project impact to known invertebrate karst species habitat in Karst Zone 1 and Karst Zone 2 (areas which have a high probability of containing suitable habitat for listed invertebrate karst species).*
- *Any development that threatens to destroy critical habitat in Karst Zone 1 and 2 should not be approved. If such a project is approved, mitigation measures preserving habitat may be required.*
- *Encourage new development to be located in Karst Zones 3, 4 and 5 [Karst Zone 3- areas that probably do not contain listed invertebrate karst species; Karst Zone 4 – areas which require further research but are generally equivalent to Zone 3, although they may include areas which could be classified as Zone 2 or Zone 5 as more information becomes available; Karst Zone 5 – areas which do not contain listed invertebrate karst species].*
- *Pursue conservation easements and transfer of development rights, where possible.*

**RECOMMENDED PERMISSIBLE USES:**

- *Karst Habitat Zones 3 and 4 can tolerate moderate development such as low density residential, mixed-use and commercial provided studies do not demonstrate otherwise.*
- *Karst Habitat Zones 1 and 2 should be designated as a conservation area, proposed development should not be granted approvals, unless permitted by the USFWS.*



0 1.5 3 Miles

Matrix Design Group Inc.

**Figure 7**  
**Karst Habitat in the RMSC's Area of Influence**

## **OBJECTIVE 8: Avoid Golden-cheeked Warbler endangered species displacement.**

**BACKGROUND:** As shown on Figure 8, potential Golden-cheeked Warbler habitat covers large areas in each of the jurisdictions within the five mile Military Influence Overlay Area. Camp Bullis remains the primary location for Golden-cheeked Warbler critical habitat. Since the Golden-cheeked Warbler is designated an endangered species, the presence of habitat on Camp Bullis imposes training limitations.

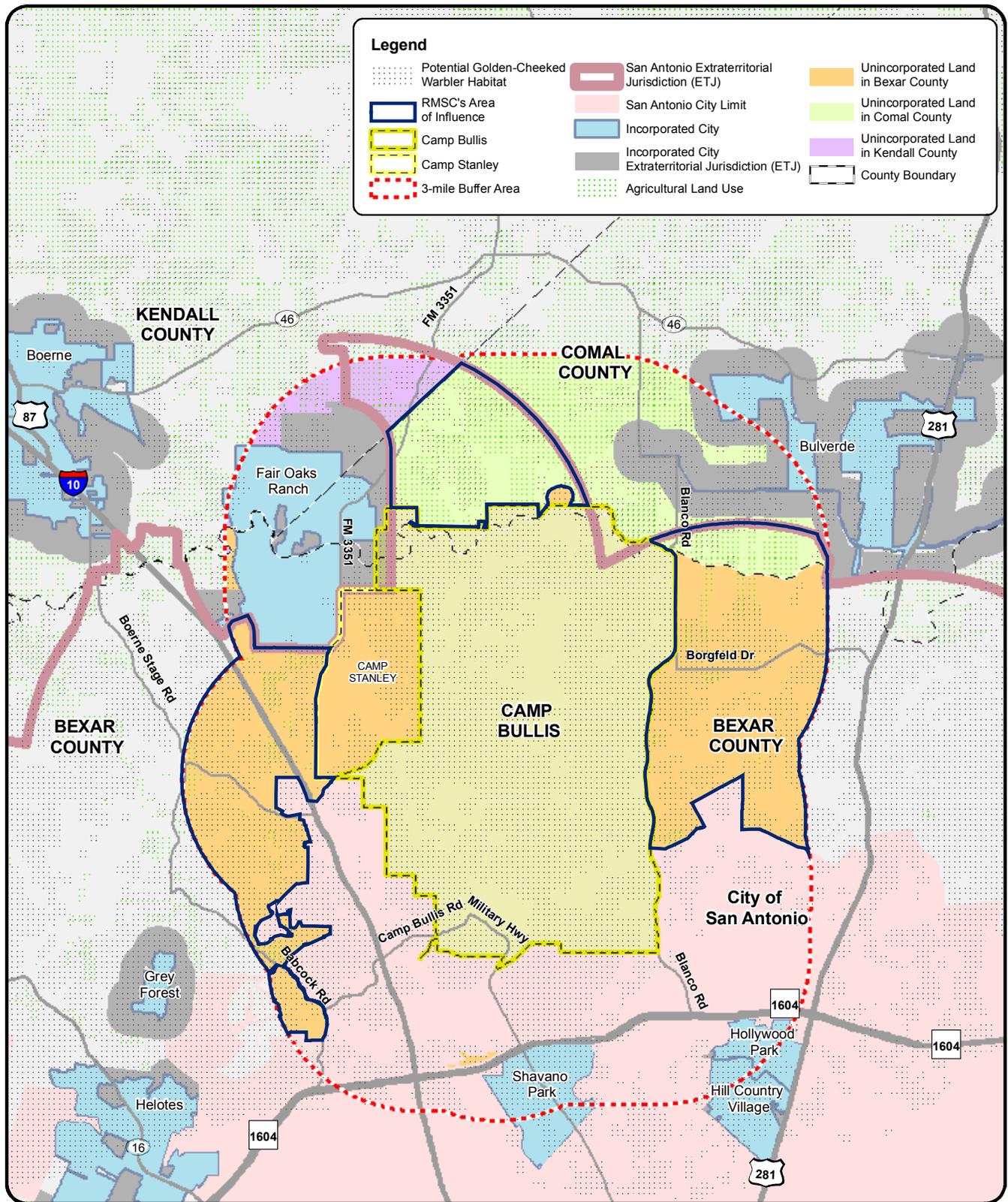
**RECOMMENDED DEVELOPMENT STANDARDS:** In order to manage these issues, the following standards should apply:

