JOHNSON CITY ISD

FOOTBALL STADIUM

SITE EVALUATION & ASSESSMENT

JULY 2010

JOHNSON CITY ISD

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I. EXECUTIVE SUMMARY

The primary objective of this work is to assist the Johnson City Independent School District with selecting the optimal site for development of a future stadium/athletic complex. Lockwood, Andrews & Newnam, Inc. was given three (3) alternative sites to review and asked to develop an objective recommendation for stadium development. The sites reviewed were: 1) The existing football stadium/complex, 2) The existing competition track, and 3) The current High School football practice field.

An objective evaluation methodology was developed whereby the three alternative sites were ranked best to worst on eleven (11) different site criteria. The criteria were then ranked from greatest to least priority from the perspective of three user groups/stakeholders: 1) The Community, 2) District Administration, and 3) Facility Planner (e.g. architect or engineer). Site rankings and criteria priorities were then mathematically related to create three (3) cumulative, objective rankings, one from each user group perspective. This entire exercise was completed independent of capital cost to ensure the optimal site location was identified based on value or site merit rather than project feasibility or funding availability.

Following the detailed analytical exercise **the optimal site identified for future stadium development is the current location of the High School practice field**.[1] This site offers greatest long term flexibility and functional benefit, primarily due to its proximity to the High School. Only after identifying this site as the preferred location were capital cost comparisons of the sites considered.

The cost evaluation performed considers capital cost of stadium development at each site as well as the flexibility each site affords. Simply put, the sites evaluated do not offer the opportunity for an equal cost comparison as each requires a program of different scope. The optimal site identified (Practice Field) requires the greatest capital investment to create a complete athletic complex; however, the flexibility of the site provides the District with an opportunity to develop at the ideal site in phases, as funding becomes available. **The decision made today will have a lasting impact on the community**, thus it is important to consider not only immediate impact but long term benefit and sustainability.

The conservative estimated program budget to develop a comprehensive athletic complex at the recommended site is $10.2 million; however, with a selective capital program to meet the minimum needs for athletic competition the ideal site can be developed in an initial phase for $5.1 million (less than 10% more than the cost to rebuild at the existing stadium, where some assets could be reused).

With these findings, it is recommended that if (or when) the District chooses to pursue stadium improvements, a program be established to begin transforming the current High School practice field into a full service athletic complex, with phasing built around funding capabilities. Through this evaluation effort, this was deemed the most cost effective long term asset management model.

[1] The current track location was identified as the second best site of the three reviewed.

II. SCOPE

The Johnson City independent School District (JCISD or the District) acquired the professional services of Lockwood, Andrews & Newnam, Inc. (LAN) for the purpose of performing site evaluations for the potential pursuit of football stadium construction. The specific scope of work given LAN was to:

- Physically assess and evaluate three (3) potential stadium sites;
- Perform an objective assessment of each site's pros and cons; and,
- Develop recommendations for project pursuit/potential development.

The three (3) sites to be evaluated by LAN were identified by and are currently owned and maintained by the District. The properties or sites are referenced throughout this document as follows.

- **Site 01 (Stadium):** This property is the site of the District's current High School, competition football stadium commonly known as LBJ Stadium. This property is located due east of LBJ High School and just west of Hwy 281, off of Victory Lane.
- **Site 02 (Track):** This site is a portion of the 77-acre property that is home to LBJ High School. Specifically, this location is at the southern end of the property nearest the intersection of North Nugent Avenue (Spur 356) and Ash Street.
- **Site 03 (Practice Field):** This site is also a small portion of the 77-acre LBJ High School property but is at the northwest portion of the parcel. This is the current location of a practice field used by the high school football team and band and is located southwest of the LBJ High School agriculture education facilities.

A map identifying all three (3) sites relative to one another follows as Figure 1. This figure provides a rough understanding of each site's current provision, development, orientation, and surrounding features.

FIGURE 1: OVERALL SITE MAP

This report details work performed in evaluating each location, making objective comparisons of sites, and formulating recommendations for District action or pursuit.

The scope of work did not include community participation, assessment, or interaction, thus conclusions and recommendations were not influenced by such a group. **Every effort was made to remain objective in all evaluations**, comparisons, and assessments.

III. PROJECT APPROACH

The scope of work defined by the District naturally divides the project approach into three (3) primary tasks.

- Obtain record documents and/or information and evaluate.
- Perform field assessments of identified alternative sites.
- Evaluate record information collectively with field documentation and findings.

RECORD DOCUMENTS

In performing site evaluations and, more importantly, in comparing alternative sites, archived information can prove beneficial. In the case of this work the records researched and referenced included the JCISD master plans, an LBJ High School site plan, preliminary site plans for stadium development at Site 02 (Track), topographic maps, floodplain maps, and aerial photography. In addition, current programs and needs were discussed with District administration to gain a sufficient understanding of how current facilities are used and what alternative uses and usage patterns have been considered.

