HENSLEY FIELD

DALLAS, TX

PLANNING FOR THE FUTURE

SCENARIO EVALUATION REPORT

Administrative Draft - August, 2021

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EXECUTIVE SUMMARY

In September 2020 the City of Dallas, led by its Planning and Urban Design Department, initiated the Redevelopment and Reuse Plan for the 720-acre former Naval Air Station Hensley Field in southwest Dallas. The City has called for the project "to leverage this city-owned asset with an implementable plan that achieves community objectives related to the three pillars of sustainability: social equity, economic vitality and environmental stewardship". As part of the planning process, the consultant team completed an assessment of Opportunities and Constraints summarized in a January 2021 report and, in collaboration with a joint Stakeholder and Technical Advisory Group (SAG and TAG) established six Guiding Principles for the project, each with their own underlying goals.

The intent of the Guiding Principles and Goals is to provide specific metrics that can guide the development of the Redevelopment Plan through to adoption by City Council, and beyond to measure the subsequent performance of the project as it progresses through all stages of implementation. Appendix 1.1 lists all of the goals under each of the following Guiding Principles:

- Environmental Health
- Economic Investment and Opportunity
- Affordability and Diversity
- Healthy Communities
- Mobility and Access
- History and Culture

Over the past several months the consultant team, in collaboration with the SAG and TAG have been preparing, refining and evaluating a series of three scenarios to test their ability to achieve the project's Guiding Principles and Goals and to produce a development that is financially feasible and implementable. The purpose of this report is to describe the characteristics of each of the Scenarios (Chapter 2); outline the findings of the evaluation (Chapter 3); and to provide recommendations (Chapter 4) that can guide the preparation of a Preferred Alternative. The fifth chapter describes some of the key risks that could preclude or delay some of the recommendations.

DESCRIPTION OF SCENARIOS

The Scenario Planning process established three "plausible potential futures" based upon the findings of the Opportunities and Constraints report and input provided by the SAG and TAG. Each scenario begins with a particular hypothesis or foundational premise that guides its overall development program.

Scenario One "Major User" tests a "plausible future" of the City of Dallas attracting one or more corporate or institutional "anchor" uses to Hensley Field early on to promote the project's economic development objectives and to support initial investments in infrastructure. Key land use characteristics of this scenario include:

- 3.8 million square feet of non-residential uses including 1.1 million square feet of 'anchor' uses concentrated in the northern sector of the site.
- 5,783 residential dwelling units, 15% of which are low density for-sale homes.
- A 43-acre Public Safety Training Academy along the Jefferson Street frontage.

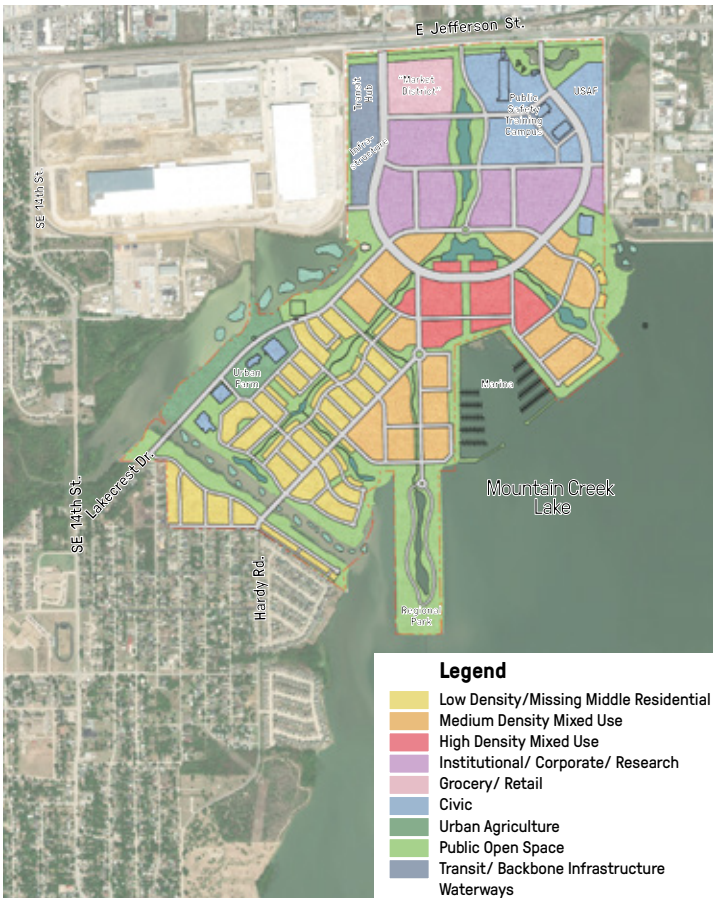


Figure ES-1: Scenario One

Scenario Two "Residential Lead" tests the outcome of a residential emphasis; taking advantage of a robust real estate market, the unique waterfront setting of Mountain Creek Lake, and the need for a diversity of housing opportunities in the southern sector of Dallas. Key land use characteristics of this scenario include:

- 5,956 residential dwelling units, 30% of which are low density for-sale homes, with the remainder in medium and higher density multi-family development.
- 2.7 million square feet of non-residential uses, the majority being in mixed-use medium density format.
- A 32-acre Film Studio complex occupying existing hangars in the northern sector of the site.

Scenario Three: "Eco-Innovation District" focuses on Hensley Field being developed as a demonstration project highlighting Dallas's leadership in sustainable redevelopment with district-scale urban development that achieves ambitious outcomes in equity, resilience and climate protection. From a land use standpoint, this scenario is the most intensive of the three, including:

- 5.3 million square feet of commercial and institutional uses, including 1.7 million square feet of corporate or institutional uses along the Jefferson Street frontage;
- 8,414 dwelling units, 11% of which are in lower density for-sale homes and the remainder in medium and higher density multi-family formats;
- A mixed-use Innovation Village on the Runway Peninsula is conceived as a demonstration project, employing and demonstrating the latest technologies in green building and renewable energy.

Figure ES-2: Scenario Two

Figure ES-3: Scenario Three

Elements Common to All Scenarios: Each of the scenarios strives in one way or another to address the project's Principles and Goals. As such, the scenarios share common elements and assumptions, including:

- *A Mix of Land Uses:* A diverse mix of commercial, institutional and residential uses, each with a differing distribution and intensity of these uses;
- Housing Diversity: A range of housing types, but in different amounts and proportions.
- *Strong Waterfront Orientation:* Access to, and use of, Mountain Creek Lake as a recreational resource is a key feature of all three scenarios.
- *A Rich Network of Open Spaces:* At least 25% of the overall site or 185 acres dedicated to open spaces, including parks and plazas, waterfront trails and greenways, urban farms and natural preserves.
- *Harnessing the Power of Plants:* Mass tree plantings to achieve at least 40% canopy cover, thereby improving air quality and mitigating heat island effect.
- *Mobility Choices:* A full spectrum of transportation modes incorporating best practices and emerging technologies.
- *Walkable Streets and Trails:* Multi-modal streets, consistent with Dallas's Complete Streets Manual, and a continuous waterfront trail.
- Celebration of History: Preservation of key resources, adaptive reuse of structures, and the introduction of interpretive elements that celebrate the culture and history of Hensley Field.
- *A Full-Service Grocery Store:* Prioritizing the procurement of a major grocery store in recognition of the southern sector's paucity of healthy food opportunities.
- *Healthy Food Systems:* On-site healthy food production and distribution with a portion of the open space devoted to urban agriculture.
- *Texas Military Lease:* All three scenarios assume that alternate facilities will be found for the existing Texas Air National Guard operations on the site including the Chinook helicopter aviation activity. Current efforts are in place to relocate these operations to Fort Worth.
- *Site Remediation:* All of the scenarios acknowledge the Settlement Agreement between the City of Dallas and the Navy, committing the Navy to the clean-up of the site to unrestricted residential standards.

At least 25% of the site is dedicated to public open space

Site Preparation and Infrastructure Costs: A considerable program of site preparation and infrastructure improvement will be required to transform Hensley Field into the type of mixed-use urban district that is anticipated in all three planning scenarios. The existing runways and taxiways will need to be removed to make way for urban development, and the site will require re-grading to ensure that appropriate drainage patterns are achieved. Chapter 2 provides a description of the various kinds of improvements that will be required to support redevelopment, highlighting differences and commonalities between the three scenarios. Scenario Three incorporates an additional level of infrastructure improvements that are focused on "sustainability forward" elements. The cost of site preparation and infrastructure in Scenarios One and Two is estimated at $271 million to $313 million respectively; Scenario Three's estimated cost at $439 million includes a geo-thermal cooling loop as part of a District Energy system.

EVALUATION OF SCENARIOS

Chapter 3 of the Evaluation report summarizes the consultant team's findings related to the three scenarios. It provides an assessment regarding:

- The relative performance of each scenario in meeting the Guiding Principles and Goals of the project (Section 3.1);
- The alignment of each scenario to the projected real estate market and the estimated timeframe for the land uses to be absorbed (Section 3.2);
- The transportation and mobility performance of each scenario (Section 3.3);
- The financial and implementation feasibility of the scenarios in terms of their projected capital costs and revenues.

Conformance with the Guiding Principles and Goals: One of the first measure of performance is to test the relative ability of each scenario to meet Hansley Field's Guiding Principles and Goals for the redevelopment of Hensley Field. The following table provides a summary of how the scenarios perform in relation to each of the six Guiding Principles and Appendix 3.1 describes their performance under each of the goals and principles. A scoring system was applied by giving each scenario one credit (indicated as a + sign) when acknowledging its potential to achieve that goal, and additional credits when it is shown to have greater potential. With this scoring system, Scenario Three scores a total of 37 credits followed by Scenarios One and Two with 31 and 27 points respectively.

In some cases, the scenarios are not significantly different from one another to establish an appreciable benefit between them, and in others the scenarios have not yet been developed to a sufficient level to result in a significant conclusion. The major areas of difference between the scenarios relate to three of the six Principles: Environmental Health; Economic Opportunity and Investment; and Mobility and Access. Scenario Three receives the most credits because of its commitment to achieve Gold certification under the LEED Cities and Communities platform. Scenario Three also scores highest under the Economic Opportunity and Investment principle because of its focus on attracting an advanced technology use with an emphasis on sustainability and ethical governance. Under the Mobility and Access principle, Scenario Three also scores highest because of its greater aspirations toward high frequency transit connections including light rail transit.

Market Potential and Expected Absorption: Chapter 3.2 compares the findings of the January 2021 Market Analysis Report to the land use scenarios and identifies which scenarios (and their components) are best aligned with market conditions, and how the scenarios could be modified to meet projected market demand.

Hensley Field Site Capture Projection: On the basis of the Market Analysis, a 20-year Demand and Site Capture forecast was developed. The projection totals 8,500 dwelling units and 1.8 million square feet of non-residential space over a 20-year period. The following absorption residential assumptions were developed.

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
1. ENVIRONMENTAL HEALTH	7+	6+	10+
2. ECONOMICOPPORTUNITY & INVESTMENT	6+	3+	7+
3. AFFORDABILITY & DIVERSITY	1+	2+	1+
4. HEALTHY COMMUNITIES	5+	5+	5+
5. MOBILITY & ACCESS	6+	5+	8+
6. HISTORY & CULTURE	6+	6+	6+
TOTAL	31+	27+	37+

Table ES-1: Performance Related to Guiding Principles and Goals

- Maximum of 500 units per year across all product types.
- 200 single family and missing middle for-sale per year.
- 200 multifamily medium density per year (multifamily rental).
- 100 multifamily high density (for-rent and for-sale) starting in year 11. There is no significant market in the area currently for higher density condominiums; it can be expected that the market for this product would take time to be established in the project.

The non-residential site capture potential estimates and assumptions are as follows:

- Total of 1.8 million square feet in 20 years.
- General Retail - One supermarket anchored center, initially at 100,000 square feet. Additional space added over time to total 257,500 square feet.
- Retail/Commercial Mixed Use Demand – 30,000 square feet per 1,000 housing units, allocated to General Retail, and Medium and High Density Mixed Use formats over time.
- Office/Corporate/R&D – 100,000 square feet of demand starting in Year 6.
- Medium and High Density Mixed Use – These land use categories are comprised of a portion of the retail/commercial space and office/R&D space. Medium Density Mixed Use demand totals to an estimated 233,750 over 20 years and high density mixed use totals to 218,750 in site capture potential.

Scenario Absorption Comparison: The scenarios were evaluated against the market demand forecasts to determine their general alignment.

Residential Development Absorption

- Scenario One – This (Institutional/Corporate Anchor Lead) scenario is estimated to require 23 years to absorb all residential land uses. The scenario potentially forgoes a significant amount of demand for single family and lower density for-sale housing, as those land uses are fully absorbed in five years. As such, additional low density for-sale housing is recommended to be included in the master plan.
- Scenario Two –Scenario Two (Residential Lead) is estimated to have the shortest residential absorption period at 18 years to fully absorb all unit types. However, it lacks the type of employment or catalytic uses that are included in Scenarios One and Three.
- Scenario Three – This scenario (Eco/Innovation District) would have the longest absorption period, well beyond the 20-year horizon. Scenario Three has nearly 4,000 units of high density for-rent and for-sale which will take time for the market to be established in this location (estimated starting in Year 11) and have slower absorption due to the higher rents and sale prices.

Non-Residential Development Absorption

- Scenario One – The Grocery and General Retail and Office/Corporate/R&D land uses in this scenario are the best matched to the market. The Office/Corporate/R&D land uses are projected to take 22 years to absorb, compared to over 40 years for the mixed-use formats.
- Scenario Two is also well balanced for Grocery and General Retail, absorbing in 16 years. However, the scenario lacks a more traditional employment land use category. The mixed-use employment land uses are estimated to have slower absorption – well over 40 years, compared to 22 years for Office/Corporate/R&D in Scenario One.
- Scenario Three – The amount of medium and especially high-density mixed-use space in this scenario is well above a 20-year market demand projection. However, the Office/Corporate/R&D land uses would require 31 years to absorb which is consistent with the results in Scenario One.

Scenarios Two and Three propose medium density residential on the Runway Peninsula

Transportation and Mobility Performance: Chapter 3.3 evaluates the relative performance of the scenarios in terms of their ability to support high-capacity transit, active transportation, and vehicular access. Key findings include:

Transit Propensity: Residential densities across all three scenarios meet minimum dwelling units per acre as recommended by DART Transit-Oriented Development guidelines to support high-capacity transit, including Bus Rapid Transit or Light Rail Transit.

Active Transportation: All three scenarios have favorable and comparable results, but Scenario Three has the highest mode share, miles of separated bicycle facilities, miles of green street treatments, and household access to the Low Speed Mobility network. Where Scenario Three excels in bicycle and pedestrian amenities, Scenario One and Two have higher safety and comfort results. Scenario Two has the shortest amount of crossing distance at intersections, and the highest percentage of network that is less than 25 MPH.

Vehicular Access and Roadway Capacity: All three scenarios include three intersections along Jefferson Street as well as bridge connections across the diversion channel to Lakecrest Drive and Hardy Road. Scenario Three also includes the extension of Skyline Drive from S. 14th Street across Cottonwood Bay to the site. Key findings of the traffic analysis include:

- All scenarios result in a Volume/Capacity ratio less than 1.0 at all access points as shown in Table ES-2.
- However, the analysis shows that V/C ratios in the eastbound direction of Jefferson Street would approach 1.0 with Scenario Three exceeding 1.0, indicating Jefferson St would be overwhelmed under these conditions. (Table ES-3)

To achieve goals around each scenario, specifically, to maximize mobility with the smallest footprint, increased connectivity is beneficial to the Hensley Field site. Additional access points to the Southwest, to the West, and to the East will serve as traffic distribution to the larger roadway network, and contribute to greater accessibility to Hensley Field amenities.

Costs versus Revenues: Chapter 3.4 presents a preliminary planning level cost and revenue analysis to compare and contrast the three scenarios. The analysis aligns infrastructure development into phases corresponding with the estimated market absorption. It provides a relative comparison between the scenarios in terms of costs, revenues, and funding gap. The analysis compares land sale revenues to costs. Land sale revenues are generated from lower-density residential lot sales and improved sites for multifamily, condominium, and non-residential development. The revenues reflect development-ready lots and sites with finished streets. Vertical developers and builders would be responsible for tying into utilities. In this cost and revenue analysis, absorption is capped at the amount estimated in the 20-year absorption projection; some scenarios do not fully absorb and therefore

Scenario	Access	Volumes	Capacity	V/C
One	North to Jefferson St	3700	6450	0.57
	South to Lakecrest Dr/Hardy St	680	1050	0.65
Two	North to Jefferson St	2950	6450	0.46
	South to Lakecrest Dr/Hardy St	550	1050	0.52
Three	North to Jefferson St	4030	6450	0.62
	South to Lakecrest Dr/Hardy St	890	1050	0.85
	West to Skyline Rd	890	1050	0.82

Table ES-2: Roadway Volume and Capacity

Scenario	Access	Volumes	Capacity	V/C
1	East of Site, Jefferson EB	2560	2700	0.95
2	East of Site, Jefferson EB	2200	2700	0.81
3	East of Site, Jefferson EB	3100	2700	1.15

Table ES-3: Eastbound Volume and Capacity

do not realize the revenue potentials from all of the land use programmed into each scenario. Key findings of this analysis are described in Table ES-4 below and include:

- Scenario One – The financial performance of Scenario One is lower than Scenario Two. In Scenario One, revenues minus costs equate to -$26.5 million indicating that costs are higher than potential revenues. In this Scenario, only 46 percent of the non-residential development is absorbed compared to nearly 80 percent in Scenario Two.
- Scenario Two – This Scenario has the best balance of revenues and costs with an estimated shortfall of $6.0 million (revenues minus costs). Scenario Two also absorbs the largest percentage of its development program, including all of the residential development and nearly 80 percent of the non-residential development. However, it does not provide any land for early-term catalytic or anchor uses.
- Scenario Three – Scenario Three has the largest gap between revenues and costs at -$195 million, mostly due to the introduction of an on-site geothermal cooling loop. An additional factor is that only 66 percent of the residential program and 33 percent of the non-residential program are estimated to be absorbed over 20 years.

Scenario Three proposes a "sustainability forward" program of infrastructure improvements including a geothermal loop.

Values in $ Millions	Phase (Years) 1-5	6-10	11-15	16-20	Total	Percent Absorbed
SCENARIO 1						
Land Sale Revenue						
Residential	$78.8	$34.9	$37.5	$37.5	$188.6	98%
Non-Residential	$0.0	$19.1	$18.1	$18.5	$55.8	46%
Total	$78.8	$54.0	$55.6	$56.0	$244.4	
Costs	$122.9	$65.5	$58.3	$24.2	$270.9	
Revenues Minus Costs	-$44.1	-$11.5	-$2.7	$31.8	-$26.5	
SCENARIO 2						
Land Sale Revenue						
Residential	$78.8	$105.0	$47.0	$20.7	$251.5	100%
Non-Residential	$0.0	$19.5	$18.2	$17.9	$55.5	78%
Total	$78.8	$124.5	$65.2	$38.6	$307.0	
Costs	$131.9	$79.6	$82.9	$18.7	$313.0	
Revenues Minus Costs	-$53.1	$44.9	-$17.7	$19.9	-$6.0	
SCENARIO 3						
Land Sale Revenue						
Residential	$78.8	$36.3	$37.5	$35.4	$187.9	66%
Non-Residential	$0.0	$18.8	$18.5	$18.4	$55.7	31%
Total	$78.8	$55.1	$56.0	$53.8	$243.7	
Costs	$113.3	$174.2	$95.5	$56.1	$439.0	
Revenues Minus Costs	-$34.5	-$119.1	-$39.5	-$2.2	-$195.3	

Table ES-4: Cost vs Revenue

Implementation Feasibility: Based on experience with other major redevelopment projects of a similar size and scale, there will be the need for some level of public investment to address the up-front costs of redevelopment including demolition, site preparation, and trunk roadways and utilities. A more precise estimate of the timing of these investments and associated financing gaps will be determined with more refined cost figures, phasing, and adjustments to the recommended land use mix. The cost of these improvements will need to be covered by redevelopment financing tools or other economic development incentives as allowed for by Texas State statutes. Based on a preliminary analysis, the most applicable funding sources and financing tools include the following:

- Tax Increment Financing - A Tax Increment Reinvestment Zone (TIRZ) can be formed for purposes of promoting development or redevelopment when it is determined that such development would not occur through private investment in the foreseeable future. TIF funds can also be used to assist developers and investors with extraordinary costs related to urban construction projects.
- Municipal Management District - A MMD may be formed to finance improvements and pay for services within that area. MMDs may impose ad valorem taxes, impact fees, special assessments, bonds, or other fees in accordance with the legislation creating the district. In general, MMDs generate revenue by issuing bonds for public improvements and paid for by property taxes, assessments, impact fees. If allowed for in their formation, MMDs can be used jointly with TIF to finance area infrastructure.
- Local Government Corporation – A LGC is a non-profit development that may be created by the city or county to act on its behalf to raise capital, debt or equity. It has the powers of a transportation corporation as authorized by the Texas Transportation Commission including the ability to engage in development activities related to real estate. The City Economic Development Department considers a LGC as a preferable and more flexible tool since it is created as the local level and does not involve the state.
- American Rescue Plan 2021 – This COVID-19 stimulus bill provides a total of $1.88 Trillion in federal investments for vaccines and testing, relief to local governments, individuals, and businesses. The City of Dallas anticipates receiving $377 million, a portion of which could be invested to fun initial infrastructure investments that contribute to economic development in the southern sector of Dallas.

Up-front costs of redevelopment include runway demolition, site preparation, and trunk roadways and utilities

RECOMMENDATIONS FOR A PREFERRED ALTERNATIVE

On the basis of the evaluation of the scenarios, a series of recommendations have been formulated to guide the City and consultant team in preparing the Preferred Alternative and the corresponding policies of the Reuse and Redevelopment Master Plan. These recommendations will be reviewed by the Stakeholder and Advisory Groups and undergo additional testing and evaluation during the master planning process. The recommendations are organized into the following six categories and described in detail in Chapter 4:

- Economic Development
- Land Use Program
- Open Space and Public Facilities
- Historic Preservation and Adaptive Reuse
- Transportation and Mobility Program
- Sustainability Forward Program

Economic Development

ED-1: Begin Marketing the Site for One or More Anchor Uses:

- Attracting a large anchor user in the initial phase of development would establish the site for higher value uses.
- A large user could bear a greater portion of infrastructure costs reducing the burden on the residential and mixed-use development areas.
- Outreach to existing educational and medical institutions and private corporations should be initiated through a Request for Information (RFI) or Request for Proposal (RFP) process.
- Interest from the motion picture industry in creating a film studio complex within Hensley Field should be pursued as part of the RFI/RFP process.

ED-2: Create an Appropriate Balance of Non-Taxable and Tax-Generating Uses:

- An appropriate balance should be struck between taxable and non-taxable uses to maximize the fiscal and financial performance of the development.
- Non-taxable uses can be highly advantageous for their spin-off effects and their importance in serving the residents and employees of the future district
- Tax-generating uses will also be critical to support future public financing programs.
- However, in attracting these uses it is important to reserve at least an equal amount of land for tax and revenue-generating employment uses.
- Warehousing or low-value uses that are currently housed at Hensley Field pose an opportunity cost as they could preclude higher value uses that support the community's vision for the property.
- Existing short-term leases to City departments and related agencies need to be phased out in an orderly manner as new higher value uses are found for the site.
- Dallas Fire Rescue's request for a 40 - 60 acre tract within Hensley Field for a Public Safety Training Campus could displace the opportunity for over 400,000 square feet of revenue-generating commercial or institutional uses, and as such it is recommended that an alternate site outside of Hensley Field be found for that facility.

	GPISD K-12 SCHOOL [1]	HIGHER-ED RESEARCH [2]	HEALTHCARE INSTITUTION [2]	PUBLIC SAFETY CAMPUS [3]	TEXAS TASK FORCE 2 [4]	FIRE/EMS STATION [5]
How much of the site are they likely to consume?	20 -30 acres	20 - 40 acres	20 - 40 acres	40 - 60 acres	5 acres	2 acres
Would they serve future residents or employees?	YES	YES	YES	NO	NO	YES
Will they provide positive economic spin-off effects?	YES	YES	YES	NO	NO	YES
Can they reasonably be accommodated elsewhere?	NO	YES	YES	YES	YES	NO
At the acreages listed above, will they preclude the full potential of other revenue-generating uses?	NO	NO	NO	YES	YES	NO
POTENTIAL BENEFIT	HIGH	HIGH	HIGH	LOW	LOW	HIGH

1. GPISD estimates the need for up to 20-acres for a school site, adjacent to 10-acres of joint play fields
2. A higher education campus or healthcare facility could occupy a significant tract of land; 20-40 acres is a target range given other land use/revenue objectives.
3. The Dallas Fire Rescue (DRF) has requested up to 60-acres of land for a Public Safety Training Campus. DFR owns an existing 40-acre tract of land at Dolphin Road.
4. Dallas Fire Rescue (DFR) occupies an existing hangar for storage of emergency supplies, and a small office building on approximately 50-acres of land at Hensley Field.
5. Assumes an urban-styled fire and Emergency Medical Services station.

Table ES-5: Evaluating Non-Taxable Uses

Land Use Program

LU-1: Reserve 60 to 80 Acres of Land along the Jefferson Street Frontage for a Corporate or Institutional User:

- The Jefferson Street frontage provides an attractive opportunity for a future anchor use that could provide a strong catalyst for early-term development of the site. At a gross FAR of 0.2 to 0.4, a total of 500,000 to 1.0 million square feet could potentially be developed.
- If a single large anchor tenant is not found, the area could be subdivided into multiple parcels for smaller corporate or institutional tenants, thus retaining maximum flexibility for economic development recruitment as described above.
- This district should be planned as a transit-oriented development and as a seamless extension of the surrounding Hensley Field community with well-scaled buildings that are oriented to walkable streets and attractive open spaces.

LU-2: Provide Flexibility to Allow for Additional Commercial and Institutional Uses:

- Beyond the 60-80 acres along the Jefferson Street frontage, the Master Plan should provide flexibility for additional commercial uses to the south in an area that promotes higher density mixed-use development including retail and multi-family uses.
- This area should be planned as part of a walkable mixed-use core at the heart of the new community with smaller blocks, active street frontages and parking largely encapsulated within the building envelope.

LU-3: Provide a Site for a Full-Service Grocery Store:

- The Master Plan should provide a site suitable for a full-service grocery store, exploring the market viability of stand-alone and mixed-use configurations

LU-4: Create An Appropriate Balance of For-Sale and Rental Housing:

- The Master Plan should explore a housing program with 30- 40 percent low- density (16 du/ac average), 40 to 50 percent medium-density (40 du/ac average), and 10-20 percent high-density housing (80 du/ac average) with an overall yield of approximately 6,000 units.

LU-5: Accelerate Relocation of Texas Army National Guard:

- The City of Dallas in concert with the North Central Texas Council of Governments (NCTCOG) should work with Texas Military to accelerate the relocation of all military activities on this part of the site to enable residential and other urban uses to occur.

LU-6: Coordinate with the US Air Force Regarding their Lease Boundary:

- The boundaries of the lease could be redefined to allow the existing open spaces and ponds at the front gate of the former airfield to be preserved and reused.

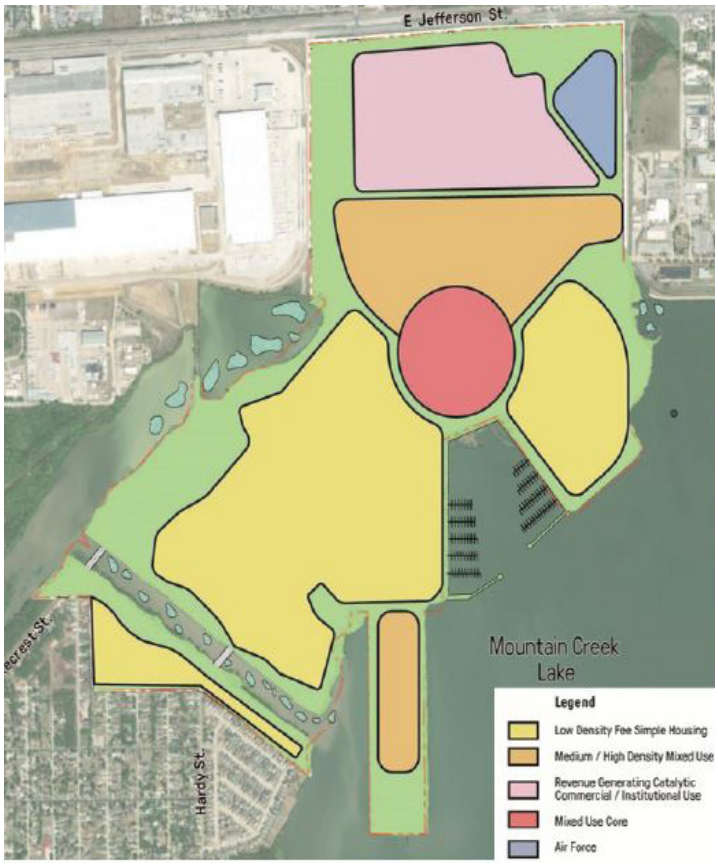


Figure ES-4: Conceptual Distribution of Land Uses

Open Space and Public Facilities

OS-1: Retain 25% of the Site for Public Open Space:

- At least 25 percent of the site should be planned for open space features including a variety of parks, buffers, trails, and an urban farm.

OS-2: Create a Linear Trail System:

- Public open space at Hensley Field should include a linear trail system along the waterfront and leverage future opportunities to expand the trail around Mountain Creek Lake.

OS-3: Mitigate Heat Island Effects with a Generous Tree Canopy:

- Tree canopy coverage should meet or exceed 40% of the site, as set forth in Dallas's Comprehensive Climate Action Plan (CECAP) and the 2021 Dallas Urban Forest Master Plan.

OS-4: Ensure that Every Hensley Field Resident is within a Five-Minute Walk of Public Open Space:

- The Trust for Public Land's goal for a 10-minute walk to a park should be exceeded at Hensley Field with publicly accessible open space located within 1300 feet or a five-minute walk of every home in the new community.

OS-5: Incorporate Blue-Green Infrastructure as an Integral Part of the Open Space System:

- The park and open space system at Hensley Field should incorporate blue-green infrastructure as a means of capturing, diverting and re-using 100% of the site's stormwater.

OS-6: Preserve and Enhance the Site's Natural Ecological Assets:

- Whenever possible, the natural terrain, soils, hydrology and vegetation of the area should be preserved with the open spaces creating a rich network of interconnected parks, natural areas, and community gathering spaces.
- Existing forested edges and wetlands should be preserved and expanded, and bio-habitat corridors should be established within urban and residential precincts.

OS-7: Reserve a 20-acre Site for an Urban Farm:

- An urban agricultural program with production fields and other facilities should be concentrated in the northeastern edge of the site.

OS-8: Assess the Risks and Rewards of Reconnecting Cottonwood Creek to Mountain Creek Lake:

- Consideration should be given to reconnecting Cottonwood Creek to Mountain Creek Lake along its original alignment as illustrated in Scenario Three.
- Advantages related to improving Cottonwood Bay's water flows and quality and creating additional waterfront real estate should be balanced against possible risks associated with the disturbance of lakebed contaminants and the corresponding permitting and remediation issues.

OS-9: Reserve a Site for a GPISD Public School:

- The planned Hensley Field community should include a public school that serves future Hensley Field residents as well as those living within the Grand Prairie Independent School District.
- A site of 10-acres should be reserved for an urban school, adjacent to a 10-acre playfield area that is part of the overall open space system.

Figure ES-5: Conceptual Distribution of Open Space

Historic Preservation and Adaptive Reuse

HP-1: Determine which Buildings, Structures and Elements are Eligible for Local, State and National Landmark Listing:

- As part of the Master Plan process, coordinate with the City of Dallas to identify historic resources on the site that could be eligible for local level landmark designation and protection.
- Coordination with the THC is recommended to determine potential eligibility for buildings and artifacts that have not heretofore been evaluated, including the Texas Air National Guard hangars and the Small Arms Magazines.

HP-2: Preserve the Elements of Hensley Field that Contribute to its Unique History and Identity:

- Regardless of whether older buildings and structures within Hensley Field are considered individually significant under local, state, or national criteria, the Master Plan should maximize opportunities for the preservation of existing hangars, the DNAS Water Tower; the Helicopter Recalibration Compass; the Small Arms Magazines; and the Fuget Cemetery.

HP-3: Initiate Stabilization of the Hangars and Officers Housing:

- Several structures including the two Officers Houses, the DNAS Maintenance Hangar and two of the Texas Air National Guard hangars are experiencing structural deterioration and leaking roofs.
- A comprehensive review of the condition of these and other buildings should be undertaken and an initial stabilization program of improvements undertaken to arrest any further deterioration, prior to their potential adaptive reuse.

HP-4: Introduce Interpretive Elements that Celebrate the History and Culture of the Site:

- As redevelopment creates a new layer of history on Hensley Field, it is important that the military and pre-military history of the site be celebrated through preservation and adaptive reuse of structures and artifacts, but also through interpretive elements that provide educational information to the public.

HP-5: Pursue a Major Public-Oriented Use for the Historic DNAS Maintenance Hangar:

- The DNAS Maintenance Hangar is the most significant of all of the military structures at Hensley Field.
- It is recommended that the City of Dallas gauge the interest of public sector or non-profit institutions for its reuse as a major event and entertainment venue, or as a cultural facility.
- The structure's adjacency to Mountain Creek Lake could also make it an attractive location for a market or food hall.
- For the purposes of the Master Plan, the structure and its immediate environs should be preserved as part of the open space system.

Fuget Cemetery predates the Naval Air Station with the earliest marked graves dating to 1864

Transportation and Mobility Program

TM-1: Reduce Automobile Dependence by Prioritizing Transit and Active Transportation Modes at Hensley Field:

- The Hensley Field development should prioritize land uses and densities that support transit and walkability, while reducing (to the maximum extent practicable) auto dependence.

TM-2: Coordinate with DART to Plan a High-Capacity Transit Linkage to Hensley Field:

- In coordination with DART, the Preferred Alternative should incorporate a plan for high-frequency high-capacity service to the site.
- Provision should be made for center-running Bus Rapid Transit dedicated lanes to be looped through the site with a central station that provides convenient access to future residents and employees.
- The future potential for a Light Rail Transit (LRT) connection to Downtown via the East Jefferson Street, Davis Street or I-30 corridors should be explored with DART.

TM-3: Provide for AV Transit on Dedicated Transit Ways:

- As an extension of the proposed BRT and LRT service to the site, the Preferred Alternative should also provide first and last mile transit with Automated Vehicles (AV).

TM-4: Provide a Network of "Low Speed Mobility" Streets with Protected Bikeways:

- The street network of the Preferred Alternative should include streets that prioritize bicycle and other low-speed wheeled vehicles (e.g., scooters, skateboards, etc.) in protected paths separated from vehicular travel.

TM-5: Implement Complete Street Designs:

- The design of all streets at Hensley Field should prioritize a high level of comfort for pedestrians and bicyclists by incorporating Complete Street principles, as illustrated in Dallas's Street Design Manual.

TM-6: Promote Active Transportation:

- The Preferred Alternative should include a network of off-street trails that serve both the recreational and transportation needs of the new community.

TM-7: Distribute Vehicular Traffic to Reduce Congestion and to Maximize Connectivity:

- Three signalized intersections, and two right-in/right-out intersections should be planned along Jefferson Street.
- Roadway/bridge connections across the diversion channel to Hardy Road and Lakecrest Drive and across Cottonwood Bay to Skyline Drive should be coordinated with the City of Grand Prairie.
- The site's grid network should allow for the possibility of future east and west connections to the local roadway network.

Streets at Hensley Field will be designed as active public places and multi-modal corridors

Sustainability Forward Program

SF-1: Plan Hensley Field as an Eco/Innovation District:

- Consideration should be given to registering Hensley Field into the EcoDistrict certification program, which provides specific protocols to "create a roadmap to guide projects and programs and track and measure impact over time".
- Doing so would emphasize Hensley Field's role as a Proof of Concept for the CECAP and as a demonstration of Dallas's leadership in sustainable design and climate protection.

SF-2: Develop the Runway Peninsula as an "Innovation Village":

- It is recommended that the Preferred Alternative explore the creation of an "Innovation Village" on the 40-acre Runway Peninsula, with up to 1,000 residential units and supporting commercial space.
- The project could be a partnership between the City, a future master developer and a non-profit or corporate sponsor.
- It could be a place where emerging technologies, green building materials and renewable energy strategies are implemented and tested, helping to brand Hensley Field as an innovation center and the City as a leader in sustainable development.

SF-3: Coordinate with District Energy Providers to Explore the Commercial Viability of District Energy with Geo-Thermal Cooling:

- While the analysis showed that the project itself could not bear the cost of a District Energy and geo-thermal loop system, further study of district energy and possible optimizations should be explored with district enerby providers to determine if there is a commercial model that could support funding of such a system.

SF-4: Introduce a Network of EV Charging Infrastructure:

- The Hensley Field development should provide sufficient accommodation for charging stations within public garages and private homes.

SF-5: Coordinate with Dallas Water and the Trinity River Authority on a Pilot Program for Reclaimed Water:

- Discussions should be initiated with the TRA and Dallas Water regarding the opportunity for Hensley Field to serve as a pilot project for the distribution of treated municipal gray water for irrigation and non-potable use.

SF-7: Coordinate with Dallas Department of Sanitation Services on a Pilot Program for Community Composting:

- Hensley Field offers an opportunity to initiate a pilot program for community composting which could also provide opportunities for green jobs

SF-8: Introduce Resilience Hubs:

- Establishing a network of resilience hubs in Hensley Field would recognize the vulnerability of resident populations and the opportunity to integrate a safe harbor into the fabric of the community.

SF-9: Measure and Manage the Environmental Performance of the Development:

- To track the effectiveness of the proposed environmental and green building strategies, a monitoring measurement and management system should be installed.

SF-10: Achieve Gold Certification LEED Cities and Communities:

- Pursuing LEED for Cities and Communities certification aligns with the three pillars of sustainability put forth for Hensley Field: social equity, economic vitality and environmental stewardship.
- Appendix 2.4 provides a checklist that shows how the Hensley Field development could earn the minimum of 60 points to achieve a Gold rating.
- In order to meet LEED prerequisites for recycling, all properties at Hensley Field – single- and multi-family residential, commercial, and institutional – should have available segregated collection of recyclables and organics. (City of Dallas policy exempts buildings with eight or fewer units).

SF-11: Utilize Environment, Social and Governance (ESG) Criteria in Pursuing Anchor Users:

- It is recommended that the City of Dallas employ ESG criteria in evaluating potential anchor uses for the new community.

RISKS

This report identifies several risks that could affect the Preferred Alternative recommendations outlined above and/or the overall timeline for redevelopment. These include:

Texas Military Lease:

- The Texas Military Department holds a long-term lease on 40-acres of property in the southwestern corner of the site. The lease expires in 2039. Currently, the Texas Air National Guard operates a Chinook helicopter squadron on the site, as well as a Readiness Center for training of reservists and a vehicle maintenance facility. While there are initiatives underway to relocate the aviation activity, there is uncertainty as to the timing and extent. If they remain, the Chinook operations could pre-empt early term residential development in the southern sector of the site, an area that is most suitable for such use. Noise contours for Chinook helicopters indicate the extent of the site that would be impacted with decibel ratings exceeding 55dB. (Figure ES-6)

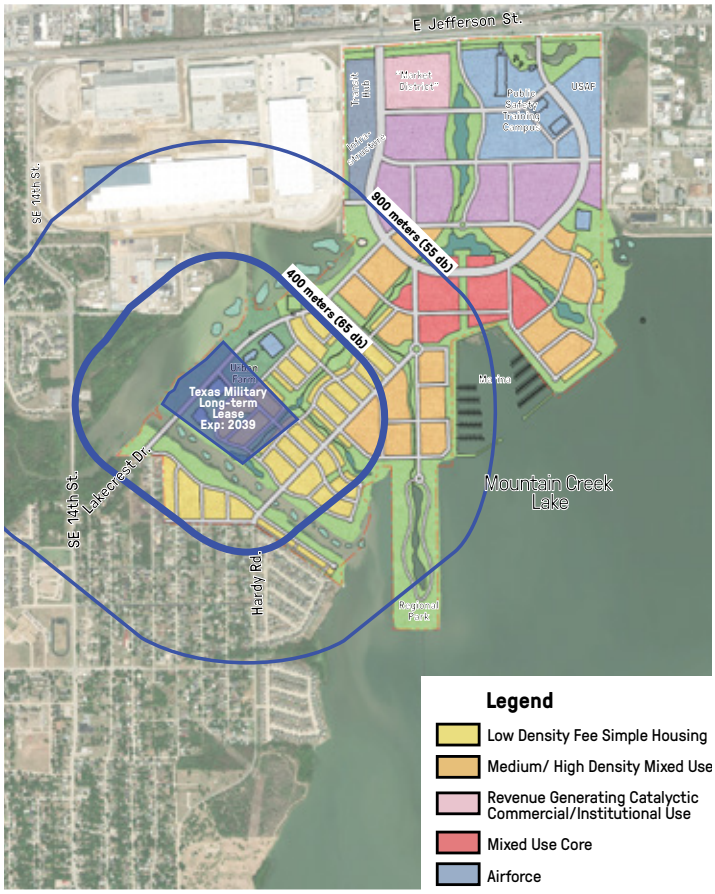


Figure ES-6: Chinook Helicopter Noise Contours

Environmental and Regulatory Issues:

- The Navy previously operated the Naval Weapons Industrial Reserve Plant (NWIRP) immediately west of Hensley Field, now owned by Dallas Global Industrial Center (DGIC). Sediment contamination in Mountain Creek Lake and Cottonwood Bay were attributed to NWIRP operations, and DGIC maintains responsibility for the remaining sediment impacts in Mountain Creek Lake and Cottonwood Bay. Realigning Cottonwood Creek (as proposed in Scenario Three) could disturb contaminated lake-bed sediments that have been cleared by the Texas Commission on Environmental Quality (TCEQ), resulting in additional permitting and cost issues. As the responsible party, DGIC would need to approve of any improvements that would potentially disturb the contaminated sediments.
- In 2016, TCEQ compelled the Navy to sample soils and groundwater and evaluate the presence of per- and polyfluoroalkyl substances (PFAS). The Navy identified the presence of PFAS on the site, and are currently undergoing a RCRA Facility Investigation (RFI) to evaluate the magnitude and extent of the soil and groundwater impacts. It is anticipated that the RFI will be completed in early 2022. At this time, PFAS are considered a new contaminant and are not included in the Navy's existing RCRA Permit. It is anticipated that following completion of the RFI that the Navy will modify their RCRA Permit to include the PFAS contamination on the site. While the Navy has agreed to completing mitigation of PFAS, it is not currently tied to their RCRA permit, thus a driver forcing the completion of the work is not currently in place. Therefore, it is possible that soil remediation timelines could get pushed further out. For the purpose of risk evaluation, it is assumed that redevelopment of the PFAS-impacted soil areas will not be possible until final approval of the remediation efforts by the TCEQ.

Mountain Creek Lake is currently owned by TexGen, the operator of Mountain Creek Lake Power Plant

Mountain Creek Lake Ownership:

- Mountain Creek Lake was created in the 1930s by damming Mountain Creek for the creation of a steam-generating power plant. The lake is currently owned by the power plant company TexGen, who have stated that the plant is likely to be decommissioned in the next five to ten years because it no longer produces power in a cost-effective manner. As the owner of the water body, it is expected that TexGen will have a direct interest in the types of water-based recreational activities that can take place on the lake, as well as the types of shoreline improvements that project into the water. Use of the water and reconfiguration or improvement of the shoreline will require close coordination between the City of Dallas and TexGen.