In order to alleviate these restrictions and create more alternatives for the bird, designated off installation habitat areas should be conserved and not developed.

- *Continue to monitor compliance with the Endangered Species Act.*

### **RECOMMENDED PERMISSIBLE LAND USES:**

- *Agricultural.*
- *Open Space.*
- *Conservation.*
- *Recreation.*



Matrix Design Group, Inc.

**Figure 8**  
**Warbler Habitat in the**  
**RMSC's Area of Influence**

**OBJECTIVE 9: Avoid constructing roadways and transportation corridors that attract commercial development in areas where high density / intensity development would be incompatible with Camp Bullis' operations.**

**BACKGROUND:** As shown on Figure 9, Interstate 10 and Loop 1604 constitute the principal arterial transportation corridors within the five mile Military Influence Overlay Area. These roadways could present development opportunities that conflict with a number of the encroachment issues facing the installation. Of particular concern are the areas surrounding the juncture of IH-10 and Loop 1604 in the City of San Antonio, where there is a great deal of critical Golden-cheeked Warbler and karst habitat located within the UH-60 flight path.

**RECOMMENDED DEVELOPMENT STANDARDS:** Along these roadways, the following standards should apply:

- *Limit commercial, residential and planned unit development, unless the project is consistent with the North Sector Land Use Plan.*
- *Limit the development of land around the departure and landing areas, including the area around the intersection of Dietz Elkhorn Road/Blanco Road, located on the eastern installation boundary.*