Record documents were gathered for the purpose of considering and evaluating the following with regard to potential stadium construction.

- **Construction Schedule Impact:** How a traditional construction schedule will impact the current program needs of the District; for example, in a worst case scenario construction at Site 03 (Practice Field) may require that an alternative site be identified to accommodate practices.
- **Alignment with Master Plan:** The degree to which each alternative site aligns with previous planning and evaluation efforts.
- **Proximity to High School:** The convenience and availability to the most notable user group of a potential stadium, understanding that the level of use and proximity likely correlate.
- **Space Available for Parking:** Portion of the site available to accommodate both immediate needs for parking and future amenities to accommodate growth.
- **Ability to Incorporate Support Facilities:** Provision of space to allow for ultimate construction of master planned athletic facilities, which may include a complete field house, equipment storage buildings, restrooms, concession areas, ticket booth(s), additional bleachers, and/or a competition track.
- **Previous Investment in the Site/ Facility:** Total capital and historic facility/property maintenance and operations investment in each site.

FIELD ASSESSMENTS

Record information is beneficial to initiating thought and developing preliminary opinions but cannot take the place of field observation. In this effort each site was physically walked, observed, and evaluated by a professional civil engineer licensed in the State of Texas.

Field observations were performed for the purpose of considering and evaluating the following with regard to potential stadium construction.

- **Field Orientation (Fan Experience):** Bleacher view, proximity to parking, home/visitor fan interaction potential, and other features from the perspective of a stadium patron.
- **Adverse Construction Impact:** Potential for negative impacts to adjacent property or the site in general; for example, interruption of drainage patterns or restriction of further site development.
- **Site Impact (Establishing a Landmark):** The ability for the District to leave a lasting legacy at each site by establishing a District landmark.
- **Traffic Ingress/Egress Potential:** Ability for traffic (buses and passenger cars) to access and leave the site conveniently, effectively, and efficiently.

Data Evaluation

The above criteria or potential facility considerations were collectively evaluated for each of the three (3) sites assessed. Additionally, consideration was subjectively given to long term maintenance and operations costs for each site. No conceptual or specific long term maintenance and operations cost estimates were derived here but rather comparisons were based on subjective evaluations of each site and professional opinion with regard to long term maintenance and operating requirements.

Site Selection

In order to then proceed with developing an objective site selection recommendation for the District, the three (3) sites were ranked on each of these categories. For example, the site deemed to provide the best fan experience was ranked number 1; the second and third best sites followed. This exercise was performed for all eleven (11) criteria with results tabulated and fully explained in the Site Comparisons section of this report.

Once site alternatives were ranked for all categories, the objective rankings were prioritized from various stakeholder perspectives to objectively identify the optimal site location. Findings and subsequent recommendations developed at the conclusion of this process are provided within this report, and a detailed discussion of the methodology developed is provided as Appendix C.

Ideally, a site should be selected on its merits alone, not on the capital cost associated with improvements. As such the above analysis (evaluating factors not dependent or greatly affecting cost) was performed to arrive at that objective determination, answering the question of which site presents the best development opportunity and long term management plan to the District. Only after identifying what is considered the optimal site are conceptual capital costs discussed, thus the concluding sections of this document present capital cost comparisons and potential planning/phasing alternatives for the three (3) sites.

IV. SITE COMPARISONS

CRITERIA RANKING

As outlined in the Project Approach, eleven (11) criteria were identified for objectively evaluating and comparing the pros and cons of each potential stadium site; this exercise was followed by a detailed capital cost comparison. The alternative sites were ranked from best (1) to worst (3) under each criterion. A summary of rankings developed is provided in Table 1.

TABLE 1: SITE COMPARISON CRITERIA RANKINGS

Criteria	Site 01 Stadium	Site 02 Track	Site 03 Practice Field
Long Term M&O Cost	3	2	1
Field Orientation (Fan Experience)	3	2	1
Adverse Construction Impact	1	3	2
Construction Schedule Impact	3	1	1
Alignment with Master Plan	3	1	2
Proximity to High School	3	2	1
Space Available for Parking	3	1	1
Site Impact (Establishing a Landmark)	3	2	1
Traffic Ingress/Egress (Potential)	2	1	3
Ability to Incorporate Support Facilities	3	2	1
Previous Investment in the Site/Facility	1	2	3
Cumulative Ranking	**28**	**19**	**17**

The scoring was established with a low score indicating the ideal site selection. The following provides brief justification for rankings assigned for each criterion and summarized above.

LONG TERM M&O COST

Rankings are assigned based on experience and perceived long term need with regard to maintenance and operating requirements.