The former Naval Air Station is located on 720 acres overlooking Mountain Creek Lake in southwestern Dallas

1 INTRODUCTION

In September 2020, the City of Dallas led by its Planning and Urban Design Department initiated the Redevelopment and Reuse Plan for the 720-acre former Naval Air Station Hensley Field in southwest Dallas. The City has called for the project "to leverage this city-owned asset with an implementable plan that achieves community objectives related to the three pillars of sustainability: social equity, economic vitality and environmental stewardship. As part of the planning process, the consultant team completed an assessment of Opportunities and Constraints summarized in a January 2021 report (link), and, in collaboration with a joint Stakeholder and Technical Advisory Group established six Guiding Principles for the project, each with their own underlying goals.

The intent of the Guiding Principles and Goals is to provide specific metrics that can guide the development of the Redevelopment Plan through to adoption by City Council, and beyond to measure the subsequent performance of the project as it progresses through all stages of implementation. Appendix 1.1 lists all of the goals under each of the following Guiding Principles:

Environmental Health: Hensley Field will be developed as a "living laboratory of resilience" for site, infrastructure, and buildings, and a "proof of concept" of Dallas' Comprehensive Environmental Climate Action Plan (CECAP).

Economic Investment and Opportunity: Hensley Field will increase economic opportunity for southern Dallas by attracting public and private sector investment that creates new jobs, raises incomes, and provides a diverse and attractive range of housing types and community amenities.

Affordability and Diversity: Hensley Field will offer a wide range of business and housing choices that support an inclusive community of socially and economically diverse residents.

Healthy Communities: Hensley Field will promote active and equitable lifestyles with enhanced access to fresh food, healthcare, parks and trails, quality education and healthy homes and workplaces.

Mobility and Access: Hensley Field will be seamlessly connected to the regional and local transportation networks with a safe, multi-modal transit-orientation.

History and Culture: Hensley Field will leverage historic and cultural resource management to support broader sustainability, equity and economic project goals.

Over the past several months the consultant team, in collaboration with the SAG and TAG, have been preparing, refining and evaluating a series of three scenarios to test their ability to achieve the project's Guiding Principles and Goals and to produce a development that is financially feasible and implementable. The purpose of this report is to describe the characteristics of each of the Scenarios (Chapter 2); outline the findings of the evaluation (Chapter 3); and to provide recommendations (Chapter 4) that can guide the preparation of a Preferred Alternative that will serve as the basis for the Master Plan. A fifth chapter describes some of the key risks that could preclude or delay some of the recommendations.

Hensley Field will attract public and private sector investment to create a diversity of new jobs

2 DESCRIPTION OF SCENARIOS

2.1 OVERVIEW AND PROCESS

The American Planning Association defines Scenario Planning as a "process to support decision-making helping urban planners navigate the uncertainty of the future in the short and long term. The process begins by scanning the current reality, projected forecasts, and influential internal and external factors to produce a set of plausible potential futures or scenarios. It then develops a series of initiatives, projects, and policies that may help support a preferred scenario. Indicators that a scenario component is likely to occur (i.e., tipping points or triggers) may be established to alert planners that the likelihood of a scenario becoming a reality is higher, prompting them to take action on appropriate tactics such as allocating funding and moving into implementation."[1] The Scenario Planning process for Hensley Field has involved the following six steps:

1. Establish three "plausible potential futures" for Hensley Field.
2. Develop specific land use and phasing assumptions for each scenario, and the corresponding infrastructure, open space and other public investments that will be required to support these.
3. Estimate the potential public sector costs and revenues associated with each scenario and evaluate the financial risks and rewards.
4. Evaluate the ability of each scenario to meet the project's established principles and goals.
5. Identify the components of each scenario that are most likely to have positive outcomes.
6. Develop recommendations for a "Preferred Alternative" that can become the basis for the Master Plan.

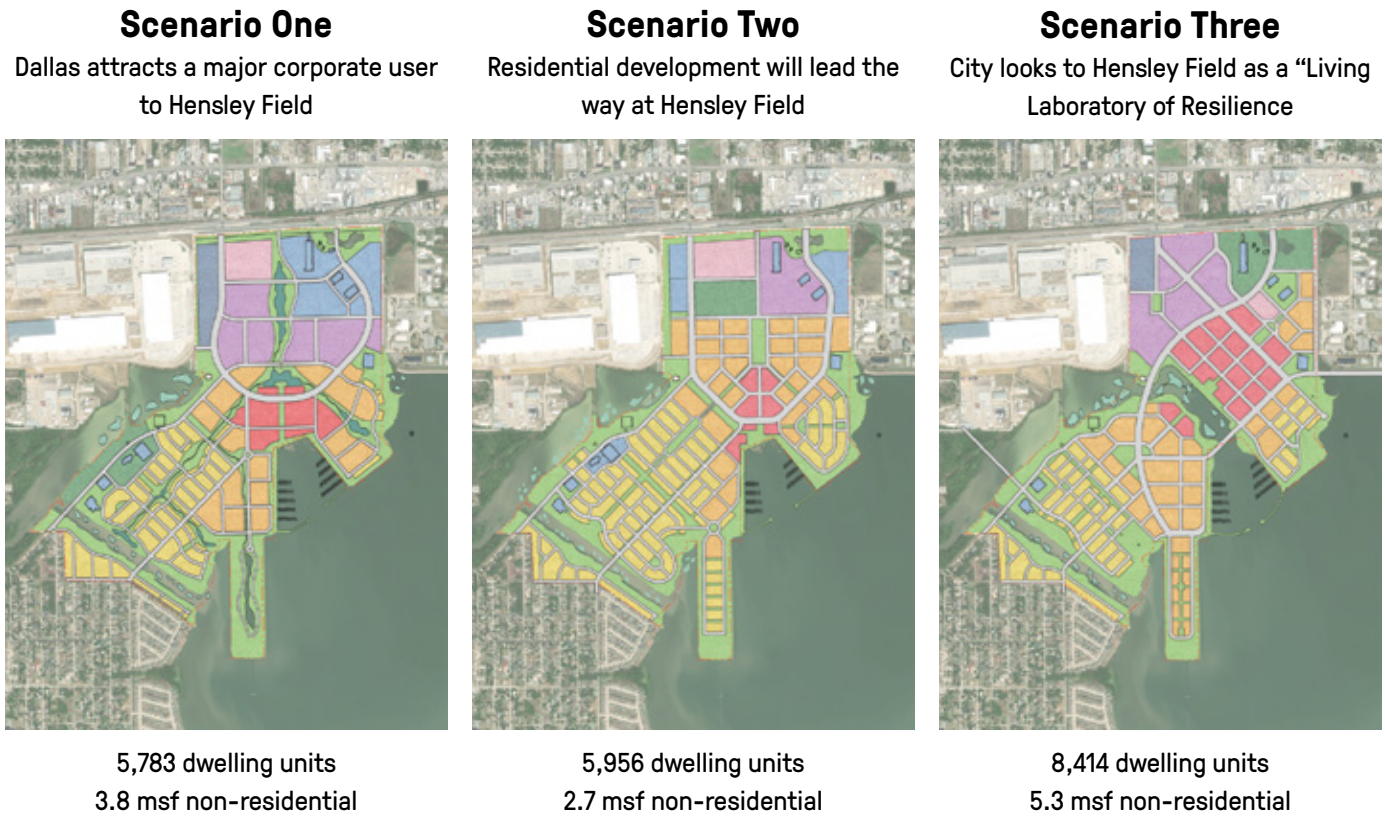


Figure 2.1 The Three Scenarios

This chapter describes the three scenarios. Each scenario begins with a particular hypothesis or foundational premise that guides its overall development program (Figure 2.1).

Scenario One "Major User" tests a "plausible future" of the City of Dallas attracting one or more corporate or institutional "anchor" uses to Hensley Field early on to promote the project's economic development objectives and to support initial investments in infrastructure.

Scenario Two "Residential Lead" tests the outcome of a residential emphasis, taking advantage of a robust real estate market, the unique waterfront setting of Mountain Creek Lake, and the need for a diversity of housing opportunities in the southern sector of Dallas.

Scenario Three: "Eco-Innovation District" focuses on Hensley Field being developed as a demonstration project highlighting Dallas's leadership in sustainable redevelopment with district-scale urban development that achieves ambitious outcomes in equity, resilience and climate protection.

2.2 ELEMENTS COMMON TO ALL SCENARIOS

It is important to note that within the parameters of their particular focus each of the scenarios strives in one way or another to address the project's Principles and Goals. As such, the scenarios share common elements and assumptions. More specifically:

Mix of Land Uses: The three scenarios all include a diverse mix of commercial, institutional and residential uses in keeping with the Guiding Principles. However, each has a different mix, intensity and distribution of these uses, permitting an analysis of their relative market absorption and financial performance.

Housing Diversity: Each of the scenarios includes a range of housing types, but in different amounts and proportions. (Affordability targets are not tested in the scenario evaluation, but will be incorporated as part of the Redevelopment Plan policies.)

Strong Waterfront Orientation: Access to, and use of, Mountain Creek Lake as a recreational resource is a key feature of all three scenarios.

Access to Mountain Creek Lake as a recreational resource is a key feature of all three scenarios

Rich Network of Open Spaces: All three scenarios dedicate at least 25% of the overall site, or 185 acres, to open spaces, including parks and plazas, waterfront trails and greenways, urban farms and natural preserves.

Leveraging Green Infrastructure: The scenarios utilize mass tree plantings to achieve at least 40% canopy cover, thereby improving air quality and heat island effect. Habitat and improved water quality are promoted through green infrastructure, wetland restoration and the introduction of floating wetlands.

Mobility Choices: A full spectrum of transportation modes incorporating best practices and emerging technologies is assumed in each scenario.

Walkable Streets and Trails: Multi-modal streets, consistent with Dallas's Complete Streets Manual, and a continuous waterfront trail are features of all three scenarios.

Honoring History: Each scenario strives to respect and honor the unique military and pre-military history of Hensley Field through preservation of key resources and adaptive reuse of structures. All scenarios call for the preservation and adaptive reuse of the two Officers Houses and the historic Navy hangar.

A Full Service Grocery Store: In recognition of the southern sector's paucity of healthy food opportunities, each of the scenarios prioritize the procurement of a major grocery store on the site.

Healthy Food Systems: In addition to a grocery store, the scenarios accommodate on-site healthy food production and distribution with a portion of the open space devoted to agricultural fields.

Texas Military Lease: All three scenarios assume that alternate facilities will be found for the existing Texas Air National Guard operations on the site including the Chinook helicopter aviation activity. Current efforts are in place to relocate these operations to Fort Worth.

Site Remediation: All of the scenarios acknowledge the Settlement Agreement between the City of Dallas and the Navy, committing the Navy to the clean-up of the site to unrestricted residential standards in a way that will not impede or delay redevelopment. Remediation of previously identified soil contamination has been completed by the Navy and approved by the Texas Commission on Environmental Quality (TCEQ). Remediation for ground water contamination is in progress with several areas undergoing long-term sampling and monitoring by the Navy. The Navy is currently investigating the extent and remediation requirements of Polyfluoroalkyl substances (PFAS) in soils, sediments, surface water and ground water and is expected to initiate clean-up of this contaminant by 2024.

Each of the scenarios includes a major grocery store and on-site healthy food production and distribution

2.3 ELEMENTS COMMON TO ALL SCENARIOS

Hensley Field is envisioned as a mixed-use community that will support the City's economic development objectives for the southern sector of Dallas, while providing a diversity of housing choices. The new community will be designed to reduce automobile dependency, with an emphasis on walkable patterns of pedestrian-oriented development and transit connectivity. All land uses will be designed to reinforce the quality of the public realm of streets and open spaces by promoting activity and reducing the dominance of the automobile.

Figure 2.1 illustrates the land use plan for the three scenarios and Table 2.1 provides a breakdown of the development program for each. As shown, each of the scenarios has a different proportion and distribution of commercial and institutional uses and low, medium and higher density housing. Appendix 2.1 provides a more detailed program tabulation of each of the three scenarios, describing land utilization and proposed densities.

SCENARIO ONE: MAJOR USER

With its primary focus on attracting a major user to the site, Scenario One reserves approximately 60-acres of land in the northern sector of Hensley Field for one or more corporate or institutional users. This could include a high-tech research and development complex and/or a health care or educational campus. This land area would accommodate approximately 1.1 million square feet of medium-density development with a combination of structured and surface parking (Figure 2.2)

In addition to these corporate and institutional uses, Scenario One reserves 41 acres of the property for a Public Safety Training Campus, to be operated by Dallas Fire Rescue (DFR). The facility could include the adaptive reuse of four of the existing hangars and provide new facilities for the education and training of the City's public safety staff. Also, in the northern sector of the site along East Jefferson Street is a 17.5-acre "Market District" targeted for 160,000 square feet of retail/commercial space including a major grocery store that would serve the surrounding communities in addition to the residents of Hensley Field.

Scenario One maintains the existing US Air Force administrative complex in the northeast corner of Hensley Field, at least until the lease expires in 2043. Approximately 22 acres of land in the southwestern corner of the site along Cottonwood Bay is reserved for urban farming, including an existing hangar and office building, which could be repurposed for vertical hydroponic farming. This agricultural programming could be led by an institution such as an agricultural research arm of a local college or university.

Within the medium and high-density mixed-use districts in the heart of the site, Scenario One provides for 2.2 million square feet of additional office space and 140,000 square feet of retail floor area located on the ground floor of mid-rise (four to seven floor) commercial or residential buildings. Altogether, 4.2 million square feet of non-residential uses are planned in Scenario One.

LAND USE	SCENARIO 1			SCENARIO 2			SCENARIO 3		
Residential	**Acres**	**DU**	**GSF**	**Acres**	**DU**	**GSF**	**Acres**	**DU**	**GSF**
Low Density / Fee Simple	77.5	881	-	133.2	1,865	-	68.1	917	-
Medium Density Multi Family	68.1	3,771	-	78	3,348	-	64.4	3,656	-
High Density Multi Family	14.8	1,132	-	9.7	742	-	34.9	2,670	-
Innovation Village	0	0	-	0	0	-	10.2	1,170	-
SUBTOTAL	**160.4**	**5,784**	**0**	**220.9**	**5,955**	**0**	**177.6**	**8,413**	**0**
Commercial / Institutional	**Acres**	**DU**	**GSF**	**Acres**	**DU**	**GSF**	**Acres**	**DU**	**GSF**
Office / R+D	26.1	-	2,210,452	33.7	-	1,862,407	107.1	-	5,011,469
Retail	17.5	-	301,989	21.6	-	359,940	4.7	-	418,506
Film Studios	0	-	0	33.6	-	205,000	0	-	0
Institutional	64	-	1,226,671	0	-	0	0	-	0
SUBTOTAL	**107.6**	**-**	**3,739,112**	**88.9**	**-**	**2,427,347**	**111.8**	**-**	**5,429,975**
Civic / Public	**Acres**	**DU**	**GSF**	**Acres**	**DU**	**GSF**	**Acres**	**DU**	**GSF**
Air Force	13	-	75,000	13.4	-	75,000	0	-	0
Urban Agriculture	24.4	-	40,000	20.1	-	40,000	34.5	-	40,000
Texas Task Force 2	0	-	0	6.5	-	105,000	0	-	0
Fire / Police Training Facility	38	-	205,000	0	-	0	0	-	0
Civic / Cultural	6	-	120,000	5.4	-	120,000	0	-	200,000
SUBTOTAL	**81.4**	**-**	**440,000**	**45.4**	**-**	**340,000**	**34.5**	**-**	**240,000**
Public Open Space	**192**	0	-	**172.2**	0	-	**173**	0	-
Waterways	**23.2**	0	-	**23.2**	0	-	**45.5**	0	-
Streets / Infrastructure / Transit	**155.4**	0	-	**169.4**	0	-	**177.6**	0	-
TOTAL	**720**	**5,784**	**4,179,112**	**720**	**5,955**	**2,767,347**	**720**	**8,413**	**5,669,975**

Table 2.1 Scenario Development Program Comparisons

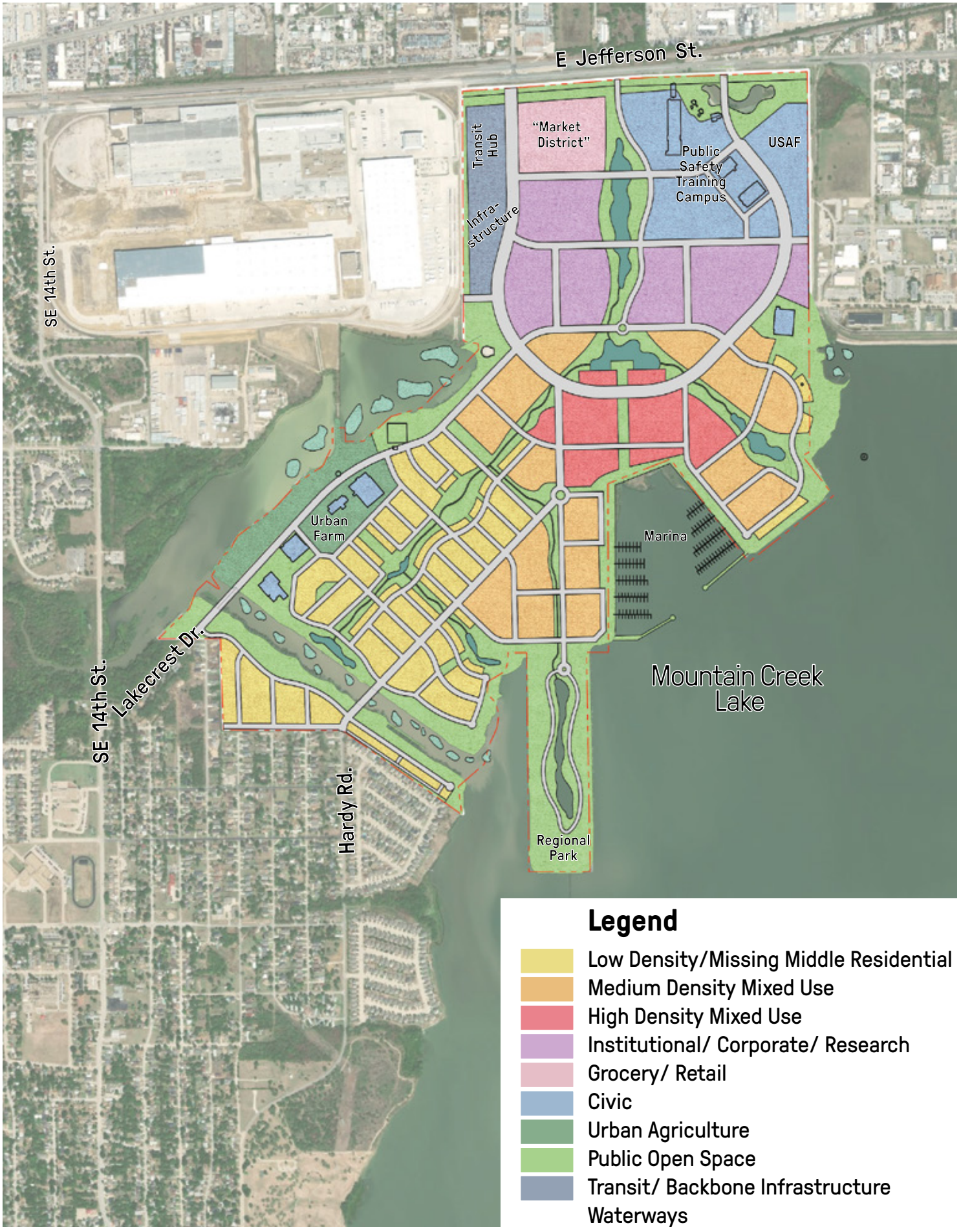


Figure 2.2 Scenario One

Scenario One includes 5,783 residential dwelling units, including 881 low-density for-sale homes (e.g., detached, attached and clustered townhouses, stacked flats and duplexes). These are located in the southernmost portions of the site on both sides of the diversion channel and along Cottonwood Bay, to provide an appropriate transition to the existing neighborhoods to the south. A total of 3,770 medium-density apartments (e.g., three to four floors) and 1,132 higher-density apartments and condominiums (five to eight floors) are planned in the medium and high-density mixed-use districts oriented to Mountain Creek Lake and the proposed harbor and marina at the core of the development

SCENARIO TWO: RESIDENTIAL LEAD

Scenario Two proposes to lead with residential development, taking advantage of the unique waterfront setting of Mountain Creek Lake and the strong real estate market for housing (Figure 2.3). In response to the market, this scenario maximizes the amount of land devoted to low and medium density for-sale housing. Of the 5,955 housing units, over 30% (1,865) are in detached, attached and clustered for-sale homes. 3,348 medium-density apartments and 742 higher-density apartments and condominiums are located at the heart of the development and on the Runway Peninsula projecting into Mountain Creek Lake.

Like Scenario One, Scenario Two locates the Market District with its grocery store and associated retail along East Jefferson Street with a total of approximately 200,000 square feet of floor area. All of the remaining office, institutional and retail space in Scenario Two – approximately two million square feet - is located within the medium and high-density mixed-use districts at the core of the development.

A distinguishing element of Scenario Two is the creation of a Film Studio complex on 33.6 acres of land in the northeast quadrant of the site. This campus would adaptively reuse the four existing hangars, benefiting from their high bays and over 200,000 square feet of column-free space.

A 20-acre tract of land immediately south of the Market District is reserved for urban agriculture as part of a larger food and market district. This scenario supports traditional in-ground production and new facilities that could support broader distribution.

This scenario could include an apiary, responsibly raised poultry and pork, and other healthy bi-products of agriculture and sustainable farming. This scenario includes the possibility for a retail farmer's market for the broader community outside of Hensley Field. The operator on this site is envisioned as a viable commercial entity. In addition to this larger urban agriculture component, each neighborhood could have smaller community gardens in cooperation with schools and other non-profits for the consumption of those living within Hensley Field. This will contribute to equitable access to fresh food for residents regardless of socioeconomic status. Like Scenario One, the US Air Force tract is maintained at least through the expiration of the lease in 2043.

Scenario Two leads with residential development and features a film studio complex

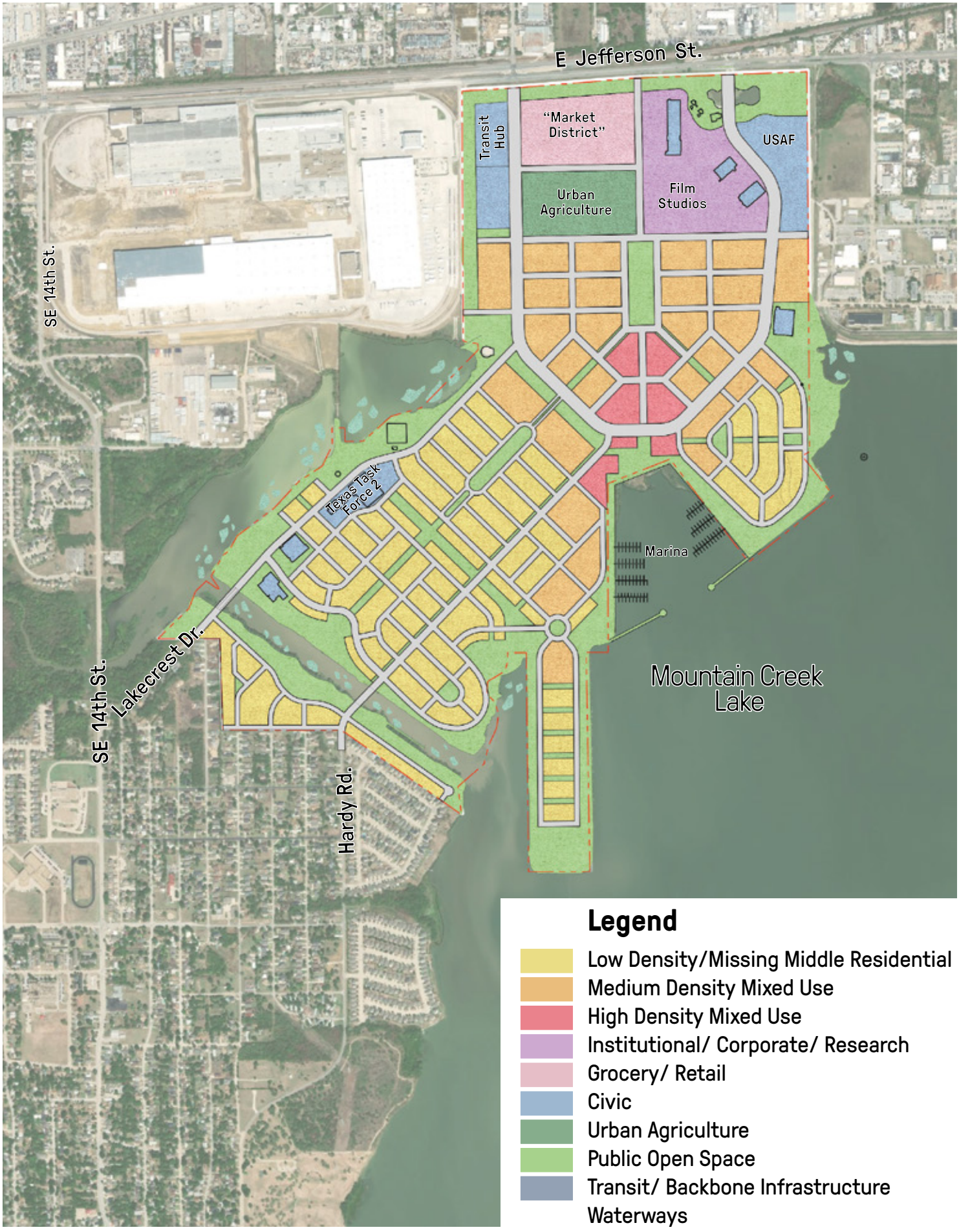


Figure 2.3 Scenario Two

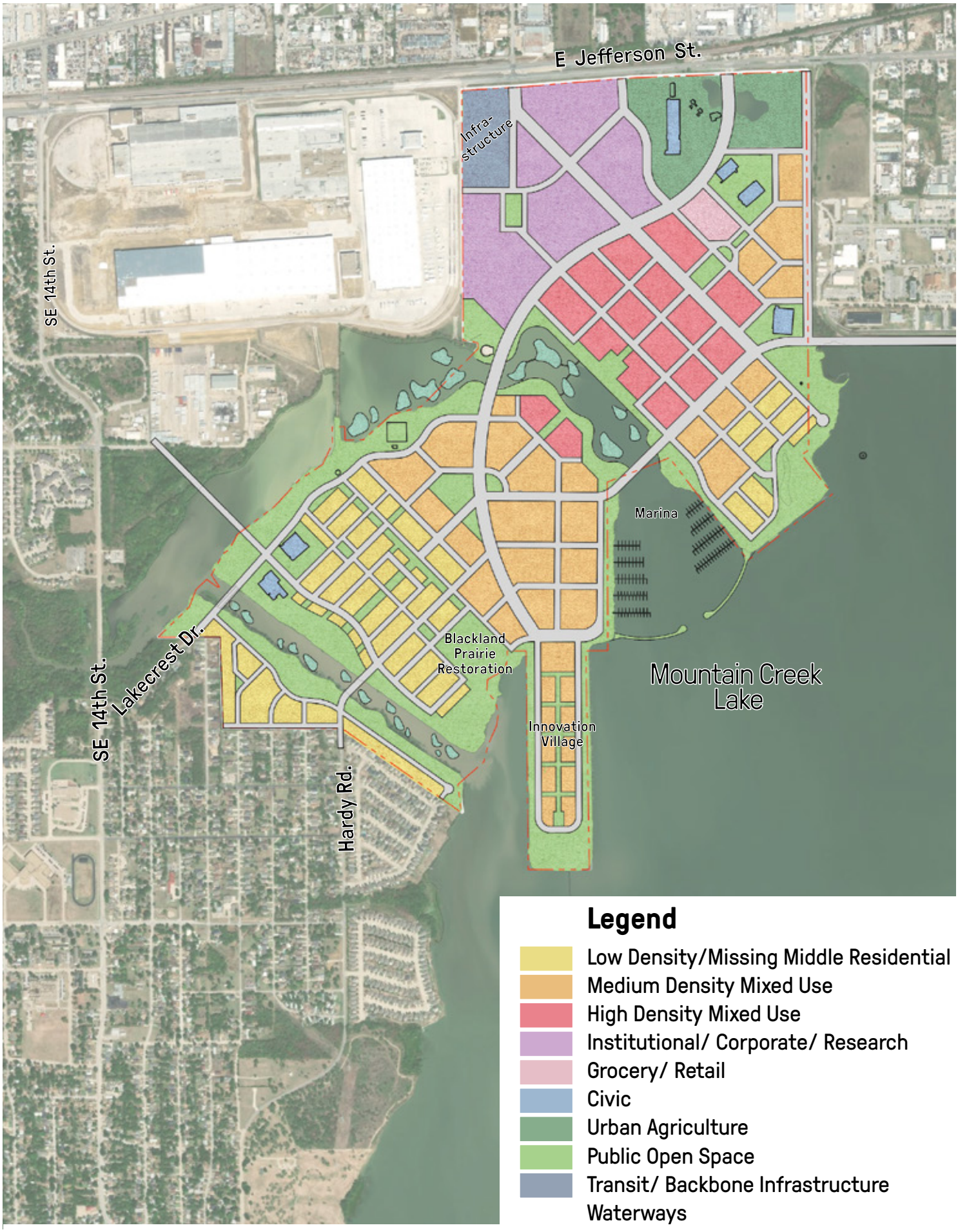


Figure 2.4 Scenario Three

SCENARIO THREE: ECO-INNOVATION DISTRICT

Scenario Three's focus is providing a "proof of concept" for the City's recently adopted Comprehensive Environmental Climate Action Plan (CECAP), with district-scale development that achieves ambitious outcomes in equity, resilience and climate protection. As such, it is the densest of the three scenarios with a total of 8,414 residential units and 5.4 million square feet of non-residential space (Figure 2.4).

Like Scenario One, Scenario Three devotes a significant tract of land – 62 acres - in the northern sector of the site for a major corporate or institutional user, but in a higher density format that could support up to 1.7 million square feet of floor area, and with a focus on sustainability and research. This could include a corporate high-tech campus and/or an educational or health complex, with entities employing the latest technologies of green building and with exemplary ESG (Environment, Social and Governance) ratings.

In addition, Scenario Three proposes a mixed-use "Innovation Village" on the Runway Peninsula with 1,200 units of housing and 25,000 square feet of commercial space. The Innovation Village is envisioned as a demonstration project, employing and demonstrating the latest technologies in green building and renewable energy, operated by a corporate or educational research entity in partnership with the City of Dallas.

Additional office, retail and institutional space is accommodated in the mixed-use areas at the center of the site, occupying a majority of the developable land in this scenario. This could include 3.2 million square feet of office and institutional space, and 400,000 square feet of retail space, including a grocery store located in a mixed-use format.

Urban agriculture in Scenario Three is on 35-acres of land in the northeast corner of the site located along East Jefferson Street at the gateway to the former Naval Air Base. This scenario includes in-ground farming, and incorporates the largest of the existing hangars, the recently-renovated Aircraft Maintenance Hangar. This area could become a regional food hub and include space allocated for orchards, vineyards, vertical farming, food packaging, and/or market and retail opportunities. According to the USDA's Regional Food Hub Resource Guide, a food hub is a "business or organization that actively manages the aggregation, distribution, and marketing of course-identified food products primarily from local and regional producers.." A food hub can facilitate th connection and sale of local food to local communities, promoting a more sustainable and healthy supply chain.

With 8,400 units of housing, Scenario Three has the greatest number of housing units, but the lowest percentage of lower density for-sale housing- at 917 units or just over 10%. Like the two other scenarios, these homes are concentrated in the southernmost areas of the site on both sides of the diversion channel and adjacent to Mountain Creek Lake. The remaining 7,500 units of medium and higher density housing are located at the heart of the development in mid-rise buildings in the medium and high-density mixed-use districts and in the Innovation Village.

Scenario Three proposes an "Innovation Village" demonstrating the projects commitment to sustainability

2.4 PARKS AND OPEN SPACES

Growth and development, whether in urban, suburban, or rural landscapes, create increased pressures on remaining open space. Master plans present the opportunity for design and planning strategies to set criteria for the preservation and protection of land and water for use as open space systems, creating shared community value. Communities should be designed to provide equitable access to ample and ecologically-diverse open spaces to meet a range of human and environmental needs, and to sustain the integrity of natural systems. Dedicated open space creation, promotion, and management is an essential component of the Hensley Field development scenarios and their associated land use programs.

Open spaces fulfill multiple functions, including opportunities for active and passive recreation, civic engagement, environmental education and natural resource protection. Parks and open spaces work to combat a myriad of national and community issues by providing safe, equitable, and close-to-home recreation options. Returning a previously developed site like Hensley Field back to its natural condition, even on a small scale, extends benefits to all life. If executed properly, open space systems provide multiple benefits, including enhanced water and air quality[2], improved mental and physical health of nearby residents and users[3], improved habitat, decreased heat island effect[4], decreased contaminant loads entering water bodies from storm water run-off[5], increased carbon sequestration[6], catalyzation of economic and community development[7,8], and the desirable aesthetics of natural surroundings.

The design team's experience suggests that high-quality urban parks should be lively, multi-use, programmed spaces, to better enhance the lives of users and make the most of limited resources. Landscapes with striking contemporary forms may create an identifiable, or iconic setting, but without a strong consideration for who will use the spaces, when they will be used, and the range of activities being accommodated, these landscapes can quickly become dated and costly liabilities to the urban fabric of the city.

All of the scenarios seek to strike a balance between open spaces that create bio-habitats and open spaces that are usable and targeted to specific users and activities. This will enable minimal disruption to preserved areas by maximizing the use of designated high-activity open space areas, creating "win-win" scenarios in which both people and biodiversity benefit.

The open space scenarios strike a balance between usability and ecological performance

OPEN SPACE ELEMENTS COMMON TO ALL SCENARIOS

All three scenarios feature a marina, Blackland Prairie restoration, varying degrees of storm water management, and an urban agriculture component. The Marina is envisioned as a waterfront park and recreation area that will include boardwalks and storage for small watercraft. The lake could become host to regional regattas, sculling, fishing tournaments and other boating activities.

The Blackland Prairie will be restored in each scenario in order to increase ecological diversity and provide habitat and food sources for pollinators and wildlife. On-site storm water management strategies range from simple rain gardens and bioswales along street frontages to a broader, more connected network approach to green infrastructure. In accordance with the City of Dallas's Climate Action Plan (CECAP), each scenario will include an urban agriculture component to increase local food availability and work towards 100% of Hensley Field residents having access to healthy, affordable food. Sustainable methods of agriculture also support healthy eco-systems and play an important role in carbon sequestration.[9]

Additionally, the open space network at Hensley Field will endeavor to incorporate representations, allusions, and explicit references to the historical aspects of the airfield in a memorable way to create lasting memories and storytelling of the site's unique history. Each scenario retains and preserves the existing historic hangar (Dallas Naval Air Station Maintenance Hangar) as a civic space. This special use area is focused on a specialized or single-purpose recreation activity. The hangar could be utilized as a museum to the airfield and its contributions to WWII, and also host food and beverage opportunities. With prime proximity to the waterfront, it could even serve as a launching point for water taxi service to Dallas Baptist University and Dallas-Fort Worth National Cemetery across the lake.

The Blackland Prairie will be restored in each scenario in order to increase ecological diversity and provide habitat

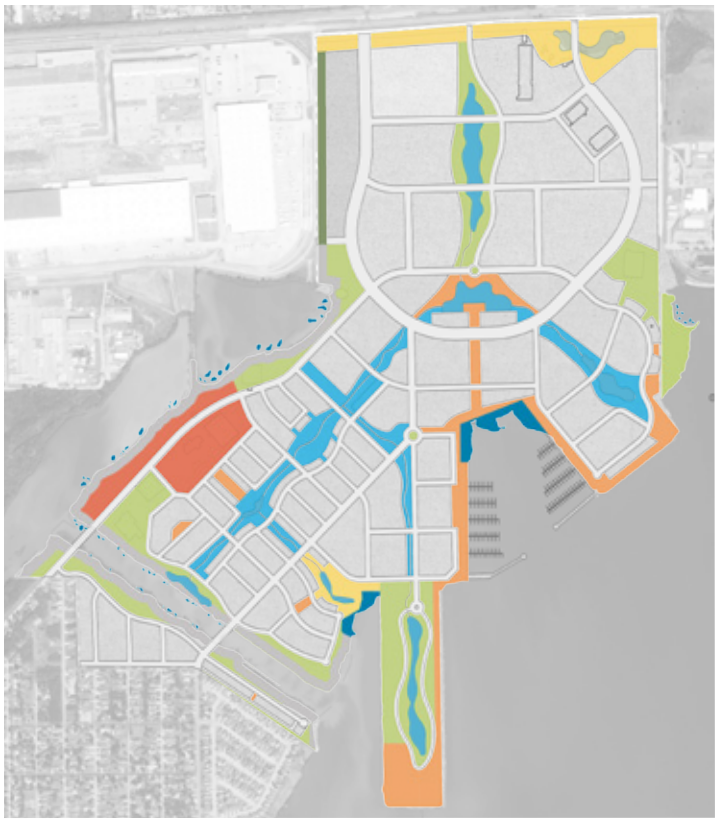


Figure 2.5 Scenario One Open Space Diagram

	AREA IN ACRES	PERCENT ON SITE
URBAN AGRICULTURE	20.2	3%
PROGRAMMED PARK SPACE	36.9	5%
NON-PROGRAMMED OPEN SPACE	67.0	9%
NATIVE PRAIRIE	24.8	3%
WETLANDS	7.8	1%
BLUE-GREEN INFRASTRUCTURE (includes 8.3-acres water bodies)	13.6	2%
NEW AND EXISTING FORESTED EDGE	34.3	5%
SCENARIO 1 TOTAL	**204.6**	**28%**

Table 2.2 Scenario One Parks and Open Space

SCENARIO ONE: MAJOR USER

Scenario One features an extensive linear park system that utilizes shared green infrastructure for both park space and storm water management (Figure 2.5) . Green infrastructure refers to an interconnected network of open space consisting of vegetated areas and other green features that protects ecosystem functions and contributes to clean air and water[10]. These features may include bioretention, bioswales, permeable pavements, enhanced tree canopy, and Blackland Prairie preservation and restoration. The linear parks of Scenario One weave throughout the site, touching every sector of the planned community. This connection creates system-wide, equitable access to parks and open spaces. It also increases the ability for pedestrian movement via walking or biking throughout the site and creates smaller programmed pockets within the larger greenbelt for neighborhoods.

Scenario One also features a 40-acre peninsula park. This major regional park could include a waterside boardwalk and beach, retail and food and beverage opportunities, and an iconic overlook structure featuring views of Mountain Creek Lake, the impressive escarpment, and Dallas beyond. The park could provide areas for passive and active recreation including multi-purpose fields for sports, tennis, volleyball, bocce, paddle tennis, playgrounds, etc. Passive recreation opportunities such as walking, viewing, sitting, and picnicking could also be incorporated within the park plan.

Figure 2.6 Scenario Two Open Space Diagram

		AREA IN ACRES	PERCENT ON SITE
URBAN AGRICULTURE		20.0	3%
PROGRAMMED PARK SPACE		37.1	5%
NON-PROGRAMMED OPEN SPACE		59.9	8%
NATIVE PRAIRIE		25.8	3%
WETLANDS		7.8	1%
BLUE-GREEN INFRASTRUCTURE (includes 8.3-acres water bodies)		12	2%
NEW AND EXISTING FORESTED EDGE		41.3	6%
SCENARIO 2 TOTAL		**203.9**	**28%**

Table 2.3 Scenario Two Parks and Open Space

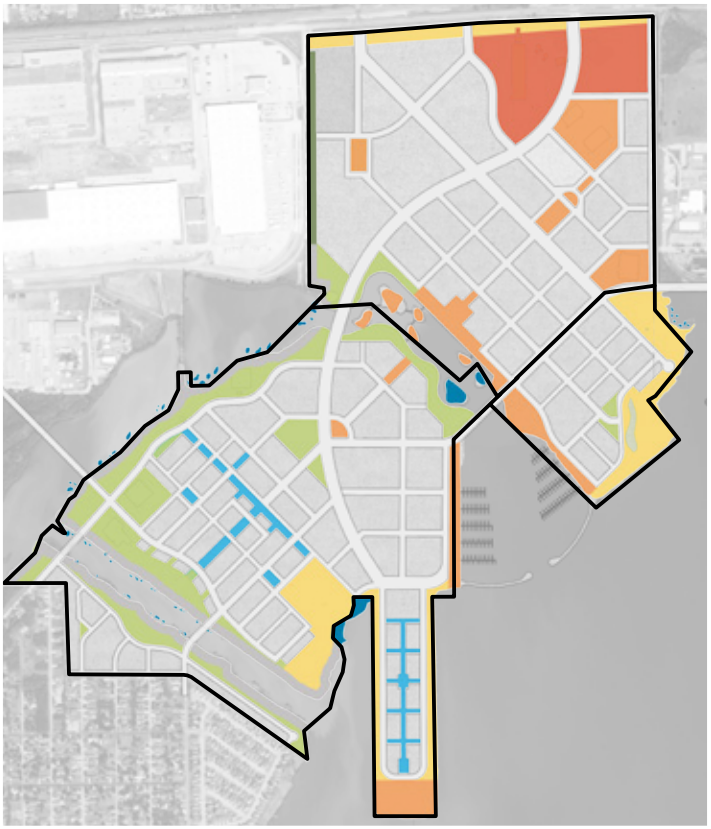


Figure 2.7 Scenario Three Open Space Diagram

		AREA IN ACRES	PERCENT ON SITE
URBAN AGRICULTURE		32.0	4%
PROGRAMMED PARK SPACE		42.0	6%
NON-PROGRAMMED OPEN SPACE		52.5	7%
NATIVE PRAIRIE		50.8	7%
WETLANDS		3.8	1%
BLUE-GREEN INFRASTRUCTURE (includes 8.3-acres water bodies)		11.8	2%
NEW AND EXISTING FORESTED EDGE		4.93	1%
SCENARIO 3 TOTAL		**226.9**	**31%**

Table 2.4 Scenario Three Parks and Open Space

SCENARIO TWO: RESIDENTIAL LEAD

Scenario Two features a series of smaller neighborhood and pocket parks (Figure 2.6). These highly programmed parks make room for both play and active recreation in this neighborhood-centric scheme. A contiguous loop trail connects the park spaces and provides access for fitness and non-motorized travel throughout the site. These green spaces will provide stormwater management through the use of rain gardens along the streets. The neighborhood parks range in size from 0.5 to 5 acres and generally serve residents within a five-minute walk. The neighborhood park includes areas for passive and active recreation. Scenario Two also features a 10-acre park at the tip of the Runway Peninsula neighborhood. The park could be a regional attraction providing spaces for events and structured activities.

SCENARIO THREE: ECO / INNOVATION DISTRICT

Scenario Three is focused on parks and open spaces that leverage naturalized ecological assets and serve the districts in which they exist (Figure 2.7). This scenario hydrologically reconnects Cottonwood Bay to Mountain Creek Lake, similar to its original flow pattern. The purpose of reconnecting these two bodies of water is to create more centrally-located waterfront assets and ameliorate the overall water quality of Cottonwood Bay by improving hydrologic circulation.

The central district of this scenario provides for a more urbanized waterfront along the reconnected Cottonwood Creek. This waterfront district will be located in relationship to the mixed-use commercial areas and be activated by waterfront dining, retail opportunities, and include overlooks onto the constructed wetlands within the reconnected bay.

The largest portions of open space in this scenario consist of unstructured open space and prairie restoration. This ecologically-minded approach provides the most habitat restoration of the three scenarios, in addition to nature-based educational opportunities. Existing forested edges and wetlands are envisioned as being held through conservancies for protection and management of the natural/cultural environment with recreation use as a secondary objective. Recreational and educational uses might include passive recreation such as bird watching and local school field trips to study nature and wildlife habitat. Active recreation opportunities include pier fishing, kayaking and canoeing.