**RECOMMENDED PERMISSIBLE LAND USES:**

- *Agricultural.*
- *Open Space.*



Table 1: Recommended Zoning and Land Use Compatibility

| Zoning Category     |                                   |                   |                             | Aviation Safety Zones |        |        | Noise Zones |          |          |        |
|---------------------|-----------------------------------|-------------------|-----------------------------|-----------------------|--------|--------|-------------|----------|----------|--------|
| City of San Antonio |                                   | Recommended DU/AC | Recommended Building Height | CZ                    | APZ I  | APZ II | 65-69 dB    | 70-74 dB | 75-79 dB | 80+ dB |
| RP                  | Resource Protection               | .01               | 35 ft / 2.5 stories         | Red                   | Green  | Green  | Yellow      | Yellow   | Yellow   | Yellow |
| RE                  | Residential Estate                | 1                 | 35 ft / 2.5 stories         | Red                   | Red    | Yellow | Yellow      | Yellow   | Red      | Red    |
| R20                 | Residential Single-Family         | 2                 | 35 ft / 2.5 stories         | Red                   | Red    | Yellow | Yellow      | Yellow   | Red      | Red    |
| R-6                 | Residential Single-Family         | 7                 | 35 ft / 2.5 stories         | Red                   | Red    | Red    | Yellow      | Yellow   | Red      | Red    |
| RM-6                | Residential Mixed                 | 7                 | 35 ft / 2.5 stories         | Red                   | Red    | Red    | Yellow      | Yellow   | Red      | Red    |
| R-5                 | Residential Single-Family         | 9                 | 35 ft / 2.5 stories         | Red                   | Red    | Red    | Yellow      | Yellow   | Red      | Red    |
| RM-5                | Residential Mixed                 | 9                 | 35 ft / 2.5 stories         | Red                   | Red    | Red    | Yellow      | Yellow   | Red      | Red    |
| R-4                 | Residential Single-Family         | 11                | 35 ft / 2.5 stories         | Red                   | Red    | Red    | Yellow      | Yellow   | Red      | Red    |
| RM-4                | Residential Mixed                 | 11                | 35 ft / 2.5 stories         | Red                   | Red    | Red    | Yellow      | Yellow   | Red      | Red    |
| R-3                 | Residential Single-Family         | ---               | 35 ft / 3 stories           | Red                   | Red    | Red    | Yellow      | Yellow   | Red      | Red    |
| MF-18               | Limited Density Multi-Family      | 18                | 35 feet                     | Red                   | Red    | Red    | Yellow      | Yellow   | Red      | Red    |
| MF-25               | Low Density Multi-Family          | 25                | 35 feet                     | Red                   | Red    | Red    | Yellow      | Yellow   | Red      | Red    |
| MF-33               | Multi-Family                      | 33                | 45 feet                     | Red                   | Red    | Red    | Yellow      | Yellow   | Red      | Red    |
| MF-40               | Multi-Family                      | 40                | 60 feet                     | Red                   | Red    | Red    | Yellow      | Yellow   | Red      | Red    |
| MF-50               | Multi-Family                      | 50                | ---                         | Red                   | Red    | Red    | Yellow      | Yellow   | Red      | Red    |
| NC                  | Neighborhood Commercial           |                   | 25 feet                     | Red                   | Red    | Red    | Green       | Yellow   | Yellow   | Red    |
| O-1                 | Office District                   |                   | 25 feet                     | Red                   | Red    | Yellow | Green       | Yellow   | Yellow   | Red    |
| O-1.5               | Mid-Rise Office District          |                   | 60 feet                     | Red                   | Red    | Yellow | Green       | Yellow   | Yellow   | Red    |
| O-2                 | High-Rise Office District         |                   | ---                         | Red                   | Red    | Red    | Green       | Yellow   | Yellow   | Red    |
| C-1                 | Light Commercial                  |                   | 25 feet                     | Red                   | Red    | Red    | Green       | Yellow   | Yellow   | Red    |
| C-2                 | Commercial                        |                   | 25 feet                     | Red                   | Red    | Red    | Green       | Yellow   | Yellow   | Red    |
| C-2P                | Commercial                        |                   | 25 feet                     | Red                   | Red    | Red    | Green       | Yellow   | Yellow   | Red    |
| C-2NA               | Commercial, Nonalcoholic Sales    |                   | 25 feet                     | Red                   | Red    | Red    | Green       | Yellow   | Yellow   | Red    |
| C-3                 | General Commercial                |                   | 35 feet                     | Red                   | Red    | Red    | Green       | Yellow   | Yellow   | Red    |
| C-3R                | General Commercial,               |                   | 35 feet                     | Red                   | Red    | Red    | Green       | Yellow   | Yellow   | Red    |
| C-3NA               | General Comm., Nonalcoholic Sales |                   | 35 feet                     | Red                   | Red    | Red    | Green       | Yellow   | Yellow   | Red    |
| D                   | Downtown                          |                   | ---                         | Red                   | Red    | Red    | Green       | Yellow   | Yellow   | Red    |
| L                   | Light Industrial                  |                   | 35 feet                     | Red                   | Yellow | Yellow | Green       | Yellow   | Yellow   | Red    |
| I-1                 | General Industrial                |                   | 60 feet                     | Red                   | Yellow | Green  | Green       | Yellow   | Yellow   | Yellow |
| I-2                 | Heavy Industrial                  |                   | 60 feet                     | Red                   | Yellow | Green  | Green       | Yellow   | Yellow   | Yellow |
| UD                  | Urban Development                 | 33                | 35 ft / 2.5 stories         | Red                   | Red    | Red    | Yellow      | Yellow   | Red      | Red    |
| RD                  | Rural Development                 | 1                 | 35 ft / 2.5 stories         | Red                   | Red    | Yellow | Yellow      | Yellow   | Red      | Red    |
| FR                  | Farm & Ranch Development          | .04               | 35 ft / 2.5 stories         | Red                   | Red    | Yellow | Yellow      | Yellow   | Red      | Red    |
| MI-1                | Mixed Light Industrial            |                   | 30 feet                     | Red                   | Yellow | Yellow | Green       | Yellow   | Yellow   | Yellow |
| MI-2                | Mixed Heavy Industrial            |                   | 50 feet                     | Red                   | Yellow | Green  | Green       | Yellow   | Yellow   | Yellow |

- Generally Recommended
- Conditionally Recommended
- Not Recommended

Source: Matrix Design Group and City of San Antonio, June 2010

## Definitions

**“Agricultural use”** means use or activity involving agriculture.

**“Agriculture”** means:

- A. cultivating the soil to produce crops for human food, animal feed, seed for planting, or the production of fibers;
- B. practicing floriculture, viticulture, silviculture, or horticulture;
- C. raising, feeding, or keeping animals for breeding purposes or for the production of food, fiber, leather, pelts, or other tangible products having commercial value;
- D. planting cover crops, including cover crops cultivated for transplantation, or leaving land idle for the purpose of participating in a government program or normal crop or livestock rotation procedure; or
- E. engaging in wildlife management.

**“Business day”** means any day other than a Saturday, Sunday, or state or federal holiday.

**“Chapter 245”** is the Chapter of the Texas Local Government Code titled “Issuance of Local Permits”.

**“Defense Community”** is a county with unincorporated area located within five miles of the boundary line of a military installation, and a municipality with a population of 1.1 million or more and with extraterritorial jurisdiction located within five miles of the boundary line of a military installation, each of which, with respect to the same military installation, constitutes a defense community as defined by Section 397.001.