1. **Site 03 (Practice Field):** Estimated to have the lowest long term maintenance cost primarily due to proximity to other facilities.
2. **Site 02 (Track):** Likely to experience higher M&O costs due to potential for significant stormwater drainage issues over time.
3. **Site 01 (Stadium):** Assumed to have the highest M&O costs due to its remote location and need for duplicate facilities. For example, due to the location of the existing stadium no High School infrastructure (i.e. parking, equipment storage, etc.) could be utilized to serve this space. This results in maintenance of parking facilities used only during athletic events rather than maintenance of parking facilities used both during school hours and athletic events.

FIELD ORIENTATION (FAN EXPERIENCE)

The primary consideration here was the view provided first to home fans and second to visiting fans. Additional consideration was given to proximity to available parking and the

potential to segregate home and visitor fans during the course of an athletic event.

1. **Site 03 (Practice Field) – Tie with Site 02:** Field orientation would not require fans to look due west into a setting sun, and the location at the top of the hill offers an excellent overall view. Additionally, construction of additional parking could minimize, if not eliminate, contact between home and visiting fans during athletic events.
1. **Site 02 (Track) – Tie with Site 03:** Field orientation would be identical to Site 03, but the view at the bottom of the hill is not as picturesque. Also like Site 03, the potential exists to segregate fans from parking facilities onward.
3. **Site 01 (Stadium):** Given the lowest rating primarily due to inability to segregate fans in any way. However, also considered was the fact visiting fans would be required to look due west into the setting sun.[2]

Adverse Construction Impact

Rankings assigned based on perceived impact to drainage patterns as well as potential development footprint. For example, the development footprint of the existing stadium is essentially zero as the site is already fully developed. Alternatively, development at the track would impact a large space in order to meet parking needs.

1. **Site 01 (Stadium):** Given this site is already developed as a stadium there would be little, if any, collateral impact.
2. **Site 03 (Practice Field):** Impacts would be minimal, but stormwater runoff would increase downstream with additional impermeable surfaces. Parking needs are minimal due to the ability to utilize High School facilities.
3. **Site 02 (Track):** Adverse impacts would be significant due to current topography and the need to alter drainage patterns significantly to accommodate parking and manage runoff, only enhancing current runoff problems reported.

Construction Schedule Impact

Rankings are based on minimizing disruption to current programs and District operations.

1. **Site 03 (Practice Field) – Tie with Site 02:** Construction may require the high school football team and band to find an alternative for practice during one (1) season. The likely location would be the track, located on the same property.
2. **Site 02 (Track) – Tie with Site 03:** Construction may require the high school track team to find an alternative for practice during one (1) season, with the likely alternative being the existing stadium. This would require transportation to be provided to facilitate practice.
3. **Site 03 (Stadium):** There is some potential that construction could close the stadium for one (1) season, requiring the District to play all road games. With appropriate project

[2] It is understood that potential field orientations at all sites evaluated would require visiting fans to look into the setting sun; however, Site 01 (Stadium) is the only site where a true north/south field orientation would exist. Other sites considered would require a northeast/southwest orientation where it is assumed the viewing experience would be slightly more favorable to visiting fans.

scheduling and a qualified project team working together this possibility is remote; however, it is noted as a "worst case" scenario.

Alignment with Master Plan

Sites were ranked relative to their correlation with previous plans and studies prepared by or for the District.

1. **Site 02 (Track):** Identified in a 1999 District master plan as the future stadium location.
2. **Site 03 (Practice Field):** Identified in a 1999 District master plan as future practice fields and is ranked second based on the fact it is on the same property as the track.
3. **Site 01 (Stadium):** Not identified in any previous planning efforts of the District.

Proximity to High School

1. **Site 03 (Practice Field):** Located adjacent to the High School. Existing High School facilities, including parking, could potentially be utilized.
2. **Site 02 (Track):** Located on the same property as the High School but separated by a significant distance and elevation change (35-feet).
3. **Site 01 (Stadium):** Located approximately ½ mile due east of the High School, and the properties are separated by several residences and a city park.

Space Available for Parking

Rankings are not based on the current parking facilities or number of spaces available but rather the ability (physical space available) of any one site to accommodate parking.

1. **Site 02 (Track) – Tie with Site 03:** Ample space available to accommodate any future needs with parking facilities located in close proximity to field.
2. **Site 03 (Practice Field) – Tie with Site 02:** Space available to meet long term need, but the proximity is not as favorable as Site 02. However, the opportunity exists to more fully segregate home and visiting fans. Separating fans during athletic events is a preferred, but not necessary, operating model, as separation minimizes potential points of conflict and simplifies all event administration.
3. **Site 01 (Stadium):** Current parking is in place and property is available to expand parking; however, the total space available is not comparable to other sites.