Like Scenario Two, this scenario also features a 10-acre peninsula park adjacent to the planned Innovation Village. This district could include retail, food and beverage opportunities, and waterfront viewing. This park would function as a regional attraction that provides spaces for events and structured activities.

Both Scenarios Two and Three feature a 10-acre park in combination with mixed-use development that would function as a regional attraction

2.5 TRANSPORTATION AND MOBILITY

Under the three project pillars of social equity, economic viability, and environmental protection Hensley Field aims to provide sustainable transportation to those who live, work, and visit the future community. Within each scenario, the goal is to deliver maximum mobility with the smallest footprint.

A successful transportation network is created in lockstep with land use planning. Each of the three scenarios has a primary land use function which guides the development programming, and in turn the transportation network. The planned roadway network for each scenario includes a range of street types to serve the adjacent land uses, facilitate regional transit connections, provide an on-site autonomous transit network, and create a series of smaller streets designed for comfortable walking, biking, and low speed driving.

Scenario One: Major User. This scenario is geared toward one large or multiple institutional or corporate users, and therefore has a large office footprint. The office square footage and the high-density mixed-use areas are primarily served by a Multimodal Spine with two Bus Rapid Transit (BRT) stops that provide adequate coverage for the project site. In terms of network and supporting street coverage (Figure 2.8) Scenario One has a relatively large Multimodal Spine to support the large office square footage and mixed-use density district, but the lowest number of Mixed-Use streets. External access points within Scenario One include Jefferson Street, Lakecrest Drive, and Hardy Road.

Scenario Two: Residential Lead. Scenario Two prioritizes housing with some employment and mixed-use commercial areas. This scenario (Figure 2.9) relies more on the Low Speed Mobility and Autonomous Transit networks to move residents to the one Bus Rapid Transit (BRT) station at the northern entry point of the site. The scenario is supported by a blend of Mixed-Use, Neighborhood Access, and Courtesy Passing streets. External access points within Scenario Two include Jefferson Street, Lakecrest Drive, and Hardy Road.

Figure 2.8 Scenario 1 Transportation Diagram

Scenario Three: Eco/Innovation District. The third scenario is geared toward a greater component of medium and higher-density housing and mixed-use development. This scenario (Figure 2.10) has a large multimodal loop that supports the Low Speed Mobility Network and Autonomous Transit. The scenario has two high-capacity transit stations, creating an opportunity for a mobility hub. Scenario Three's high-capacity transit includes both Bus Rapid Transit (BRT) and Light Rail Transit (LRT), while Scenarios One and Two only include BRT. The scenario is supported by a network of Mixed-Use streets and includes multiple bridges, four within the site, and one connecting to streets west of the site. Access points within Scenario Three include East Jefferson Street, Lakecrest Drive, Hardy Street, and a bridge connection to Skyline Road and South 14th Street.

Figure 2.9 Scenario 2 Transportation Diagram

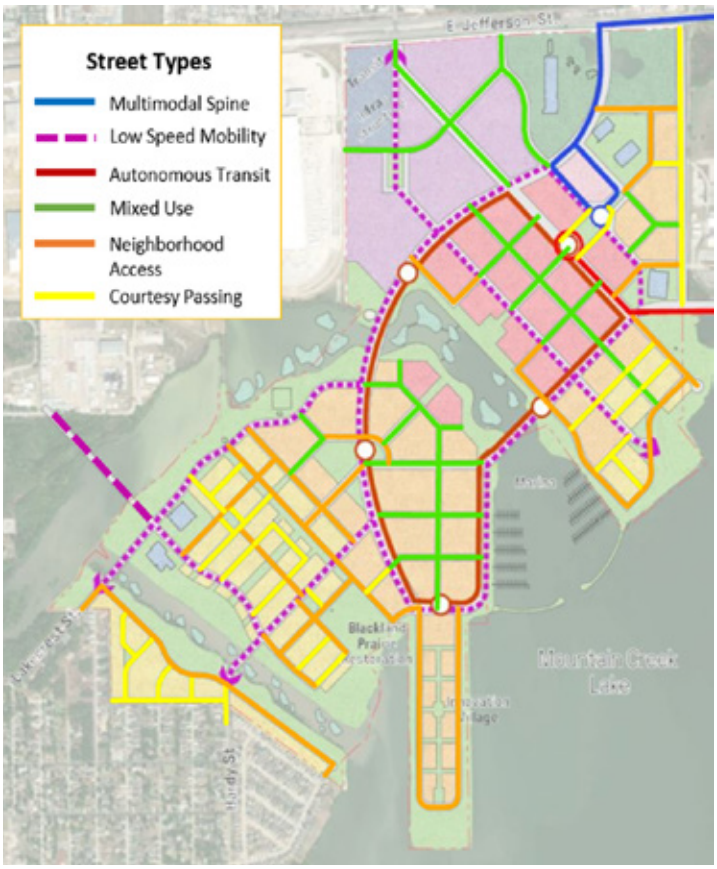


Figure 2.10 Scenario 3 Transportation Diagram

Bus Rapid Transit (BRT)

COMMON TRANSPORTATION ELEMENTS

Transportation elements common to all three scenarios include high-capacity transit, autonomous transit, and a hierarchy of transportation networks and street types which help to prioritize and organize different modes of travel. Scenarios One, Two and Three each include facilities to support Bus Rapid Transit (BRT), and future center-running BRT along Jefferson Street along with the Multimodal Spines. All three scenarios have autonomous transitways that serve as first and last mile connections to transit stations as well as circulation around the site. Each scenario also includes Neighborhood Access, Courtesy Passing, and Low Speed Mobility streets designed to facilitate and prioritize features that make walking, bicycling, and other forms of active transportation safe and comfortable. Multimodal connections to the surrounding neighborhoods and communities are present in every scenario, ensuring equitable access to the site's employment, retail, parks, and recreation destinations and minimizing out of direction travel.

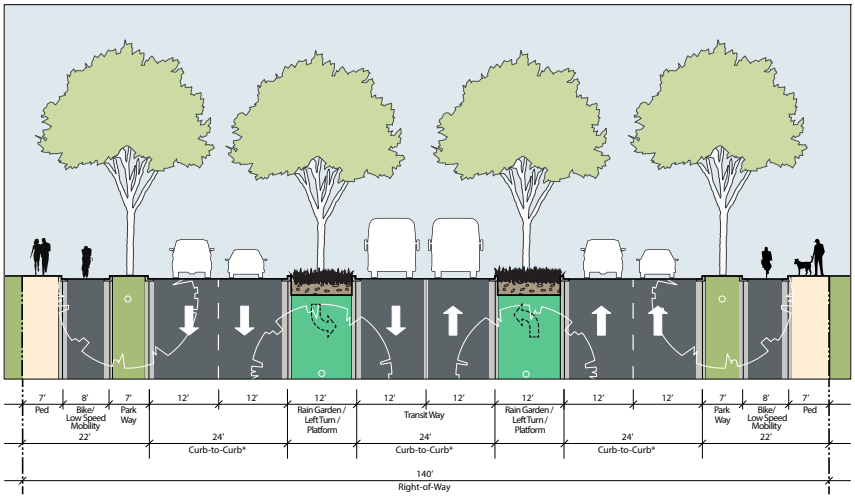


Figure 2.11 Multimodal Spine Street Cross Section

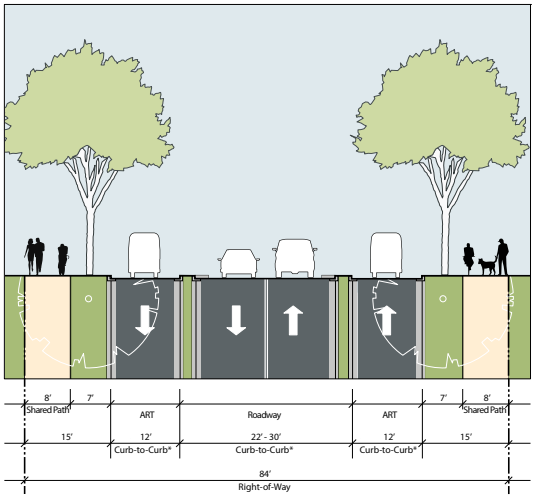


Figure 2.12 Autonomous Transit Cross Section

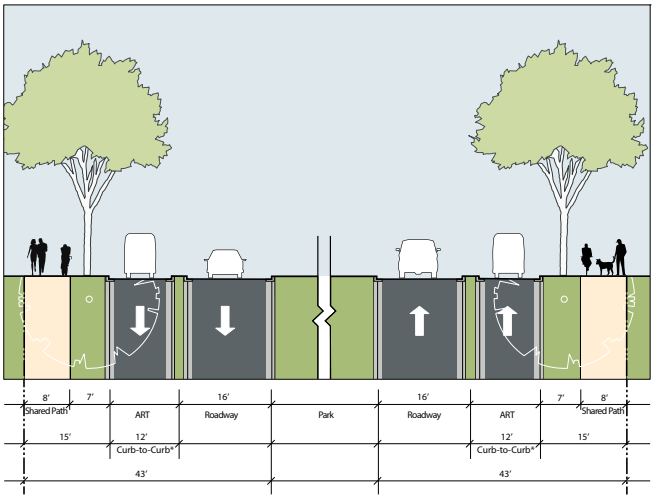


Figure 2.13 Autonomous Transit - Option 2

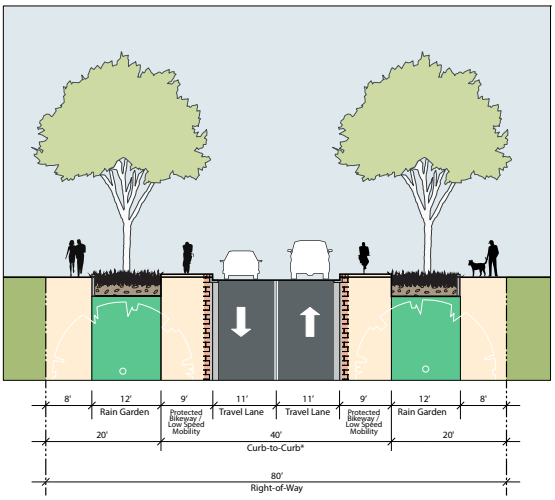


Figure 2.14 Low Speed Mobility Cross Section

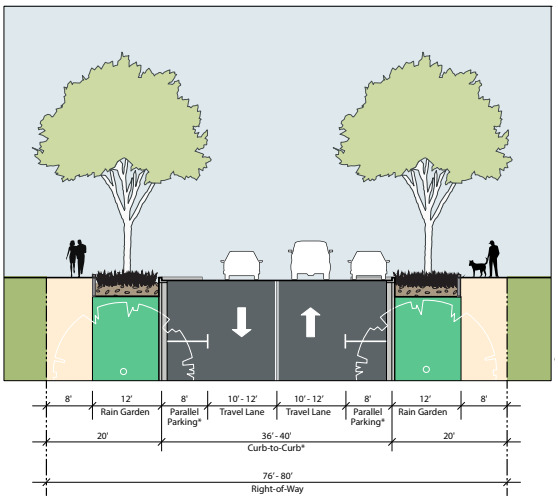


Figure 2.15 Mixed Use Cross Section

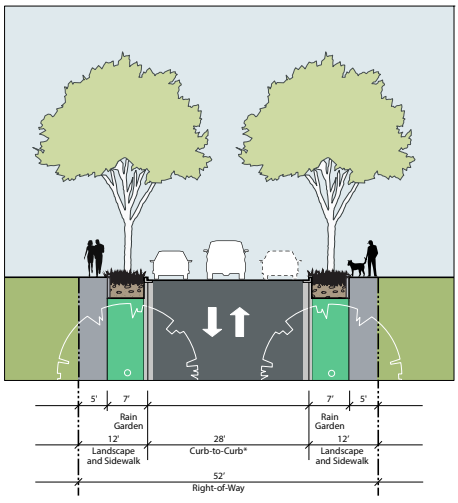


Figure 2.16 Neighborhood Access Street Cross Section

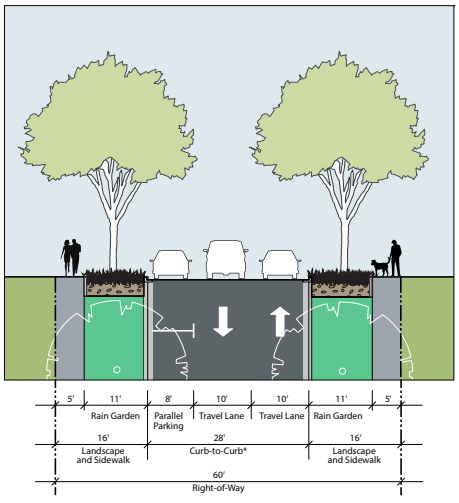


Figure 2.17 Courtesy Passing Street Cross Section

TRANSPORTATION NETWORKS AND STREET DESCRIPTIONS

All three scenarios have three primary transportation networks and secondary street types. The primary networks are based on the level of expected multimodal activity, while, the secondary street types are supportive and context sensitive to land uses.

Mu***ltimodal Spine:*** The Multimodal Spine is the primary backbone throughout all three scenarios, as it connects high-capacity transit to and within the site. As noted in the cross section (Figure 2.11), it provides two travel lanes, a center-running transit way, a protected bikeway and a buffered shared use path per direction. Green street treatments provide shade, water drainage, and comfort for all roadway users. The center-running transit way will support buses as well as Autonomous Transit where the two modes overlap. The recommended target operating and design speed for the Multimodal Spine is 30 MPH.

Autonomous Transit: The Autonomous Transit network provides autonomous shuttle service to residents across the entire site, connecting residents in the southwestern section to high-capacity transit stations, mixed-use retail, and commercial areas, and to green space. A typical autonomous transit vehicle shuttle has capacity for 10 to 12 passengers and ten-minute headways between 6:00am – 7:00pm Monday – Friday, and 9:00am – 4:00pm Saturday and Sunday are recommended.

Two Autonomous Transit cross section designs are proposed. Figure 2.12 is suitable for residential streets while Figure 2.13 is more suited for the commercial areas. Both designs provide space for a buffered shared use path. It is recommended that the Autonomous Transit network have a target operating and design speed of 20 MPH.

Low Speed Mobility: The Low Speed Mobility network connects primary roadways to the Multimodal Spine, green space, and mixed-use retail and commercial areas in all three scenarios. The cross section (Figure 2.14) includes an 11' travel lane, protected back-of-curb bicycle lanes, rain gardens and a buffered shared use path per direction. The shade provided by the tree canopy provides additional comfort for all roadway users. The recommended target operating and design speed for the Low Speed Mobility network is 20 MPH.

Mixed-Use: The Mixed-Use street is appropriate for most high and medium density mixed-use areas. The cross section (Figure 2.15) includes a travel lane, rain garden, buffered shared use path, and on-street parking per direction. The shade provided by the tree canopy provides additional comfort for all roadway users. The recommended target operating and design speed for the Mixed-Use street is 30 MPH.

Autonomous Transit will connect residents in the southwestern neighborhoods to the high capacity transit stations.

Neighborhood Access: The Neighborhood Access street type connects Mixed-Use areas to single family residential and green spaces. The Neighborhood Access street is suitable for secondary medium-density mixed-use streets. The cross section (Figure 2.16) includes a travel lane, rain garden, and buffered pedestrian walking space per direction, and on-street parking in one direction. The shade provided by the tree canopy provides additional comfort for all roadway users. The recommended target operating and design speed for the Neighborhood Access street is 20 MPH.

Courtesy Passing: The Courtesy Passing street type works well in single family residential and green space areas. It is suitable for streets with the lowest predicted traffic volumes and single-family dwellings. The cross section (Figure 2.17) includes a rain garden, buffered pedestrian walking space, and on-street parking per direction. A shared dual-direction travel lane exists in the middle, and vehicles parked on-street create a chicane traffic calming effect. The recommended target operating and design speed for the Courtesy Passing street is 20 MPH.

Jefferson Street: A final street that is not part of the primary on-site network but is critical to Hensley Field is Jefferson Street. Jefferson Street is the primary connecting point to the site, and its design will influence most trips entering and exiting the site. It is assumed per scenario that Jefferson Street will continue to have three travel lanes per direction with center-running Bus Rapid Transit or other high-capacity transit such as Light Rail. Landscaped buffers separating the BRT from travel lanes can also be designed to serve as turn pockets. The cross section (Figure 2.18) also includes tree canopy and landscaped buffers per direction to provide safety and comfort for people walking and biking along the shared used path. It is recommended Jefferson Street have a target operating and design speed of 35 MPH.

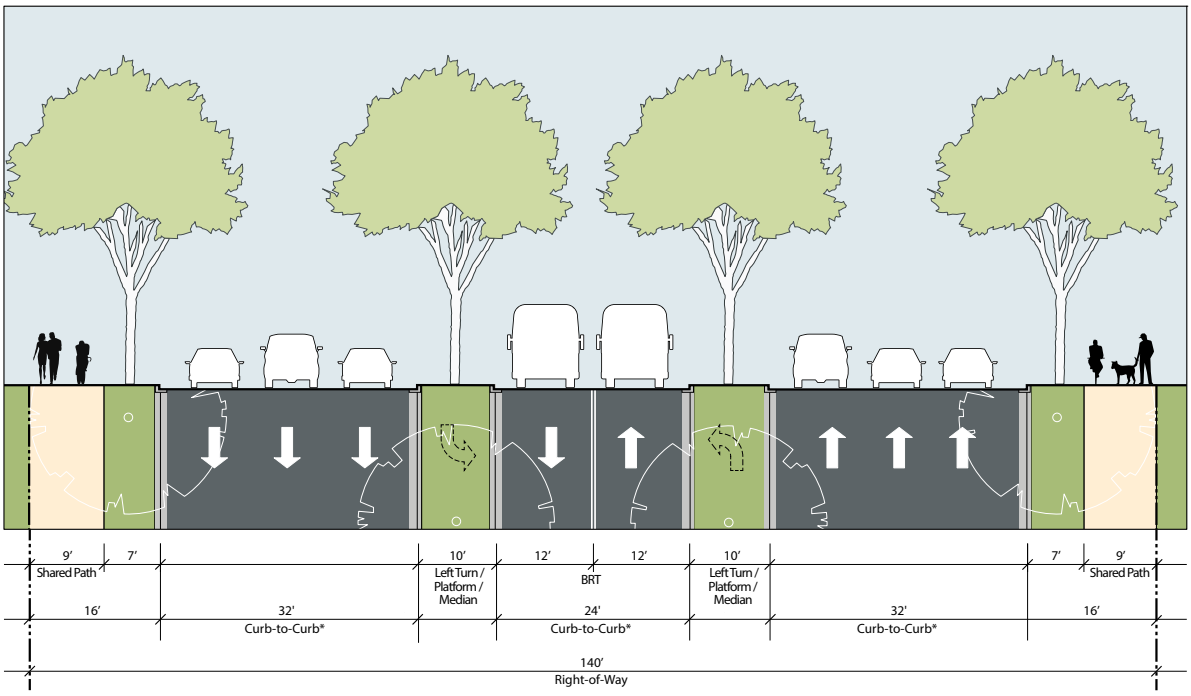


Figure 2.18 Jefferson Street Cross Section

2.6 SITE PREPARATION AND INFRASTRUCTURE

A considerable program of site preparation and infrastructure improvement will be required
to transform Hensley Field into the type of mixed-use urban district that is anticipated in all three planning scenarios. Over the past 80 years, the site has served as a military airfield and as such lacks any modern utilities. The existing runways and taxiways will need to be removed to make way for urban development, and the site will require re-grading to ensure that appropriate drainage patterns are achieved. Improvements off-site will be required to provide adequate utility and transportation access to the new development. The following provides a description of the various kinds of improvements that will be required to support redevelopment, highlighting differences and commonalities between the three scenarios. This section also describes the estimated costs of the infrastructure program for each of the three scenarios.

SITE PREPARATION

Site Preparation generally describes the items necessary to begin development on the site. This includes the demolition of runways and taxiways, mass grading, and stabilization of the southern Runway Peninsula. The cost differences in site preparation between scenarios (described below) are attributed mostly to the earthwork. Each scenario proposes various alternatives to development that impact the volume of earthwork. The development of the Runway Peninsula and the creation of a new channel through the site from Cottonwood Creek Bay to Mountain Creek Lake in Scenario Three will result in different amounts of cut and fill. Scenarios Two and Three propose mixed-use development on the peninsula which will need to be raised to an elevation that will allow gravity wastewater service to the trunk wastewater main in Jefferson Street. This requires additional fill for the two scenarios which Scenario One does not require. Scenario Three also includes additional earthwork to provide for the realignment of Cottonwood Creek with the excavated material distributed throughout the project.

OFFSITE INFRASTRUCTURE

Offsite infrastructure includes utility extensions and proposed offsite roadway improvements that will be required to serve the development. All three scenarios will require a 30" wastewater extension from the site to the Trinity River Authority (TRA) wastewater treatment plant as the current capacity cannot fully support the proposed development. Additionally, Oncor will require the project to extend and improve existing electrical infrastructure to support development. As with the wastewater extension, this offsite cost is common to all three scenarios.

Offsite Roadway Improvements include signalization of the intersections of Bagdad and Hensley Field Drives with Jefferson Street, common to all three scenarios. All three scenarios also include improvements to approximately 5,000 lineal feet of Hardy Road in Grand Prairie from Avenue D to the southern end of the site. These improvements include rebuilding curb and gutter, the two-lane local roadway section, a drainage system to replace the swale along the east side, sidewalk and landscaping along each side of the new road section, and streetlights. Scenario Three also includes improvements to 1,500 lineal feet of Skyline Drive from SE 14th Street to the western edge of Cottonwood Creek Bay. These improvements include providing a curb and gutter, a four- lane roadway section, a drainage system, water main extension, sidewalks, landscaping, and streetlights.

SITE BRIDGES

Hensley Field is separated from the surrounding roadway network by Cottonwood Creek Bay on the west and the diversion channel on the south. As such, all three alternatives incorporate new and improved bridge crossings to provide for network connectivity and efficient traffic distribution. All three scenarios assume that the existing Lakecrest Drive bridge will be widened to include a pedestrian and bike crossing, and that a new bridge will be provided to connect the site with Hardy Road across the diversion channel. Both of these bridges are assumed to carry one lane of traffic in each direction along with bike and pedestrian circulation. Scenario Three, with its higher density program, also includes a four-lane bridge (two lanes in each direction) across Cottonwood Creek Bay from the site to Skyline Drive in Grand Prairie.

ON-SITE ROADWAY / UTILITIES

The roadway and utilities category of costs cover the remaining infrastructure to support development described in each of the scenarios. The cost for each scenario is directly related to the linear footage of the specific roadway sections developed for the project. Each roadway section includes concrete pavement, curb and gutter, landscape, irrigation, sidewalks, storm sewer systems (including stormwater treatment), potable water mains, wastewater mains, telecommunications conduits, electric duct bank and distribution, and streetlights. As shown in Scenario One, there are substantial linear greenways of green/blue infrastructure which includes a premium for the each of the roadways that cross it. For the same reason, Scenarios Two and Three include additional underground storm sewer infrastructure within each roadway to make up for the reduced availability of linear greenways to convey runoff as shown in Scenario One.

AUTONOMOUS TRANSIT

As described above all three scenarios include provision for autonomous transit, operating in dedicated transitways and connecting the southernmost sectors of the site to high-capacity BRT stations in the case of Scenarios One and Two and to a joint BRT/LRT station in Scenario Three. The cost of the dedicated transitway is included as part of the On-Site Roadways category. This category covers the cost of the two vehicles and the signaling and charging infrastructure.

EMERGENCY SERVICES

Each of the scenarios include the construction of a fire and emergency medical station within the site. For planning purposes, an urban facility of two-acres is assumed to serve the new development as well as the neighborhoods of Dallas immediately to the south of the diversion channel.

HANGAR / BUILDING STABILIZATION

As discussed above, one of the Guiding Principles for the redevelopment of Hensley Field is the preservation and adaptive reuse of historic structures and artifacts that celebrate the history and culture of the site. Several key buildings including the Officers Housing, the Navy Air Station Maintenance hangar and the Texas Air National Guard Fuel Cell hangar are in deteriorating condition with leaking roofs and other waterproofing and structural issues. As such, each of the scenarios includes an allowance for the stabilization of the existing structures on site that are to remain, prior to their ultimate adaptive reuse.

SUSTAINABLE FORWARD INFRASTRUCTURE

As the intent of Scenario Three is consideration of energy infrastructure that will be in alignment with the CECAP goals, a District Energy System (DES) utilizing central chiller plants, geothermal ground wells and a two-pipe thermal distribution system has been included for analysis. For this scenario, chilled water is produced in the central plants and delivered to the district via a two-pipe supply and return piping system. The chilled water is complemented by thermal energy from geothermal wells and ground-source heat pumps which can contribute up to 75% of the required cooling. This significantly reduces (or even eliminates) the need for private cooling equipment for commercial and residential uses. Although heating peaks are high during winter months, the amount of annual heating energy required is very low in Dallas, and so it is assumed that central thermal heating would not be part of the system. Capital costs associated with adding boilers to the central plants (as well as additional district heating piping costs) would far out way the benefits. For this reason, the central district plants only contain chillers for cooling. Appendix 2.2 provides a detailed evaluation of District Energy systems and the recommended approach for Scenario Three.

In addition to this District Energy System, Scenario Three also includes provision for reclaimed water. This scenario assumes that the City of Dallas in conjunction with the Trinity River Authority would develop this program and provide reclaimed water to the site. Generally, water conservation and the lower cost of reclaimed water are benefits to both provider and customer. Within Hensley Field, the reclaimed system would be a parallel water distribution system that allows for significant water conservation by providing non-potable water for irrigation and specific building uses. As streets are constructed, the reclaimed distribution system would be installed. This system would be initially charged and connected to the potable water system with approved back-flow prevention devices to protect the domestic water system. The intent will be to serve commercial, open space, and park areas for irrigation with this reclaimed system. Other potential uses within commercial buildings include use of reclaimed water for flushing toilets and urinals.

Scenario Three also provides for an on-site solar array to augment and complement the City of Dallas's clean power generation strategy. Although costs continue to drop, solar projects can be challenging to fund without government

Table 2.3: Scenario Infrastructure Costs

Prepared by Stantec Team

UPDATED: AUGUST 2, 2021

		SCENARIO		
		ONE	TWO	THREE
Item No.	Cost Category	Amount	Amount	Amount
1	SITE PREPARATION[1]	$ 16,929,000.00	$ 23,804,000.00	$ 38,324,000.00
2	OFFSITE INFRASTRUCTURE[2]	$ 20,834,000.00	$ 20,834,000.00	$ 24,409,000.00
3	SITE BRIDGES[3]	$ 2,156,000.00	$ 2,156,000.00	$ 5,896,000.00
4	ROADWAYS / UTILITIES[4]	$ 141,068,400.00	$ 182,269,175.00	$ 130,312,175.00
4A	AUTONOMOUS TRANSIT VEHICLES[5]	$ 13,640,000.00	$ 13,640,000.00	$ 13,640,000.00
5	OPEN SPACE[6]	$ 65,270,150.00	$ 59,249,300.00	$ 62,540,500.00
6	EMERGENCY SERVICES[7]	$ 8,250,000.00	$ 8,250,000.00	$ 8,250,000.00
7	HANGAR / BUILDING STABILIZATION	$ 2,750,000.00	$ 2,750,000.00	$ 2,750,000.00
8	SUSTAINABLE FORWARD	$ -	$ -	$ 12,908,500.00
8B	SUSTAINABLE FORWARD (Geothermal Only)[8]	$ -	$ -	$ 119,740,500.00
		$ 270,897,550.00	$ 312,952,475.00	$ 438,970,675.00

Notes:

1. Site preparation includes grading, demolition of existing runways, improvement to the southern peninsula (bulkhead and stabilization). Cost difference from Scenario 1 to 2 is additional dirt required to raise peninsula for development / wastewater service. Cost difference from Scenario 2 to 3 is the additional cut to dredge the new channel and additional placement of material generated by new channel.

2. Includes 30" WW transition from Hensley to WWTP, Ocean substation improvements and transmission extensions to site, signals along Jefferson Street, and offsite roadways (5,000 LF of Hardy Road and 1,500 LF of Skyline Road)

3. Bridges include Skyline Drive over Cottonwood Bay, Lakeshore Drive, and Hardy Road. Cost difference from Scenario 1 and 2 to 3 is the bridge over Cottonwood Bay.

4. Includes pavement, storm, water, wastewater, leaches pipe, irrigation, electric, telecom, and streetlights. Scenario 1 - 40,794 LF (Local), 41,794 LF (Back-bone), Scenario 2 - 58,501 LF (Local), 45,769 LF (Back-bone), Scenario 3 - 47,480 LF (Local), 48,345 LF (Back-bone). Includes two AV Transit vehicles, signalization and charging equipment.

5. Open space includes Urban Agriculture, Programmed and Non-programmed open space, Native Prairie, Wetlands, Blue-Green Infrastructure, Forested Edge

6. Emergency services include Fire Station.

7. Hangar / Building Stabilization is an allowance to repair roofs and other minimal improvements

8. Sustainable Forward - geothermal, reclaimed water distribution, and solar array

incentives and/or codification via mandates and targets. Should such market conditions occur or be mandated by the City, a significant amount of solar PV could be developed in the Sustainability Forward program of Scenario Three. Up to 2.3 million square feet (54 acres) of rooftop and covered parking areas could be utilized to host solar photovoltaic (PV) panels which could provide up to 28 MW of power, yielding up to 41,000 MWh of annual clean energy to the development, offsetting over 19,000 kg of CO2e.

SITE PREPARATION AND INFRASTRUCTURE COSTS

Table 2.3 provides a breakdown of the total costs of the infrastructure elements of each of the scenarios, including the Sustainable Forward elements proposed for Scenario Three. Scenarios One and Two are projected to cost $271 million and $313 million respectively, with Scenario Three estimated at $439 million. Appendix 2.3 provides a detailed breakdown of these costs, including a potential phasing approach. While each of the scenarios have differing costs related to the extent of grading, roadways and utilities, the most significant difference is the cost of the geothermal loop proposed in Scenario Three, which is estimated at a cost of $120 million.

2.7 ENVIRONMENT AND RESILIENCE

One of the foundational Guiding Principles for the redevelopment of Hensley Field is that it be a proof of concept and "living laboratory" to showcase development strategies that advance environmental quality, resilience and health at scale. Aligned with the City of Dallas Comprehensive Environmental and Climate Action Plan (CECAP), Hensley Field aspires to embrace an interconnected, integrated and modular approach, providing flexibility over time and the ability to adopt and adapt to new technologies as they are market-ready.

BASELINE ASSUMPTIONS

Each of the planning scenarios share a common performance baseline representing a "beyond the code" approach – reflecting the CECAP framework. While ambitious, this approach strives to be pragmatic and implementable, reinforcing the master plan's commitment to advance environmental quality, resilience and health. As such, the following baseline program is assumed for all three scenarios:

- Roofs will be designed to be "solar ready" – with the capacity to install solar photovoltaics (PVs) during initial construction or at a later date
- Buildings will be designed with a maximum EUI (energy use intensity) based on building type to lower carbon footprint
- Cooling towers will be required to use non-potable water, such as collected condensate, for make-up water
- An expansive green infrastructure network will enable all rainwater run-off to be managed within the Hensley Field boundaries, avoiding burdens to downstream communities
- A multi-modal transportation system (pedestrian, bicycles, transit, cars) along with an automated transit spine will support active, healthy lifestyles and reduce emissions that impair environmental quality and health
- Air quality sensors will be distributed throughout the development
- A perimeter trail system will be installed within the site, providing opportunities for all to engage in physical activities
- Urban agriculture on 20-35 acres will provide fresh, healthy produce with potential for green jobs
- Runway materials will be reused for road base and shoreline stabilization
- Exterior lighting will be dark sky compliant

All scenarios call for developments to be designed to be "solar ready"

Each scenario is designed to align with LEED for Cities and Communities – Scenarios One and Two will pursue minimum Certified/Silver certification and Scenario Three Gold certification. All scenarios will be assessed to ensure each aligns with all LEED for Cities and Communities prerequisites. Appendix 2.4 provides a check list that establishes targets for both Silver and Gold certification.

BEYOND THE BASELINE IN SCENARIO 3

While each scenario offers distinct allocations of office, residential and open space, Scenario 3 proposes to surpass the baseline approaches common to Scenarios 1 and 2, substantively elevating the project's environmental, resilience and health attributes. In addition to pursuing LEED for Cities and Communities Gold certification as a minimum, Scenario 3 will also be designed around the following EcoDistricts Protocols:

Imperatives

- Equity – ensure that communities have the opportunity to meaningfully participate, lead, and thrive
- Resilience – prepare for social, economic, and environmental shocks and stresses
- Climate Protection – build a pathway to carbon neutrality

Priorities - Place, Prosperity, Health + Wellbeing, Connectivity, Living Infrastructure, Resource Restoration

In addition to the baseline strategies described for Scenarios 1 and 2 above, Scenario 3 features:

- All buildings designed to be "reclaimed water ready" providing a dual-plumbing system to enable use of reclaimed water to fulfill non-potable water uses such as toilet and urinal flushing, with on-site and/or municipally-provided reclaimed water.
- A solar array that provides a district-wide renewable energy source to augment energy provided through the grid by Oncor.

Scenario Three also proposes an "Innovation Village," comprised of up to 1,200 dwelling units with supporting commercial space constructed on the Runway Peninsula. The village is conceived as a demonstration project, sponsored by a higher educational institution, non-profit entity or corporation, testing and displaying the latest technologies of green building and low impact development. Technologies to consider for demonstration purposes include a geothermal loop, providing constant, non-interruptible, year-round temperature to contribute to a building's thermal performance for heating and cooling. Geothermal technology aligns with the CECAP goals, specifically to have access to 100% emissions free electricity sources by 2050 to support its carbon neutrality goal[11].

In addition, the Innovation Village could showcase approaches to open, flexible, maintainable building and utility systems, including buildings designed to decouple structure and program to support long-term functionality to accommodate evolving occupancies over time, and combined utility trenches.

Endnotes

1 https://www.planning.org/pas/memo/2019/jul/
2 City of Dallas, Dallas Urban Forest Master Plan (2021), 18.
3 Ibid, 17.
4 Ibid, 17.
5 Ibid, 19.
6 Ibid, 18.
7 Urban Land Institute, The Case for Open Space (2018), 11, 22, 32.
8 Ibid, 19
9 City of Dallas Comprehensive Environmental and Climate Action Plan, page 154
10 Benedict, Mark A. and Edward T. McMahon. 2006. Green Infrastructure: Linking Landscapes and Communities

3 EVALUATION OF SCENARIOS

This chapter of the Scenario Evaluation report summarizes the consultant team's findings related to the three scenarios. It provides an assessment regarding:

- The relative performance of each scenario in meeting the Guiding Principles and Goals of the project (Section 3.1);
- The alignment of each scenario to the projected real estate market and the estimated timeframe for the land uses to be absorbed (Section 3.2);
- The transportation and mobility performance of each scenario and their ability to provide sustainable levels of connectivity (Section 3.3); and
- The financial and implementation feasibility of the scenarios in terms of their projected capital costs and revenues.

These findings provide input to the recommendations on how a Preferred Alternative for Hensley Field should be composed during the next stages of the planning process. The recommendations, described in Chapter 4, are intended to guide the policies of the Reuse and Redevelopment Master Plan.

3.1 CONFORMANCE WITH GUIDING PRINCIPLES

A first measure of performance is to test the relative ability of each scenario to meet the Guiding Principles and Goals articulated in Chapter One of this report. The intent of this comparison is to assess the potential success of each scenario in adhering to each of the goals under the principles. Table 3.1 provides a summary of how the scenarios perform in relation to each of the six Guiding Principles, and Appendix 3.1 describes their performance for each of the goals under each of the principles. A scoring system was applied, with each scenario getting one credit (indicated as a + sign) acknowledging its potential to achieve that goal and additional credits where it is shown to have greater potential. With this scoring system, Scenario Three scores a total of 37 credits followed by Scenarios One and Two with 31 and 27 points respectively.

In some cases, the scenarios are not significantly different from one another to establish an appreciable benefit between them, and in others the scenarios have not yet been developed to a sufficient level to result in a significant

Performance Related to Guiding Principles & Goals

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
1. ENVIRONMENTAL HEALTH	7+	6+	10+
2. ECONOMICOPPORTUNITY & INVESTMENT	6+	3+	7+
3. AFFORDABILITY & DIVERSITY	1+	2+	1+
4. HEALTHY COMMUNITIES	5+	5+	5+
5. MOBILITY & ACCESS	6+	5+	8+
6. HISTORY & CULTURE	6+	6+	6+
TOTAL	31+	27+	37+

Table 3.1: Conformance With Guiding Principles

conclusion. For example, the scenarios do not yet establish housing affordability targets and therefore no assessment has been made under the Long-Term Affordability goal within the Affordability and Diversity principle. And under the Healthy Communities principle, all three scenarios incorporate the key components of a healthy community (e.g. grocery store, urban agriculture, walkable and bikeable streets, parks, educational facilities), but access to health care facilities is uncertain at this time. Under History and Culture, all three scenarios promote adaptive reuse of existing structures, incorporation of interpretive elements that celebrate the history of the site, but it is still early for a specific program to be developed. As such, all scenarios under those principles are ranked equally.

The major areas of difference between the scenarios relate to three of the six Principles: Environmental Health; Economic Opportunity and Investment; and Mobility and Access. The following summarizes the relative performance of each of the scenarios against these three Principles and their underlying goals.

ENVIRONMENTAL HEALTH

Table 3.2 describes the performance of each of the scenarios under the Environmental Health principle and its six underlying goals. As shown all three scenarios can meet the goals related to: Net Zero Construction by 2030; mitigation of heat island effect; and protection of the night sky. Scenario One receives an additional credit over Scenario Two under the goal of Green Infrastructure, because of its extensive use of green/blue infrastructure in the open space system. Scenario Three receives an additional credit over Scenario Two because of its "sustainable forward" infrastructure including a district-wide solar array and the proposed geothermal cooling loop. Scenario Three also receives an additional credit because of its commitment to achieve a Gold rating under the LEED for Cities and Communities, rather than Silver for Scenarios One and Two. As such, Scenario Three scores a total of 10 credits under the Environmental Health principle, whereas Scenarios One and Two score seven and six respectively. Appendix 3.2 describes the ability of each of the scenarios to meet the key goals of the Comprehensive Environmental Action Plan.

Performance Related to **Environmental Health**

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
1. ENVIRONMENTAL HEALTH	7+	6+	10+
Net Zero Construction by 2030	+	+	+
Combat Heat Island Effect	+	+	+
Employ Green Infrastructure	++	+	+++
Protect the Night Sky	+	+	+
Support the Circular Economy	+	+	++
Achieve LEED Cities and Communities	+	+	++

Table 3.2: Conformance With Environmental Principles And Underlying Goals

ECONOMIC OPPORTUNITY AND INVESTMENT

Table 3.3 describes the performance of the scenarios under the Economic Opportunity & Investment principle and its four underlying goals. As shown, Scenario Two scores the poorest, as it does not include dedicated land for an anchor use or an advanced technology company. However, it scores higher than the other two scenarios for the reuse of four hangars for the Film Studio complex. Scenarios One and Three score equally for pursuit of an anchor use, but Scenario Three receives an additional credit for its focus on attracting an advanced technology use with an emphasis on sustainability and ethical governance. Scenario Three scores highest under the goal of site amenities and green infrastructure, followed by Scenario One and Two. As such, Scenario Three scores a total of seven credits under the Economic. Opportunity and Investment principle, with Scenario One scoring six and Scenario Two scoring only three.

MOBILITY AND ACCESS

Table 3.4 describes the relative performance of the scenarios under the Mobility and Access principle and its four goals. Again, Scenario Three scores highest because of its greater aspirations toward high frequency transit connections including light rail transit. Scenario One scores higher than Scenario Two (but lower than Scenario Three) in high frequency transit options and travel choices, because of the proposed BRT loop that traverses further into the site. Scenario Two, with its residential focus scores highest for reducing single-occupancy vehicular volumes and by capturing a higher proportion of trips internal to the site. In total, Scenario Three scores a total of eight credits under the Mobility and Access principle, with Scenarios one and Two scoring six and five respectively. Section 3.3 below provides a more comprehensive transportation evaluation of the scenarios.

Performance Related to **Economic Opportunity**

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
2. ECONOMIC OPPORTUNITY & INVESTMENT	6+	3+	7+
Pursue one or more anchor uses	++		++
Attract advanced technology companies	+		++
Site amenities and green infrastructure.	++	+	+++
Hangar reuse for local/small businesses	+	++	+

Table 3.3: Conformance With Economic Opportunity Principle And Underlying Goals

Performance Related to **Mobility & Access**

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
5. MOBILITY & ACCESS	6 +	5 +	8 +
Reduce single-occupancy trips	+	++	+
High frequency transit connections	++	+	+++
Multiple high quality travel choices	++	+	+++
New and emerging technologies	+	+	+

Table 3.4: Conformance With Mobility and Access Principle And Underlying Goals

3.2 MARKET POTENTIAL AND EXPECTED ABSORPTION

This section considers the findings of the January 2021 Market Analysis Report (prepared as part of the Opportunities and Constraints report) to develop a 20-year market absorption forecast to evaluate the three land use scenarios. This analysis identifies which scenarios (and their components) are best aligned with current and forecasted market conditions. The residential and commercial absorption forecasts are at the high end of the range of development and can be considered a best case assumption. They are also expressed in average annual amounts, when in actuality, development will start more slowly and increase over time. These average figures are applicable for this relative comparison of the three scenarios. More refined and time sensitive forecasts will be developed for the preferred alternative in the next stage of Master Plan development.

RESIDENTIAL DEMAND

Residential demand was estimated from new housing construction trends in surrounding communities, with development in Grand Prairie being the most indicative of demand because of its proximity to Hensley Field. In Grand Prairie, an average of approximately 800 units per year have been constructed over the 2010-2019 time period. The mix of unit types in Grand Prairie, as well as in other mature communities in the region including Arlington, Fort Worth, and Dallas averaged about 50 percent single family detached and 50 percent multifamily over the 10-year timeframe.

Hensley Field is also central to a larger market area beyond Grand Prairie. To account for this additional demand, a 25 percent increase was applied to Grand Prairie construction to estimate total demand. As shown in Table 3.5, total market area demand is estimated at 1,000 units per year. Successful master planned communities of a similar size and scale, and under single ownership and coordinated development can create their own market momentum and capture a large share of area-wide demand. For this analysis, Hensley Field is assumed to capture the high end of the estimated capture range at 50 percent of the market, which equates to 500 dwelling units per year which is in the range of Stapleton in Denver and Mueller in Austin. With a variety of housing options, Hensley Field will be able to compete with mature close-in communities with diminishing supply as well as with more outlying suburban and exurban locations with longer commutes.

NON-RESIDENTIAL DEMAND

There is more limited information on which to base demand estimates for nonresidential development. As demonstrated in the Market Analysis Report, there is significant nearby industrial development (predominately warehouse and distribution space) but this land use is not consistent with the Principles and Goals articulated for the redevelopment of Hensley Field, which seeks to attract office, R&D, retail/ commercial, and institutional development.

Description	Calculation		Units
Market Demand			
Grand Prairie Construction		800	units/year
Adjustment for Surrounding Communities	25%	1,000	units/year
Site Capture Rate			
Low	25%	250	units/year
High	50%	500	units/year

Table 3.5:Hensley Field Site Development Capture Forecast, Residential

The market analysis examined office inventory trends in the regional market. Hensley Field is adjacent to the South Mid-Cities and Southwest Dallas submarkets. The South Mid-Cities area added an average of 155,000 square feet per year over the past 10 years and Southwest Dallas added 65,700 square feet per year. Most of the office development activity in the Metroplex is further north in the Far North Dallas, Richardson/ Plano, Las Colinas, and North Mid Cities submarkets.