**“New project”** means a project, as that term is defined by Section 245.001, for which an application for a permit that will establish a vesting date under Chapter 245 has not been submitted to project.

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## Acronyms

### A

|                  |                                   |
|------------------|-----------------------------------|
| <b>AACOG</b>     | Alamo Area Council of Governments |
| <b>AMF</b>       | Army Modular Force                |
| <b>Alamo RMA</b> | Alamo Regional Mobility Authority |

### B

|                 |                                     |
|-----------------|-------------------------------------|
| <b>BexarMet</b> | Bexar Metropolitan Water District   |
| <b>BMAC</b>     | Bicycle Mobility Advisory Committee |
| <b>BRAC</b>     | Base Realignment and Closure        |
| <b>BRT</b>      | bus rapid transit                   |

### C

|              |   |
|--------------|---|
| <b>CCN</b>   | Certificate of Convenience and Necessity      |
| <b>CIP</b>   | capital improvement plans                     |
| <b>CPTED</b> | Crime Prevention Through Environmental Design |
| <b>CRAG</b>  | Community Revitalization Action Group         |

### D

|              |                        |
|--------------|------------------------|
| <b>DOD</b>   | Department of Defense  |
| <b>Du/Ac</b> | dwelling unit per acre |

### E

|            |                                 |
|------------|---------------------------------|
| <b>EA</b>  | environmental assessment        |
| <b>EAA</b> | Edwards Aquifer Authority       |
| <b>EDF</b> | Economic Development Foundation |

**EPA** Environmental Protection Agency

**ETJ** extraterritorial jurisdiction

### F

**FAR** Federal Aviation Regulations

**far** floor area ratio

**FEMA** Federal Emergency Management Agency

**FTZ** foreign trade zone

### G

**GIS** Geographic Information Systems

### H

**HOV** high occupancy vehicle

**HUBZone** historically underutilized business zone

**HUD** Housing and Urban Development

### I

**ICRIP** Inner City Reinvestment Infill Policy

### J

**JAZB** Joint Airport Zoning Board

### M

**MIA** military influence area

**MLOD** military lighting overlay district

**MPO** Metropolitan Planning Organization

**MSAO** Military Sound Attenuation Overlay

**MTP** Major Thoroughfare Plan

**N**

**NA** Neighborhood Association

**P**

**PC** Planning Commission

**PM<sup>10</sup>** particulate matter (ten microns or less)

**PDSD** Planning and Development Services Department

**PUD** Planned Unit Development

**R**

**RHCP** Regional Habitat Conservation Plan

**ROW** right-of-way

**S**

**SAFE** San Antonio Flood Emergency

**SAFFE** San Antonio Fear Free Environment

**SAWS** San Antonio Water System

**T**

**TCEQ** Texas Commission on Environmental Quality

**TDOT** Texas Department of Transportation

**TDR** Transfer of Development Rights

**TOD** transit oriented development

**TIRZ** tax increment reinvestment zone

**TWB** Texas Water Board

**U**

**UDC** Unified Development Code

**USFWS** US Fish and Wildlife Service



# Glossary

## **Abut**

To lie adjacent to another object or to share a boundary.

## **Adjacent**

A condition where two (2) properties, either lots and/or parcels, are located near or close to one another, but not necessarily touching and are separated by a dissimilar type of man made condition or natural feature including, but not limited to a roadway or street, right-of-way, or railroad line, or any stream, river, channel, lake or other body of water. While an adjacent condition may or may not imply contact, it always exhibits the absence of anything of the same kind between two properties.

## **Arterial Roadway**

A route used primarily for the movement of traffic, which may be both local and non-local in nature. Various classifications include:

### **Primary Arterial**

A major thoroughfare, with limited at-grade access, which expands and links to the expressway system and is designed primarily for the movement of through traffic between activity centers of medium intensity.

### **Secondary Arterial**

A major thoroughfare, with limited at-grade access which supports the primary arterial system by providing essential system linkages to expressways, primary arterials, and medium intensity activity centers.

## **Base Realignment and Closure (BRAC)**

A process of the United States federal government directed by the Department of Defense and Congress to close certain excess military installations and realign equipment, personnel, supplies, and other resources to various operating bases. It is aimed at consolidating military forces, increasing efficiency, and reducing costs.

## **Bicycle Master Plan**

A document aimed at comprehensively planning for the expansion of bicycle facilities, paths, and trails, and connecting those facilities to existing infrastructure as well as ensuring its implementation in new developments. It integrates with roadway maintenance programs and identifies which projects should include bicycle infrastructure, and when they should be funded.

## **Buffer / Buffering**

A neutral zone between two incompatible uses that is implemented to reduce the chances of conflict, such as open space between industrial uses and residential areas. This can include fences and berms as well as shrubbery and trees.

### **Building Articulation and Massing**

Building articulation refers to the various design elements on the façade of a building that can be observed from the street, such as building materials, corner treatments, cornices, architectural details, etc. Building massing is the physical area that a building occupies in three dimensional space, and is a function of its setbacks, height, width, depth.

### **Bus Rapid Transit (BRT)**

BRT is a term applied to bus lines that receive a wide variety to treatments aimed at providing faster, more efficient service than a regular bus line. Such treatments can include dedicated bus lanes, grade separation, special vehicles, enhanced scheduling, and many more. The general idea behind BRT is to create bus lines that approach the service quality of rail transit.

### **Capital Improvement Plans (CIP)**

A CIP is a short to medium range plan used by a municipality or district to identify needed capital projects and equipment purchases and prioritize and schedule them according to necessity and available financial resources.

### **Census Tract**

Small areas into which large cities and adjacent areas have been divided for statistical purposes. Each census tract is based upon an average population of four thousand people.

### **Centers and Tiers**

Different land use classifications according to type of use (office, residential, mixed use, etc.), development intensity (density, building massing), and service area (regional, local, neighborhood).

### **Certificate of Convenience and Necessity (CCN)**

A CCN is issued by the Texas Commission of Environmental Quality to an entity providing retail water or sewer service in an “uncertified” area. The purpose of obtaining a CCN is to protect these service areas from encroaching utilities.

### **Cluster Development**

A design technique that concentrates buildings in specific areas on the site to allow the remaining land to be used for recreation, common open space, and/or preservation of environmentally sensitive features.

### **Collector Streets**

A street that carries traffic from minor streets to the major system of arterial streets and highways.

### **Community Facilities**

Services or conveniences provided for or available to a community. Examples include parks, libraries, fire/police stations, etc.

### **Community Park**

A publicly owned park that is usually in the range of 25 to 50 acres. These parks are larger than neighborhood parks, and provide more amenities and services, but are smaller in size and service area than regional parks.

### **Community Revitalization Action Group (CRAG) Boundaries**

The inner-city area defined by the Community Revitalization Action Group as the San Antonio city limits prior to 1940, which is a 36 square mile area, with the center being the dome of the San Fernando Cathedral. The area is bounded by Hildebrand Avenue to the north, Division Street to the south, Rio Grande Street to the east, and 24th Street to the west.

### **Commuter Rail**

Short-haul passenger rail service that is provided between a central city and its outlying suburbs or nearby towns. It is usually provided to people who travel on a daily basis.

#### **Comprehensive Planning Program**

The process that San Antonio follows in developing, adopting, and implementing comprehensive plans.

### **Conditional/Special Use Permits**

A permit issued by the City to a landowner or developer that authorizes land uses in zoning districts that are otherwise not automatically allowed. Usually, this authorization comes with certain conditions attached that must be fulfilled by the landowner or developer as part of the agreement.

### **Conservation District**

Is an overlay district that includes the application of neighborhood based or context-sensitive design standards, individually tailored to address specific development or redevelopment issues.

### **Context Sensitive Street**

A roadway that is designed, operated, and maintained in a manner that considers not only regional transportation goals, but also the local context in which the street exists. Such streets respond to adjacent land uses and surrounding neighborhoods and generally respect traditional street design objectives for safety, efficiency, capacity, and maintenance.

### **Corridor**

A generally linear transportation route that is dominated by one or more main lines for transport, such as a rail lines or highways. The corridor can also include the origins and destinations that are linked together. When referring to a land use, it is a generally linear area where a certain type of development occurs, for example a commercial corridor. These often follow major roadways.

### **Crime Prevention Through Environmental Design (CPTED)**

The practice of influencing and deterring criminal behavior through the layout of the built environment, such as ensuring plenty of window frontage facing the streets so that the impression of surveillance is preserved, or encouraging mixed uses so that there is activity on the street during most times of the day and night.

### **Curb Cut**

An opening in the curb where vehicles may enter or leave the roadway. Where there is no curb, the point at which the driveway meets the roadway pavement is considered the curb cut.

**Density**

The number of families, individuals, dwelling units, or housing structures per unit of land. Typically used to quantify residential subdivisions, and is expressed as dwelling units per acre (du/ac).

**Density Bonus**

An increase in the allowed density that a developer may build to above and beyond the normal level of density permitted by the zoning code, usually in exchange for some exaction from the developer, such as green building, providing affordable units, upgrading public facilities, etc.

**Design Guidelines**

Design guidelines are intended to provide a framework of design criteria within which physical planning can take place. The guidelines provide suggestions for the design of new homes/businesses and repair/rehabilitation of existing homes/businesses in order to maintain the overall character of the neighborhood. Generally, character-defining elements such as front porches, roof slopes, etc. are emphasized in residential guidelines while setbacks, canopies and signage may be emphasized in commercial guidelines.

**Dwelling**

A building or portion of a building designed exclusively for residential occupancy, but not including motels and hotels.

**Dwelling Unit**

A building or portion of a building designed exclusively for residential occupancy by one family and provided with sanitation and cooking facilities.