Hensley Field is targeting a high-quality environment that would be more attractive to office and R&D space users. The land use program also includes land for a corporate or institutional anchor to be recruited in two of the three scenarios. The off0ice/R&D employment forecasts consider the impact of this use. Therefore, an optimistic target of 100,000 sq. ft. of office/R&D employment demand per year has been assumed; this is approximately 50 percent of the South Mid Cities plus Southwest Dallas submarkets. This equates to 100,000 square feet per year of projected absorption. In the scenario evaluation, office development is assumed to start in Year Six (five years from initial residential construction).

HENSLEY FIELD SITE CAPTURE PROJECTION

Based on the above information, a 20-year Demand and Site Capture forecast was developed as shown in Table 3.6. The projection totals 8,500 dwelling units and 1.8 million square feet of non-residential space. The following absorption residential assumptions were developed.

- **Total of 8,500 units over 20 years.**
- Maximum of 500 units per year across all product types.
- 200 single family and missing middle for-sale per year.
- 200 multifamily medium density per year (multifamily rental).
- 100 multifamily high density (for-rent and for-sale) starting in year 11. There is no significant market in the area currently for higher density condominiums; it can be expected that the market for this product would take time to be established in the project

The non-residential site capture potential estimates and assumptions are as follows:

- **Total of 1.8 million square feet in 20 years.**
- **General Retail** - One supermarket anchored center, initially at 100,000 square feet. Additional space added over time to total 257,500 square feet.
- **Retail/Commercial Mixed Use Demand** – 30,000 square feet per 1,000 housing units, allocated to General Retail, and Medium and High Density Mixed Use formats over time.
- **Office/Corporate/R&D** – 100,000 square feet of demand starting in Year 6. This is allocated 100 percent to this land use category in early years, and then apportioned to the medium and high density mixed use categories as well in later years. In later years, the demand is apportioned 60 percent to this land

	Start Year	20 Year Demand	Annual from Year 1
Residential			
SFD/SFA	1	3,750	188
4-5 sty. Rental	1	3,750	188
6+ sty. for-sale	11	500	25
6+ sty. Rental	11	500	25
Total DU		**8,500**	**425**
Non-Residential			
Grocery and General Retail	6	257,500	12,875
Medium Density Mixed Use	6	233,750	11,688
High Density Mixed Use	6	218,750	10,938
Office/Corporate/R&D	6	1,100,000	55,000
Total SqFt		**1,810,000**	**90,500**

[1] Included in High Density Mixed Use

Table 3.6: Hensley Field Site Development Capture Projection, Residential

use category and 20 percent each to Medium and High Density Mixed Use. For this land use category, the total absorption is projected to be 1.81 million square feet.

- **Medium and High Density Mixed Use** – These land use categories are comprised of a portion of the retail/commercial space and office/R&D space. Medium Density Mixed Use demand totals to an estimated 233,750 over 20 years and high density mixed use totals to 218,750 in site capture potential.

SCENARIO ABSORPTION COMPARISON

The scenarios were evaluated against the market demand forecasts to determine their general alignment. The market forecasts are not intended as a prescriptive model to be translated to the preferred alternative as there are multiple considerations that need to be factored in and balanced in the allocation of development capacity including project goals, land availability, and revenue potentials to name a few.

In Table 3.7, the demand and site capture estimates are annualized for 20 years including the first year of vertical development construction (after infrastructure is in place). The land use program from each Scenario is then divided by the estimated annual absorption to estimate in ranges the estimated amount of time it would take to fully absorb each scenario. The scenarios with the most green (10 years or less) or orange classifications (11 to 25 years) are the best aligned with the demand estimates (or the fewest red 25 years or more categories).

- **Scenario One** – This (Institutional/Corporate Anchor Lead) scenario absorbs all of the lower density for-sale housing in 10 years or less and most other land use types in 11 to 25 years. It only has two categories, medium and high density mixed use, which require more than 25 years to absorb. The scenario potentially forgoes a significant amount of demand for single family and lower density for-sale housing, as those land uses are fully absorbed in under 10 years. As such, additional low density for-sale housing is recommended to be included in the Master Plan. The Grocery and General Retail and Office/Corporate/R&D land uses in this scenario are the most aligned to expected market conditions. Grocery and general retail are estimated to absorb in 13 years; Office/Corporate/R&D land uses are projected to take 22 years to absorb.
- **Scenario Two** – As shown, Scenario Two (Residential Lead) requires 11 to 25 years to absorb each residential land use category and grocery and general retail. The office/corporate/R&D land uses however are absorbed in under 10 years suggesting that more of this development type could be included in the Master Plan. Like Scenario 1, the medium and high-density mixed use categories also require more than 25 years to absorb. This scenario is best aligned with estimated market demand as it has the largest amount of for-sale single family and lower density for-sale type housing units. It also has a supportable number of medium

	Master Plan			Annual Demand From Year 1	Years to Absorb		
	Scenario 1	Scenario 2	Scenario 3		Scenario 1	Scenario 2	Scenario 3
Residential							
SFD/SFA	881	1,865	917	188	10 or less	11-25	10 or less
4-5 sty. Rental	3,771	3,348	3,656	188	11-25	11-25	11-25
6+ sty. for-sale	566	371	1,920	25	11-25	11-25	More than 25
6+ sty. Rental	566	371	1,920	25	11-25	11-25	More than 25
Total and Max Absorp. Period	5,784	5,955	8,413	425			
Non-Residential							
Grocery and General Retail	162,000	200,000	44,000	12,875	11-25	11-25	10 or less
Medium Density Mixed Use	484,000	1,100,000	1,227,000	11,688	More than 25	More than 25	More than 25
High Density Mixed Use	1,866,000	922,000	2,433,000	10,938	More than 25	More than 25	More than 25
Office/Corporate/R&D	1,227,000	0	1,727,000	55,000	11-25	10 or less	More than 25
Total and Max Absorp. Period	3,739,000	2,222,000	5,431,000	90,500			

[1] Included in High Density Mixed Use

Table 3.7 Scenario Absorption Comparison

density mixed use housing units (primarily 4-5 story apartments) that are estimated to be absorbed within the 20-year forecast period. It could benefit however from more office/corporate/R&D land.

- **Scenario Three** – This scenario (Eco/Innovation District) would have the longest absorption period, well beyond the 20-year horizon. Five out of the eight land use categories need more than 25 years to be absorbed. Scenario Three has nearly 4,000 units of high density for-rent and for-sale housing which will take time for the market to be established in this location (estimated starting in Year 11) and have slower absorption due to the higher rents and sale prices. The amount of medium and especially high-density mixed-use space in this scenario is well in excess of the 20-year market demand timeframe, indicating that the amount of development in these categories should be reduced.

3.3 TRANSPORTATION AND MOBILITY PERFORMANCE

Sixteen performance metrics were used to evaluate the three Hensley Field scenarios across three categories: vehicle trip efficiency, transit propensity, and active transportation and safety.

At this phase of the master plan for the site, comparisons are focused on rough estimations of the land use program and conceptual design of the transportation networks. During preparation of the Preferred Alternative and the Redevelopment and Reuse Master Plan in the next phase, more detailed traffic assignment and operations analysis, transit service characteristics, and parking supply and curb space management comparisons will be prepared. For this report, the 16 performance metric results were calculated through two analysis programs: MainStreet+ and ArcGIS Pro. MainStreet+ is a trip generation tool developed by Fehr & Peers to better estimate trips generated from mixed-use sites. ArcGIS Pro utilizes site designs and cross section designs to evaluate the transportation networks and roadway amenities across the three scenarios.

TRIP GENERATION METHODS

MainStreet+ is a trip generation tool based on the best available research on mixed use trip generation. The original tool was developed for the Environmental Protection Agency (EPA), and is based on trip generation analysis of more than 200+ mixed-use sites across the United States. A second iteration of the tool incorporated predictive equations from NCHRP 684 Enhancing Internal Trip Capture Estimation for Mixed-Use Developments. Refinement of the tool continued with researchers at the University of Utah, the University of California at Berkeley, and the Institute of Transportation Engineers (ITE). MainStreet+ is currently the most refined mixed-use trip generation tool available today.

Functionally MainStreet+ starts by running the traditional ITE trip generation process, using the latest ITE Trip Generation Handbook. MainStreet+ takes those outputs, and applies filters and variables, refined over time by the previous mentioned work, to predict the total trip generation, internal capture (i.e., number of trips captured on-site), and mode share (% of trips in a vehicle, transit, or walking and biking) more accurately at a mixed-use site. Mainstreet+ also estimates total vehicle miles of travel (VMT) for use in sustainability and emissions comparisons.

For the Hensley Field scenarios, the ITE trip generation handbook method generally predicted 24% more vehicle trips than MainStreet+. An overestimation of vehicle trip generation at a mixed-use site can exaggerate impacts on land use programming, resulting in overbuilding of roadway cross sections, and allocating more of the total project acreage to the transportation networks.

SCENARIO METRICS

Table 3.8 summarizes the performance metric category, the measure, and the source.

VEHICLE TRIP EFFICIENCY

Vehicle trip efficiency aims to answer the question, "How can we get fewer and shorter trips?" These metrics include:

- Total daily vehicle trips
- Daily vehicle miles traveled (VMT)
- Percentage of trips that would be internal to the site
- Miles of on-street parking/flex space are available

Overall, Scenario Two has the lowest vehicle trips, VMT, and highest internal capture and on-street parking (Table 3.9). Scenario Two has the lowest density and greater emphasis on single family residential uses, and it has the smallest retail and commercial footprint, further reducing trips and VMT to and from the site.

Category	Performance Measure	Source
Vehicle Trip Efficiency	Vehicle Trips	MainStreet+
	Vehicle Miles Traveled	MainStreet+
	Vehicle Trip Demand Captured On-Site	MainStreet+
	Miles of On-Street Parking/Flex Space	Site and Cross Section Designs
Transit Propensity	Transit Ridership	MainStreet+
	Households Within ½ Mile to High-Capacity Transit	Site Designs
	Households Within 3 Miles to High-Capacity Transit	Site Designs
	Residential Density (Dwelling Units per Acre)	Land Use Programming and Site Designs
Active Transportation & Safety	Active Transportation Mode Share	MainStreet+
	Households Within ½ Mile to Low Speed Mobility Network	Site Designs
	Households Within ½ Mile to High Density Mixed-Use	Site Designs
	Miles of Separated Bicycle Facilities	Site and Cross Section Designs
	Miles of Green Street Treatment	Site and Cross Section Designs
	Number of Intersection Legs with Crossing Distances Less than 5 Lanes	Site and Cross Section Designs
	Percent of Network More Than 3 General-Purpose Vehicular Lanes to Cross	Site and Cross Section Designs
	Percent of Network Planned for <25 MPH	Site and Cross Section Designs

Table 3.8 Scenario Evaluation Performance Measures

Performance Measure	Scenario One	Scenario Two	Scenario Three
Vehicle Trips	70,247	65,864	87,213
Vehicle Miles Traveled	772,717	724,504	872,130
Vehicle Trip Demand Captured On-Site	16.7%	18.0%	16.7%
Miles of On-Street Parking/Flex Space	10.4	13.7	13.2

Table 3.9: Vehicle Trip Efficiency Scenario Results

Performance Measure	Scenario One	Scenario Two	Scenario Three
Transit Ridership	2,860	2,470	3,770
Households Within ½ Mile to High-Capacity Transit	Onsite: 4,210 Offsite: None	Onsite: 1,070 Offsite: None	Onsite: 4,070 Offsite: None
Households Within 3 Miles to High-Capacity Transit	Onsite: 5,780 Offsite: 10,000	Onsite: 5,960 Offsite: 8,050	Onsite: 8,410 Offsite: 7,810
Residential Density (Dwelling Units per Acre)	62.1	60.4	78

Table Scenario 3.10 Transit Propensity Scenario Results

TRANSIT PROPENSITY

Transit propensity aims to answer the question, "How can we prime the site for high-capacity transit?" These metrics include:

- Daily transit ridership
- Household access to stations
- Residential density

DART and the Federal Transit Authority recommend households within ½ mile and three miles of a transit station(s) as thresholds for people walking and biking to transit. Scenario One has two Bus Rapid Transit (BRT) stations within the site and due to the station locations, provides the greatest benefit to the surrounding neighborhoods, providing access to approximately 10,000 households within three miles (Table 3.10).

Residential densities across all scenarios meet minimum dwelling units per acre recommended by DART Transit-Oriented Development guidelines to support high-capacity transit. The 2020 DART TOD Guidelines state, "The 'right' density varies by context, but as a general rule minimum residential densities can range from seven units per acre for bus-based TOD to 30 units per acre or more for rail-based TOD." The ridership results would support high-capacity transit across all three scenarios.

Scenario Three has the highest transit ridership and highest residential density, or dwelling units per acre, (Table 3.10). For comparison, two of DART's current Light Rail Transit (LRT) stations were reviewed in the March 2020 DART Reference Book. The Westmoreland DART station is the closest end of line LRT station to Hensley Field with similar land uses and an average weekday ridership of 2,200 in 2017 and 2,000 in 2019. The Parker Road Station has the highest average end of line LRT average weekday ridership with 3,350 passengers in 2017 and 3,300 in 2019. All three of the Hensley Field scenarios generate daily transit ridership comparable to these existing LRT DART stations.

ACTIVE TRANSPORTATION AND SAFETY

Active Transportation and Safety performance measures aim to answer the question, "How can we make walking and biking comfortable, safe, and accessible?" These metrics include:

- Active transportation mode share
  - Percentage of total trips that are people walking and biking.
- Household access to active transportation facilities
  - Increased household access enables more residents to use the facilities for commuting, running errands, or recreation.
- Miles of separated facilities
  - Separated facilities are more comfortable and increase safety for users of all ages and abilities.
- Intersection crossing distances
  - Short intersection crossing distances reduce exposure, increase visibility, and are more accessible for users of all ages and abilities.
- Network speed
  - Streets with slower motor vehicle speeds reduce the likelihood of severe and fatal crashes for all users, but especially for people walking and biking, and increases user comfort.

Overall, all three scenarios have favorable and comparable results (Table 3.11), but Scenario Three has the highest mode share, miles of separated bicycle facilities, miles of green street treatments, and household access to the Low Speed Mobility network. Where Scenario Three excels in bicycle and pedestrian amenities, Scenario One and Two have higher safety and comfort results. Scenario Two has the shortest amount of crossing distance at intersections, and the highest percentage of network that is less than 25 MPH.

COMPARISON SUMMARY

Overall, Scenarios Two & Three perform the highest in terms of maximizing mobility with the smallest footprint, while Scenario One is in the middle of the road (Table 3.12). Scenario One provides the fewest miles of separated bike facilities, and balances that with high transit ridership and accessibility. In the areas where it performs better than Scenario Two (such as transit ridership and biking and walking mode share), it then under performs in other areas against Scenario Two (trip demand captured on site and vehicle trips).

Performance Measure	Scenario One	Scenario Two	Scenario Three
Active Transportation Mode Share	3.8%	2.5%	4.1%
Households Within ½ Mile to Low Speed Mobility Network	Onsite: 5,783 Offsite: 490	Onsite: 5,955 Offsite: 620	Onsite: 8,413 Offsite: 620
Households Within ½ Mile to High Density Mixed-Use	Onsite: 5,324 Offsite: None	Onsite: 5,109 Offsite: None	Onsite: 7,377 Offsite: None
Miles of Separated Bicycle Facilities	8.3	8.8	10.5
Miles of Green Street Treatment	16.5	19.3	19.7
Number of Intersection Legs with Crossing Distances Less than 5 Lanes	90%	98%	82%
Percent of Network More Than 3 General-Purpose Vehicular Lanes to Cross	13%	11%	19%
Percent of Network Planned for <25 MPH	58%	64%	57%

Table Scenario 3.11 Active Transportation & Safety Scenario Results

Category	Performance Measure	Scenario One	Scenario Two	Scenario Three
Vehicle Trip Efficiency	Vehicle Trips	70,247	65,864	87,213
	Vehicle Miles Traveled	772,717	724,504	872,130
	Vehicle Trip Demand Captured On-Site	16.7%	18.0%	16.7%
Transit Propensity	Transit Ridership	2,857	2,470	3,766
	Households Within ½ Mile to High-Capacity Transit	Onsite: 4,213 Offsite: None	Onsite: 1,068 Offsite: None	Onsite: 4,065 Offsite: None
	Households Within 3 Miles to High-Capacity Transit	Onsite: 5,783 Offsite: 10,000	Onsite: 5,955 Offsite: 8,050	Onsite: 8,413 Offsite: 7,810
	Residential Density (Dwelling Units per Acre)	62.1	60.4	78
Active Transportation & Safety	Active Transportation Mode Share	3.8%	2.5%	4.1%
	Households Within ½ Mile to Low Speed Mobility Network	Onsite: 5,783 Offsite: 490	Onsite: 5,955 Offsite: 620	Onsite: 8,413 Offsite: 620
	Households Within ½ Mile to High Density Mixed-Use	Onsite: 5,324 Offsite: None	Onsite: 5,109 Offsite: None	Onsite: 7,377 Offsite: None
	Miles of Separated Bicycle Facilities	8.3	8.8	10.5
	Number of Intersection Legs with Crossing Distances Less than 5 Lanes	90%	98%	82%
	Percent of Network More Than 3 General-Purpose Vehicular Lanes to Cross	13%	11%	19%
	Percent of Network Planned for <25 MPH	58%	64%	57%

Table Scenario 3.12 Scenario Mobility and Access Result Comparisons

Scenario Two has the lowest vehicle trips and highest portion of trip demand captured on site, but under performs in terms of transit ridership and biking and walking. It has the most locations with short crossings distances and the highest proportion of its network identified as low speed facilities (under 25 mph).

Scenario Three offers the highest transit ridership and highest mode share of walking and biking (around 4,700 daily trips, double that of Scenario Two). While its network provides the greatest mileage of separated bike facilities, it has the lowest percent of its network identified as Low Speed Mobility network and the fewest number of locations with short crossings.

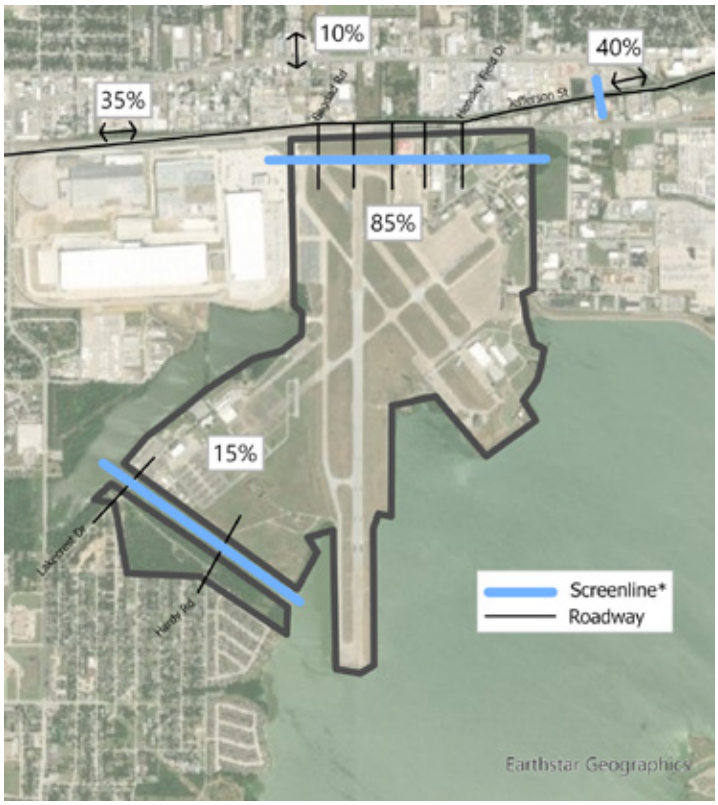


Figure 3.3: Trip Distribution Per Scenario Map
Scenario One

ROADWAY ACCESS AND CAPACITY

This evaluation looked at site access to answer the question, "How do we improve connectivity to and from the site to the region, and how do predicted volumes impact capacity surrounding the site?"

Key Assumptions

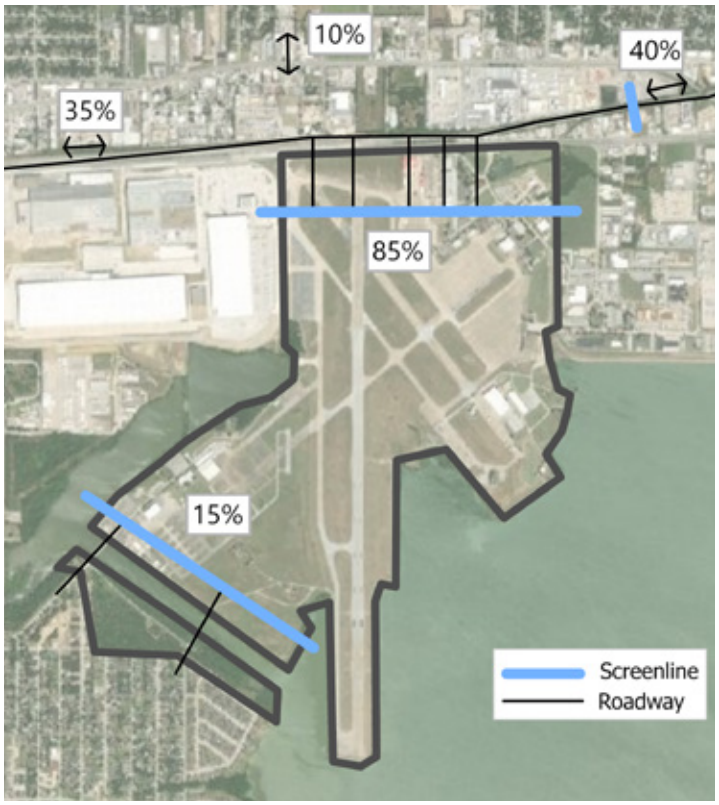
The 2019 Dallas Street Design Manual was consulted to define road classification and hourly capacity per lane. It was determined that the primary roadway types around the site are six-lane divided arterials, or two- lane undivided local/collectors (Figure 3.1). According to these roadway classifications in a suburban setting, an arterial road has the capacity of 900 vehicles per hour, and a local/collector street has the capacity of 525 vehicles per hour (Figure 3.2).

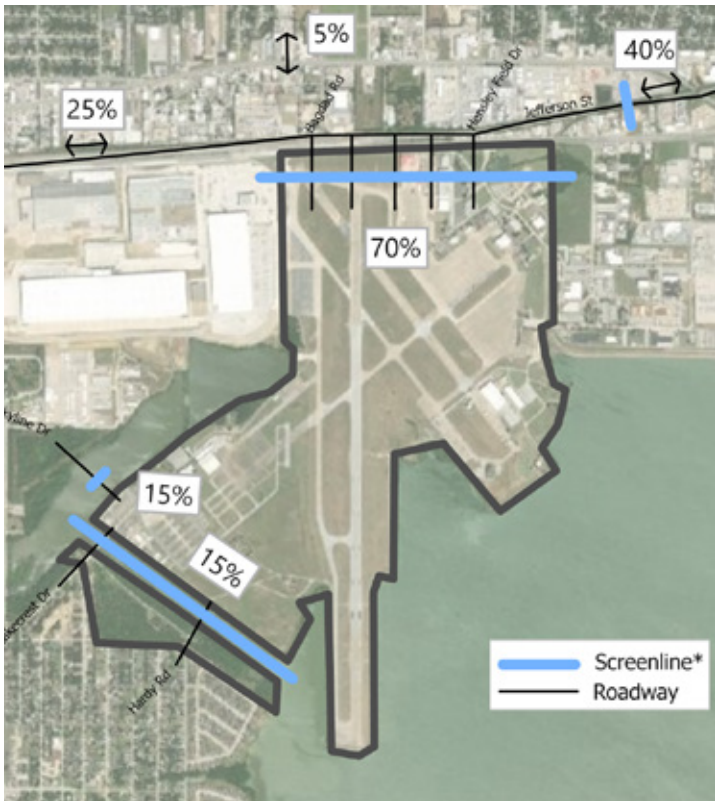
Roadway Functional Classification	Roadway Configuration	Typical 24 Hour Volume	Typical 24 Hour Capacity
Arterial	6 Lane Divided	22,000 vpd1	42,000 vpd
Arterial, Collector	4 Lane Divided	18,500 vpd	28,000 vpd
Collector	4 Lane Undivided	10,000 vpd	20,000 vpd
Local, Collector	2 Lane Undivided	4,000 vpd	10,000 vpd

Figure 3.1: Typical Volumes and Capacities for Streets of Given Design (2019 Street Design Manual)

AREA TYPE	Activity Density Range (per acre)	PRINCIPAL ARTERIAL		MINOR ARTERIAL & FRONTAGE ROAD		COLLECTOR & LOCAL STREET	
		Divided or One-Way	Undivided Two-Way	Divided or One-Way	Undivided Two-Way	Divided or One-Way	Undivided Two-Way
CBD	>125	725	650	725	650	475	425
Outer Business	30-125	775	725	775	725	500	450
Urban Residential	7.5-30	850	775	825	750	525	475
Suburban Residential	1.8-7.5	900	875	900	825	575	525
Rural	<1.8	1,025	925	975	875	600	550

Figure 3.2: Hourly Service Volume Capacity Per Lane by Area Type and Roadway Function (2019 Dallas Street Design Manual)





This capacity analysis assumed consistent roadway configurations across all three scenarios:

- Three major, signalized intersections along Jefferson Street – six outbound arterial lanes
- Two right-in, right-out intersections along Jefferson Street – two outbound collector lanes
- Two-lane road at Lakecrest Drive – one outbound collector lane
- Two-lane road at Hardy Road – one outbound collector lane
- Four-lane bridge connection to Skyline Drive – two outbound collector lanes (Scenario Three only)

Additionally, trip distribution to and from the site (Figure 3.3) was estimated based on regional destinations, such as Arlington and Downtown Dallas, and NCTCOG's mapping of employment and housing. Using these assumed capacities, and estimated percentage of trips traveling in each direction, an assessment of entry and exit capacity was generated.

ENTRY/EXIT CAPACITY

The scenario evaluation looked at three locations, four in the case of Scenario Three, to assess expected vehicular demand against available roadway capacity (Figure 3.3). This is otherwise known as a volume to capacity ratio. Volume to capacity ratios (V/C) of 0.65 and below are considered level of service A, B, or C and indicate free-flowing vehicle traffic, while V/C of 1.00 is considered D or E by the 2019 Dallas Street Design Manual and indicates congested traffic (Figure 3.4).

The PM peak hour outbound volumes identified above (Table 3.13) represent the peak trip generation for the site, and the more constrained analysis period. These trips were assigned to the roadway network based on the trip distribution assumptions to assess the vehicular demand volumes at these three to four locations.

LOS	UPPER THRESHOLD FOR V/C RATIO
A/B/C	0.65
D/E	1.00

Figure 3.4 NCTCOG's Volume to Capacity Ratio for Roadways Operating Under Capacity (2019 Dallas Street Design Manual)

Table 3.14 summarizes the volume to capacity results at the edges. All of these locations in all scenarios have a V/C ratio less than 1.00 and are not oversaturated.

Table 3.15 summarizes the results for the location on Jefferson St east of the site in the PM outbound direction, eastbound. This analysis does consider existing volumes on Jefferson St and remaining available capacity. Scenarios One and Two have high V/C ratios approaching 1.0, at build-out while Scenario Three exceeds 1.0 indicating Jefferson St would be overwhelmed under build-out conditions.

To achieve goals around each scenario, and specifically maximizing mobility with the smallest footprint, increased connectivity is beneficial to the Hensley Field site. Additional access points to the Southwest, to the West, and to the East will serve to distribute traffic to the larger roadway network and contribute to greater accessibility to Hensley Field amenities.

3.4 FINANCIAL AND IMPLEMENTATION FEASIBILITY

In this section, a planning level cost and revenue analysis was used to compare and contrast the three scenarios. The analysis aligns infrastructure development into phases corresponding with the estimated market absorption. It provides a relative comparison between the scenarios in terms of costs, revenues, and an overall funding gap. This information will also be used for further refinement and optimization of costs in the preparation of the preferred alternative. It is not intended to be a precise prediction of feasibility or the need for gap financing at this stage of the Master Plan process. The financial model will be refined for the recommended master plan with more precise infrastructure costs and phasing assumptions and to determine the amount and timing of public financing needed for the project.

	Scenario One			Scenario Two			Scenario Three		
	Total	In	Out	Total	In	Out	Total	In	Out
AM	5,289	3,386	1,903	4,338	2,336	2,002	6,994	4,517	2,477
PM	7,049	2,688	4,361	6,404	2,942	3,462	9,037	3,287	5,750

Table Scenario 3.13 AM & PM Peak Period Trips Per Scenario

Scenario	Access	Volumes	Capacity	V/C
One	North to Jefferson St	3700	6450	0.57
	South to Lakecrest Dr/Hardy St	680	1050	0.65
Two	North to Jefferson St	2950	6450	0.46
	South to Lakecrest Dr/Hardy St	550	1050	0.52
Three	North to Jefferson St	4030	6450	0.62
	South to Lakecrest Dr/Hardy St	890	1050	0.85
	West to Skyline Rd	890	1050	0.82

Table Scenario 3.14 Volume and Capacity at Site Access Points

Scenario	Access	Volumes	Capacity	V/C
1	East of Site, Jefferson EB	2560	2700	0.95
2	East of Site, Jefferson EB	2200	2700	0.81
3	East of Site, Jefferson EB	3100	2700	1.15

Table 3.15: Eastbound Volume and Capacity along Jefferson Street (East of Site)

The analysis compares land sale revenues to costs. Land sales were chosen as a measure assuming a master developer would be responsible for development of all of the horizontal infrastructure and generating revenues from the sale of land to vertical developers. Land sale revenues are generated from lower-density residential lot sales and improved sites for multifamily, condominium, and non-residential development. The revenues reflect development-ready lots and sites with finished streets. Vertical developers and builders would be responsible for tying into utilities. This analysis differs slightly from the absorption analysis which estimated the time to fully absorb the development in each scenario. In this cost and revenue analysis, absorption is capped at the amount estimated in the 20-year absorption projection; some scenarios do not fully absorb and therefore do not realize the revenue potentials from all of the land use programmed into each scenario.

OVERALL FEASIBILITY SCREENING

The revenues and costs for each Scenario are broken down into five-year increments over a 20-year period, as shown in Table 3.16. As shown in Figure 3.5, the cost of infrastructure is also broken down into the same five-year increments with each scenario assuming a different phasing approach. Figure 3.6 compares revenues against costs for each of the five year increments.

- ***Scenario One*** – The financial performance of Scenario One is lower than Scenario Two which is the best performing. In Scenario One, revenues minus costs equate to -$26.5 million indicating that costs are higher than potential revenues. In this Scenario, only 46 percent of the non-residential development is absorbed compared to nearly 80 percent in Scenario Two. If employment or institutional development can be attracted sooner (prior to the Year Six start date assumption) it would provide a significant revenue increase to offset the early year infrastructure costs.
- ***Scenario Two*** – This Scenario has the best balance of revenues and costs with an estimated shortfall of $6.0 million (revenues minus costs). Scenario Two also absorbs the largest percentage of its development program, including all of the residential development and nearly 80 percent of the non-residential development. However, it does not provide any land for early-term corporate or institutional anchor uses that could address some of the City's economic development objectives for the site.
- ***Scenario Three*** – Scenario Three has the largest gap between revenues and costs at -$195 million, mostly due to the introduction of an on-site geothermal cooling loop. An additional factor is that only 66 percent of the residential program and 33 percent of the non-residential program are estimated to be absorbed over 20 years.

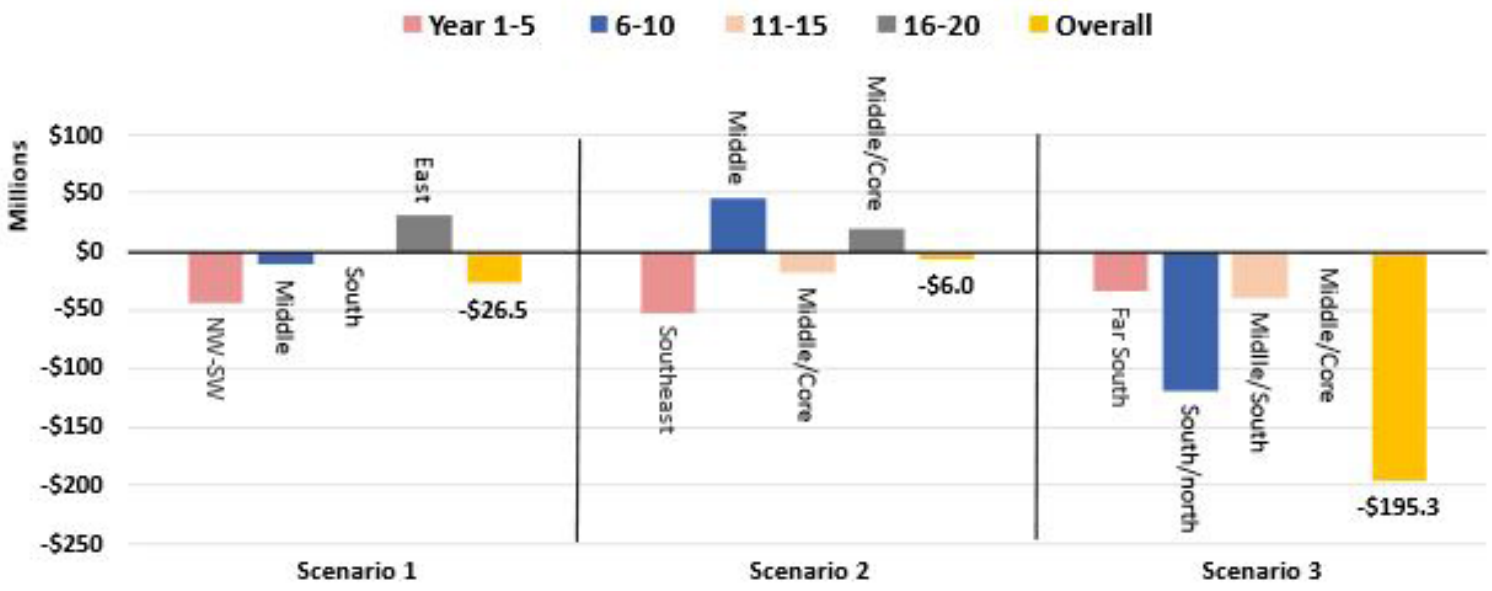


Figure 3.6: Scenario Revenues vs. Costs in Five Year Increments

	Scenario 1	Scenario 2	Scenario 3
Years 1-5	 $ 122.9m	 $ 131.9m	 $ 113.3m
Years 6-10	 $ 65.5m	 $ 79.5m	 $ 174.2m
Years 11-15	 $ 58.3m	 $ 82.9m	 $ 95.5m
Years 16-20	 $ 24.2m	 $ 18.7m	 $ 56.1m
TOTAL	$ 270.9m	$ 313.0m	$ 439.0m

Figure 3.5: Scenario Infrastructure Costs in Potential Five Year Increments

Values in $ Millions	Phase (Years) 1-5	6-10	11-15	16-20	Total	Percent Absorbed
SCENARIO 1						
Land Sale Revenue						
Residential	$78.8	$34.9	$37.5	$37.5	$188.6	98%
Non-Residential	$0.0	$19.1	$18.1	$18.5	$55.8	46%
Total	**$78.8**	**$54.0**	**$55.6**	**$56.0**	**$244.4**	
Costs	$122.9	$65.5	$58.3	$24.2	$270.9	
Revenues Minus Costs	-$44.1	-$11.5	-$2.7	$31.8	-$26.5	
SCENARIO 2						
Land Sale Revenue						
Residential	$78.8	$105.0	$47.0	$20.7	$251.5	100%
Non-Residential	$0.0	$19.5	$18.2	$17.9	$55.5	78%
Total	**$78.8**	**$124.5**	**$65.2**	**$38.6**	**$307.0**	
Costs	$131.9	$79.6	$82.9	$18.7	$313.0	
Revenues Minus Costs	-$53.1	$44.9	-$17.7	$19.9	-$6.0	
SCENARIO 3						
Land Sale Revenue						
Residential	$78.8	$36.3	$37.5	$35.4	$187.9	66%
Non-Residential	$0.0	$18.8	$18.5	$18.4	$55.7	31%
Total	**$78.8**	**$55.1**	**$56.0**	**$53.8**	**$243.7**	
Costs	$113.3	$174.2	$95.5	$56.1	$439.0	
Revenues Minus Costs	-$34.5	-$119.1	-$39.5	-$2.2	-$195.3	

Table 3.16: Summary of Land Sale Revenues and Costs

COST AND REVENUE PHASING

The first indicator from this evaluation is to begin phasing in the south. Scenario Two leads with for-sale residential development on the southern portion of the site and then moves northeast. This analysis indicates the potential to re-coup more of the upfront infrastructure costs earlier compared to Scenarios One and Three. This is due to the faster residential absorption compared to other land uses.

If phasing is started in the north, the approach requires a large employer or institutional use to offset infrastructure costs. Another option would be to add more residential development in the northern area to help with absorption, but this has tradeoffs in terms of incompatibilities with adjacent industrial land uses and consuming high visibility non-residential land on the Jefferson Frontage.

IMPLEMENTATION FEASIBILITY

As noted, the financial gaps shown in the scenario evaluation are intended as a relative comparison and not an absolute estimate of the expected gap. Based on experience with other major redevelopment projects of a similar size and scale, there will be the need for some level of public investment to address the up-front costs of redevelopment including demolition, site preparation, and trunk roadways and utilities.

A more precise estimate of the timing of these investments and associated financing gaps will be determined with more refined cost figures, phasing, and adjustments to the recommended land use mix.

The cost of these improvements will need to be covered by redevelopment financing tools or other economic development incentives as allowed for by Texas State Statutes. Based on a preliminary analysis, the most applicable funding sources and financing tools include the following:

Tax Increment Financing - A Tax Increment Reinvestment Zone (TIRZ) can be formed for purposes of promoting development or redevelopment when it is determined that such development would not occur through private investment in the foreseeable future. TIF funds can also be used to assist developers and investors with extraordinary costs related to urban construction projects. The City of Dallas' tax increment financing (TIF) program is administered by the Office of Economic Development. The creation of new districts is considered based on set criteria and requires the approval of Dallas City Council. TIRZs allow for the use of property tax increment from all taxing units within the zone including the city, county, school district, and any applicable special taxing districts. However, due to a number

of legislative modifications and restrictions, participation by each taxing unit is now voluntary; each can choose to dedicate all, a portion, or to exclude its revenues from a TIF zone. Based on the city's experience with other TIF districts, it may be unrealistic to count on school district participation.

Municipal Management District - A MMD may be formed to finance improvements and pay for services within that area. MMDs may impose ad valorem taxes, impact fees, special assessments, bonds, or other fees in accordance with the legislation creating the district. In general, MMDs generate revenue by issuing bonds for public improvements and paid for by property taxes, assessments, impact fees, or other revenue methods permitted in the MMD's creation legislation. If allowed for in their formation, MMDs can be used jointly with TIF to finance area infrastructure.

Local Government Corporation – A LGC is a non-profit development that may be created by the city or county A LGC is formed by a municipality or county to act on its behalf to raise capital; debt or equity. It has the powers of a transportation corporation as authorized by the Texas Transportation Commission including the ability to engage in development activities related to real estate. The City Economic Development Department considers a LGC as a preferable and more flexible tool since it is created as the local level and does not involve the state.

American Rescue Plan 2021 – This COVID-19 stimulus bill provides a total of $1.88 Trillion in federal investments for vaccines and testing, relief to local governments, individuals, and businesses. The City of Dallas anticipates receiving $377 million roughly split between The Corona Relief Funds which includes short term investments in public health and safety, and the Local Fiscal Recovery Fund which includes longer term priorities including economic development and infrastructure investment. The City is considering allocating a portion of these funds for infrastructure investments that contribute to economic development in South Dallas. The Hensley Field project has been identified as one potential eligible project. The project team has identified $15 million in up-front infrastructure required to develop the project that would be part of the project's public investment.

Hensley Field is envisioned as a mixed-use district with a vibrant public realm

4 SUMMARY OF PLAN RECOMMENDATIONS

On the basis of the findings outlined in the previous chapter, a series of recommendations have been formulated to guide the City and consultant team in preparing the Preferred Alternative and the corresponding policies of the Reuse and Redevelopment Master Plan. These recommendations will be reviewed by the Stakeholder and Technical Advisory Groups and undergo additional testing and evaluation during the master planning process to ensure that they are supportable by the City of Dallas and will result in positive outcomes both in terms of their economic viability and their conformance with the Guiding Principles. The recommendations are organized into the following categories:

- Economic Development
- Land Use Program
- Open Space and Public Facilities
- Historic Preservation and Adaptive Reuse
- Transportation and Mobility Program
- Sustainability Forward Program

4.1 ECONOMIC DEVELOPMENT

ED-1: Begin Marketing the Site for One or More Anchor Uses: The Hensley Field Market Study indicated that it will be challenging for Hensley Field to overcome the existing area's industrial setting and become a competitive location for higher value employment uses without the synergies and placemaking impact provided by a larger anchor firm or institution. The recommended economic development strategy is to begin marketing the site for one or more large anchor uses in advance of completing the master plan.

Attracting a large anchor user in the initial phase of development would establish the site for higher value uses consistent with the recommended land use mix and providing a catalyst to other development uses on the site. Additionally, a large user would likely require more significant up-front road and utility capacity, and therefore could bear a greater portion of these costs reducing the burden on the residential and mixed-use development areas.

Outreach to existing educational and medical institutions that could be interested in a Dallas location, or if already present, interested in a site for expansion, should be contacted. Interest from the motion picture industry in creating a film studio complex within Hensley Field should also be pursued as part of the marketing initiative. Outreach to these various groups has already been initiated through stakeholder interviews. It is anticipated that the City will solicit RFIs from target institutions in the near future.

ED-2: Create an Appropriate Balance of of Non-Taxable and Tax-Generating Uses: The solicitation of an anchor use described in the previous recommendation will include both public and non-profit institutions as well as corporate and for-profit entities. It is assumed that these uses would pay for the cost of their land and their fair share of the infrastructure costs. An appropriate balance should be struck between the two to maximize the fiscal and financial performance of the development. Public and nonprofit (non-taxable) uses can be highly advantageous for their spin-off effects and their importance in serving the residents and employees of the future district, but tax-generating uses will also be critical to support future public financing programs. For example, a non-taxable hospital complex can spin off for-profit medical office and research uses and serve a part of the city that lacks healthcare facilities. Similarly, a higher education institution can also spin off complimentary research and office uses and

Scenarios One and Three reserve over 60 acres for a corporate or institutional anchor use. (UCSF Mission Bay campus in San Francisco pictured above)

contribute to job creation and infrastructure investments. However, in attracting these uses it is important to reserve at least an equal amount of land for tax and revenue-generating employment uses.

Warehousing or other low-value uses that are currently housed at Hensley Field pose an opportunity cost as they could preclude higher value uses that support the community's vision for the property. For example, Dallas Fire Rescue's Texas Task Force 2 facility, which stores emergency supplies in a hangar on approximately six acres in the southwest portion of the site could preclude about 80 residential units and affect the character of the future neighborhood. It is recommended that an alternative site be found for this facility elsewhere. Similarly, existing short-term leases to City departments and related agencies need to be phased out in an orderly manner as new higher value uses are found for the site.

Scenario One tested Dallas Fire Rescue's request for a 40 to60 acre tract within Hensley Field for a Public Safety Training Campus. This could displace the opportunity for over 400,000 square feet of revenue-generating commercial or institutional uses, and as such it is recommended that an alternate site outside of Hensley Field be found for that facility.

Table 4.1 provides a matrix that evaluates the potential of each type of non-taxable use considered for Hensley Field, underscoring the benefits of a public school, a higher education or healthcare institution and a Fire/EMS station, but questioning the benefits of the Public Safety Academy and the Texas Task Force 2 facility.