**Dwelling Unit Per Acre (du/ac)**

A measure of residential density that expresses the number of households that exist within a geographic area divided by the total number of acres in that area. A higher level means more residential density.

**Edwards Aquifer**

A unique groundwater system serving the water needs of almost two million people in south central Texas, which lies on the eastern edge of the Edwards Plateau.

**Edwards Aquifer Contributing Zone**

The area that extends 40 miles north along the length of the Edwards Aquifer Recharge Zone, and is where shed water flows near the surface to the Recharge Zone.

**Edwards Aquifer Recharge Zone**

The area where surface water enters the Edwards Aquifer, which follows the Balcones Fault line.

**Edwards Plateau**

The region in west-central Texas which is bounded by the Balcones Fault to the south and east, the Llano Uplift and the Llano Estacado to the north, and the Pecos River and the Chihuahuan Desert to the west.

**Egress**

An exit.

**Electric Streetcar**

A type of rail vehicle that is of lighter weight and construction than a conventional train, designed for passenger use on short-haul trips within and among nearby cities and towns. Streetcars usually have more frequent stops and headways than conventional trains, and carry fewer passengers. Electrified streetcars operate using electric motors, with the electricity usually provided by overhead electrical wires.

**Encroachment**

The entry of development into an area that was previously occupied solely by another use, usually one that is incompatible with the encroaching use. An example of this is the spread of residential sprawl toward an airport or military base.

**Entitlement**

The right to build granted by an agreement or permit issued by the city to a developer. The process of receiving a permit to build is called the entitlement process.

**Environmental Assessment**

A study for the purpose of identifying the social and environmental costs and benefits of a project or proposal, as well as the magnitude of those impacts.

**Equal Housing Opportunity**

Policies adopted by the federal government to ensure that all Americans have equal access to the housing of their choice.

**Extraterritorial Jurisdiction (ETJ)**

State law authorizes San Antonio to regulate specific functions within an area extending five miles beyond its own boundaries. These functions include signs, platting, and the subdivision of land.

**FAR Part 77 Height Limits**

Refers to Federal Regulation 49 CFR Part 77 which deals with objects affecting navigable airspace and establishes standards, height limits, and notification requirements for said objects.

**Floor Area Ratio (FAR)**

A measurement, often used for the purposes of limiting building size in zoning ordinances, that is an expression of the total floor area of a building divided by the total land area of the parcel(s) that the building is constructed upon. For example, a building with 10,000 square feet built on a 5,000 square foot piece of property would have a FAR of 2.0.

**Foreign Trade Zone (FTZ)**

These areas are created in the United States to provide special customs procedures to US plants engaged in international trade-related activities. Duty-free treatment is accorded items that are processed in FTZs and then re-exported, and duty payment is deferred on items until they are brought out of the FTZ for sale in the US market.

### **Green Building**

Development that has minimal environmental impact, is energy and water efficient, utilizes existing infrastructure where possible and uses recycled or recyclable material to create healthier indoor and outdoor environments.

### **Green roof**

A roof of a building that is partially or completely covered by vegetation for the purpose of providing open space, sequestering carbon dioxide, preventing stormwater runoff, and various other benefits.

### **Greenway**

A greenway is a long, narrow strip of land that is comprised of park or open space, such as a creek or gulch. Greenways can often be used for transportation if they contain trails, bike paths, or rail lines.

### **Heat Island Effect**

Heat islands are created in urban areas where the temperature is significantly hotter than surrounding rural areas. This issue often arises due to high levels of concrete and other hard materials in urban areas that absorb heat.

### **High Capacity Transit**

This type of transit differs from normal transit primarily in that it can move larger volumes of passengers at faster speeds. This can be achieved through dedicated right of way, grade separation, more frequent service, higher capacity modes of transit such as rail, and less frequent stops.

### **Historic Resource**

A historic building, structure, site, or district that is significant in history, architecture, archaeology, engineering, or culture that is eligible for listing on a National or State register of Historic Places.

### **Household**

Consists of all the people who occupy a housing unit (as defined by the census bureau).

### **Housing Master Plan**

A comprehensive document that lays out a vision for meeting the housing needs of all of San Antonio's citizens, adopted in 2001.

### **Housing Unit**

A house, an apartment, a mobile home or trailer, a group of rooms, or a single room that is occupied as separate living quarters, or if vacant, is intended for occupancy as separate living quarters (as defined by the census bureau).

### **High Occupancy Vehicle (HOV) Lanes**

Highway or arterial street lanes that are dedicated for the exclusive or near-exclusive use of vehicles containing more than one person.

**HUBZone**

A historically underutilized business zone that is the target of programs administered by the US Small Business Administration designed to promote job growth, capital investment, and economic development.

**Impervious Cover**

Ground cover that does not let rain or stormwater penetrate and seep into the soil, but instead forces the water to flow downhill or stand in pools.