4.2 LAND USE PROGRAM

LU-1: Reserve 60 to 80 Acres of Land along the Jefferson Street Frontage for a Corporate or Institutional User: The Jefferson Street frontage provides an attractive opportunity for a future anchor use that could provide a strong catalyst for early-term development of the site. At a gross FAR of 0.2 to 0.4, a total of 500,000 to 1.0 million square feet could potentially be developed. If a single large anchor tenant is not found, the area could be subdivided into multiple parcels for smaller corporate or institutional tenants, thus retaining maximum flexibility for economic development recruitment as described above. This district should be planned as a transit-oriented development and as a seamless extension of the surrounding Hensley Field community with well-scaled buildings that are oriented to walkable streets and attractive open spaces.

	GPISD K-12 SCHOOL [1]	HIGHER-ED RESEARCH [2]	HEALTHCARE INSTITUTION [2]	PUBLIC SAFETY CAMPUS [3]	TEXAS TASK FORCE 2 [4]	FIRE/EMS STATION [5]
How much of the site are they likely to consume?	20 -30 acres	20 - 40 acres	20 - 40 acres	40 - 60 acres	5 acres	2 acres
Would they serve future residents or employees?	YES	YES	YES	NO	NO	YES
Will they provide positive economic spin-off effects?	YES	YES	YES	NO	NO	YES
Can they reasonably be accommodated elsewhere?	NO	YES	YES	YES	YES	NO
At the acreages listed above, will they preclude the full potential of other revenue-generating uses?	NO	NO	NO	YES	YES	NO
POTENTIAL BENEFIT	HIGH	HIGH	HIGH	LOW	LOW	HIGH

1. GPISD estimates the need for up to 20-acres for a school site, adjacent to 10-acres of joint play fields
2. A higher education campus or healthcare facility could occupy a significant tract of land; 20-40 acres is a target range given other land use/revenue objectives.
3. The Dallas Fire Rescue (DRF) has requested up to 60-acres of land for a Public Safety Training Campus. DFR owns an existing 40-acre tract of land at Dolphin Road.
4. Dallas Fire Rescue (DFR) occupies an existing hangar for storage of emergency supplies, and a small office building on approximately 50-acres of land at Hensley Field.
5. Assumes an urban-styled fire and Emergency Medical Services station.

Table 4.1 Evaluating Non-Revenue Generating Uses

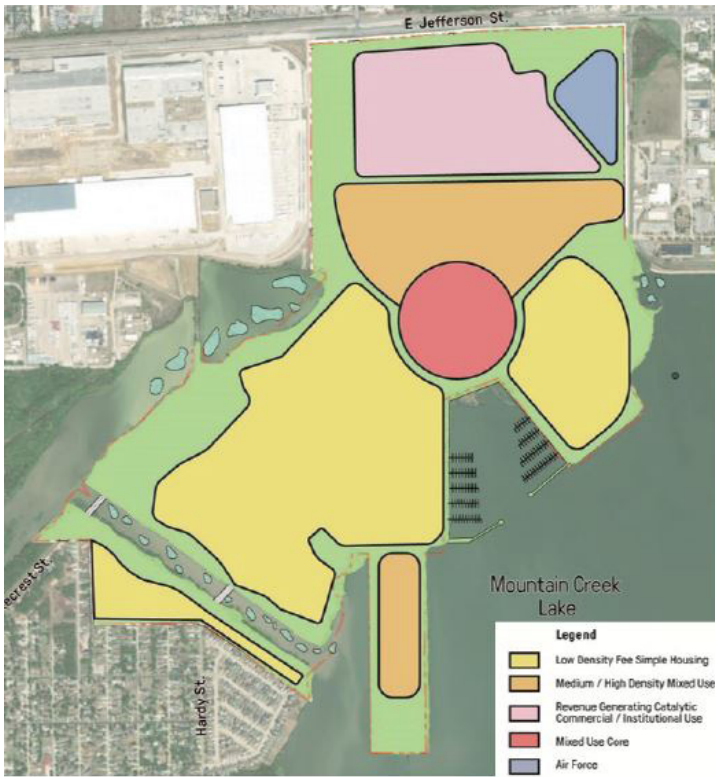


Figure 4.1 Conceptual Distribution of Land Uses

LU-2: Provide Flexibility to Allow for Additional Commercial and Institutional Uses: Beyond the 60-80 acres along the Jefferson Street frontage, the Master Plan should provide flexibility for additional commercial uses to the south in an area that promotes higher density mixed-use development including retail and multi-family uses. This area should be planned as part of a walkable mixed-use core at the heart of the new community with smaller blocks, active street frontages and parking largely encapsulated within the building envelope.

LU-3: Provide a Site for a Full-Service Grocery Store: The Master Plan should provide a site suitable for a full-service grocery store, exploring the market viability of stand-alone and mixed-use configurations. The goal should be to maximize its attractiveness to an anchor grocer, while ensuring that it can be part of a walkable mixed-use district.

LU-4: Create An Appropriate Balance of For-Sale and Rental Housing: The market analysis and scenario evaluation findings indicate that the site will be attractive for residential development capitalizing on the Mountain Creek Lake setting. The analysis concludes that the project could absorb up to 500 units per year with a relatively even mix of small-lot single family detached and missing middle for-sale and medium density rental housing (approximately 200 units of each per year). However, the site is constrained by the amount of land that can be allocated to low density housing and still provide space for the other recommended land uses. As such, it is recommended that the Master Plan explore a housing program with approximately 40 percent low- density (16 du/ac average), 40 percent medium-density (40 du-ac average), and 20 percent high-density housing (80 du/ac average) with an overall yield of approximately 6,000 units. This would require a total of 220 net acres or 30 percent of the site devoted to all types of residential development.

LU-5: Accelerate Relocation of Texas Army National Guard: The Texas Military Department currently holds a long-term lease on 40-acres in the southwest corner of the site that will not expire until 2039. Texas Army National Guard operates a squadron of Chinook helicopters from this site for both training and deployment purposes; the site also includes a Readiness Command Center and a vehicle maintenance facility. Although initiatives are underway for relocation of some or all of the helicopter operations to Fort Worth, Texas Military states that it may be many years before relocation takes place. It is recommended that the City of Dallas in concert with the North Central Texas Council of Governments (NCTCOG) work with Texas Military to accelerate the relocation of all military activities on this part of the site to enable residential and other urban uses to occur.

LU-6: Renegotiate the US Air Force Lease: The US Air Force also holds a lease of 22 acres on the opposite corner of the site from the Texas Military lease. The lease will expire in 2043. The Department of Defense requires leaseholders to re-negotiate their leases if any investments are proposed within 25 years of the lease expiration. The goal of the USAF is to remain on the site with new investments in improved administration and communication facilities. As part of the re-negotiation process, it is recommended that the lease boundaries be redefined to allow the existing open spaces and ponds at the front gate of the former airfield to be preserved and reused.

4.3 OPEN SPACE AND PUBLIC FACILITIES

OS-1: Retain 25% of the Site for Public Open Space: Hensley Field's parks and open space system should establish a compelling sense of place, a high level of pedestrian and bicycle access and routes, an enduring public realm, and strong connections to and compatibility with the surrounding community and site history. At least 25 percent of the site should be planned for open space features including a variety of parks, buffers, trails, and an urban farm. The parks and open space system at Hensley Field should serve a wide variety of interests and age groups. The result should be park-oriented neighborhoods that emphasize wellness through the establishment of a comprehensive open space and recreational system in close proximity to all residents in the neighborhood. (CECAP Goal 6: Ecosystem)

OS-2: Create a Linear Trail System: Public open space at Hensley Field should include a linear trail system along the waterfront and leverage future opportunities to expand the trail around Mountain Creek Lake. Through collaboration with the City of Dallas and City of Grand Prairie's Parks and Recreation Departments, Hensley Field can create green-recreation opportunities for both residents and visitors.

OS-3: Mitigate Heat Island Effects with a Generous Tree Canopy: Ensure tree canopy coverage will meet or exceed 40% of the site, as set forth by Goal 6, EG3 of Dallas's Comprehensive Climate Action Plan (CECAP) and the 2021 Dallas Urban Forest Master Plan.

OS-4: Ensure that Every Hensley Field Resident is within a Five-Minute Walk of Public Open Space: The Trust for Public Land's goal for a 10-minute walk to a park should be exceeded at Hensley Field with publicly accessible open space located within 1300 feet or a five-minute walk of every home in the new community.

OS-5: Regional Entertainment District: The project should also include a 10-acre waterfront entertainment district at the tip of the runway peninsula and adjacent to the proposed eco-innovation district. This district could include retail, food and beverage opportunities, and waterfront viewing. This park would function as a regional attraction that provides spaces for events and structured activities.

Figure 4.2 Conceptual Distribution of Open Spaces

OS-6: Incorporate Blue-Green Infrastructure as an Integral Part of the Open Space System: The park and open space system at Hensley Field should incorporate blue-green infrastructure to assist with the diversion, filtration, and re-use of stormwater on-site. This could look similar to the system illustrated in Scenario One, where an extensive linear park is interwoven throughout the site to better support facilitation of ecosystem services and public space for leisure and recreation. (CECAP Goal 6: Ecosystems and Goal 8: Air)

OS-7: Preserve and Enhance the Site's Natural Ecological Assets: Open spaces at Hensley Field present the opportunity to positively affect public health, safety and welfare, as well as provide increased biological diversity and other natural functions and values. Whenever possible, the natural terrain, soils, hydrology and vegetation of the area should be preserved with the open spaces creating a rich network of interconnected parks, natural areas, and community gathering spaces. Existing forested edges and wetlands should be preserved and expanded, and bio-habitat corridors should be established within urban and residential precincts. (CECAP Goal 6: Ecology)

OS-8: Reserve a 20-acre Site for an Urban Farm: The design team recommends placing the urban agriculture component in the northeast portion of the site, near the Dallas Global Industrial Complex. This will create a strong street presence along Jefferson and possibly be combined into a market district in that portion of the site. This location enables the agricultural components to proceed with the first phases of the development, as soil remediation is fully complete and groundwater contamination does not affect this portion of the site. (CECAP Goal 7:Food)

OS-9: Assess the Risks and Rewards of Reconnecting Cottonwood Creek to Mountain Creek Lake: In coordination with the City of Dallas Office of Environmental Quality, consideration should be given to reconnecting Cottonwood Creek to Mountain Creek Lake along its original alignment as illustrated in Scenario Three. Advantages related to improving Cottonwood Bay's water flows and quality and creating additional waterfront real estate should be balanced against possible risks associated with the disturbance of lakebed contaminants and the corresponding permitting and remediation issues. (CECAP Goal 5: Water)

OS-10: Reserve a Site for a GPISD Public School: In addition to the public open space system, the new community should include a public school that serves future Hensley Field residents as well as those living within the Grand Prairie Independent School District. It is recommended that a site of 10-acres be reserved for an urban school, and that the school site be located adjacent to a 10-acre playfield area that is part of the overall open space system.

OS-11: Blackland Prairie Restoration: The redevelopment of Hensley Field aims to preserve and restore a portion of the site to a naturalized state. The Blackland Prairie, native to some parts of North and Central Texas, is home to a wide variety of wildlife and countless unique plant species. The benefits of allocating a space at Hensley Field for this ecosystem lies in the low maintenance requirements and the resiliency of the native plants and trees. All three scenarios include an allocated section of the site for preservation and/or restoration, but size and educational opportunities vary. (CECAP GOAL 6: Ecosystem)

OS-12: Wetlands: With the water quality of Cottonwood Bay in question, phytoremediation, the natural filtration process taken on by plants, can have a great impact on the cleanliness of waterbodies. Expanding wetlands within Hensley Field also happen to be one of the most efficient greenspaces when it comes to sequestering carbon which can contribute to Hensley Field's mission of reaching both Goal 6: Ecosystems and Goal 8: Water set by CECAP. Not only do wetlands assist in the filtration of pollutants, they also serve as carbon sinks and a bio-habitat for wildlife that can offer recreational amenities such as bird watching (as proposed in Scenario Three).

Wetlands are one of the most efficient green spaces when it comes to sequestering carbon

4.4 HISTORIC PRESERVATION AND ADAPTIVE REUSE

HP-1: Determine which Buildings, Structures and Elements are Eligible for Local, State and National Landmark Listing: As part of the Master Plan process, coordinate with the City of Dallas to identify historic resources on the site that could be eligible for local level landmark designation and protection. Although a previous evaluation was undertaken by the Texas Historic Commission in 1994, which determined that only the Officers Houses were eligible for listing in the National Register of Historic Places (NRHP), further coordination with the THC is recommended to determine potential eligibility for buildings and artifacts that have not heretofore been evaluated, including the Texas Air National Guard hangars and the Small Arms Magazines.

HP-2: Preserve the Elements of Hensley Field that Contribute to its Unique History and Identity: Regardless of whether older buildings and structures within Hensley Field are considered individually significant under local, state, or national criteria, many of these elements are symbols of the prolonged presence and airfield operations by the military and are critical to the fabric of the historical landscape that is Hensley Field. The reuse and incorporation of these type of features will be paramount to maintaining the historical setting of Hensley Field. As such, the Master Plan should maximize opportunities for the preservation of:

- Existing hangars including but not limited to the World War II era Dallas Naval Air Station (DNAS) Maintenance Hangar and the Texas Air National Guard hangars;
- The DNAS Water Tower;
- The Helicopter Recalibration Compass;
- The Small Arms Magazines; and
- The Fuget Cemetery.

HP-3: Initiate Stabilization of the Hangars and Officers Housing: Several structures including the two Officers Houses, the DNAS Maintenance Hangar and two of the Texas Air National Guard hangars are experiencing structural deterioration and leaking roofs. A comprehensive review of the condition of these and other buildings should be undertaken and an initial stabilization program of improvements undertaken to arrest any further deterioration, prior to their potential adaptive reuse

HP-4: Introduce Interpretive Elements that Celebrate the History and Culture of the Site: As redevelopment creates a new layer of history on Hensley Field, it is important that the military and pre-military history of the site be celebrated through preservation and adaptive reuse of structures and artifacts, but also through interpretive elements that provide educational information.

HP-5: Pursue a Major Public-Oriented Use for the Historic DNAS Maintenance Hangar: The DNAS Maintenance Hangar is without question the most significant of all of the military structures at Hensley Field. Its World War II vintage also makes it the oldest remaining hangar of that era. Although this majestic structure with its expansive column-free space, monitor roofs, and grand sliding doors is in deteriorating condition, it offers exciting opportunities for reuse as a major cultural or public-oriented destination. It is recommended that the City of Dallas gauge the interest of public sector or non-profit institutions for the reuse of the hangar as a major event and entertainment venue, or as a cultural or museum facility. The structure's adjacency to Mountain Creek Lake could also make it an attractive location for a market or food hall. For the purposes of the Master Plan, the structure and its immediate environs should be preserved as part of the open space system.

The DNAS Maintenance Hangar is the oldest remaining hangar of the World War II era

4.5 TRANSPORTATION AND MOBILITY PROGRAM

TM-1: Reduce Automobile Dependence by Prioritizing Transit and Active Transportation Modes at Hensley Field: Hensley Field is envisioned as a mixed-use and transit-oriented district, and as such the development should prioritize land uses and densities that support transit and walkability, while reducing (to the maximum extent practicable) auto dependence.

TM-2: Coordinate with DART to Plan a High-Capacity Transit Linkage to Hensley Field: Critical to the vision of Hensley Field, will be its connection to Dallas's regional transit system. It is recommended that, in coordination with DART, the Preferred Alternative incorporate a plan for high-frequency high-capacity service to the site. Provision should be made for:

- Center-running Bus Rapid Transit dedicated lanes to be looped through the site (as in Scenario One) with a central station that provides convenient access to future residents and employees;
- An additional BRT station with a park and ride facility located near the East Jefferson Street frontage to serve the broader region; and
- The future potential for a Light Rail Transit (LRT) connection to Downtown via the East Jefferson Street, Davis Street or I-30 corridors.

TM-3: Provide for AV Transit on Dedicated Transit Ways: As an extension of the proposed BRT and LRT service to the site, the Preferred Alternative should also provide first and last mile transit with Automated Vehicles (AV) to ensure that all residents and employees are located within a 10-minute walk of transit. As illustrated in each of the three scenarios, this should include a dedicated transitway that allows the AV to circulate safely and protected from vehicular, bicycle and pedestrian systems. Various types of infrastructure that support AV transit should be explored, including inductive charging.

The Preferred Alternative should include streets that prioritize bicycle and other low-speed wheeled vehicles

TM-4: Provide a Network of "Low Speed Mobility" Streets with Protected Bikeways: In addition to the transit-priority streets, the street network of the Preferred Alternative should include streets that prioritize bicycle and other low-speed wheeled vehicles (e.g., scooters, skateboards, etc.) in protected paths separated from vehicular travel.

TM-5: Implement Complete Street Designs: The design of all streets at Hensley Field should prioritize a high level of comfort for pedestrians and bicyclists by:

- Minimizing crossing distances at intersections and mid-block to increase pedestrian safety, comfort, and connectivity;
- Designing roadways and intersections with users of all abilities in mind;
- Incorporating a canopy of street trees along the curb to provide continuous shade; and
- Providing appropriate buffers (e.g., plantings, rain gardens, furnishings, etc.) to separate the pedestrian and vehicular zones.

TM-6: Promote Active Transportation: The Preferred Alternative should include a network of off-street trails that serve both the recreational and transportation needs of the new community. The trail system should anticipate potential future connections to a Mountain Creek Lake Loop Trail and linkages to the Trinity River Trail system.

TM-7: Distribute Vehicular Traffic to Reduce Congestion and to Maximize Connectivity: Hensley Field is challenged in that the 720-acre site is currently accessed predominantly from one intersection along East Jefferson Street. Local roadway access is also provided from Lakecrest Drive, a neighborhood street at the southwestern corner of the site. To provide connectivity to surrounding communities, while supporting the planned levels of redevelopment, additional vehicular linkages are recommended, including:

- Three signalized intersections along Jefferson at 1,000 foot intervals and two right-in/right-out local streets in between.
- Hardy Road and Lakecrest Drive connections across the diversion channel.
- A Skyline Drive connection across Cottonwood Creek; and
- Future eastern roadway connections to adjoining properties upon their redevelopment.

4.6 SUSTAINABILITY FORWARD PROGRAM

SF-1: Plan Hensley Field as an Eco/Innovation District: The EcoDistrict Protocol is a program aimed at the design of districts and neighborhoods prioritizing equity, resilience and climate protection, all values that the City of Dallas have embraced as part of its Comprehensive Environment Climate Action Plan (CECAP). Consideration should be given to registering Hensley Field into the EcoDistrict certification program, which provides specific protocols to "create an implementation roadmap to guide projects and programs and track and measure impact over time". Doing so would emphasize Hensley Field's role as a Proof of Concept for the CECAP and as a demonstration of Dallas's leadership in sustainable design, equity and climate protection.

SF-2: Develop the Runway Peninsula as an "Innovation Village": The 40-acre Runway Peninsula extending 2400 feet into Mountain Creek Lake is one of the most dramatic and memorable places within Hensley Field. In addition to its recreational and open space potential, it provides a unique opportunity to demonstrate the potential for green building and sustainable development. It is recommended that the Preferred Alternative explore the creation of an "Innovation Village" on this site, with up to 1,000 residential units and supporting commercial space. The project could be a partnership between the City, a future master developer and a non-profit or corporate sponsor. It could be a place where emerging technologies, green building materials and renewable energy strategies are implemented and tested, helping to brand Hensley Field as an innovation center and the City as a leader in sustainable development.

SF-3: Coordinate with District Energy Providers to Explore the Commercial Viability of District Energy with Geo-Thermal Cooling: A District Energy System (DES) utilizing central chiller plants, geothermal ground wells and a two-pipe thermal distribution system was evaluated as part of Scenario Three. In this scenario, chilled water produced in the central plants is delivered to all parts of the district via a two-pipe supply and return piping system. The chilled water is complemented by thermal energy from geothermal wells and ground-source heat pumps which can contribute up to 75% of the required cooling of the development, significantly reducing (or even eliminating) the need for private cooling equipment for commercial and residential buildings. While the analysis showed that the project itself could not bear the cost of this

system on its own, it is recommended that further study of district energy and possible optimizations be explored with potential district energy providers to determine if there is a commercial model that could support funding of the system. Appendix 2.2 provides an assessment of District Energy systems, including micro-grids and combined heating and power systems.

SF-4: Introduce a Network of EV Charging Infrastructure: The Hensley Field development must anticipate the near-term emergence of electrical vehicles as the dominant power source for private vehicles and provide sufficient accommodation for charging stations within public garages and private homes. As described in Appendix 2.2, this could represent a significant portion of the development's overall energy consumption and, as a result, elevates the importance to have an emissions-free energy source available.

SF-5: Coordinate with Dallas Water and the Trinity River Authority on a Pilot Program for Reclaimed Water: Hensley Field's wastewater will require treatment at Trinity River Authority's plant. A trunk line is proposed to connect the development to the plant approximately 1.5 miles northeast of the site. Discussions should be initiated with the TRA and Dallas Water regarding the opportunity for Hensley Field to serve as a pilot project for the distribution of treated municipal gray water for irrigation and non-potable use.

Hensley Field will accommodate public and private charging stations for electric vehicles

SF-7: Coordinate with Dallas Department of Sanitation Services on a Pilot Program for Community Composting: Hensley Field also offers an opportunity to initiate a pilot program for community composting. As discussed in Appendix 4.1, decomposition of organic materials in landfills creates methane, a potent greenhouse gas with 23 times higher global warming potential than carbon dioxide. While some landfills are designed to capture methane and convert it into natural gas that can be an energy source, a much better solution is to divert organics from the landfill and convert them into compost or other soil amendments to support healthy organic gardening and other agricultural activities. Compost-enriched soils have the added benefit of sequestering CO2, thus reducing human-induced contributions to climate change. Several community scale composting systems – from the small neighborhood to district scale – are available on the market. Appendix – provides examples of different systems, some of which also provide opportunities for green jobs

SF-8: Introduce Resilience Hubs: There is broad consensus

Hensley Field will also offer an opportunity to initiate a pilot program for community composting

among the scientific community that climate change is responsible for more intense and frequent weather events. For Dallas, historical trends affirm that people's lives are at risk due to the ravages of drought, flood, high heat, and tornadoes. Establishing a network of resilience hubs in Hensley Field would recognize the vulnerability of resident populations and the opportunity to integrate a safe harbor into the fabric of the community, consistent with the CECAP recommendation to: "Maintain a high degree of reliability during extreme weather events." Such a network should rely on a layered approach:

- Buildings in general should be designed with basic resiliency features, such as operable windows, on-site energy generation (as with photovoltaics), energy back-up (through batteries or generator), potable water and stored non-potable water to support toilet flushing, etc.; and
- Community-oriented buildings, such as schools, city-owned facilities, organic farm maintenance building, etc. should be designed with more robust resiliency and "passive survivability" features, designed to support basic human needs for an extended time period, including the same elements as above though with bigger capacities.

SF-9: Measure and Manage the Environmental Performance of the Development: To track the effectiveness of the proposed environmental and green building strategies, a monitoring measurement and management system should be installed. This will enable tracking performance of key metrics from the project's inception, such as air and water quality, energy and water use, waste generation, and provide an important feedback loop to support continuous improvements. The resulting quantitative data would provide policymakers, building occupants, residents and the general public with visual cues to the performance benchmarks and undergird the shared experience of a "learning community."

SF-10: Achieve Gold Certification LEED Cities and Communities: The U.S. Green Building Council's LEED v4.1 for Cities and Communities, released in April 2019, provides a framework and third-party verification for sustainability and quality of life criteria at the community and city scales, incorporating a triple bottom line approach, performance-based standards and flexible pathways to measure and manage. The v4.1 update includes a compliance option for cities and communities in the planning/design phase.

Pursuing LEED for Cities and Communities certification is consistent with the City of Dallas' green building policy requiring LEED Silver certification for all new municipal buildings over 10,000 square feet, and aligns with the three pillars of sustainability put forth for Hensley Field: social equity, economic vitality and environmental stewardship. Appendix 2.4 provides a checklist that shows how the Hensley Field development could earn the minimum of 60 points to achieve a Gold certification. This point distribution provides an early view of what is considered to be reasonably achievable, with points anticipated to adjust as the master plan is finalized.

While strategies associated with the master plan are well aligned with the LEED for Cities and Communities certification, the compliance review found that one of the 13 prerequisites – MR Prerequisite Solid Waste Management – cannot be confirmed. It requires all buildings to have segregated waste collection services including for recyclables and organics. Current City of Dallas policy only requires multi-family properties with eight or more units to provide recycling services. In order to meet this prerequisite and to achieve the LEED certification, all properties at Hensley Field – single- and multi-family residential, commercial, and institutional – should have available segregated collection of recyclables and organics

SF-11: Utilize Environment, Social and Governance (ESG) Criteria in Pursuing Anchor Users: Environmental, Social and Governance (ESG) criteria are increasingly used for investors to evaluate the ethical performance of companies in relation to environmental sustainability, social equity and transparency. It is recommended that the City of Dallas employ ESG criteria in evaluating potential anchor uses for the new community.

5 ASSESSMENT OF KEY RISKS

This chapter describes several risks that could affect the Preferred Alternative recommendations outlined above and/ or the overall timeline for redevelopment.

5.1 TEXAS MILITARY LEASE

The Texas Military Department holds a long-term lease on 40-acres of property in the southwestern corner of the site, adjacent to Cottonwood Bay and the diversion channel. The lease expires in 2039. Currently, the Texas Air National Guard operates a Chinook helicopter squadron on the site, as well as a Readiness Center for training of reservists and a vehicle maintenance facility.

Texas Military is pursuing a Phase One military construction program to improve an existing hangar at NAS JRB Fort Worth which (if approved) could allow for some of the aviation activity to be relocated by 2023- 24. A Phase Two military construction request is underway for the remainder of the helicopter function, but a response will not be known until at least 2023, and, according to Texas Military, the earliest time that all of the aviation activity would be relocated would be 2030.

If they remain, the Chinook operations could pre-empt early term residential development in the southern sector of the site, an area that is most suitable for such use. Noise contours for Chinook helicopters are illustrated in Figure 5.1, indicating the extent of the site that would be impacted with decibel ratings exceeding 55dB. As discussed in Chapter 4, relocation of all of the Texas Air National Guard activities from this site is recommended within the next five years to make way for redevelopment

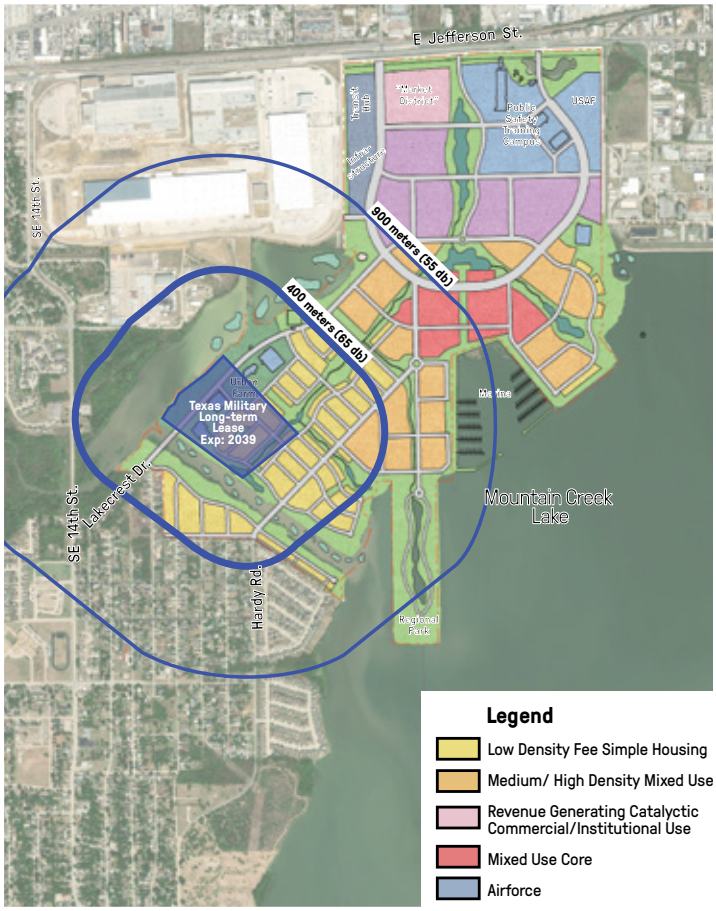


Figure 5.1 Chinook Helicopter Noise Contours

5.2 MOUNTAIN CREEK LAKE OWNERSHIP

Mountain Creek Lake was created in the 1930s by damming Mountain Creek for the creation of a steam-generating power plant. The lake is currently owned by the power plant company TexGen, who have stated that the plant is likely to be decommissioned in the next five to ten years because it no longer produces power in a cost-effective manner. The company has expressed interest in redeveloping its lakefront property, potentially for the type of urban uses contemplated for Hensley Field.

As the owner of the waterbody, it is expected that TexGen will have a direct interest in the types of water-based recreational activities that can take place on the lake, as well as the types of shoreline improvements that project into the water. Use of the water and reconfiguration or improvement of the shoreline will require close coordination between the City of Dallas and TexGen. Ownership transfer to the City may be one alternative that should be considered to take full advantage of this unique resource.

5.3 ENVIRONMENTAL REGULATORY ISSUES

The Navy operated the former Dallas Naval Air Station from the 1940s through 1995 and leased the property from the City of Dallas during its operations. Site investigation and remediation at Hensley Field has been on-going since 1995. Initial subsurface investigation at the site identified numerous contaminant plumes in soil and groundwater associated with petroleum hydrocarbons, metals, pesticides, polychlorinated biphenyls (PCBs) and chlorinated solvents. These known areas of impact have been managed under a Resource Conservation and Recovery Act (RCRA) Permit that is overseen by the TCEQ. Soil remediation was completed in 2005. Remaining groundwater contamination on the site consisted primarily of chlorinated solvents following the 2005 soil remediation work. Remediation has been completed on a small fraction of the chlorinated solvent plumes, with several plumes remaining on the site and undergoing long-term remediation.

The Navy also previously operated the Naval Weapons Industrial Reserve Plant (NWIRP) adjacent to the west of Hensley Field. The Navy owned and operated NWIRP during its operation and later sold the property to ABMCIC who later sold the property to the current owner, Dallas Global Industrial Center (DGIC). Sediment contamination in Mountain Creek Lake and Cottonwood Bay were attributed to NWIRP operations, and DGIC maintains responsibility for the remaining sediment impacts in Mountain Creek Lake and Cottonwood Bay. DGIC is also conducting long-term cleanup of soil and groundwater on their property under their own RCRA Permit (which includes the contaminated sediments) that is also overseen by the TCEQ.

The RCRA Permits for both the Navy and DGIC include long-term monitoring of the various plumes on both properties and maintenance of controls emplaced on the site to prevent potential exposures. As part of their RCRA Permit DGIC is also required to conduct periodic sediment sampling and fish tissue sampling to evaluate the long-term effectiveness of the controls utilized to manage the sediment contamination that remains in Mountain Creek Lake and Cottonwood Bay.

PFAS CONTAMINATION

In 2016, the Texas Commission on Environmental Quality (TCEQ) compelled the Navy to sample soils and groundwater and evaluate the presence of per- and polyfluoroalkyl substances (PFAS). PFAS were used in firefighting foams at airport facilities and commonly associated with Department of Defense (DoD) airfields. The Navy identified the presence of PFAS on the site, and are currently undergoing a RCRA Facility Investigation (RFI) to evaluate the magnitude and extent of the soil and groundwater impacts. It is anticipated that the RFI will be completed in early 2022. At this time, PFAS are considered a new contaminant and are not included in the Navy's existing RCRA Permit. It is anticipated that the following completion of the RFI that the Navy will modify their RCRA Permit to include the PFAS contamination on the site. The Navy will then begin conducting a Feasibility Study to evaluate methods for remediation of the soil and groundwater impacted with PFAS. The PFAS contamination in groundwater is commingled with the majority of the chlorinated solvent impacts on the site and the Navy is planning to use a single method to remediate both contaminants in groundwater simultaneously.

The Navy has also acknowledged that PFAS soil impacts represent a direct impediment to redevelopment. The Navy has indicated that they expect to have completed PFAS soil remediation activities by the end of 2024. While the Navy has agreed to completing this verbally, it is not currently tied to their RCRA permit, thus a driver forcing the completion of the work is not currently in place. Therefore, it is possible that soil remediation timelines get pushed further out. For the purpose of risk evaluation, it is assumed that redevelopment of the PFAS-impacted soil areas will not be possible until final approval of the remediation efforts by the TCEQ.

Based on experience with similar areas on Hensley Field, this could take another one to two years of correspondence between Navy and TCEQ. This would only be an impediment

for the areas of PFAS soil impact, and other areas of the site could commence with redevelopment activities. If development/redevelopment activities are planned to occur sooner than 2024, the Navy indicated that the RCRA permit allows for the implementation of interim response actions, and that they will conduct interim response actions (i.e. remediation activities) to remediate PFAS-impacted soils and allow development to occur, which should reduce the risk of a longer development time frame. Additionally, the Navy is aware of the impending redevelopment of the site and has indicated that groundwater remediation systems will be designed and operated so as not to hinder redevelopment and normal operation of the site.

Groundwater is not currently utilized on the site, and it is anticipated that there will be a groundwater use restriction on the site until the PFAS in groundwater are remediated. At this time, a cleanup timeframe on the order of decades can be reasonably assumed for PFAS in groundwater. While it is possible that new technologies will emerge to rapidly remediate PFAS-impacted groundwater, that technology does not currently exist. Since groundwater is not being utilized at the site, it is not anticipated that the groundwater impacts will present a development impediment on the site.

Remediation system locations needed for the PFAS remediation can be selected in conjunction with the development team and placed within inconspicuous areas or within vaults or decorative areas to maintain aesthetics on the site. If development activities include installation of basements or deep building foundations (e.g. piers), groundwater encountered during construction will need to be containerized, sampled and properly disposed, adding additional disposal costs to those construction projects.

POTENTIAL ISSUES ASSOCIATED WITH SCENARIOS 1, 2 AND 3

Each of the scenarios includes plans for marina development on the site. The planned marina area is near buried impacted sediments in Mountain Creek Lake (associated with SWMU 85 and to the north of the planned marina development). It appears that the marina development will avoid the impacted sediments; however, TCEQ may require approval of development plans that show impacted sediments will not be disturbed. Of important note, additional stakeholders are involved with the impacted sediments in Mountain Creek Lake and Cottonwood Bay including the US Army Corps of Engineers (USACE), Texas Parks and Wildlife (TPWD), TexGen Power (owner of Mountain Creek Lake) and most importantly DGIC, the responsible party for the sediment contamination.

TCEQ will collaborate with each of the stakeholders to evaluate the planned marina development and the potential for disturbing contaminated sediments. It is possible that one or more stakeholders would require removal of the impacted sediments in Mountain Creek Lake prior to marina development. ABMCIC previously conducted dredging of another impacted sediment area similar in size to SWMU 85 at an overall cost of $2M-$3M, thus the marina development may incur additional sediment remediation costs. In addition to costs, the dredging activities will require additional permitting and regulatory agency interaction, which would take several months to a year prior to initiation of the dredging activities.

TPWD is currently planning to conduct a Natural Resources Damage Assessment (NRDA) on Mountain Creek Lake and Cottonwood Bay. The TCEQ makes a distinction between surface water impact and sediment impact as two separate potential exposure pathways to contaminants. TPWD considers sediment as part of the surface water environment and does not make a distinction between the two. Surface water and sediment sampling conducted on the site has identified contaminant impacts to sediments, but not to surface water within the lake. Additionally, the fish consumption advisory on the lake is a result of the impacted sediments not the water. Since TPWD does not distinguish between sediment and surface water, the NRDA findings may shed a negative light on the actual issues in the lake giving the negative impression that recreational uses of the lake for boating, kayaking or fishing are not advised due to “surface water impact” that is not properly representative of the actual issues with the lake.

PROPOSED REALIGNMENT OF COTTONWOOD CREEK

Scenario Three includes the reestablishment of the original Cottonwood Creek channel across the current runway area on the central portion of the site, presenting unique risks specific to this scenario. The first risk is excavation and management of surface soils generated during excavation to restore the creek channel. Site soils have been remediated to TCEQ Residential Protective Concentration Levels, meaning that residual contaminant concentrations do not exceed levels considered by the TCEQ as acceptable for residential use. Thus, there may be low levels of contaminants left in

the soil that are not considered adverse to residential use, but those soils cannot be transported to other properties without proper laboratory testing and notification to the receiving property owner of residual low-level contaminant concentrations. Therefore, soils excavated from the site should remain on the site or be properly characterized and disposed as non-hazardous waste. The disposal option adds considerable costs to redevelopment of the project (on the order of $75 per cubic yard of soil to be removed). Current planning includes the need for soil to be imported to the site to bring the site to desired construction elevations. As such, it is recommended that the soils excavated to restore Cottonwood Creek be used on-site to avoid costly transportation and disposal of site soils, and reduce the costs of mass import of soil to the site to achieve desired construction elevations.

The Cottonwood Creek channel restoration includes the installation of cofferdams at either end of the restored creek channel to control flow, prevent flooding, and prevent disturbance of buried contaminated sediments within Cottonwood Bay and Mountain Creek Lake. Construction of the cofferdams will likely include disturbance of potentially impacted sediments. As such, TCEQ would likely require removal of impacted sediments. It is unknown at this time whether TCEQ would allow a partial removal from impacted areas or would require removal of all impacted areas. Costs for sediment dredging could be on the order of $10M if removal of all impacted sediment is required in both Cottonwood Bay and Mountain Creek Lake. Although the cofferdams are intended to minimize water flow and prevent sediment scour, TCEQ and other stakeholders may require additional assurances or demonstrations that the cofferdams will not result in the remobilization of buried impacted sediments in Cottonwood Bay and Mountain Creek Lake. Approval of the cofferdams could include up to a year of additional time to present design plans and obtain proper approvals from the TCEQ and other stakeholders.

Impacted sediments in Cottonwood Bay and Mountain Creek Lake were attributed to operations at the adjacent former Naval Weapons Industrial Reserve Plant (NWIRP), which is now owned by DGIC. DGIC maintains responsibility for the impacted sediments in Cottonwood Bay and Mountain Creek Lake. As the primary responsible party and major stakeholder in dealing with the impacted sediments, it is unknown what they may require for this scenario to move forward (e.g. indemnities or transference of liability to the City).

It is possible that the TCEQ or DGIC require that the City become the responsible party for the remaining impacted sediments if Cottonwood Creek is restored, and the buried impacted sediments are left in place. This would make the City responsible for the long-term testing and care of the remedial solution being implemented, including the long-term fish tissue studies required by TCEQ. This long-term testing could last 20 to 30 years at a cost of $2M to $5M for maintaining compliance with the approved long-term remediation plan. It is also possible that DGIC require the City to remove the impacted sediments if this scenario is selected, which could include a cost on the order of $10M.

The Cottonwood Creek channel restoration includes the installation of cofferdams at either end of the restored creek

APPENDIX 1.1
GUIDING PRINCIPLES AND GOALS

HENSLEY FIELD: DRAFT GUIDING PRINCIPLES & POTENTIAL GOALS

Draft: May 21, 2021 -JM

THE HENSLEY FIELD PROJECT MISSION:

Leverage the value of the City-owned Hensley Field to achieve positive, measurable benefits for the site, the surrounding communities and the region - benefits related to economic vitality, environmental stewardship, and social equity.

THE THREE PILLARS OF SUSTAINABILITY:

Hensley Field's overarching "**Pillars of Sustainability**" hold the core values underlying Dallas's many public policies and plans. When all three pillars are present and strong, people enjoy a high quality of life: economic well-being; a clean and healthy environment, and a sense of social belonging and fulfillment. Hensley Field is conceived to be such a place – a landmark project that will demonstrate the City's commitment to these three, foundational values:

1. **ECONOMIC VITALITY:** Development that brings new economic opportunities to a part of Dallas that has long experienced disinvestment;

2. **ENVIRONMENTAL STEWARDSHIP:** A place that interacts responsibly with the planet to revitalize and sustain natural resources while fulfilling the needs of future generations; and

3. **SOCIAL EQUITY:** The creation of an inclusive and welcoming community that provides opportunity for people of all ages and all social, economic and ethnic backgrounds.

HENSLEY FIELD'S SIX GUIDING PRINCIPLES:

1. **ENVIRONMENTAL HEALTH:** Develop Hensley Field as a "living laboratory of resilience" that is a "proof of concept" project for Dallas' Comprehensive Environmental Climate Action Plan (CECAP).
2. **ECONOMIC OPPORTUNITY & INVESTMENT**: Hensley Field will increase economic opportunity for West Dallas by attracting public and private sector investment that creates new jobs, raises incomes, and provides a diverse range of housing types and community amenities.
3. **AFFORDABILTY & DIVERSITY:** Hensley Field will offer a wide range of business and housing choices that support an inclusive community of socially and economically diverse residents.
4. **HEALTHY COMMUNITIES:** Hensley Field will promote active and equitable lifestyles with enhanced access to fresh food, healthcare, parks and trails, quality education and healthy homes and workplaces.
5. **MOBILITY & ACCESS:** Hensley Field will be seamlessly connected to the regional and local transportation networks with a safe, multi-modal orientation.
6. **HISTORY & CULTURE:** Hensley Field will leverage historic & cultural resource management to support broader sustainability, equity and economic project goals.

HENSLEY FIELD DALLAS, TX
PLANNING FOR THE FUTURE

1 ENVIRONMENTAL HEALTH: Develop Hensley Field as a "living laboratory of resilience" that is a "proof of concept" of Dallas' Comprehensive Environmental Climate Action Plan (CECAP).

EH-1: Ensure that all new construction at Hensley Field is **"net zero",** built with low-carbon, healthy materials and that it protects the natural environment with green infrastructure and beautiful, restorative landscapes that provide habitat and biodiversity.

EH-2: Combat **heat island** effects and enhance air quality by preserving and increasing tree canopy and reducing impervious cover.

EH-3: Employ **green infrastructure** and low-impact development (LID) techniques to control urban run-off and protect the water quality of Mountain Creek Lake.

EH-4: Develop Hensley Field in a manner that **protects the night sky**, avoiding light pollution while ensuring safety.

EH-5: Prioritize businesses that invest in the **"circular economy"** where resources are kept in use for as long as possible; where the maximum value is extracted from them while in use, and where they are recovered and regenerated at the end of their useful life.

EH-6: Plan and implement Hensley Field to achieve **LEED certification** for Cities and Communities.

2 ECONOMIC OPPORTUNITY & INVESTMENT: Hensley Field will increase economic opportunity for southwestern Dallas by attracting public and private sector investment that creates new jobs, raises incomes, and provides a diverse and attractive range of housing types and community amenities.

E&I-1: Pursue one or more institutional or major employers as an **anchor use** to help to establish a new identity for the project, and to help catalyze high-quality, mixed-use development.

E&I-2: Attract **advanced technology companies** that provide employment opportunities for the local workforce, and partner with area educational institutions to train workers for such middle-skill jobs.

E&I-3: Invest in **site amenities** and green infrastructure that will support high-quality, mixed-use development.

E&I-4: Reuse existing hangars and other structures to accommodate **local and small business** and non-profit needs, including business incubators and other enterprises seeking affordable space.

3 AFFORDABILTY & DIVERSITY: Hensley Field will offer a wide range of business and housing choices that support an inclusive community of socially and economically diverse residents.

A&D-1: Create a mixed-income community with a **balance of affordable and market-rate housing**.

A&D-2: Provide a range of **"missing-middle" housing** types (e.g., townhouses, stacked flats, cottage courts, live-work, etc.), in addition to single-family homes, apartments and condominiums.

A&D-3: Ensure **long-term affordab**ility, such that any affordable units will be maintained as such through time.

A&D-4: Ensure that affordable housing is distributed and integrated throughout Hensley Field and is **indistinguishable from market-rate housing.**

A&D-5: Facilitate pathways toward **home ownership** as a means of family wealth-building and of reinforcing neighborhood stability.

A&D-6: Offer housing types with supportive services that allow people to **"age in place".**

4 HEALTHY COMMUNITIES: Hensley Field will promote active and equitable lifestyles with enhanced access to fresh food, healthcare, parks and trails, quality education and healthy homes and workplaces.

HC-1: Attract a high-quality, **full-service grocery store** to address food insecurity and to meet the needs of future Hensley Field residents and those of the surrounding communities.

HC-2: Partner with **urban agriculture** non-profits, farmers and related businesses to explore the potential of reserving a portion of Hensley Field as a working farm.

HC-3: Attract **healthcare** institutions that can provide clinical services to this area, which is currently underserved.

HC-4: Design Hensley Field as a **walkable and bikeable** community with a network of trails and pedestrian-friendly streets that promote active lifestyles to improve community health.

HC-5: Develop a **connected network of parks**, greenways, waterfronts and open spaces that provide a diversity of both passive and active recreational experiences.

HC-6: Collaborate with both Grand Prairie and Dallas ISDs and local colleges to address the **educational needs** of future families, workers and residents.

5 MOBILITY & ACCESS: Hensley Field will be seamlessly connected to the regional and local transportation networks with a safe, multi-modal orientation.

M&A-1: Design a transportation system that **reduces single-occupancy vehicle trips**, thereby reducing greenhouse gas emissions and air pollutants.

M&A-2: Organize the Hensley Field Master Plan with an integrated land use and **transportation pattern** that facilitates high-frequency transit connections and establishes a strong pedestrian orientation.

M&A-3: Promote social equity through a transportation network that provides multiple, **high-quality travel choices** - as well as a high-density of transit connections - to meet the daily needs of residents and workers.

M&A-4: Work with potential transportation partners to anticipate and incorporate **new and emerging technologies** that enhance mobility options and efficiencies.

6 HISTORY & CULTURE: Hensley Field will leverage historic & cultural resource management to support broader sustainability, equity and economic project goals.

H&C-1: Introduce interpretive elements that tell under-recognized stories, celebrate local culture and highlight the military and pre-military history of Hensley Field.

H&C-2: Develop the Hensley Field Plan to ensure that key elements of its historic context remain physically-legible, especially throughout the Project's parks and trail system and landscape plan.

H&C-3: Promote a range of green jobs in the local economy through preserving existing buildings and site features that reveal the heritage of the site, leverage the embodied carbon of existing structures, and reduce construction waste.

H&C-4: Explore the feasibility of the adaptive reuse of hangars and other structures for creative and cultural uses.

H&C-5: Identify preservation-related grants, tax credits and other resources that can help the future master developer or individual site developers to implement the appropriate preservation and reuse strategies.

H&C-6: Work pro-actively with the City of Dallas Historic Preservation Office and the Texas Historical Commission and to determine eligibility of historic and cultural resources at Hensley Field, and to set out the preservation, reuse and/or interpretive strategies that will be integrated into the final Hensley Field Plan.

APPENDIX 2.1

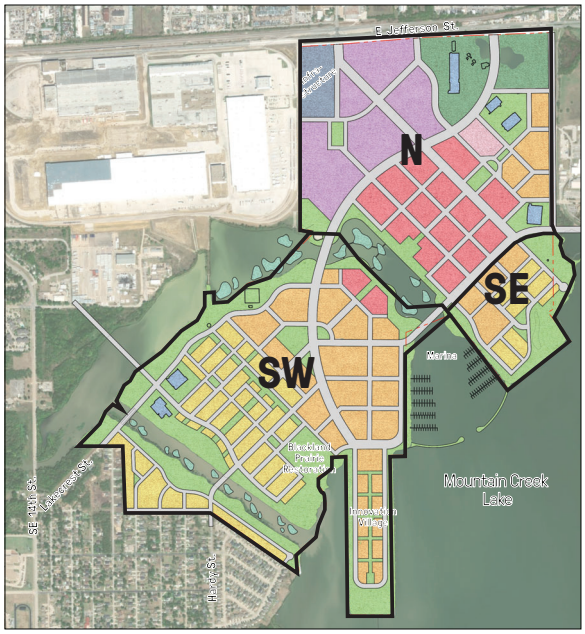
SCENARIO DETAILED DEVELOPMENT PROGRAM TABULATIONS

APPENDIX 2.1: Scenario Detailed Development Program Tabulations

Scenario Three

SCENARIO 3												
					RESIDENTIAL			NON-RESIDENTIAL				
Label	LAND USE	Total Area (Gross Acres)	Project Area (Percentage)	Developable Area (Net Acres)	Area (Net Acres)	Average Density (DU/Acre)	DU	Area (Net Acres)	FAR	Instituional/ Commercial (GSF)	Civic (GSF)
FR	Fee Simple Residential	68.1	9.5%	57.9	57.9	16	917				
MD	Medium Density Mixed-Use	87.4	12.1%	74.3	54.7	67	3,656	19.6	1	851,598	
HD	High Density Mixed-Use	56.8	7.9%	48.3	29.7	90	2,670	18.6	3	2,432,608	
-	Innovation Village	10.2	1.4%	8.7	8.7	135	1,170			25,000	
ICR	Institutional/Corporate/R+D	62.2	8.6%	52.9				52.9	0.75	1,727,263	
-	Retail (Ground-level/Mixed-Use)	-								350,000	
GR	Grocery/Retail	4.7	0.7%	4.0				4.0	0.25	43,506	
CV	Civic	0	0.0%					0			200,000
UA	Urban Agriculture	34.5	4.8%								40,000
OS	Public Open Space	173	24.0%								
TI	Transit Hub	12.8	1.8%								
	Infrastructure	164.8	22.9%								
W	Waterways (Existing/Proposed)	45.5	6.3%								
	TOTAL	720	100.0%	246.0	151.0	-	8,414	95.0	-	5,429,975	240,000

SCENARIO 3 (North)					
				RESIDENTIAL	NON-RESIDENTIAL
Label	LAND USE	Total Area (Gross Acres)	Developable Area (Net Acres)	Area (Net Acres)	Area (Net Acres)
MD	Medium Density Mixed-Use	14.2	12.1		12.1
HD	High Density Mixed-Use	51.4	43.7	25.1	18.6
ICR	Institutional/Corporate/R+D	62.2	52.9		52.9
GR	Grocery/Retail	4.7	4.0		4.0
CV	Civic	0.0			0.0
UA	Urban Agriculture	34.5			-
TI	Transit Hub	12.8			-
TOTAL		179.8	112.6	25.1	87.5



SCENARIO 3 (Southeast)					
				RESIDENTIAL	NON-RESIDENTIAL
Label	LAND USE	Total Area (Gross Acres)	Developable Area (Net Acres)	Area (Net Acres)	Area (Net Acres)
FR	Fee Simple Residential	11.8	10.0	10.0	-
MD	Medium Density Mixed-Use	12.3	10.5	10.5	-
TOTAL		24.1	20.5	20.5	0.0

SCENARIO 3 (Southwest)					
				RESIDENTIAL	NON-RESIDENTIAL
Label	LAND USE	Total Area (Gross Acres)	Developable Area (Net Acres)	Area (Net Acres)	Area (Net Acres)
FR	Fee Simple Residential	56.4	47.9	47.9	-
MD	Medium Density Mixed-Use	60.9	51.8	44.3	7.5
HD	High Density Mixed-Use	5.5	4.7	4.7	-
-	Innovation Village	10.2	8.7	8.7	-
CV	Civic	0.0	-	-	-
TOTAL		133.0	113.1	105.6	7.5

Non-Residential

Type	Gross Acres	Net Acres	FAR	Retail (GSF)	Office/R+D (GSF)	Civic (GSF)	Total Square Footage
Office (Med Density)	**23**	19.6	1		851,598		**851,598**
Office (High Density)	**21.9**	18.6	3		2,432,608		**2,432,608**
Innovation Village (Retail)	-			25,000			**25,000**
Research and Development (R+D)	**62.2**	52.9	0.75		1,727,263		**1,727,263**
Retail (Ground-level/Mixed-Use)	-	-	-	350,000			**350,000**
Grocery/Retail	**4.7**	4.0	0.25	43,506			**43,506**
Civic						200,000	**200,000**
Urban Agriculture	**34.5**					40,000	**40,000**
Transit Hub	**12.8**						
TOTAL	**159.1**	**95.0**	**-**	**418,506**	**5,011,469**	**240,000**	**5,669,975**

Residential

Unit Type	Gross Acres	Net Acres	DU/Acre	Total Units
Detached	**7.6**	6.5	10	**65**
Townhouses	**46.8**	39.8	15	**597**
Missing Middle	**13.7**	11.6	22	**256**
Multi-family Tuckunder			30	-
4-story multi-family (Med Density)	**20.7**	17.6	60	**1,056**
5-story multi-family (Med Density)	**43.7**	37.1	70	**2,600**
6-story multi-family (High Density)	**34.9**	29.7	90	**2,670**
Innovation Village (5 to 6 story)	**10.2**	8.7	135	**1,170**
TOTAL	**177.6**	**151.0**	**-**	**8,414**

SCENARIO 3 (North)

Non-Residential

Type	Gross Acres	Net Acres	FAR	Retail (GSF)	Office/R+D (GSF)	Civic (GSF)	Total Square Footage
Office (Med Density)	**14.2**	12.1	1		525,769		**525,769**
Office (High Density)	**21.9**	18.6	3		2,432,608		**2,432,608**
Innovation Village (Retail)	-						-
Research and Development (R+D)	**62.2**	52.9	0.5		1,151,509		**1,151,509**
Retail (Ground-level/Mixed-Use)	-			275,000			**275,000**
Grocery/Retail	**4.7**	4.0	0.25	43,506			**43,506**
Civic	-					125,000	**125,000**
Urban Agriculture	**34.5**					40,000	**40,000**
Transit Hub	**12.8**						
TOTAL	**150.3**	**87.6**	**-**	**318,506**	**4,109,886**	**165,000**	**4,593,392**

SCENARIO 3 (North)

Residential

Unit Type	Gross Acres	Net Acres	DU/Acre	Total Units
Detached			10	-
Townhouses			15	-
Missing Middle			22	-
Multi-family Tuckunder			30	-
4-story multi-family (Med Density)			60	-
5-story multi-family (Med Density)			70	-
6-story multi-family (High Density)	29.4	25.0	90	2,249
Innovation Village (5 to 6 story)			135	-
TOTAL	**29.4**	**25.0**	**-**	**2,249**

SCENARIO 3 (Southeast)

Non-Residential

Type	Gross Acres	Net Acres	FAR	Retail (GSF)	Office/R+D (GSF)	Civic (GSF)	Total Square Footage
Office (Med Density)			1				
Office (High Density)			3				
Research and Development (R+D)			0.5				
Innovation Village (Retail)							
Retail (Ground-level/Mixed-Use)							
Grocery/Retail			0.25				
Civic							
Urban Agriculture							
TOTAL	**0**	**0.0**	**-**	-	-	-	-

SCENARIO 3 (Southeast)

Residential

Unit Type	Gross Acres	Net Acres	DU/Acre	Total Units
Detached			10	-
Townhouses	**8.4**	7.1	15	**107**
Missing Middle	**3.4**	2.9	22	**64**
Multi-family Tuckunder			30	-
4-story multi-family (Med Density)	**4.6**	3.9	60	**235**
5-story multi-family (Med Density)	**7.7**	6.5	70	**458**
6-story multi-family (High Density)			90	-
Innovation Village (5 to 6 story)			135	-
TOTAL	**24.1**	**20.5**	**-**	**863**

SCENARIO 3 (Southwest)

Non-Residential

Type	Gross Acres	Net Acres	FAR	Retail (GSF)	Office/R+D (GSF)	Civic (GSF)	Total Square Footage
Office (Med Density)	**8.8**	7.5	1		325,829		**325,829**
Office (High Density)			3				-
Innovation Village (Retail)				25,000			**25,000**
Research and Development (R+D)			0.5				-
Retail (Ground-level/Mixed-Use)				75,000			**75,000**
Grocery/Retail			0.25				-
Civic						75,000	**75,000**
Urban Agriculture							-
TOTAL	**8.8**	**7.5**	**-**	**100,000**	**325,829**	**75,000**	**500,829**

SCENARIO 3 (Southwest)

Residential

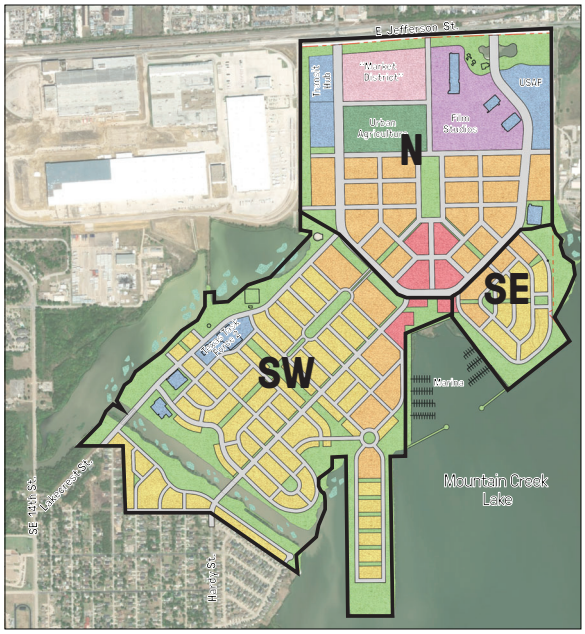
Unit Type	Gross Acres	Net Acres	DU/Acre	Total Units
Detached	**7.6**	6.5	10	**65**
Townhouses	**38.5**	32.7	15	**491**
Missing Middle	**10.3**	8.8	22	**193**
Multi-family Tuckunder			30	-
4-story multi-family (Med Density)	**16.1**	13.7	60	**821**
5-story multi-family (Med Density)	**36**	30.6	70	**2,142**
6-story multi-family (High Density)	**5.5**	4.7	90	**421**
Innovation Village (5 to 6 story)	**10.2**	8.7	135	**1,170**
TOTAL	**124.2**	**105.6**	**-**	**5,302**

APPENDIX 2.1: Scenario Detailed Development Program Tabulations

Scenario Two

SCENARIO 2												
					RESIDENTIAL			NON-RESIDENTIAL				
Label	LAND USE	Total Area (Gross Acres)	Project Area (Percentage)	Developable Area (Net Acres)	Area (Net Acres)	Average Density (DU/Acre)	DU	Area (Net Acres)	FAR	Institutional/ Commercial (GSF)	Civic (GSF)
FR	Fee Simple Residential	133.2	18.5%	113.2	113.2	16	1865				
MD	Medium Density Mixed-Use	103.4	14.4%	87.9	42.8	78	3348	21.6	1	940,460	
HD	High Density Mixed-Use	18	2.5%	15.3	8.2	90	742	7.1	3	921,947	
ICR	Film Studios	33.6	4.7%	28.6				28.6		205,000	
-	Retail (Ground-level/Mixed-Use)	-								160,000	
GR	Market District (Standalone Retail)	21.6	3.0%	18.4				18.4	0.25	199,940	
CV	Civic	5.4	0.8%					5.4			120,000
AF	Air Force (Existing)	13.4	1.9%								75,000
UA	Urban Agriculture	20.1	2.8%								40,000
OS	Public Open Space	172.2	23.9%								
TI	Transit Hub	12.2	1.7%								
	Infrastructure	157.2	21.8%								
W	Waterways (Existing/Proposed)	23.2	3.2%								
	Texas Task Force 2	6.5	0.9%								105,000
	TOTAL	720	100.0%	263.3	164.3	-	5,955	81.0	-	2,427,348	340,000

SCENARIO 2 (North)					
				RESIDENTIAL	NON-RESIDENTIAL
Label	LAND USE	Total Area (Gross Acres)	Developable Area (Net Acres)	Area (Net Acres)	Area (Net Acres)
MD	Medium Density Mixed-Use	67.9	57.7	36.1	21.6
HD	High Density Mixed-Use	12.8	10.9	5.8	5.1
ICR	Film Studios	33.6	28.6		28.6
GR	Market District (Standalone Retail)	21.6	18.4		18.4
CV	Civic	5.4			5.4
AF	Air Force (Existing)	13.4			
UA	Urban Agriculture	20.1			
TI	Transit Hub	12.2			
TOTAL		186.9	115.5	41.9	79.0



SCENARIO 2 (Southeast)					
				RESIDENTIAL	NON-RESIDENTIAL
Label	LAND USE	Total Area (Gross Acres)	Developable Area (Net Acres)	Area (Net Acres)	Area (Net Acres)
FR	Fee Simple Residential	17.6	15.0	15.0	
MD	Medium Density Mixed-Use	8.7	7.4	7.4	
TOTAL		26.3	22.4	22.4	0.0

SCENARIO 2 (Southwest)					
				RESIDENTIAL	NON-RESIDENTIAL
Label	LAND USE	Total Area (Gross Acres)	Developable Area (Net Acres)	Area (Net Acres)	Area (Net Acres)
FR	Fee Simple Residential	115.6	98.3	98.3	
MD	Medium Density Mixed-Use	26.8	22.8	22.8	
HD	High Density Mixed-Use	5.2	4.4	2.4	2.0
CV	Texas Task Force 2	6.5			
TOTAL		154.1	125.5	123.4	2.0

Non-Residential

Type	Gross Acres	Net Acres	FAR	Retail (GSF)	Office/R+D (GSF)	Civic (GSF)	Total Square Footage
Office (Med Density)	**25.4**	21.6	1		940,460		**940,460**
Office (High Density)	**8.3**	7.1	3		921,947		**921,947**
Retail (Ground-level/Mixed-Use)				160,000			**160,000**
Market District (Standalone Retail)	**21.6**	18.4	0.25	199,940			**199,940**
Film Studio	**33.6**	28.6			205,000		**205,000**
Civic	**5.4**					120,000	**120,000**
Air Force (Existing)	**13.4**					75,000	**75,000**
Urban Agriculture	**20.1**					40,000	**40,000**
Transit Hub	**12.2**						
Texas Task Force 2	**6.5**					105,000	**105,000**
TOTAL	**146.5**	**75.6**	-	**359,940**	**2,067,408**	**340,000**	**2,767,348**

Residential

Unit Type	Gross Acres	Net Acres	DU/Acre	Total Units
Detached	34.4	29.2	10	**292**
Townhouses	46.2	39.3	15	**589**
Missing Middle	52.6	44.7	22	**984**
Multi-family Tuckunder (Med Density)	27.6	23.5	30	**704**
4-story multi-family (Med Density)	41.7	35.4	60	**2,127**
5-story multi-family (Med Density)	8.7	7.4	70	**518**
6-story multi-family (High Density)	9.7	8.2	90	**742**
Innovation Village (5 to 6 story)				
TOTAL	**220.9**	**187.8**	-	**5,955**

SCENARIO 2 (North)

Non-Residential

Type	Gross Acres	Net Acres	FAR	Retail (GSF)	Office/R+D (GSF)	Civic (GSF)	Total Square Footage
Office (Med Density)	**25.4**	21.6	1		940,460		**940,460**
Office (High Density)	**6**	5.1	3		666,468		**666,468**
Film Studio	**33.6**	28.6			205,000		**205,000**
Retail (Ground-level/Mixed-Use)	-			130,000			**130,000**
Market District (Standalone Retail)	**21.6**	18.4	0.2	150,000			**150,000**
Civic	**5.4**					120,000	**120,000**
Air Force (Existing)	**13.4**					75,000	**75,000**
Urban Agriculture	**20.1**					40,000	**40,000**
Transit Hub	**12.2**						
TOTAL	**137.7**	**73.6**	-	**280,000**	**1,811,928**	**235,000**	**2,326,928**

SCENARIO 2 (North)

Residential

Unit Type	Gross Acres	Net Acres	DU/Acre	Total Units
Detached	**0**		10	-
Townhouses	**0**		15	-
Missing Middle	**0**		22	-
Multi-family Tuckunder (Med Density)	**27.6**	23.5	30	**704**
4-story multi-family (Med Density)	**14.9**	12.7	60	**760**
5-story multi-family (Med Density)	**0**		70	-
6-story multi-family (High Density)	**6.8**	5.8	90	**520**
Innovation Village (5 to 6 story)	**0**			-
TOTAL	**49.3**	**41.9**	-	**1,984**

SCENARIO 2 (Southeast)

Non-Residential

Type	Gross Acres	Net Acres	FAR	Retail (GSF)	Office/R+D (GSF)	Civic (GSF)	Total Square Footage
Office (Med Density)	0		1				
Office (High Density)	0		3				
Film Studio	0						
Retail (Ground-level/Mixed-Use)	0						
Market District (Standalone Retail)	0						
Civic	0						
Air Force (Existing)	0						
Urban Agriculture	0						
TOTAL	-						

SCENARIO 2 (Southeast)

Residential

Unit Type	Gross Acres	Net Acres	DU/Acre	Total Units
Detached	**0**	0.0	10	-
Townhouses	**14.4**	12.2	15	**184**
Missing Middle	**3.2**	2.7	22	**60**
Multi-family Tuckunder (Med Density)	**0**	0.0	30	-
4-story multi-family (Med Density)	**0**	0.0	60	-
5-story multi-family (Med Density)	**8.7**	7.4	70	**518**
6-story multi-family (High Density)	**0**		90	-
Innovation Village (5 to 6 story)	**0**			-
TOTAL	**26.3**	**22.4**	-	**761**

SCENARIO 2 (Southwest)

Non-Residential

Type	Gross Acres	Net Acres	FAR	Retail (GSF)	Office/R+D (GSF)	Civic (GSF)	Total Square Footage
Office (Med Density)	**0**		1				
Office (High Density)	**2.3**	2.0	3		255,479		**255,479**
Film Studio	**0**						
Retail (Ground-level/Mixed-Use)	**0**			30,000			**30,000**
Market District (Standalone Retail)	**0**						
Urban Agriculture	**0**						
Texas Task Force 2	**6.5**					105,000	**105,000**
TOTAL	**8.8**	**2.0**	-	**30,000**	**255,479**	**105,000**	**390,479**

SCENARIO 2 (Southwest)

Residential

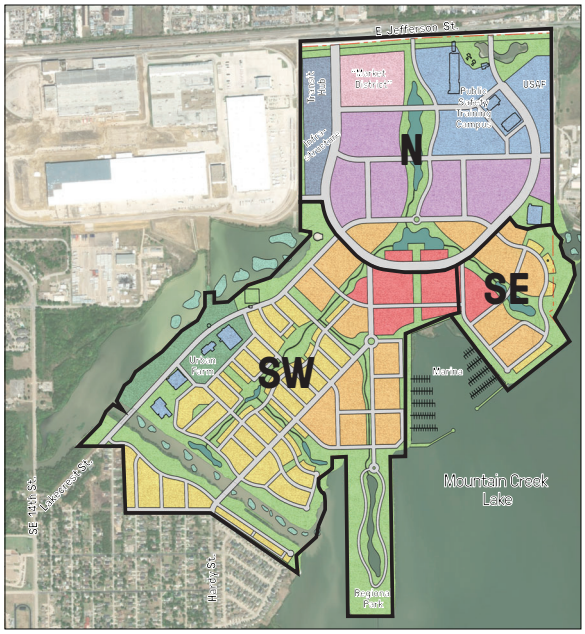
Unit Type	Gross Acres	Net Acres	DU/Acre	Total Units
Detached	**34.4**	29.2	10	**292**
Townhouses	**31.8**	27.0	15	**405**
Missing Middle	**49.4**	42.0	22	**924**
Multi-family Tuckunder (Med Density)	**0**		30	-
4-story multi-family (Med Density)	**26.8**	22.8	60	**1,367**
5-story multi-family (Med Density)	**0**	0.0	70	-
6-story multi-family (High Density)	**2.9**	2.5	90	**222**
Innovation Village (5 to 6 story)	**0**			-
TOTAL	**145.3**	**123.5**	-	**3,210**

APPENDIX 2.1: Scenario Detailed Development Program Tabulations

Scenario One

SCENARIO 1												
					RESIDENTIAL			NON-RESIDENTIAL			
Label	LAND USE	Total Area (Gross Acres)	Project Area (Percentage)	Developable Area (Net Acres)	Area (Net Acres)	Average Density (DU/Acre)	DU	Area (Net Acres)	FAR	Institutional/ Commercial (GSF)	Civic (GSF)
FR	Fee Simple Residential	77.5	10.8%	65.9	65.9	13	881				
MD	Medium Density Mixed-Use	77.4	10.8%	65.8	57.9	65	3771	7.9	1	344,342	
HD	High Density Mixed-Use	31.6	4.4%	26.9	12.6	90	1132	14.3	3	1,866,110	
-	Innovation Village										
ICR	Institutional/Corporate	44.1	6.1%	37.5				37.5	0.3	489,854	
ICR	Institutional/Corporate (Dense)	19.9	2.8%	16.9				16.9	1	736,817	
-	Retail (Ground-level/Mixed-Use)									140,000	
GR	Market District (Standalone Retail)	17.5	2.4%	14.9				14.9	0.25	161,989	
CV	Civic	6.0	0.8%								120,000
AF	Air Force (Existing)	13.0	1.8%								75,000
UA	Urban Agriculture	24.4	3.4%								40,000
OS	Public Open Space	192	26.7%								
	Fire/Police Training Facility	38	5.3%								205,000
TI	Transit Hub	17.9	2.5%								
	Infrastructure	137.5	19.1%								
W	Waterways (Existing/Proposed)	23.2	3.2%								
	TOTAL	720	100.0%	227.8	136.3	-	5,783	91.5	-	3,739,112	440,000

SCENARIO 1 (North)					
				RESIDENTIAL	NON-RESIDENTIAL
Label	LAND USE	Total Area (Gross Acres)	Developable Area (Net Acres)	Area (Net Acres)	Area (Net Acres)
MD	Medium Density Mixed-Use	9.3	7.9		7.9
HD	High Density Mixed-Use	3.1	2.6		2.6
ICR	Institutional/Corporate	44.1	37.5		37.5
ICR	Institutional/Corporate (Dense)	19.9	16.9		16.9
GR	Market District (Standalone Retail)	17.5	14.9		14.9
CV	Civic	1.4			
AF	Air Force (Existing)	13.0			
	Fire/Police Training Facility	38.0			
TI	Transit Hub	17.9			
	TOTAL	164.3	79.9	0.0	79.9



SCENARIO 1 (Southeast)					
				RESIDENTIAL	NON-RESIDENTIAL
Label	LAND USE	Total Area (Gross Acres)	Developable Area (Net Acres)	Area (Net Acres)	Area (Net Acres)
FR	Fee Simple Residential	3.6	3.1	3.1	
MD	Medium Density Mixed-Use	24.3	20.7	20.7	
HD	High Density Mixed-Use	5.8	4.9	4.9	
	TOTAL	33.7	28.6	28.6	0.0

SCENARIO 1 (Southwest)					
				RESIDENTIAL	NON-RESIDENTIAL
Label	LAND USE	Total Area (Gross Acres)	Developable Area (Net Acres)	Area (Net Acres)	Area (Net Acres)
FR	Fee Simple Residential	74.0	62.9	62.9	
MD	Medium Density Mixed-Use	43.8	37.2	37.2	0.0
HD	High Density Mixed-Use	22.7	19.3	7.7	11.6
CV	Civic	4.6			
UA	Urban Agriculture	24.4			
	TOTAL	169.5	119.4	107.8	11.6

Non-Residential

Type	Gross Acres	Net Acres	FAR	Retail (GSF)	Office/R+D (GSF)	Civic (GSF)	Total Square Footage
Office (Med Density)	9.3	7.9	1		344,342		344,342
Office (High Density)	16.8	14.3	3		1,866,110		1,866,110
Innovation Village (Retail)	-						-
Institutional/Corporate	44.1	37.5	0.3		489,854		489,854
Institutional/Corporate (Dense)	19.9	16.9	1		736,817		736,817
Retail (Ground-level/Mixed-Use)	-			140,000			140,000
Market District (Standalone Retail)	17.5	14.9	0.25	161,989			161,989
Civic	6		1			120,000	120,000
Air Force (Existing)	13		1			75,000	75,000
Urban Agriculture	24.4					40,000	40,000
Transit Hub	17.9						0
Fire / Police Training Facility	38					205,000	205,000
TOTAL	206.9	91.5	-	301,989	3,437,124	440,000	4,179,112

Residential

Unit Type	Gross Acres	Net Acres	DU/Acre	Total Units
Detached	34.7	29.5	10	295
Townhouses	36.1	30.7	15	460
Missing Middle	6.7	5.7	22	125
Multi-family Tuckunder	-		30	
4-story multi-family (Med Density)	33.1	28.1	60	1,688
5-story multi-family (Med Density)	35	29.8	70	2,083
6-story multi-family (High Density)	14.8	12.6	90	1,132
Innovation Village (5 to 6 story)	-			
TOTAL	160.4	136.3	-	5,783

SCENARIO 1 (North)

Non-Residential

Type	Gross Acres	Net Acres	FAR	Retail (GSF)	Office/R+D (GSF)	Civic (GSF)	Total Square Footage
Office (Med Density)	9.3	7.9	1		344,342		344,342
Office (High Density)	3.1	2.6	3		344,342		344,342
Innovation Village (Retail)	0						
Institutional/Corporate	44.1	37.5	0.3		489,854		489,854
Institutional/Corporate (Dense)	19.9	16.9	1		736,817		736,817
Retail (Ground-level/Mixed-Use)	0			10,000			10,000
Market District (Standalone Retail)	17.5	14.9	0.25	161,989			161,989
Civic	1.4		1			20,000	20,000
Air Force (Existing)	13		1			75,000	75,000
Urban Agriculture	0				40,000		40,000
Fire/Police Training Facility	38		1			205,000	205,000
Transit Hub	17.9						
TOTAL	164.2	79.8	-	171,989	1,955,355	300,000	2,427,344

SCENARIO 1 (North)

Residential

Unit Type	Gross Acres	Net Acres	DU/Acre	Total Units
Detached	0		10	
Townhouses	0		15	
Missing Middle	0		22	
Multi-family Tuckunder	0		30	
4-story multi-family (Med Density)	0		60	
5-story multi-family (Med Density)	0		70	
6-story multi-family (High Density)	0		90	
Innovation Village (5 to 6 story)	0			
TOTAL	0	0.0	-	-

SCENARIO 1 (Southeast)

Non-Residential

Type	Gross Acres	Net Acres	FAR	Retail (GSF)	Office/R+D (GSF)	Civic (GSF)	Total Square Footage
Office (Med Density)	0						
Office (High Density)	0						
Innovation Village (Retail)	0						
Institutional/Corporate	0						
Institutional/Corporate (Dense)	0						
Retail (Ground-level/Mixed-Use)	0			35,000			35,000
Market District (Standalone Retail)	0						
Civic	0						
Urban Agriculture	0						
TOTAL	0	-	-	35,000	-	-	35,000

SCENARIO 1 (Southeast)

Residential

Unit Type	Gross Acres	Net Acres	DU/Acre	Total Units
Detached	0	0.0	10	
Townhouses	3.6	3.1	15	46
Missing Middle	0	0.0	22	
Multi-family Tuckunder	0		30	
4-story multi-family (Med Density)	12.8	10.9	60	653
5-story multi-family (Med Density)	11.5	9.8	70	684
6-story multi-family (High Density)	5.8	4.9	90	444
Innovation Village (5 to 6 story)	0			
TOTAL	33.7	28.6	-	1,827

SCENARIO 1 (Southwest)

Non-Residential

Type	Gross Acres	Net Acres	FAR	Retail (GSF)	Office/R+D (GSF)	Civic (GSF)	Total Square Footage
Office (Med Density)	0						
Office (High Density)	13.7	11.6	3		1,521,769		1,521,769
Innovation Village (Retail)	0						
Institutional/Corporate	0						
Institutional/Corporate (Dense)	0						
Retail (Ground-level/Mixed-Use)	0			95,000			95,000
Market District (Standalone Retail)	0						
Civic	4.6		1			100,000	100,000
Urban Agriculture	24.4						
TOTAL	42.7	11.6	-	95,000	1,521,769	100,000	1,716,769

SCENARIO 1 (Southwest)

Residential

Unit Type	Gross Acres	Net Acres	DU/Acre	Total Units
Detached	34.7	29.5	10	295
Townhouses	32.6	27.7	15	416
Missing Middle	6.7	5.7	22	125
Multi-family Tuckunder	0		30	
4-story multi-family (Med Density)	20.3	17.3	60	1,035
5-story multi-family (Med Density)	23.5	20.0	70	1,398
6-story multi-family (High Density)	9	7.7	90	689
Innovation Village (5 to 6 story)	0			
TOTAL	126.8	107.8	-	3,958

APPENDIX 2.2

SUSTAINABLE INFRASTRUCTURE: DISTRICT ENERGY BRIEF

Hensley Field – Sustainable Infrastructure

District Energy Brief

July 15, 2021

Prepared for:

Jim Adams, AIA, LEED AP

Prepared by:

Mike Voll

Revision	Description	Author		Quality Check		Independent Review	
0	Draft	07.15.2021	MPV	07.15.2021	CVD		DP

Prepared by _____
(signature)

Mike Voll

Reviewed by _____
(signature)

Chris van Driel

Approved by _____
(signature)

Dean Palumbo

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Executive Summary

The Hensley Field development is a planned 700 acre mixed use development located adjacent to the Dallas Global Industrial Park. The primary mission of this development is to leverage the value of this City-owned asset to create an implementable plan that achieves community objectives related to social equity, economic vitality, and environmental stewardship.

Hensley field will be a “proof of concept” development for Dallas’ Comprehensive Environmental Climate Action Plan (CECAP), complete with green infrastructure and performative landscapes. McCann Adams Studio Inc. (the Client) is leading the development effort for the City of Dallas and has engaged Stantec Consulting Services Inc. (Stantec) to assist with infrastructure costing including preliminary assessments of what sustainable-forward infrastructure might look like and cost.

To that end, Stantec has assessed the viability of a District Energy (DE) system to serve the heating and cooling needs of the development while harvesting some of that thermal energy from the ground to align with the CECAP and other development goals. Stantec has prepared this brief to articulate the thought process and analysis leading to our recommendation to consider a 2-pipe DE system for cooling only.

It should be noted that during several sustainable forward discussions with the Client, the topic of resilience including the concept of microgrids and Combined Heat and Power (CHP) plants has come up. To better understand the similarities and differences between a CHP and a DE system, we will provide a brief comparison in this brief along with the rationale of why we believe a CHP is not appropriate for the Hensley Field development.

Abbreviations

CECAP	Comprehensive Environmental Climate Action Plan
CHP	Combined Heat and Power
DE	District Energy
ETS	Energy Transfer Station
ESG	Environmental, Sustainability and Governance
EV	Electric Vehicle
GFA	Gross Floor Area
GHG	Greenhouse Gas Emissions
TEDI	Thermal Energy Demand Intensity
TGS	Toronto Green Standard
MW	Megawatt
MWh	Megawatt-hour

1.0 DISTRICT ENERGY SYSTEMS

District Energy (DE) systems are typically deployed to deliver a centralized utility platform to provide heating and cooling needs of buildings or processes. Generally developed using a campus or a district of potential users, the DE systems provide higher reliability for energy delivery with reduced maintenance and operational costs. Furthermore, a centralized plant also facilities integration of low carbon emission energy sources or technologies then can be supplied individually to buildings.

DE systems have a long history in North America, predating the electrical power grid. Thomas Edison's first electric 'power plant', the Pearl Street Station built in Manhattan in 1882, initially charged only for the district heat it delivered, with the electrical power provided for free. In those days, coal was the least expensive thermal energy source and supplying coal-fueled heat from a district heat system was less troublesome than using coal at the building. To this day, ConEd continues to operate the extensive steam district energy system in Manhattan. The US Department of Energy estimates that there are over 2,500 DE systems operating in the US.

Today, DE systems are more prevalent where one or more of these conditions exist.

- If an inexpensive source of heat or cooling energy is available, DE cost advantages may be significant.
- Where highly reliable energy supply is important, a key resiliency element of many climate strategies including the CECAP
- Where long-term maintenance of central heating and cooling systems is more important than short-term costs, DE has a significant edge. This is particularly true where the buildings served are under common management or ownership, such as on university campuses, military bases, health care or industrial complexes.
- Where policy initiatives encourage energy efficiency or low-carbon emission heat sources, district energy can provide advantages over energy provided from traditional public utilities. For example, low-carbon biomass heating fuels and geothermal heating are often more practical at the district energy scale.

DE systems distribute energy from a central plant or multiple, smaller distributed plants through a piping system to customer buildings for circulation and use. Steam, hot water, or tepid water are the most common heat distribution fluids, with the latter requiring electrically operated heat pumps at the building in to raise the temperature of the heating medium to useful temperatures.

Hot water or steam are the most used working fluids because these higher temperature heating fluids can be used directly without requiring significant additional energy input at the buildings served. It is more common to isolate the heating and cooling distribution fluids from the building systems by delivering energy through an energy transfer station (ETS) located at the building. The ETS consists of heat exchangers, controls, and metering, and is usually more compact and less expensive than a building boiler system (see Figure 1). Centralizing both heating and cooling eliminates the need for boilers and water chillers located in the buildings served, which reduces building cost, simplifies maintenance, and frees up floor space for other uses.

Figure 1: Typical Energy Transfer Station

Tepid water DE systems are referred to as 'ambient loop' or '4th Generation DE' systems. These systems are gaining favor because of their greater ability to utilize low-temperature heat energy sources which are more widely available and, as in the case of geothermal energy, can be both low-cost and low carbon footprint. Because the distribution fluid and piping is near ambient temperature, the piping usually does not require insulation and is less costly. These advantages are offset where the electricity supply required to operate the heat pumps is high-cost or has a high carbon emissions intensity. This potential issue is negated by using renewable energy sources. 4th Generation systems are also characterized by typically incorporating more than one energy source technology to maintain system reliability, low carbon emissions, and energy efficiency as illustrated in Figure 2.

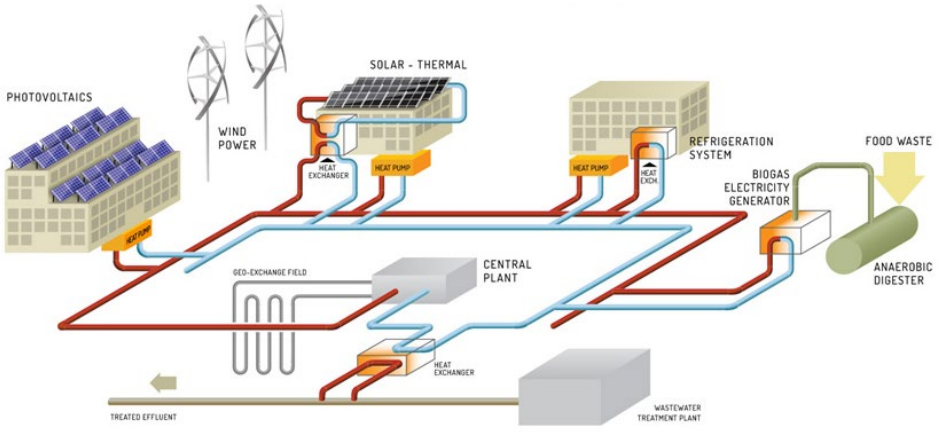

Figure 2:Typical District Energy Configuration

1.1 TECHNOLOGY AND APPLICATION

In a new greenfield development, the owner has an opportunity to investigate many options for energy supply that would otherwise be restricted in a retrofit or renovation type project. Typical technology types considered for use in a development such as Hensley Field include the following:

- Boilers: electrical, natural gas fired, and biomass combustion. Performance, efficiency, and emissions vary by fuel type. Water is circulated through the unit and thermal energy transferred to the working fluid. Biomass systems require significant infrastructure to store and supply the boiler with fuel during operation.
- **Chillers**: heat pump and water-cooled centrifugal chillers. Circulating chilled water is cooled in the chiller and feed to the DE network. Heat is rejected from the chiller using air or water-based cooling towers.
- **Heat Recovery Chillers**: Given that heat is being rejected from the chiller operation, it is possible to recover this heat and displace heating requirements (thermal storage is recommended for optimization).
- **Geothermal**: For the purposes of the study only closed loop vertical well systems were considered. Soil conditions have a significant impact on well performance and given the land area available, horizontal systems could be considered in future work. Normal rules of thumb (200 ft of well per ton, 450 foot well depth, and 25 ft on center spacing).

The DE systems initially considered were based on a ‘four-pipe’ system where heated and cooled water are generated in a central DE plant and are distributed to the buildings served in two separate ‘hot’ and ‘cold’ piping systems. Each of the piping systems has both supply and return pipes, whereby all water is continuously recirculated between the central plant and the buildings.

Thermal energy delivered to the building is measured by flow and temperature change at an Energy transfer station’ (ETS) located in each building served. The ETS moves thermal energy to the building heating and cooling systems, for further distribution to the building heating, domestic hot water, and air conditioning systems. No building boilers for heating or water chillers for cooling are typically required for the ‘four-pipe’ DE system. Instead, equipment centrally located in the CHP generates hot and cold water to distribute to the buildings. The four-pipe system is typically installed adjacent to the main sewer and water utility lines as depicted in Figure 3.

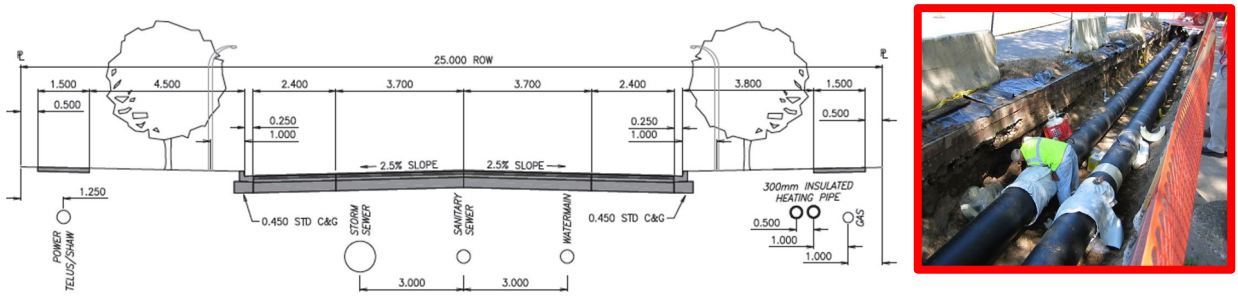

Figure 3: Typical Underground Services Installation

2.0 PRELIMINARY THERMAL MODELING

To better understand the anticipated thermal needs of the development and to also understand the specific impacts of the required DE equipment and infrastructure better, Stantec performed a preliminary thermal assessment based on the planned Gross Floor Area (GFA) and land use types. To perform this level of assessment, a parametric model must be used which can quantify thermal energy needs based on land use type and per unit of GFA. For this purpose, Stantec utilized the Toronto Green Standard (TGS) as it harmonizes both reduced carbon usage (against baseline) and allows for predictive energy use during the planning stage of a new development. TGS building targets were compared to Department of Energy's (DOE) Office of Energy Efficiency & Renewable Energy (OEERE) reference buildings for the Houston, Texas climate zone to ensure new construction loads were accurately estimated.

2.1 TORONTO GREEN STANDARD (TGS)

The TGS was developed in 2006 as a voluntary standard for best practices in building performance, sustainability, and energy efficiency for new developments. In 2010, the TGS began developing a tiered system for developments, the first tier becoming mandatory for any new development, and the second tier remaining voluntary but with high performance targets and financial incentives if achieved. Version 2 was introduced in 2014, with the current Version 3 update impacting all new developments after May 1, 2018. TGS v3 contains three tiers of interest, Tier 2 is mandatory until 2026, Tier 3 until 2030, and Tier 4 is mandatory for developments thereafter.

Typically for certification in Toronto, the developer is required to model each building and complete the planning applications using the TGS v3 templates. Given the level of study for this assessment, it is assumed that the stringent building performance characteristics are met for each Tier for the Sustainable-Forward Scenario 3, including the Thermal Energy Demand Intensities (TEDI) outlined in Table 1. Given the build-out timelines and TEDI performance, the thermal loads can be determined by year and assumed

block of development. Cooling Energy Demand Intensities (CEDI) for the study buildings were derived from DOE OEERE modeling samples to account for expected Houston cooling needs.