**Infill Development**

New buildings constructed on vacant lots or open sites in an area that is predominantly developed.

**In-Lieu Fees**

Fees that are exacted from a developer to mitigate the developer's inability or unwillingness to do something normally required by the City.

**Inner City Reinvestment Infill Policy (ICRIP)**

This policy coordinates public initiatives within targeted areas in order to stimulate private investment in walkable urban communities that are the building blocks of a sustainable region.

**Intensity**

A term used to express the amount of development located within a particular lot utilized for commercial, office, industrial or civic use. Typically expressed as Floor Area Ratio (FAR).

**Joint Airport Zoning Board (JAZB)**

An entity created by counties and municipalities with jurisdiction within 1.5 miles of either side of an airport runway or 5 miles of each end of a runway. The board has the authority to adopt, administer, and enforce the airport hazard area zoning and compatible land use zoning regulations.

**Karst Invertebrate**

Invertebrates that inhabit underground caves and mesocaverns in karst limestone. In Bexar County, Texas, nine of these species are listed as endangered.

**Karst Zone**

Landscape shaped by the dissolution of a layer or layers of soluble bedrock, usually carbonate rock such as limestone or dolomite.

**Land Use**

The manner in which land is used. For example, low-density residential land uses primarily include single-family houses.

**Large Urban Park**

One of the types of parks defined by San Antonio's park hierarchy, these parks serve a broader area than community or neighborhood parks, and can include major facilities such as pools and recreation centers.

### **Light Rail**

A type of urban rail transit that has slower speeds and lower capacities than heavy rail systems, but are larger and faster than streetcars. Light Rail is usually electric, and can operate in its own right of way like heavy rail, or in mixed traffic like a streetcar.

### **Linear Parks**

Provides a physical link between two or more areas. Linear park trails can accommodate bicycling, hiking, jogging, and walking. The width of a linear park system is important because the amount of land included in the corridor is intended to reflect a park-like environment.

### **Live/Work Units**

Living units which also are zoned to allow small businesses to operate from a portion of the structure, generally identified by small retail or service oriented businesses or artist studios.

### **Local Street**

A roadway, often a residential street, designed to provide direct access to individual homes, shops, abutting land, and similar minor traffic destinations. Through traffic is usually not a priority.

### **Military Influence Area (MIA)**

An area surrounding Camp Bullis that has potential to impact military operations if encroaching land uses are constructed upon it. The four military influence areas are defined by four compatibility issue categories: noise, vertical obstruction, light, and safety. For example, the light MIA contains territory that could impact base operations if land uses that produce a lot of glare or night-time light are constructed on it.

### **Military Lighting Overlay District (MLOD)**

A zoning overlay district applied to property in vicinity of Camp Bullis that regulates outdoor lighting in order to protect night-time training activities at the military installation.

### **Military Readiness**

The ability of forces, units, weapon systems, or equipment to deliver the outputs for which they were designed, including the ability to deploy and employ without unacceptable delays.

### **Mission Verde Plan**

San Antonio's plan to develop a more sustainable economy, with a special focus on energy.

### **Mixed Use**

Development that incorporates two or more of the following major land use types; residential, office or retail within a single project.

### **National Night Out**

An event held to raise awareness of police programs in communities such as drug prevention, neighborhood watch, and other anti-crime efforts. It is held the first Tuesday of August, or the first Tuesday of October in Texas to escape hot weather. It has been held annually since 1984 and initially consisted of lights-on vigils, but has since expanded to include block parties, festivals, and other events.

**Natural Area**

An area left in as near of a natural condition as possible, with minimal impact from humans.

**Neighborhood Park**

One of the smallest parks in San Antonio's hierarchy of parks, both in scope and size. It is typically 3-10 acres, and is designed to serve only the local neighborhood and therefore has little or no off-street parking or facilities.

**Neighborhood Watch**

A neighborhood watch (also called a crime watch or neighborhood crime watch) is an organized group of citizens devoted to crime and vandalism prevention within a neighborhood.

**Node**

A center of activity or development, often located at a major intersection.

**Open Space**

Land and/or water area with its surface open to the sky or predominantly undeveloped, which is set aside to serve the purposes of providing park and recreation opportunities, conserving valuable resources, and structuring urban development and form.

**Overlay District**

A zoning district which is designed to be applied on top of a base zoning district, and applies more restrictions above and beyond what the base district would require.

**Parks and Recreation Department System Strategic Plan**

A plan document intended to provide guidance on future decisions concerning operations, capital improvement needs, and programs for San Antonio's parks and recreation facilities.

**Particulate Matter (ten microns or less) (PM10)**

Particulate matter in the air less than ten microns, which is the general threshold at which particles can enter the deepest parts of the lung.

**Planned Unit Development (PUD)**

A zoning category that allows innovation in development by the suspension of standard zoning to be replaced by negotiated agreements between the developer and the city.

**Planning Commission**

Created by ordinance with the responsibility for reviewing and approving applications for the division and development of land and recommends amendments and additions to the master plan.

**Quadrant**

A quarter section of the North Sector, either northwest, northeast, southwest, or southeast.

**Redevelopment**

The demolition of an old building or use on a site and construction of a new use and/or building, or the renovation, improvement and/or restoration of an existing structure.

**Regional Habitat Conservation Plan (RHCP)**

A plan to provide for the conservation of protected and endangered species within a municipality's jurisdiction. Participation is generally voluntary.

**Rehabilitation**

The restoration or repair of dilapidated housing or other types of structures to make habitable or usable again.

**Rehabilitation Grants and Programs**

Monetary grants and loans provided by municipal, state, and federal governments for the purpose of enabling and encouraging the rehabilitation of housing stock.

**Revitalization**

The restoration of physical activity or vitality or economic activity to a neighborhood or district.

**Right-of-Way (ROW)**

A strip of land that is dedicated for the purpose of transportation, such as land for a highway, road, or rail line.

**Riparian**

Relating to the interface between land and a river or stream. For example, a riverbank.

**Road Diet Analysis**

A consideration to convert an existing four-lane undivided roadway to a two-lane roadway, including a two-way left turn lane, by removing a travel lane in each direction. The remaining roadway width can be converted to bike lanes, on-street parking or sidewalks.

**Roundabout**

A raised traffic island, usually landscaped, located in the middle of an intersection of arterial streets. Similar to a traffic circle but located in a busier intersection at a larger scale. Traffic circulates counter-clockwise around the island. Cars in the roundabout have the right-of-way, while cars entering must yield. Traffic slows but does not stop because left turns are not possible.

**Sector**

One of seven planning areas defined by the City of San Antonio for its own comprehensive plan.

**Setback**

The required or actual placement of a building a specified distance away from a road, property line or other structure.

**Single Family Detached Dwelling**

A dwelling that is designed to be occupied by only one family and surrounded by open space or yards and is not attached to any other dwelling.

**Site Grading**

The process of ensuring that the slope of land on a site is appropriate for constructing a foundation, or providing infrastructure such as water, sanitation, and/or stormwater sewer.

**Site Plan**

Plans that provide a bird's-eye perspective on how structures, parking lots, and other facilities would be situated on a site.

**Sports Complex**

An amenity that can be found in certain types of larger parks in San Antonio that provide sports facilities such as indoor courts.

**Stakeholder**

A person or a formal/informal group having a direct or indirect interest, involvement or investment in the outcome of a defined process, action or issue.

**State Franchise Tax Credit**

A credit for a tax that is imposed on a corporation by the State of Texas.

**Stormwater Features**

The use of natural and/or man-made landforms, topography and/or structures to direct the flow and retain/detain precipitation that cannot be absorbed into the land, allowing for a controlled release into designated streams, channels or impoundments. Such features may include, but are not limited to play fields that can serve as retention ponds or park layouts that utilize natural looking drainage corridors.

**Strategic Historic Preservation Plan**

A long-term plan creating a vision for strengthening and enhancing the City's current historic preservation program.

**Streetscape**

The visual character of a street as determined by elements such as structures, greenery, driveways, open space, view, and other natural and man-made components.

**Subdivision Designs**

The design and layout of the multiple smaller parcels that result from the division of a single large parcel.

**Suitability Analysis**

The analysis and classification of land according to its suitability and readiness to accommodate new development.

**Tax Abatement**

A reduction of real estate taxes due over a period of time.

**Tax Increment Reinvestment Zone (TIRZ)**

A geographically defined area with a special mechanism for funding capital improvements that involves establishing a benchmark level of property taxes during the creation of the zone, and devoting any additional property taxes generated through redevelopment toward capital improvements for a specified period of time.

**Texas Enterprise Zone**

The Texas Enterprise Zone Program is an economic development tool for local communities to partner with the State of Texas to promote job creation and capital investment in economically distressed areas of the state.

**Townhome**

A single family dwelling in a row of at least three such units in which each unit has its own front and rear access to the outside and each unit is separated from another unit by one or more common fire resistant walls.

**Transfer of Development Rights (TDR)**

TDR programs allow developers to relinquish the development rights on a certain piece of property and sell or otherwise transfer them to another piece of property in the form of density bonuses.

**Transit Oriented Development (TOD)**

Development that is located within proximity to a transit station that recognizes that context, and is designed to maximize access public transport and encourage ridership.

**Watercourse**

A natural or artificial channel through which water flows.

**Wetland**

An area of low-lying soil that is saturated with water either permanently or seasonally.

**Zoning**

Regulates density and land use. Zoning is a key tool for carrying out planning policy.

**Zoning Application**

An application petitioning for an amendment of the City's official zoning map, such as a request to rezone a piece of property.

**Zoning Ordinance**

Rules and regulations that govern the way land is zoned (separated according to land uses) in a city.

# Planning Commission Resolution

(To be added)

## City Council Ordinance

(To be added)