Building Type	TEDI (kWh/m^2)		
	Tier 2 (T2)	Tier 3 (T3)	Tier 4 (T4)
Residential High-Rise	50	30	15
Residential Low-Rise	40	25	15
Retail	40	25	15
Office	30	22	15

Table 1: TGS Thermal Energy Demand Intensity (TEDI)

2.2 HEATING AND COOLING PROFILE

Based on the TGS parametric modeling, the annual thermal and cooling profiles for Hensley Field are illustrated in Figure 4 below. As expected, overall cooling energy consumption is dominant, however heating load peaks are two-thirds higher than cooling peaks. Table 2 shows the total numbers calculated across two phases of development.

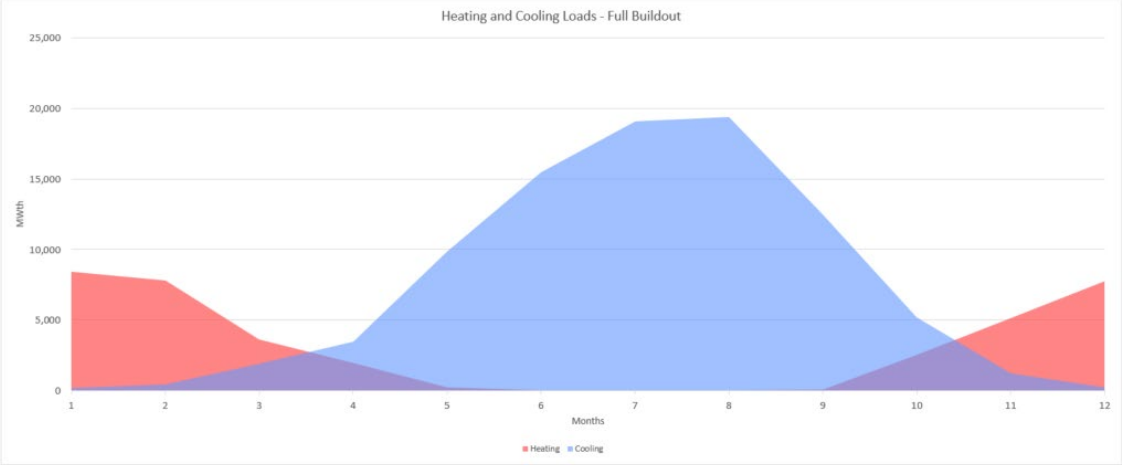

Figure 4: Hensley Annual Thermal Profile

Phase	Heating (MW)	Cooling (MW)	Cooling Tons
Phase 1	30.7	19.3	5,500
Phase 2	32.9	18.8	5,357
Full Buildout	***63.6***	***38.2***	***10,857***

Table 2: Heating and Cooling Peak Loads

2.3 PRELIMINARY COSTING

Based on a 4-pipe heating and cooling system, a preliminary costing breakdown is shown under Table 3.

Infrastructure Element	Costing		
	Phase 1	Phase 2	Full
Geothermal	$41,777,477	$40,696,375	$82,473,852
Electric Boilers	$8,988,655	$10,378,445	$19,367,101
Chillers	$5,444,648	$5,303,753	$10,748,401
Plant Total	**$56,210,780**	**$56,378,574**	**$112,589,354**
Heating Infrastructure	$13,823,717	$14,782,871	$28,606,588
Cooling Infrastructure	$8,579,445	$8,357,430	$16,936,875
Infrastructure Total	**$22,403,162**	**$23,140,301**	**$45,543,463**
Total DE System Cost	**$78,613,943**	**$79,518,875**	**$158,132,817**

Table 3: Preliminary DE Costing Breakdown (4-pipe system)

As can be seen from this breakdown, the cost to provide electric boilers is almost double the cost of the chiller plant even though they are only needed for a short period throughout the year. This is due to their peaking capacity and makes the investment disproportionately aligned with the value they provide. For this reason, Stantec believes it is not feasible to incorporate heating into the central plant strategy and therefore recommends a cooling only system (including geothermal cooling). With a cooling only system, we can eliminate the electric boilers as well as two of the four pipes in the piping distribution system. Table 4 lists the revised preliminary costing based on a 2-pipe system and a chiller-only plant.

Infrastructure Element	Costing		
	Phase 1	Phase 2	Full
Geothermal	$41,777,477	$40,696,375	$82,473,852
Chillers	$5,444,648	$5,303,753	$10,748,401
Plant Total	**$47,222,125**	**$46,000,128**	**$93,222,253**
Cooling Infrastructure	$8,579,445	$8,357,430	$16,936,875
Total DE System Cost	**$55,801,570**	**$54,357,558**	**$110,159,128**

Table 4: Preliminary DE Costing Breakdown (2-pipe system)

The geothermal field, as modelled, will contribute up to 75% of the cooling peak demand whereas the chillers would provide the remaining 25% of the peak cooling demand. This can work economically under the right conditions therefore Stantec recommends further study into a 2-pipe cooling only system with geothermal fields for most of the cooling. Future optimization on the extent of geothermal support needs to be completed along with geotechnical investigation on the soil conditions to confirm its anticipated performance.

3.0 MICROGRIDS AND CHP

A microgrid is an energy system that serves a relatively small geographic footprint, can be self-sufficient, can utilize local generation sources and can often store energy (see Figure 5). Due to their local energy supply, they are often the focal point of discussions involving resilience or backup power. Given the recent outage history in Texas, microgrids are being discussed more and more by local and state governments.

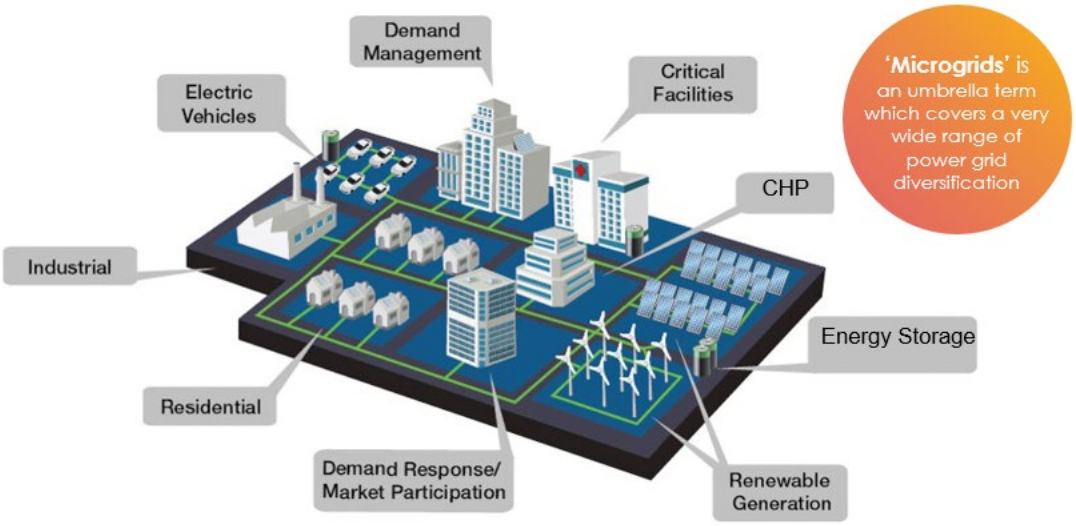

Figure 5: Typical Microgrid Composition

Although energy needs of every community include both thermal as well as electrical demand, microgrids are usually associated with the supply of electrical power as well as infrastructure and assets that can locally produce this electric power. It is Stantec's understanding that the City may have interest in the potential use of a microgrid to support the Hensley Field development. Before assessing the potential of a microgrid, therefore, planners must estimate the electrical loads which must be serviced by such microgrids.

3.1 ELECTRICAL LOAD MODELING

In the same way thermal demand informs DE infrastructure, Stantec performed a preliminary electrical demand profile based on the same TGS guidelines. The summary of anticipated peak demand by land

use type is illustrated under Figure 5. The annual energy consumption by land use type is illustrated under Figure 6. Based on these assessments, the Hensley Field development will require almost 14 MW_e of peak power and will consume 130,135 MWh of annual energy for the Sustainable-Forward Scenario 3 option. These numbers exclude anticipated demand required from electric vehicle charging infrastructure which is outlined under Section 3.2.

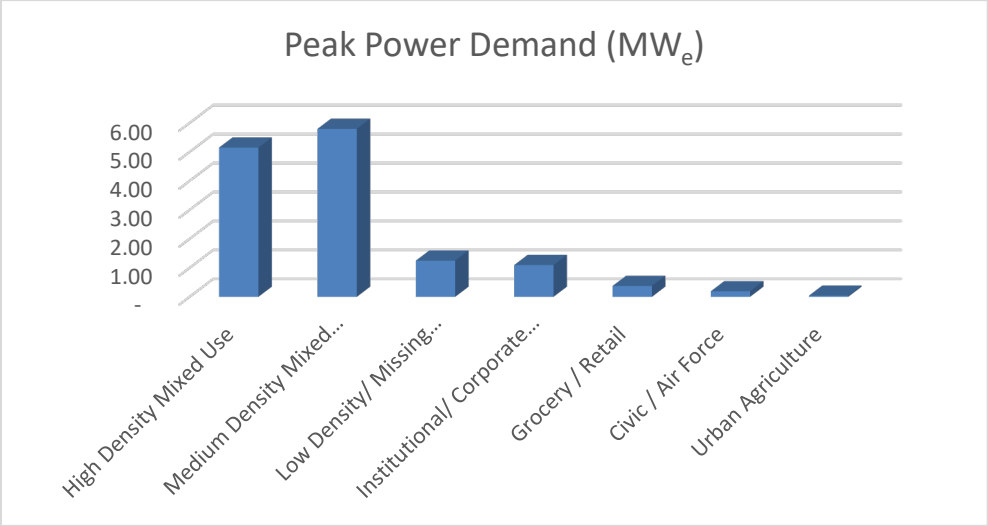

Figure 6: Peak Power Demand (MW_e)

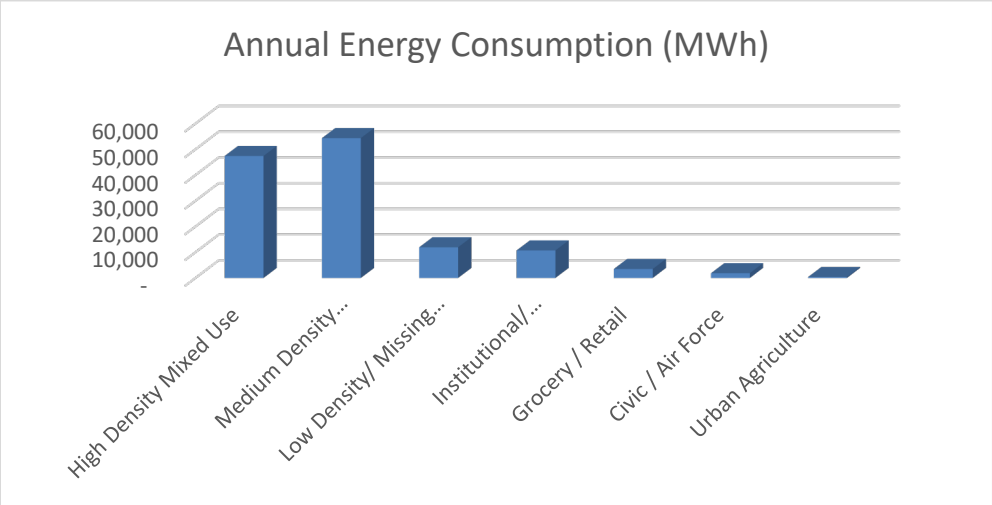

Figure 7: Annual Energy Consumption (MWh)

3.2 ELECTRICAL VEHICLE CHARGING

It is worth noting that the anticipated load from Electric Vehicle (EV) charging needs will make up almost the same as the existing peak demand (16 MW_e) and will consume more than half of the annual energy (78,560 MWh) to support charging needs. Figures 8 and 9 illustrate this significant electrical load contribution for the Sustainable Forward Scenario 3 option.

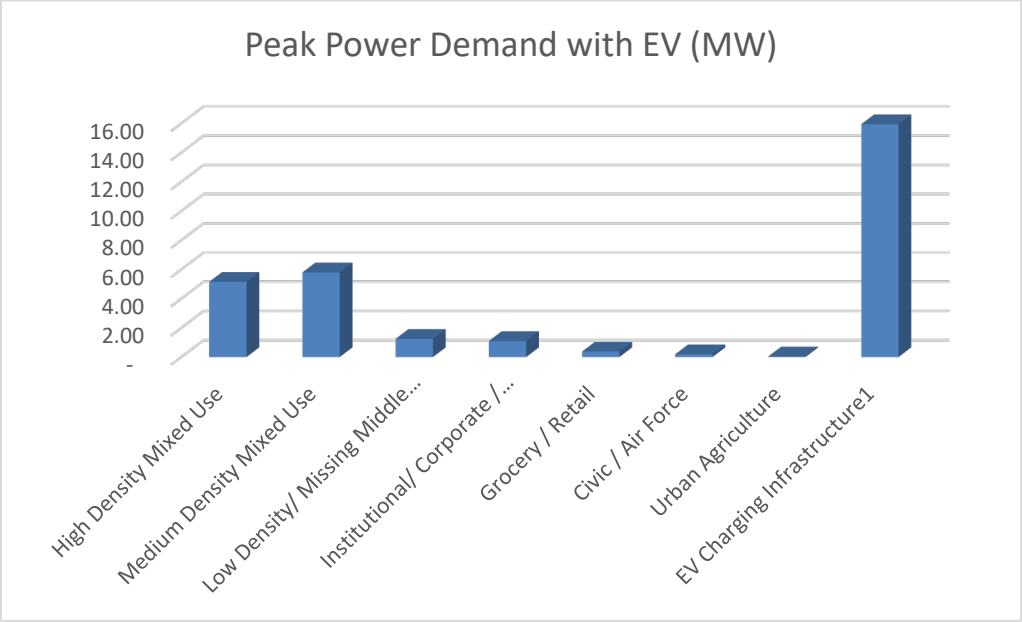

Figure 8: Peak Power Demand with EV (MW_e)

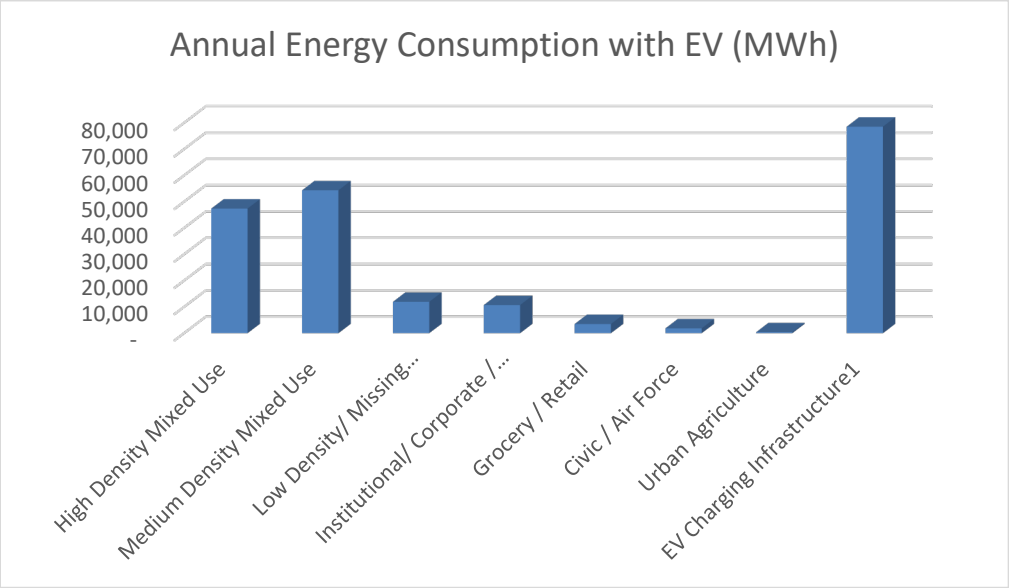

Figure 9: Annual Energy Consumption with EV (MWh)

3.3 MICROGRID ELECTRICAL POWER NEEDS

Based on the above assessment, a microgrid to support the Hensley Field Sustainable-Forward Scenario 3 could require up to 30 MW_e of capacity and consume up to 167,622 MWh of annual energy. Such community microgrids are rarely powered exclusively by renewable energy since it is difficult to get the stability and volume from energy sources that have such poor energy density and seasonal variability (like solar). For this reason, almost all commercial microgrids utilize some form of generation fueled by diesel or natural gas. This is where the discussion surrounding Combined Heat and Power (CHP) surfaced during discussions with the Client and the City.

3.4 COMBINED HEAT AND POWER

Combined Heat and Power (CHP) systems are often called co-generation as they produce two types of energy (electrical power and thermal energy) from one fuel source (usually natural gas). They are also sometimes called tri-gen because they can also produce steam. Figure 10 illustrates the main components of a typical CHP central system.

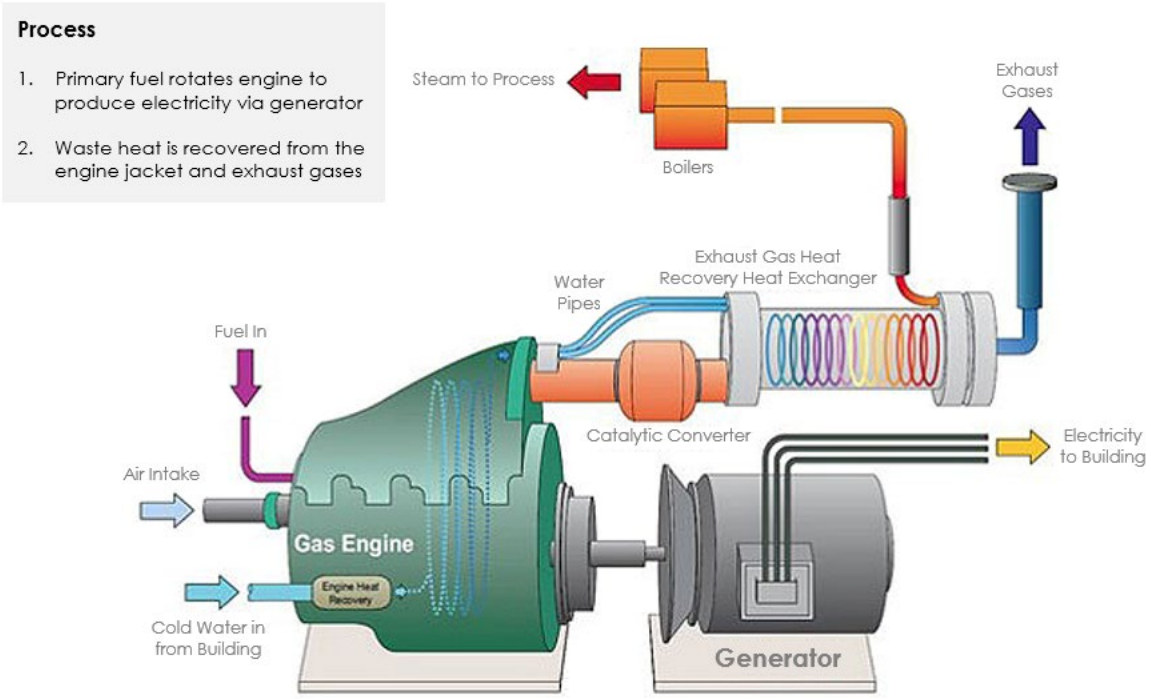

Figure 10: Typical CHP Configuration

3.5 WHY CHP?

The concept of using one fuel to supply up to three forms of energy has the benefit of increasing system efficiency and reducing the cost of fuel for the end use energy needs. Figure 11 illustrates the typical efficiencies associated with traditional electricity and steam production resulting in an aggregated efficiency of approximately 56%.

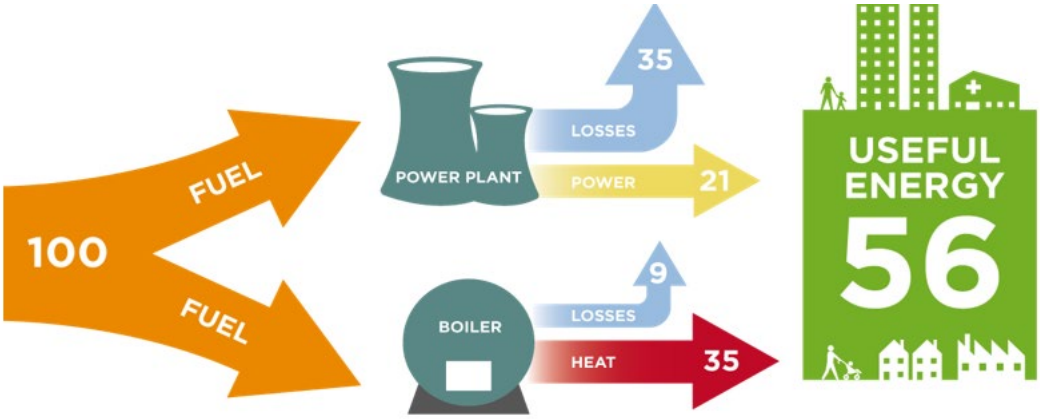

Figure 11: Typical Efficiency of Conventional Power/Heat

By combining the functions of electricity and steam generation in the same facility, an additional 24% efficiency can often be realized as illustrated under Figure 12.

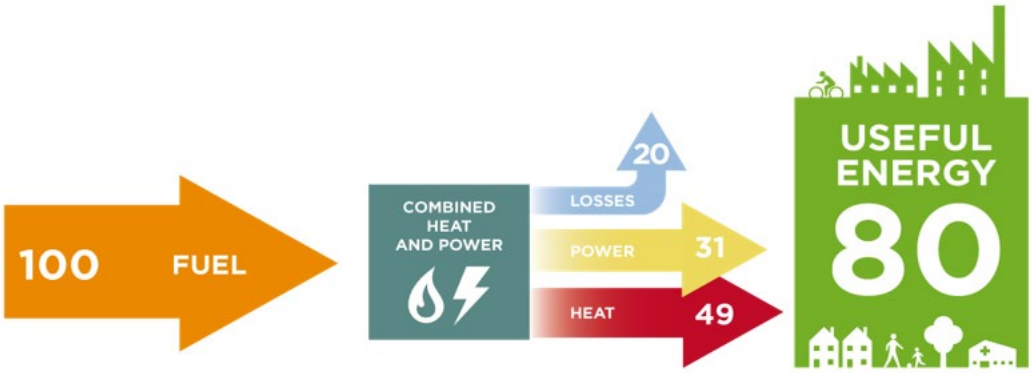

Figure 12: Typical CHP Efficiency

3.6 CHP USE CASES

CHP systems are good candidates for several district energy applications requiring both electricity as well as heat and steam. One of the main conditions governing their viability is the steady requirement for both electrical power and steam/heat. Many of the most common applications are listed below:

- **Wastewater treatment** – plants that have anaerobic digesters and operate around the clock are prime candidates for CHP
- **Hospitals** – Hospitals have the coincident electric and thermal loads that match CHP capabilities and drive project economics. Hospitals need continuous power and have a large demand for domestic hot water, sterilization, and laundry. In addition, hospitals are considered critical facilities in the event of a natural disaster or emergency, so the backup reliability of CHP is a good match for their needs.
- **Data Centers** - Require high quality, reliable power and have large thermal loads for space cooling.
- **Colleges and Universities** - Have coincident power and thermal loads that are often optimal for CHP systems. The typical college or university campus has a high thermal load for conditioning dormitories, classrooms, and research labs.
- **Military Bases** - Systems are typically installed at sites with large campuses that have a significant power and thermal loads for barracks, office buildings, training facilities, medical centers, and other staff support buildings.
- **Office Buildings** - Have thermal loads that vary seasonally. CHP systems can be designed to utilize heat in the winter months and use an absorption chiller for cooling in the summer months. This may be difficult for Hensley Field due to the low heating demand.
- **Food Supply Chain** - Refrigeration and lighting are the two largest electricity loads in the food supply chain industry, creating a good fit for CHP, which can provide the electricity and chilling needed to satisfy these energy demands
- **Industrial & Process** – CHP is best suited for industrial and process industries where power and heating demand are high and steady. Industries such as food processing, chemical, rfining, metals manufacturing and pulp & paper are great candidates.

3.7 WHY NOT CHP?

Although applicable to many district development scenarios (as outlined under Section 3.6), there are many non-starters for traditional CHP systems. Some of these are outlined below:

- For customers focused on Environmental Sustainability & Governance (ESG) and reducing Greenhouse Gas Emissions (GHG), a traditional CHP fueled by natural gas is not a good option especially if the local electricity grid is incorporating more non-emitting sources and transition to green electricity.
- CHP generates a significant amount of heat. For developments that will not contain facilities with a high heating (and steam) demand, such as Hensley Field, the economics of a CHP will not work as well as it will have a lower efficiency, in the same way we elected to remove the heating component from the DE strategy.
- Favorable electrical utility rates will make the economics difficult for CHP. If there are other strategies possible to keep utility rates low such as demand response and Battery Energy Storage, the O&M associated with a CHP facility will not make economic sense.

Based on these non-starters, Stantec believes that a CHP for Hensley Field is not feasible and should therefore not be included in any of the planning scenarios.

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APPENDIX 2.3
DETAILED BREAKDOWN OF SCENARIO COSTS

APPENDIX 2.3: BREAKDOWN OF SCENARIO COSTS

SCENARIO ONE

PREPARED: May 23, 2021

UPDATED: August 4, 2021

				Scenario One											
				PHASE 1			PHASE 2			PHASE 3			PHASE 4		
District	Item No.	Description of Item	Unit Cost	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount
NORTH	N1	HF Section A - See attached backup information for included items	$600	2,274	LF	$1,364,400	758	LF	$454,800	758	LF	$454,800	-	LF	$0
	N2	HF Section B - See attached backup information for included items	$2,500	4,550	LF	$11,375,000	3,300	LF	$8,250,000	-	LF	$0	-	LF	$0
	N3	HF Section C - See attached backup information for included items	$1,800	2,800	LF	$5,040,000	1,600	LF	$2,880,000	-	LF	$0	-	LF	$0
	N4	HF Section C2 - See attached backup information for included items	$1,800	-	LF	$0	-	LF	$0	-	LF	$0	-	LF	$0
	N5	HF Section D - See attached backup information for included items	$1,800	1,250	LF	$2,250,000	1,600	LF	$2,880,000	2,800	LF	$5,040,000	-	LF	$0
	N6	HF Section D2 - See attached backup information for included items	$1,800	5,300	LF	$9,540,000	400	LF	$720,000	400	LF	$720,000	3,700	LF	$6,660,000
	N7	HF Section E (BACKBONE) - See attached backup information for included items	$1,600	4,300	LF	$6,880,000	1,200	LF	$1,920,000	2,500	LF	$4,000,000	-	LF	$0
	N8	HF Section E (IN-TRACT) - See attached backup information for included items	$1,600	7,000	LF	$11,200,000	5,600	LF	$8,960,000	2,800	LF	$4,480,000	2,900	LF	$4,640,000
	N9	HF Section F (BACKBONE) - See attached backup information for included items	$1,400	-	LF	$0	-	LF	$0	-	LF	$0	-	LF	$0
	N10	HF Section F (IN-TRACT) - See attached backup information for included items	$1,400	9,600	LF	$13,440,000	3,900	LF	$5,460,000	4,450	LF	$6,230,000	200	LF	$280,000
	N11	Furnish and Install Misc Conduit for Sustainable Energy (including but not limited to Chilled Water, Geothermal, Reclaimed etc) - Complete in place.	$100	-	LF	$0	-	LF	$0						
	N12	Additional Storm Conveyance in lieu of open space channels / overland waterways	$250												
	N13	Precast Concrete Water Crossing. Complete in place.	$50	30,000	SF	$1,500,000									
	N14	Construction of New Fire Station (DOES NOT INCLUDE LAND ACQUITION COST)	$7,500,000	1	EA	$7,500,000	-	EA	$0	-	EA	$0	-	EA	$0
	N15	Modify Existing Signals at Jefferson - includes new mast arms, foundations, signal control conduit, cabinet, average utility relocation to accomdate expanded signals. Complete in place.	$800,000	1	EA	$800,000	1	EA	$800,000	-	EA	$0	-	EA	$0
	N16	AV Tansit - 2 vehicles (Cost provided by Fehr and Peers)	$12,400,000	-	EA	$0	-	EA	$0	1	EA	$12,400,000	-	EA	$0
	Total Parks and Open Space Breakdown (by SWA dated 05/27/2021)														
	N16	Urban Agriculture	$185,000	-	AC	$0									
	N17	Programmed Park Space	$1,000,000	5.10	AC	$5,100,000									
	N18	Non-Programmed Open Space	$65,000	17.10	AC	$1,111,500									
	N19	Native Prairie	$5,000	20.00	AC	$100,000									
	N20	Wetlands	$870,000	-	AC	$0									
	N21	Blue - Green Infrastructure	$160,000	9.60	AC	$1,536,000									
	N22	Forested Edge	$25,000	4.90	AC	$122,500									
			NORTH DISTRICT SUBTOTAL			**$78,859,400**			**$32,324,800**			**$33,324,800**			**$11,580,000**

APPENDIX 2.3: BREAKDOWN OF SCENARIO COSTS

SCENARIO ONE

PREPARED: May 23, 2021

UPDATED: August 4, 2021

				Scenario One											
				PHASE 1			PHASE 2			PHASE 3			PHASE 4		
District	Item No.	Description of Item	Unit Cost	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount
SOUTHWEST	SW1	HF Section A - See attached backup information for included items	$600												
	SW2	HF Section B - See attached backup information for included items	$2,500												
	SW3	HF Section C - See attached backup information for included items	$1,800												
	SW4	HF Section C2 - See attached backup information for included items	$1,800												
	SW5	HF Section D - See attached backup information for included items	$1,800												
	SW6	HF Section D2 - See attached backup information for included items	$1,800												
	SW7	HF Section E (BACKBONE) - See attached backup information for included items	$1,600												
	SW8	HF Section E (IN-TRACT) - See attached backup information for included items	$1,600												
	SW9	HF Section F (BACKBONE) - See attached backup information for included items	$1,400												
	SW10	HF Section F (IN-TRACT) - See attached backup information for included items	$1,400												
	SW10A	Hardy Road Improvments (OFF-SITE) - See attached backup information for included items	$1,300	5,000	LF	$6,500,000									
	SW10B	Skyline Road Improvments (OFF-SITE) - See attached backup information for included items	$1,900												
	SW11	Furnish and Install Misc Conduit for Sustainable Energy (including but not limited to Chilled Water, Geothermal, Reclaimed etc) - Complete in place.	$100												
	SW12	Additional Storm Conveyance in lieu of open space channels / overland waterways	$250												
	SW13	Precast Concrete Water Crossing. Complete in place.	$50	22,500	SF	$1,125,000	-	SF	$0		SF	$0		SF	$0
	SW14	Bridge over Cottonwood Bay on Southwestern End of Project - 800 x 50 ft wide (4 travel lanes / 2 sidewalks) - concrete supports with prestressed concrete girder	$85	-	SF	$0	-	SF	$0	-	SF	$0	-	SF	$0
	SW15	Replacement Bridge over Diversion Channel on Southern End of Project - 400 x 10 ft wide (pedestrian / bikes only) - concrete supports with prestressed concrete girder	$65	4,000	SF	$260,000	-	SF	$0	-	SF	$0	-	SF	$0
	SW16	Bridge over Diversion Channel on Southern End of Project - 400 x 50 ft wide (4 travel lanes / 2 sidewalks) - concrete supports with prestressed concrete girder	$85	-	SF	$0	20,000	SF	$1,700,000	-	SF	$0	-	SF	$0
	Total Parks and Open Space Breakdown (by SWA dated 05/27/2021)														
	SW17	Urban Agriculture	$185,000	20.20	AC	$3,737,000									
	SW18	Programmed Park Space	$1,000,000	23.80	AC	$23,800,000									
	SW19	Non-Programmed Open Space	$65,000	41.40	AC	$2,691,000									
	SW20	Native Prairie	$5,000	4.80	AC	$24,000									
	SW21	Wetlands	$870,000	7.60	AC	$6,612,000									
	SW22	Blue - Green Infrastructure	$160,000	27.70	AC	$4,432,000									
	SW23	Forested Edge	$25,000	-	AC	$0									
			SOUTHWEST DISTRICT SUBTOTAL			**$49,181,000**			**$1,700,000**			**$0**			**$0**

APPENDIX 2.3: BREAKDOWN OF SCENARIO COSTS

SCENARIO ONE

PREPARED: May 23, 2021

UPDATED: August 4, 2021

				Scenario One											
				PHASE 1			PHASE 2			PHASE 3			PHASE 4		
District	Item No.	Description of Item	Unit Cost	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount
SOUTHEAST	SE1	HF Section A - See attached backup information for included items	$600												
	SE2	HF Section B - See attached backup information for included items	$2,500												
	SE3	HF Section C - See attached backup information for included items	$1,800												
	SE4	HF Section C2 - See attached backup information for included items	$1,800												
	SE5	HF Section D - See attached backup information for included items	$1,800												
	SE6	HF Section D2 - See attached backup information for included items	$1,800												
	SE7	HF Section E (BACKBONE) - See attached backup information for included items	$1,600												
	SE8	HF Section E (IN-TRACT) - See attached backup information for included items	$1,600												
	SE9	HF Section F (BACKBONE) - See attached backup information for included items	$1,400												
	SE10	HF Section F (IN-TRACT) - See attached backup information for included items	$1,400												
	SE11	Furnish and Install Misc Conduit for Sustainable Energy (including but not limited to Chilled Water, Geothermal, Reclaimed etc) - Complete in place.	$100												
	SE12	Additional Storm Conveyance in lieu of open space channels / overland waterways	$500												
	SE13	Precast Concrete Water Crossing. Complete in place.	$50	10,000	SF	$500,000	-	SF	$0		SF	$0		SF	$0
	Total Parks and Open Space Breakdown (by SWA dated 05/27/2021)														
	SE14	Urban Agriculture	$185,000	-	AC	$0									
	SE15	Programmed Park Space	$1,000,000	8.00	AC	$8,000,000									
	SE16	Non-Programmed Open Space	$65,000	8.50	AC	$552,500									
	SE17	Native Prairie	$5,000	-	AC	$0									
	SE18	Wetlands	$870,000	0.20	AC	$174,000									
	SE19	Blue - Green Infrastructure	$160,000	8.40	AC	$1,344,000									
	SE20	Forested Edge	$25,000	-	AC	$0									
			SOUTHEAST DISTRICT SUBTOTAL			**$10,570,500**			**$0**			**$0**			**$0**

APPENDIX 2.3: BREAKDOWN OF SCENARIO COSTS

SCENARIO ONE

PREPARED: May 23, 2021

UPDATED: August 4, 2021

				Scenario One											
				PHASE 1			PHASE 2			PHASE 3			PHASE 4		
District	Item No.	Description of Item	Unit Cost	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount
OVERALL	O1	Mass Grading - Excavation	$2	1,500,000	CY	$3,000,000									
	O2	Mass Grading - Embankment	$4	1,350,000	CY	$5,400,000									
	O3	Mass Grading - Embankment on Peninsula to allow development	$4	-	CY	$0									
	O4	Mass Grading - Excavation / Dredgin from Proposed Marina to Cottonwood Bay	$8	-	CY	$0									
	O5	Mass Grading - Additional placement of excess material in lieu of Export	$4	150,000	CY	$600,000									
	O6	Mass Grading - Import Fill Material	$25	-	CY	$0									
	O7	Regional Water Quality - Multiple facilities acting in series including rain gardens, sand filters, vegetative filter strips, and biofiltration pond. Does not include rain gardens in Road Section B, D, and E.	$75	-	CY	$0									
	O8	Deconstruct Pavement Section T-35R (18" Reinforced Concrete, 12" Treated Base) including but not limited to all improvements: light poles, cable, pull boxes, curbs, etc.. Concrete to be broken and stockpiled for reuse.	$8	150,000	SY	$1,200,000									
	O9	Deconstruct Pavement Section T-30R (18" Reinforced Concrete, 12" Treated Base) including but not limited to all improvements: light poles, cable, pull boxes, curbs, etc.. Concrete to be broken and stockpiled for reuse.	$8	60,000	SY	$480,000									
	O10	Deconstruct Pavement Section - Aircraft Parking 1 and 2 (18" Reinforced Concrete, 12" Treated Base) including but not limited to all improvements: light poles, cable, pull boxes, curbs, etc.. Concrete to be broken and stockpiled for reuse.	$8	160,000	SY	$1,280,000									
	O11	Deconstruct Pavement Section - Taxiways (18" Reinforced Concrete, 12" Treated Base) including but not limited to all improvements: light poles, cable, pull boxes, curbs, etc.. Concrete to be broken and stockpiled for reuse.	$8	200,000	SY	$1,600,000									
	O12	Furnish and Install 30" Wastewater transmission main to WWTP including 12" connections, MHs, connection to plant, and traffic control. DOES NOT includes land / easement acquistion. Complete in place.	$380	18,000	LF	$6,840,000									
	O13	Offsite Oncor Costs to provide service including Sub-station and extension to property.	$4,000,000	1	LS	$4,000,000									
	O14	Shoreline Improvement - Vegetated Bench including recycled rip-rap, planting soil, vegetation (10'x3')	$150	10,600	LF	$1,590,000									
	O15	Shoreline Improvement - Bulkhead (4' tall sheet piling)	$80	3,000	LF	$240,000									
	O16														
	O17														
	O18	Hanger / Building Stabilization	$2,500,000	1	LS	$2,500,000	-	LS	$0	-	LS	$0	-	LS	$0
	O19	Solar Panel Array	$25	-	SF	$0	-	SF	$0					SF	$0
	O20	*GeoThermal (PHASE 1) - Fields, chiller plant, infrastructure not including piping for distribution throughout site*	*$55,900,000*	-	*EA*	*$0*	-	*EA*	*$0*						
	O21	*GeoThermal (PHASE 2) - Fields, chiller plant, infrastructure not including piping for distribution throughout site*	*$54,550,000*	-	*EA*	*$0*	-	*EA*	*$0*						
			OVERALL SUBTOTAL			**$28,730,000**			**$0**			**$0**			**$0**
			TOTAL (NORTH + SOUTHWEST + SOUTHEAST + OVERALL)			**$167,340,900**			**$34,024,800**			**$33,324,800**			**$11,580,000**
			Soft Costs (10%)			**$16,734,090**			**$3,402,480**			**$3,332,480**			**$1,158,000**
			GRAND TOTAL			**$184,074,990**			**$37,427,280**			**$36,657,280**			**$12,738,000**
			Per Acre			*$256,015*			*$52,055*			*$50,984*			*$17,716*

Notes: **The above Engineer's Opinion of Probable Construction Cost is based on Stantec. Reasonable Professional Judgment and Experience and Does Not Constitute a Warranty, Expressed or Implied, that the actual cost will not vary.**

APPENDIX 2.3: BREAKDOWN OF SCENARIO COSTS

SCENARIO TWO

PREPARED: May 23, 2021

UPDATED: August 4, 2021

				Scenario Two											
				PHASE 1			PHASE 2			PHASE 3			PHASE 4		
District	Item No.	Description of Item	Unit Cost	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount
NORTH	N1	HF Section A - See attached backup information for included items	$600	1,895	LF	$1,137,000	1,327	LF	$795,900	569	LF	$341,100	-	LF	$0
	N2	HF Section B - See attached backup information for included items	$2,500	1,900	LF	$4,750,000	7,400	LF	$18,500,000	-	LF	$0	-	LF	$0
	N3	HF Section C - See attached backup information for included items	$1,800	3,500	LF	$6,300,000	3,100	LF	$5,580,000	500	LF	$900,000	400	LF	$720,000
	N4	HF Section C2 - See attached backup information for included items	$1,800	-	LF	$0	-	LF	$0	1,100	LF	$1,980,000	1,300	LF	$2,340,000
	N5	HF Section D - See attached backup information for included items	$1,800	500	LF	$900,000	1,600	LF	$2,880,000	100	LF	$180,000	1,000	LF	$1,800,000
	N6	HF Section D2 - See attached backup information for included items	$1,800	2,600	LF	$4,680,000	600	LF	$1,080,000	12,600	LF	$22,680,000	1,000	LF	$1,800,000
	N7	HF Section E (BACKBONE) - See attached backup information for included items	$1,600	10,400	LF	$16,640,000	3,800	LF	$6,080,000	1,900	LF	$3,040,000	-	LF	$0
	N8	HF Section E (IN-TRACT) - See attached backup information for included items	$1,600	4,300	LF	$6,880,000	1,600	LF	$2,560,000	4,750	LF	$7,600,000	4,200	LF	$6,720,000
	N9	HF Section F (BACKBONE) - See attached backup information for included items	$1,400	-	LF	$0	-	LF	$0	-	LF	$0	-	LF	$0
	N10	HF Section F (IN-TRACT) - See attached backup information for included items	$1,400	12,650	LF	$17,710,000	10,450	LF	$14,630,000	1,100	LF	$1,540,000	-	LF	$0
	N11	Furnish and Install Misc Conduit for Sustainable Energy (including but not limited to Chilled Water, Geothermal, Reclaimed etc) - Complete in place.	$100	-	LF	$0	-	LF	$0						
	N12	Additional Storm Conveyance in lieu of open space channels / overland waterways	$250	3,400	LF	$850,000	5,870	LF	$1,467,500	351	LF	$87,625	1,201	LF	$300,125
	N13	Precast Concrete Water Crossing. Complete in place.	$50				5,000	SF	$250,000						
	N14	Construction of New Fire Station (DOES NOT INCLUDE LAND ACQUITION COST)	$7,500,000	1	EA	$7,500,000	-	EA	$0	-	EA	$0	-	EA	$0
	N15	Modify Existing Signals at Jefferson - includes new mast arms, foundations, signal control conduit, cabinet, average utility relocation to accomdate expanded signals. Complete in place.	$800,000	1	EA	$800,000	1	EA	$800,000	-	EA	$0	-	EA	$0
	N16	AV Tansit - 2 vehicles (Cost provided by Fehr and Peers)	$12,400,000	-	EA	$0	-	EA	$0	1	EA	$12,400,000	-	EA	$0
	Total Parks and Open Space Breakdown (by SWA dated 05/27/2021)														
	N16	Urban Agriculture	$185,000				20.20	AC	$3,737,000						
	N17	Programmed Park Space	$1,000,000				7.30	AC	$7,300,000						
	N18	Non-Programmed Open Space	$65,000				3.90	AC	$253,500						
	N19	Native Prairie	$5,000				20.00	AC	$100,000						
	N20	Wetlands	$870,000				-	AC	$0						
	N21	Blue - Green Infrastructure	$160,000				-	AC	$0						
	N22	Forested Edge	$25,000				11.90	AC	$297,500						
			NORTH DISTRICT SUBTOTAL			**$68,147,000**			**$66,311,400**			**$50,748,725**			**$13,680,125**

APPENDIX 2.3: BREAKDOWN OF SCENARIO COSTS

SCENARIO TWO

PREPARED: May 23, 2021

UPDATED: August 4, 2021

				Scenario Two											
				PHASE 1			PHASE 2			PHASE 3			PHASE 4		
District	Item No.	Description of Item	Unit Cost	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount
SOUTHWEST	SW1	HF Section A - See attached backup information for included items	$600												
	SW2	HF Section B - See attached backup information for included items	$2,500												
	SW3	HF Section C - See attached backup information for included items	$1,800												
	SW4	HF Section C2 - See attached backup information for included items	$1,800												
	SW5	HF Section D - See attached backup information for included items	$1,800												
	SW6	HF Section D2 - See attached backup information for included items	$1,800												
	SW7	HF Section E (BACKBONE) - See attached backup information for included items	$1,600												
	SW8	HF Section E (IN-TRACT) - See attached backup information for included items	$1,600												
	SW9	HF Section F (BACKBONE) - See attached backup information for included items	$1,400												
	SW10	HF Section F (IN-TRACT) - See attached backup information for included items	$1,400												
	SW10A	Hardy Road Improvments (OFF-SITE) - See attached backup information for included items	$1,300	5,000	LF	$6,500,000	-	LF	$0	-	LF	$0	-	LF	$0
	SW10B	Skyline Road Improvments (OFF-SITE) - See attached backup information for included items	$1,900	-	LF	$0	-	LF	$0	-	LF	$0		LF	$0
	SW11	Furnish and Install Misc Conduit for Sustainable Energy (including but not limited to Chilled Water, Geothermal, Reclaimed etc) - Complete in place.	$100	-	LF	$0	-	LF	$0	-	LF	$0	-	LF	$0
	SW12	Additional Storm Conveyance in lieu of open space channels / overland waterways	$250	-	LF	$0	-	LF	$0	-	LF	$0	-	LF	$0
	SW13	Precast Concrete Water Crossing. Complete in place.	$50				-	SF	$0		SF	$0		SF	$0
	SW14	Bridge over Cottonwood Bay on Southwestern End of Project - 800 x 50 ft wide (4 travel lanes / 2 sidewalks) - concrete supports with prestressed concrete girder	$85	-	SF	$0	-	SF	$0	-	SF	$0	-	SF	$0
	SW15	Replacement Bridge over Diversion Channel on Southern End of Project - 400 x 10 ft wide (pedestrian / bikes only) - concrete supports with prestressed concrete girder	$65	4,000	SF	$260,000	-	SF	$0	-	SF	$0	-	SF	$0
	SW16	Bridge over Diversion Channel on Southern End of Project - 400 x 50 ft wide (4 travel lanes / 2 sidewalks) - concrete supports with prestressed concrete girder	$85	20,000	SF	$1,700,000	-	SF	$0	-	SF	$0	-	SF	$0
	Total Parks and Open Space Breakdown (by SWA dated 05/27/2021)														
	SW17	Urban Agriculture	$185,000				-	AC	$0						
	SW18	Programmed Park Space	$1,000,000				18.70	AC	$18,700,000						
	SW19	Non-Programmed Open Space	$65,000				47.00	AC	$3,055,000						
	SW20	Native Prairie	$5,000				5.80	AC	$29,000						
	SW21	Wetlands	$870,000				7.60	AC	$6,612,000						
	SW22	Blue - Green Infrastructure	$160,000				10.40	AC	$1,664,000						
	SW23	Forested Edge	$25,000				-	AC	$0						
			SOUTHWEST DISTRICT SUBTOTAL			**$8,460,000**			**$30,060,000**			**$0**			**$0**

APPENDIX 2.3: BREAKDOWN OF SCENARIO COSTS

SCENARIO TWO

PREPARED: May 23, 2021

UPDATED: August 4, 2021

				Scenario Two											
				PHASE 1			PHASE 2			PHASE 3			PHASE 4		
District	Item No.	Description of Item	Unit Cost	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount
SOUTHEAST	SE1	HF Section A - See attached backup information for included items	$600												
	SE2	HF Section B - See attached backup information for included items	$2,500												
	SE3	HF Section C - See attached backup information for included items	$1,800												
	SE4	HF Section C2 - See attached backup information for included items	$1,800												
	SE5	HF Section D - See attached backup information for included items	$1,800												
	SE6	HF Section D2 - See attached backup information for included items	$1,800												
	SE7	HF Section E (BACKBONE) - See attached backup information for included items	$1,600												
	SE8	HF Section E (IN-TRACT) - See attached backup information for included items	$1,600												
	SE9	HF Section F (BACKBONE) - See attached backup information for included items	$1,400												
	SE10	HF Section F (IN-TRACT) - See attached backup information for included items	$1,400												
	SE11	Furnish and Install Misc Conduit for Sustainable Energy (including but not limited to Chilled Water, Geothermal, Reclaimed etc) - Complete in place.	$100												
	SE12	Additional Storm Conveyance in lieu of open space channels / overland waterways	$500												
	SE13	Precast Concrete Water Crossing. Complete in place.	$50				-	SF	$0		SF	$0		SF	$0
	Total Parks and Open Space Breakdown (by SWA dated 05/27/2021)														
	SE14	Urban Agriculture	$185,000				-	AC	$0						
	SE15	Programmed Park Space	$1,000,000				11.10	AC	$11,100,000						
	SE16	Non-Programmed Open Space	$65,000				9.00	AC	$585,000						
	SE17	Native Prairie	$5,000				-	AC	$0						
	SE18	Wetlands	$870,000				0.20	AC	$174,000						
	SE19	Blue - Green Infrastructure	$160,000				1.60	AC	$256,000						
	SE20	Forested Edge	$25,000				-	AC	$0						
			SOUTHEAST DISTRICT SUBTOTAL			**$0**			**$12,115,000**			**$0**			**$0**

APPENDIX 2.3: BREAKDOWN OF SCENARIO COSTS

SCENARIO TWO

PREPARED: May 23, 2021

UPDATED: August 4, 2021

				Scenario Two											
				PHASE 1			PHASE 2			PHASE 3			PHASE 4		
District	**Item No.**	**Description of Item**	**Unit Cost**	**Approx. Qty**	**Unit**	**Amount**	**Approx. Qty**	**Unit**	**Amount**	**Approx. Qty**	**Unit**	**Amount**	**Approx. Qty**	**Unit**	**Amount**
OVERALL	O1	Mass Grading - Excavation	$2				850,000	CY	$1,700,000						
	O2	Mass Grading - Embankment	$4				865,000	CY	$3,460,000						
	O3	Mass Grading - Embankment on Peninsula to allow development	$4				335,000	CY	$1,340,000						
	O4	Mass Grading - Excavation / Dredgin from Proposed Marina to Cottonwood Bay	$8				-	CY	$0						
	O5	Mass Grading - Additional placement of excess material in lieu of Export	$4				-	CY	$0						
	O6	Mass Grading - Import Fill Material	$25				350,000	CY	$8,750,000						
	O7	Regional Water Quality - Multiple facilities acting in series including rain gardens, sand filters, vegetative filter strips, and biofiltration pond. Does not include rain gardens in Road Section B, D, and E.	$75				-	CY	$0						
	O8	Deconstruct Pavement Section T-35R (18" Reinforced Concrete, 12" Treated Base) including but not limited to all improvements: light poles, cable, pull boxes, curbs, etc.. Concrete to be broken and stockpiled for reuse.	$8				150,000	SY	$1,200,000						
	O9	Deconstruct Pavement Section T-30R (18" Reinforced Concrete, 12" Treated Base) including but not limited to all improvements: light poles, cable, pull boxes, curbs, etc.. Concrete to be broken and stockpiled for reuse.	$8				60,000	SY	$480,000						
	O10	Deconstruct Pavement Section - Aircraft Parking 1 and 2 (18" Reinforced Concrete, 12" Treated Base) including but not limited to all improvements: light poles, cable, pull boxes, curbs, etc.. Concrete to be broken and stockpiled for reuse.	$8				160,000	SY	$1,280,000						
	O11	Deconstruct Pavement Section - Taxiways (18" Reinforced Concrete, 12" Treated Base) including but not limited to all improvements: light poles, cable, pull boxes, curbs, etc.. Concrete to be broken and stockpiled for reuse.	$8				200,000	SY	$1,600,000						
	O12	Furnish and Install 30" Wastewater transmission main to WWTP including 12" connections, MHs, connection to plant, and traffic control. DOES NOT includes land / easement acquistion. Complete in place.	$380	18,000	LF	$6,840,000									
	O13	Offsite Oncor Costs to provide service including Sub-station and extension to property.	$4,000,000	1	LS	$4,000,000									
	O14	Shoreline Improvement - Vegetated Bench including recycled rip-rap, planting soil, vegetation (10'x3')	$150	10,600	LF	$1,590,000									
	O15	Shoreline Improvement - Bulkhead (4' tall sheet piling)	$80	3,000	LF	$240,000									
	O16														
	O17														
	O18	Hanger / Building Stabilization	$2,500,000	1	LS	$2,500,000	-	LS	$0	-	LS	$0	-	LS	$0
	O19	Solar Panel Array	$25	-	SF	$0	-	SF	$0						
	O20	*GeoThermal (PHASE 1) - Fields, chiller plant, infrastructure not including piping for distribution throughout site*	*$55,900,000*	-	*EA*	*$0*	-	*EA*	*$0*						
	O21	*GeoThermal (PHASE 2) - Fields, chiller plant, infrastructure not including piping for distribution throughout site*	*$54,550,000*	-	*EA*	*$0*	-	*EA*	*$0*						
			OVERALL SUBTOTAL			**$15,170,000**			**$19,810,000**			**$0**			**$0**
			TOTAL (NORTH + SOUTHWEST + SOUTHEAST + OVERALL)			**$91,777,000**			**$128,296,400**			**$50,748,725**			**$13,680,125**
			Soft Costs (10%)			**$9,177,700**			**$12,829,640**			**$5,074,873**			**$1,368,013**
			GRAND TOTAL			**$100,954,700**			**$141,126,040**			**$55,823,598**			**$15,048,138**
			Per Acre			*$140,410*			*$196,281*			*$77,641*			*$20,929*

Notes: **The above Engineer's Opinion of Probable Construction Cost is based on Stantec. Reasonable Professional Judgment and Experience and Does Not Constitute a Warranty, Expressed or Implied, that the actual cost will not vary.**

APPENDIX 2.3: BREAKDOWN OF SCENARIO COSTS

SCENARIO THREE

PREPARED: May 23, 2021

UPDATED: August 4, 2021

				Scenario Three											
				PHASE 1			PHASE 2			PHASE 3			PHASE 4		
District	Item No.	Description of Item	Unit Cost	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount
NORTH	N1	HF Section A - See attached backup information for included items	$600	1,516	LF	$909,600	1,895	LF	$1,137,000	379	LF	$227,400	-	LF	$0
	N2	HF Section B - See attached backup information for included items	$2,500	-	LF	$0	7,300	LF	$18,250,000	400	LF	$1,000,000	100	LF	$250,000
	N3	HF Section C - See attached backup information for included items	$1,800	1,500	LF	$2,700,000	1,900	LF	$3,420,000	3,100	LF	$5,580,000	-	LF	$0
	N4	HF Section C2 - See attached backup information for included items	$1,800	-	LF	$0	-	LF	$0	-	LF	$0	-	LF	$0
	N5	HF Section D - See attached backup information for included items	$1,800	5,400	LF	$9,720,000	300	LF	$540,000	1,900	LF	$3,420,000	1,700	LF	$3,060,000
	N6	HF Section D2 - See attached backup information for included items	$1,800	900	LF	$1,620,000	3,800	LF	$6,840,000	1,300	LF	$2,340,000	1,700	LF	$3,060,000
	N7	HF Section E (BACKBONE) - See attached backup information for included items	$1,600	4,700	LF	$7,520,000	4,400	LF	$7,040,000	1,200	LF	$1,920,000	-	LF	$0
	N8	HF Section E (IN-TRACT) - See attached backup information for included items	$1,600	5,700	LF	$9,120,000	10,700	LF	$17,120,000	4,750	LF	$7,600,000	1,600	LF	$2,560,000
	N9	HF Section F (BACKBONE) - See attached backup information for included items	$1,400	-	LF	$0	-	LF	$0	-	LF	$0	-	LF	$0
	N10	HF Section F (IN-TRACT) - See attached backup information for included items	$1,400	4,350	LF	$6,090,000	7,600	LF	$10,640,000	-	LF	$0	-	LF	$0
	N11	Furnish and Install Misc Conduit for Sustainable Energy (including but not limited to Chilled Water, Geothermal, Reclaimed etc) - Complete in place.	$100	53,975	LF	$5,397,500	92,550	LF	$9,255,000	31,775	LF	$3,177,500	11,100	LF	$1,110,000
	N12	Additional Storm Conveyance in lieu of open space channels / overland waterways	$250	1,050	LF	$262,500	4,980	LF	$1,245,000	3,771	LF	$942,625	1,781	LF	$445,125
	N13	Precast Concrete Water Crossing. Complete in place.	$50							5,000	SF	$250,000			
	N14	Construction of New Fire Station (DOES NOT INCLUDE LAND ACQUITION COST)	$7,500,000	1	EA	$7,500,000	-	EA	$0	-	EA	$0	-	EA	$0
	N15	Modify Existing Signals at Jefferson - includes new mast arms, foundations, signal control conduit, cabinet, average utility relocation to accomdate expanded signals. Complete in place.	$800,000	1	EA	$800,000	1	EA	$800,000	-	EA	$0	-	EA	$0
	Total Parks and Open Space Breakdown (by SWA dated 05/27/2021)														
	N16	Urban Agriculture	$185,000							32.00	AC	$5,920,000			
	N17	Programmed Park Space	$1,000,000							24.00	AC	$24,000,000			
	N18	Non-Programmed Open Space	$65,000							6.80	AC	$442,000			
	N19	Native Prairie	$5,000							10.20	AC	$51,000			
	N20	Wetlands	$870,000							-	AC	$0			
	N21	Blue - Green Infrastructure	$160,000							-	AC	$0			
	N22	Forested Edge	$25,000							4.90	AC	$122,500			
			NORTH DISTRICT SUBTOTAL			**$51,639,600**			**$76,287,000**			**$56,993,025**			**$10,485,125**

APPENDIX 2.3: BREAKDOWN OF SCENARIO COSTS

SCENARIO THREE

PREPARED: May 23, 2021

UPDATED: August 4, 2021

				Scenario Three											
				PHASE 1			PHASE 2			PHASE 3			PHASE 4		
District	Item No.	Description of Item	Unit Cost	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount
SOUTHWEST	SW1	HF Section A - See attached backup information for included items	$600												
	SW2	HF Section B - See attached backup information for included items	$2,500												
	SW3	HF Section C - See attached backup information for included items	$1,800												
	SW4	HF Section C2 - See attached backup information for included items	$1,800												
	SW5	HF Section D - See attached backup information for included items	$1,800												
	SW6	HF Section D2 - See attached backup information for included items	$1,800												
	SW7	HF Section E (BACKBONE) - See attached backup information for included items	$1,600												
	SW8	HF Section E (IN-TRACT) - See attached backup information for included items	$1,600												
	SW9	HF Section F (BACKBONE) - See attached backup information for included items	$1,400												
	SW10	HF Section F (IN-TRACT) - See attached backup information for included items	$1,400												
	SW10A	Hardy Road Improvments (OFF-SITE) - See attached backup information for included items	$1,300	-	LF	$0	5,000	LF	$6,500,000	-	LF	$0	-	LF	$0
	SW10B	Skyline Road Improvments (OFF-SITE) - See attached backup information for included items	$1,900	-	LF	$0	-	LF	$0	-	LF	$0	1,500	LF	$2,850,000
	SW11	Furnish and Install Misc Conduit for Sustainable Energy (including but not limited to Chilled Water, Geothermal, Reclaimed etc) - Complete in place.	$100	-	LF	$0	-	LF	$0	-	LF	$0	-	LF	$0
	SW12	Additional Storm Conveyance in lieu of open space channels / overland waterways	$250	-	LF	$0	-	LF	$0	-	LF	$0	-	LF	$0
	SW13	Precast Concrete Water Crossing. Complete in place.	$50				-	SF	$0		SF	$0		SF	$0
	SW14	Bridge over Cottonwood Bay on Southwestern End of Project - 800 x 50 ft wide (4 travel lanes / 2 sidewalks) - concrete supports with prestressed concrete girder	$85	-	SF	$0	-	SF	$0	-	SF	$0	40,000	SF	$3,400,000
	SW15	Replacement Bridge over Diversion Channel on Southern End of Project - 400 x 10 ft wide (pedestrian / bikes only) - concrete supports with prestressed concrete girder	$65	-	SF	$0	4,000	SF	$260,000	-	SF	$0	-	SF	$0
	SW16	Bridge over Diversion Channel on Southern End of Project - 400 x 50 ft wide (4 travel lanes / 2 sidewalks) - concrete supports with prestressed concrete girder	$85	-	SF	$0	20,000	SF	$1,700,000	-	SF	$0	-	SF	$0
	N16	AV Tansit - 2 vehicles (Cost provided by Fehr and Peers)	$12,400,000	-	EA	$0	-	EA	$0	1	EA	$12,400,000	-	EA	$0
	Total Parks and Open Space Breakdown (by SWA dated 05/27/2021)														
	SW17	Urban Agriculture	$185,000							-	AC	$0			
	SW18	Programmed Park Space	$1,000,000							12.90	AC	$12,900,000			
	SW19	Non-Programmed Open Space	$65,000							44.50	AC	$2,892,500			
	SW20	Native Prairie	$5,000							22.40	AC	$112,000			
	SW21	Wetlands	$870,000							3.60	AC	$3,132,000			
	SW22	Blue - Green Infrastructure	$160,000							11.50	AC	$1,840,000			
	SW23	Forested Edge	$25,000							-	AC	$0			
			SOUTHWEST DISTRICT SUBTOTAL			**$0**			**$8,460,000**			**$33,276,500**			**$6,250,000**

APPENDIX 2.3: BREAKDOWN OF SCENARIO COSTS

SCENARIO THREE

PREPARED: May 23, 2021

UPDATED: August 4, 2021

				Scenario Three											
				PHASE 1			PHASE 2			PHASE 3			PHASE 4		
District	Item No.	Description of Item	Unit Cost	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount
SOUTHEAST	SE1	HF Section A - See attached backup information for included items	$600												
	SE2	HF Section B - See attached backup information for included items	$2,500												
	SE3	HF Section C - See attached backup information for included items	$1,800												
	SE4	HF Section C2 - See attached backup information for included items	$1,800												
	SE5	HF Section D - See attached backup information for included items	$1,800												
	SE6	HF Section D2 - See attached backup information for included items	$1,800												
	SE7	HF Section E (BACKBONE) - See attached backup information for included items	$1,600												
	SE8	HF Section E (IN-TRACT) - See attached backup information for included items	$1,600												
	SE9	HF Section F (BACKBONE) - See attached backup information for included items	$1,400												
	SE10	HF Section F (IN-TRACT) - See attached backup information for included items	$1,400												
	SE11	Furnish and Install Misc Conduit for Sustainable Energy (including but not limited to Chilled Water, Geothermal, Reclaimed etc) - Complete in place.	$100												
	SE12	Additional Storm Conveyance in lieu of open space channels / overland waterways	$500												
	SE13	Precast Concrete Water Crossing. Complete in place.	$50				-	SF	$0		SF	$0		SF	$0
	Total Parks and Open Space Breakdown (by SWA dated 05/27/2021)														
	SE14	Urban Agriculture	$185,000	-	AC	$0	-	AC	$0	-	AC	$0	-	AC	$0
	SE15	Programmed Park Space	$1,000,000							5.10	AC	$5,100,000			
	SE16	Non-Programmed Open Space	$65,000							1.20	AC	$78,000			
	SE17	Native Prairie	$5,000							18.20	AC	$91,000			
	SE18	Wetlands	$870,000							0.20	AC	$174,000			
	SE19	Blue - Green Infrastructure	$160,000							-	AC	$0			
	SE20	Forested Edge	$25,000							-	AC	$0			
			SOUTHEAST DISTRICT SUBTOTAL			**$0**			**$0**			**$5,443,000**			**$0**

APPENDIX 2.3: BREAKDOWN OF SCENARIO COSTS

SCENARIO THREE

PREPARED: May 23, 2021

UPDATED: August 4, 2021

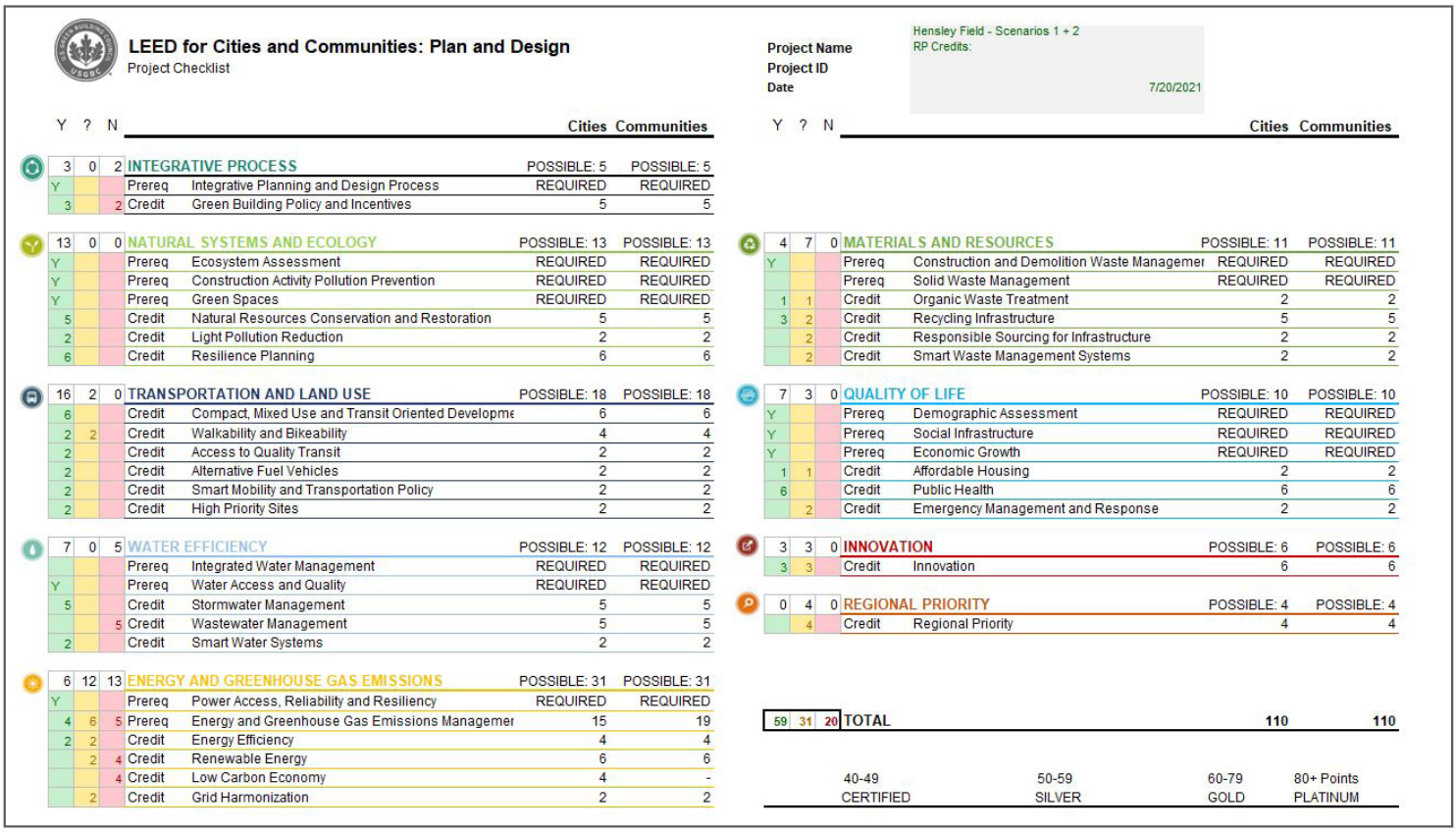
				Scenario Three											
				PHASE 1			PHASE 2			PHASE 3			PHASE 4		
District	Item No.	Description of Item	Unit Cost	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount	Approx. Qty	Unit	Amount
OVERALL	O1	Mass Grading - Excavation	$2							1,605,000	CY	$3,210,000			
	O2	Mass Grading - Embankment	$4							1,015,000	CY	$4,060,000			
	O3	Mass Grading - Embankment on Peninsula to allow development	$4							350,000	CY	$1,400,000			
	O4	Mass Grading - Excavation / Dredgin from Proposed Marina to Cottonwood Bay (includes $10M of permitting)	$8							735,000	CY	$15,880,000			
	O5	Mass Grading - Additional placement of excess material in lieu of Export	$4							975,000	CY	$3,900,000			
	O6	Mass Grading - Import Fill Material	$25							-	CY	$0			
	O7	Regional Water Quality - Multiple facilities acting in series including rain gardens, sand filters, vegetative filter strips, and biofiltration pond. Does not include rain gardens in Road Section B, D, and E.	$75							-	CY	$0			
	O8	Deconstruct Pavement Section T-35R (18" Reinforced Concrete, 12" Treated Base) including but not limited to all improvements: light poles, cable, pull boxes, curbs, etc.. Concrete to be broken and stockpiled for reuse.	$8							150,000	SY	$1,200,000			
	O9	Deconstruct Pavement Section T-30R (18" Reinforced Concrete, 12" Treated Base) including but not limited to all improvements: light poles, cable, pull boxes, curbs, etc.. Concrete to be broken and stockpiled for reuse.	$8							60,000	SY	$480,000			
	O10	Deconstruct Pavement Section - Aircraft Parking 1 and 2 (18" Reinforced Concrete, 12" Treated Base) including but not limited to all improvements: light poles, cable, pull boxes, curbs, etc.. Concrete to be broken and stockpiled for reuse.	$8							160,000	SY	$1,280,000			
	O11	Deconstruct Pavement Section - Taxiways (18" Reinforced Concrete, 12" Treated Base) including but not limited to all improvements: light poles, cable, pull boxes, curbs, etc.. Concrete to be broken and stockpiled for reuse.	$8							200,000	SY	$1,600,000			
	O12	Furnish and Install 30" Wastewater transmission main to WWTP including 12" connections, MHs, connection to plant, and traffic control. DOES NOT includes land / easement acquistion. Complete in place.	$380	18,000	LF	$6,840,000									
	O13	Offsite Oncor Costs to provide service including Sub-station and extension to property.	$4,000,000							1.1	LS	$4,400,000			
	O14	Shoreline Improvement - Vegetated Bench including recycled rip-rap, planting soil, vegetation (10'x3')	$150	10,600	LF	$1,590,000									
	O15	Shoreline Improvement - Bulkhead (4' tall sheet piling)	$80	3,000	LF	$240,000									
	O16														
	O17														
	O18	Hanger / Building Stabilization	$2,500,000	1	LS	$2,500,000	-	LS	$0	-	LS	$0	-	LS	$0
	O19	Solar Panel Array	$25	139,000	SF	$3,500,000	139,000	SF	$3,500,000	-	SF	$0		SF	$0
	O20	*GeoThermal (PHASE 1) - Fields, chiller plant, infrastructure not including piping for distribution throughout site*	$55,900,000	1	EA	$18,100,000	1	EA	$10,500,000	1	EA	$10,500,000	1	EA	$8,400,000
	O21	*GeoThermal (PHASE 2) - Fields, chiller plant, infrastructure not including piping for distribution throughout site*	$54,550,000	-	EA	$0	1	EA	$13,550,000	1	EA	$16,800,000	1	EA	$16,800,000
			OVERALL SUBTOTAL			**$32,770,000**			**$27,550,000**			**$64,710,000**			**$25,200,000**
			TOTAL (NORTH + SOUTHWEST + SOUTHEAST + OVERALL)			**$84,409,600**			**$112,297,000**			**$160,422,525**			**$41,935,125**
			Soft Costs (10%)			**$8,440,960**			**$11,229,700**			**$16,042,253**			**$4,193,513**
			GRAND TOTAL			**$92,850,560**			**$123,526,700**			**$176,464,778**			**$46,128,638**
			Per Acre			*$129,138*			*$171,803*			*$245,431*			*$64,157*

Notes: **The above Engineer's Opinion of Probable Construction Cost is based on Stantec. Reasonable Professional Judgment and Experience and Does Not Constitute a Warranty, Expressed or Implied, that the actual cost will not vary.**

APPENDIX 2.4

LEED FOR CITIES AND COMMUNITIES CHECK LIST

APPENDIX 2.4 LEED FOR CITIES AND COMMUNITIES CHECK LIST



LEED for Cities and Communities: Plan and Design
Project Checklist

Project Name	Hensley Field - Scenarios 1 + 2
Project ID	RP Credits:
Date	7/20/2021

Y	?	N			Cities	Communities
3	0	2	**INTEGRATIVE PROCESS**		POSSIBLE: 5	POSSIBLE: 5
Y			Prereq	Integrative Planning and Design Process	REQUIRED	REQUIRED
3		2	Credit	Green Building Policy and Incentives	5	5
13	0	0	**NATURAL SYSTEMS AND ECOLOGY**		POSSIBLE: 13	POSSIBLE: 13
Y			Prereq	Ecosystem Assessment	REQUIRED	REQUIRED
Y			Prereq	Construction Activity Pollution Prevention	REQUIRED	REQUIRED
Y			Prereq	Green Spaces	REQUIRED	REQUIRED
5			Credit	Natural Resources Conservation and Restoration	5	5
2			Credit	Light Pollution Reduction	2	2
6			Credit	Resilience Planning	6	6
16	2	0	**TRANSPORTATION AND LAND USE**		POSSIBLE: 18	POSSIBLE: 18
6			Credit	Compact, Mixed Use and Transit Oriented Developme	6	6
2	2		Credit	Walkability and Bikeability	4	4
2			Credit	Access to Quality Transit	2	2
2			Credit	Alternative Fuel Vehicles	2	2
2			Credit	Smart Mobility and Transportation Policy	2	2
2			Credit	High Priority Sites	2	2
7	0	5	**WATER EFFICIENCY**		POSSIBLE: 12	POSSIBLE: 12
			Prereq	Integrated Water Management	REQUIRED	REQUIRED
Y			Prereq	Water Access and Quality	REQUIRED	REQUIRED
5			Credit	Stormwater Management	5	5
		5	Credit	Wastewater Management	5	5
2			Credit	Smart Water Systems	2	2
6	12	13	**ENERGY AND GREENHOUSE GAS EMISSIONS**		POSSIBLE: 31	POSSIBLE: 31
Y			Prereq	Power Access, Reliability and Resiliency	REQUIRED	REQUIRED
4	6	5	Prereq	Energy and Greenhouse Gas Emissions Managemer	15	19
2	2		Credit	Energy Efficiency	4	4
	2	4	Credit	Renewable Energy	6	6
		4	Credit	Low Carbon Economy	4	-
	2		Credit	Grid Harmonization	2	2

Y	?	N			Cities	Communities
4	7	0	**MATERIALS AND RESOURCES**		POSSIBLE: 11	POSSIBLE: 11
Y			Prereq	Construction and Demolition Waste Managemer	REQUIRED	REQUIRED
			Prereq	Solid Waste Management	REQUIRED	REQUIRED
1	1		Credit	Organic Waste Treatment	2	2
3	2		Credit	Recycling Infrastructure	5	5
	2		Credit	Responsible Sourcing for Infrastructure	2	2
	2		Credit	Smart Waste Management Systems	2	2
7	3	0	**QUALITY OF LIFE**		POSSIBLE: 10	POSSIBLE: 10
Y			Prereq	Demographic Assessment	REQUIRED	REQUIRED
Y			Prereq	Social Infrastructure	REQUIRED	REQUIRED
Y			Prereq	Economic Growth	REQUIRED	REQUIRED
1	1		Credit	Affordable Housing	2	2
6			Credit	Public Health	6	6
	2		Credit	Emergency Management and Response	2	2
3	3	0	**INNOVATION**		POSSIBLE: 6	POSSIBLE: 6
3	3		Credit	Innovation	6	6
0	4	0	**REGIONAL PRIORITY**		POSSIBLE: 4	POSSIBLE: 4
	4		Credit	Regional Priority	4	4
59	31	20	**TOTAL**		110	110

40-49	50-59	60-79	80+ Points
CERTIFIED	SILVER	GOLD	PLATINUM

APPENDIX 3.1

SCENARIO CONFORMANCE TO GUIDING PRINCIPLES AND GOALS

PERFORMANCE RELATED TO GUIDING PRINCIPLES & GOALS

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
1. ENVIRONMENTAL HEALTH	7+	6+	10+
2. ECONOMICOPPORTUNITY & INVESTMENT	6+	3+	7+
3. AFFORDABILITY & DIVERSITY	1+	2+	1+
4. HEALTHY COMMUNITIES	5+	5+	5+
5. MOBILITY & ACCESS	6+	5+	8+
6. HISTORY & CULTURE	6+	6+	6+
TOTAL	31+	27+	37+

C. PERFORMANCE RELATED TO GUIDING PRINCIPLES & GOALS

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
1. ENVIRONMENTAL HEALTH	7+	6+	10+
Net Zero Construction by 2030	+	+	+
Combat Heat Island Effect	+	+	+
Employ Green Infrastructure	++	+	+++
Protect the Night Sky	+	+	+
Support the Circular Economy	+	+	++
Achieve LEED Cities and Communities	+	+	++

C. PERFORMANCE RELATED TO GUIDING PRINCIPLES & GOALS

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
2. ECONOMIC OPPORTUNITY & INVESTMENT	**6+**	**3+**	**7+**
Pursue one or more anchor uses	**++**		**++**
Attract advanced technology companies	**+**		**++**
Site amenities and green infrastructure.	**++**	**+**	**+++**
Hangar reuse for local/small businesses	**+**	**++**	**+**

C. PERFORMANCE RELATED TO GUIDING PRINCIPLES & GOALS

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
3. AFFORDABILITY & DIVERSTIY	**1+ 5?**	**2+ 5?**	**1+ 5?**
Balanced and mixed income	**?**	**?**	**?**
Missing Middle Housing Types	**+**	**++**	**+**
Long-Term Affordability	**?**	**?**	**?**
Integrated and Indistinguishable	**?**	**?**	**?**
Pathways to Home Ownership	**?**	**?**	**?**
Age in Place	**?**	**?**	**?**

C. PERFORMANCE RELATED TO GUIDING PRINCIPLES & GOALS

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
4. HEALTHY COMMUNITIES	**5 + 1?**	**5 + 1?**	**5 + 1?**
Full-Service Grocery Store	**+**	**+**	**+**
Urban Agriculture	**+**	**+**	**+**
Health Care Facilities	**?**	**?**	**?**
Walkable and Bikeable	**+**	**+**	**+**
Connected Network of Parks	**+**	**+**	**+**
Educational Facilities	**+**	**+**	**+**

C. PERFORMANCE RELATED TO GUIDING PRINCIPLES & GOALS

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
5. MOBILITY & ACCESS	**6 +**	**5 +**	**8 +**
Reduce single-occupancy trips	**+**	**++**	**+**
High frequency transit connections	**++**	**+**	**+++**
Multiple high quality travel choices	**++**	**+**	**+++**
New and emerging technologies	**+**	**+**	**+**

C. PERFORMANCE RELATED TO GUIDING PRINCIPLES & GOALS

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
6. HISTORY & CULTURE	**6+**	**6+**	**6+**
Determine eligibility of historic and cultural resources	+	+	+
Ensure that key elements of the historic context remain	+	+	+
Adaptive reuse of hangars and other structures	+	+	+
Introduce interpretive elements	+	+	+
Identify preservation-related resources	+	+	+
Promote green jobs through preserving existing buildings	+	+	+
TOTAL ALL PRINCIPLES	**31+ 6?**	**27+ 6?**	**37+ 6?**

APPENDIX 3.1 SCENARIO CONFORMANCE TO GUIDING PRINCIPLES AND GOALS

PERFORMANCE RELATED TO GUIDING PRINCIPLES & GOALS

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
1. ENVIRONMENTAL HEALTH	7+	6+	10+
2. ECONOMICOPPORTUNITY & INVESTMENT	6+	3+	7+
3. AFFORDABILITY & DIVERSITY	1+	2+	1+
4. HEALTHY COMMUNITIES	5+	5+	5+
5. MOBILITY & ACCESS	6+	5+	8+
6. HISTORY & CULTURE	6+	6+	6+
TOTAL	31+	27+	37+

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
1. ENVIRONMENTAL HEALTH	7+	6+	10+
Net Zero Construction by 2030	+	+	+
Combat Heat Island Effect	+	+	+
Employ Green Infrastructure	++	+	+++
Protect the Night Sky	+	+	+
Support the Circular Economy	+	+	++
Achieve LEED Cities and Communities	+	+	++

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
2. ECONOMIC OPPORTUNITY & INVESTMENT	**6+**	**3+**	**7+**
Pursue one or more anchor uses	++		++
Attract advanced technology companies	+		++
Site amenities and green infrastructure.	++	+	+++
Hangar reuse for local/small businesses	+	++	+

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
3. AFFORDABILITY & DIVERSTIY	**1+ 5?**	**2+ 5?**	**1+ 5?**
Balanced and mixed income	?	?	?
Missing Middle Housing Types	+	++	+
Long-Term Affordability	?	?	?
Integrated and Indistinguishable	?	?	?
Pathways to Home Ownership	?	?	?
Age in Place	?	?	?

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
4. HEALTHY COMMUNITIES	**5 + 1?**	**5 + 1?**	**5 + 1?**
Full-Service Grocery Store	+	+	+
Urban Agriculture	+	+	+
Health Care Facilities	?	?	?
Walkable and Bikeable	+	+	+
Connected Network of Parks	+	+	+
Educational Facilities	+	+	+

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
5. MOBILITY & ACCESS	**6 +**	**5 +**	**8 +**
Reduce single-occupancy trips	+	++	+
High frequency transit connections	++	+	+++
Multiple high quality travel choices	++	+	+++
New and emerging technologies	+	+	+

	SCENARIO ONE	SCENARIO TWO	SCENARIO THREE
6. HISTORY & CULTURE	**6+**	**6+**	**6+**
Determine eligibility of historic and cultural resources	+	+	+
Ensure that key elements of the historic context remain	+	+	+
Adaptive reuse of hangars and other structures	+	+	+
Introduce interpretive elements	+	+	+
Identify preservation-related resources	+	+	+
Promote green jobs through preserving existing buildings	+	+	+

APPENDIX 3.2

SCENARIO CONFORMANCE TO CECAP GOALS

CECAP GOALS & ACTION ITEMS MET BY HENSLEY FIELD PLANNING SCENARIOS

Goal 3: TRANSPORTATION

#	CECAP Action	HF Approach	Scenario 1	Scenario 2	Scenario 3
T14	Parking ordinance strategy that supports new mode split goals and land use strategy that minimizes available parking in transit-oriented districts.	Minimize extensive parking to encourage alternative transportation and retrofit surface lots with green infrastructure (such as permeable pavement, rain gardens, and bioswales) for water conveyance and infiltration.	YES	YES	YES
T15	Implement green infrastructure programs that specify design and performance standards that treat the right-of-way as both a mobility and green infrastructure asset.	Build a network of trails, greenspace, and green infrastructure that serves as a critical mobility asset that connects neighborhoods to places of employment without need for single-occupancy vehicles.	YES	YES	YES

Goal 5: WATER

#	CECAP Action	HF Approach	Scenario 1	Scenario 2	Scenario 3
WR3	Evaluate opportunities and financial feasibility for reusing water for non-drinking purposes.	Clean, collect, and store stormwater runoff for non-potable re-use in landscape.	YES	NO	YES
WR4	Encourage businesses and residents to plant drought tolerant and native vegetation or xeriscape to reduce irrigation water use.	Integrate native and non-invasive drought-tolerant planting throughout the site where feasible in order to reduce water-footprint and promote resiliency.	YES	YES	YES
WR5	Monitor and protect water quality and implement improvement projects in the watershed.	Protect the greater watershed via strategies such as phytoremediation and blue/green infrastructure.	YES	YES	YES

Goal 6: ECOSYSTEMS

#	CECAP Action	HF Approach	Scenario 1	Scenario 2	Scenario 3
EG1	Increase and improve access to green spaces particularly within vulnerable communities to reduce impact of Urban Heat Island, localized flooding, and improve public health.	Maintain and enhance ecosystem services of open space in order to combat heat island effect, flooding, and negative impacts on public health.	YES	YES	YES
EG2	Assess opportunities for blue-green infrastructure in the public realm to reduce flood risk.	Prioritize integration of blue-green infrastructure in areas prone to flooding such as neighborhoods, commercial space, hardscape, and public space.	YES	YES	YES
EG3	Increase tree canopy in both private and public realm to complete implementation of recommendations from the urban forest master plan.	Plant and preserve at least 40% tree canopy coverage throughout the site; provide vertical	YES	YES	YES
EG4	Collaborate with community organizations to promote tree planting efforts, protection of trees and prairies, and drought tolerant landscapes.	Solidify protection and restoration of the native Blackland Prairies throughout the site and offer educational programming to inform visitors and residents about ecosystem services and benefits and identify community organization collaborations.	YES	YES	YES
EG8	Improve the quality of urban ecosystems in Dallas through the sustainable appropriate design, creation and planting of urban habitats.	Preservation and creation of bio-habitats and wildlife corridors to increase biodiversity on site.	YES	YES	YES

Goal 7: FOOD					
#	**CECAP Action**	**HF Approach**	**Scenario 1**	**Scenario 2**	**Scenario 3**
FA1	Increase access to information on sustainable agriculture, best practices and the benefits of healthy and local foods.	Promote education and and keep programming surrounding sustainable urban farming, locally sourced goods, edible landscapes, and low carbon diets.	YES	YES	YES
FA4	Facilitate partnerships between schools + non-profits to develop neighborhood-based growing initiatives + kitchen gardens in neighborhoods with low food access.	Grow and cultivate healthy foods and initiatives to encourage equitable access to fresh produce. Scenario 2 puts a specific emphasis on this action item with the placement of community gardens throughout the site.	YES	**YES**	YES
FA8	Support the creation of food related green jobs in production, processing, storage, distribution and waste management.	Encourage composting operations, food incubators, food hubs, or food research centers in order to create green jobs and economic opportunities.	YES	YES	**YES**
FA10	Enhance the market by providing incentives to sell locally produced food at affordable prices.	Support development of regional and local food systems to encourage the sale and circulation of locally produced goods.	YES	YES	YES
FA12	Identify opportunities for controlled-environment agriculture to increase local food production that are less energy and water intensive and protected from climate extremes.	Research, innovate, and implement climate-controlled food production such as hydroponics, aquaculture, vertical farming, vermiculture, etc.	YES	NO	YES

Goal 8: AIR			
CECAP Objective	**Scenario 1**	**Scenario 2**	**Scenario 3**
Increase, enhance and maintain healthy forests, parks, and green spaces, that improve air quality.	YES	YES	YES
Operate a clean, green and efficient waste system.	YES	YES	YES
Synergize jobs and housing with transportation infrastructure to increase access to walking and biking options, and public transit.	YES	YES	YES

APPENDIX 4.1

COMMUNITY COMPOSTING

Recommendation SF-7: Community Composting as part of Green Infrastructure System

Diverting organic materials from the municipal solid waste stream and from landfills has the potential to significantly reduce greenhouse gas emissions. The decomposition of organic materials in landfills creates methane, a potent greenhouse gas with 23 times higher global warming potential than carbon dioxide. According to the U.S. EPA, municipal solid waste landfills are the third largest source of human-related methane emissions in the United States.[1] While some landfills are designed to capture methane and convert it into natural gas that can be used as an energy source, methane still has the potential to leak into the atmosphere. A much better solution is to divert organics from the landfill and convert them into compost or other soil amendments. This approach supports organic gardening and other beneficial agricultural activities. Compost-enriched soils have the added benefit of sequestering CO2, thus reducing human-induced contributions to climate change.

Several community scale composting systems – from small neighborhood to district scale – are available on the market. The following are included as examples only, with capacity and cost information helpful for planning purposes. Operating these systems also represent an opportunity to create green jobs at Hensley Field.[2]

Composting takes place in controlled batches with airtight vessels (CompTainers) that can be moved and emptied by roll-off trucks. The modular system allows for growth and complete control.
Capacity: 1 - 100 tons/day
Cost: $40k - $1 million

[1] https://www.epa.gov/lmop/basic-information-about-landfill-gas. Sourced: 8/3/21
[2] Examples from Green Mountain Technologies - https://www.compostingtechnology.com

The Earth Flow™ (above) is an automated in-vessel composting system with integrated mixing and aeration. The fully automated Earth Flow reduces labor costs and creates gorgeous compost.
Capacity: 300 lbs – 10 tons/day
Cost: $45k – $145k

The neighborhood-scale composting system for food waste. Easy and affordable. Complete enclosure prevents animals and bugs from accessing the compost. Roof-mounted biofilter eliminates smells. (Pictured above)
Capacity: Up to 50lbs per day
Cost: $3k - $5k