Site Impact (Establishing a Landmark)

Consideration here was given to the potential for new construction at a site to establish a true landmark in the District, leaving a legacy for many years to come.

1. **Site 03 (Practice Field):** Located adjacent the new High School, at the top of a hill overlooking the town center.
2. **Site 02 (Track):** In close proximity to the town center with immediate access to N Nugent Avenue (Spur 356) but located at the bottom of a hill.
3. **Site 01 (Stadium):** Location is tucked away on the north end of town, not easily viewable from major thoroughfares or the town center.

Traffic Ingress/Egress Potential

Primary consideration was given to the ability of a site to facilitate effective egress, providing direct access to major roadways or providing multiple access points.

1. **Site 02 (Track):** Ability to offer multiple egress points in close proximity to N Nugent Avenue (Spur 356).
2. **Site 01 (Stadium):** Ability to offer multiple egress points to Victory Lane and E Ash Drive.
3. **Site 03 (Practice Field):** Primary site access and egress would be to E Ash Drive though the potential exists to route some traffic to W Pecan Dr, similar to that proposed for Site 02 (Track) as shown in Figure 3.[3]

Ability to Incorporate Support Facilities

Similar to the Space Available for Parking criterion, rankings here are based on physical space available to accommodate facilities, not the extent of facilities currently in place.

1. **Site 03 (Practice Field):** Space available to accommodate all potential athletic facilities, including a competition track, ideally located in proximity to parking and surrounding facilities.
2. **Site 02 (Track):** Property available to accommodate perceivable athletic needs, but location relative to site and access points is not ideal.
3. **Site 01 (Stadium):** Ability to accommodate support facilities but insufficient to allow for installation of a competition track or significant expansion of bleacher seating.

Previous Investment in Site/Facility

Rankings here are based on the greatest to least capital and long term operational investment made in facilities.

1. **Site 01 (Stadium):** Construction of the stadium, parking facilities, and all support facilities.
2. **Site 02 (Track):** Construction of a competition track but no support facilities.
3. **Site 03 (Practice Field):** Construction of practice facilities only, with investments in mobile storage facilities and an irrigation system.

Criteria Weighting/Priority

The eleven (11) criteria defined above were developed to provide an objective analysis of potential stadium sites. Collectively these encapsulate primary factors to be considered by the District in selecting a site independent of capital cost. However, it is undoubtedly true that the criteria are not of equal importance. For that reason, the criteria themselves were ranked from most important (rank of 1) to least important (rank of 11) from the following three (3) distinct perspectives or vantage points:

1) The Community;
2) District Administration; and
3) Facility Planning & Management.

Community Perspective

To the average community member or patron of an athletic stadium the event experience is

[3] Pursuit of this alternative is considered secondary to stadium development at Site 03 (Practice Field). Accordingly, the cost to develop this potential alternative exit is not included in estimates/ evaluations herein. The site is thus ranked third for this criteria even though with construction of this alternative the site would be considered tied for second with Site 02 (Track).

typically of greater value than other factors. Rankings detailed in Table 2 communicate this priority.

TABLE 2: CRITERIA RANKING FROM THE COMMUNITY'S PERSPECTIVE

Criteria	Priority
Traffic Ingress/Egress (Potential)	1
Space Available for Parking	2
Field Orientation (Fan Experience)	3
Ability to Incorporate Support Facilities	4
Proximity to High School	5
Previous Investment in the Site/Facility	6
Adverse Construction Impact	7
Alignment with Master Plan	8
Long Term M&O Cost	9
Construction Schedule Impact	10
Site Impact (Establishing a Landmark)	11

DISTRICT ADMINISTRATION PERSPECTIVE

District Administration likely exhibits different interests from the community at large. Of greater importance to typical administration member are functionality of a site and annual maintenance costs rather than a fan's experience on game day. Table 3, following, displays the priority established in evaluation criteria from the administration's viewpoint.

TABLE 3: CRITERIA RANKING FROM THE DISTRICT ADMINISTRATION'S PERSPECTIVE

Criteria	Priority
Ability to Incorporate Support Facilities	1
Site Impact (Establishing a Landmark)	2
Long Term M&O Cost	3
Space Available for Parking	4
Previous Investment in the Site/Facility	5
Traffic Ingress/Egress (Potential)	6
Proximity to High School	7
Construction Schedule Impact	8
Alignment with Master Plan	9
Adverse Construction Impact	10
Field Orientation (Fan Experience)	11

FACILITY PLANNING & MANAGEMENT PERSPECTIVE

When evaluating criteria from a facility planning and management point of view, the priority or weighting differs slightly from both the community and administration. Of greatest importance to planners, engineers, architects, and facility managers/operators are functionality and the ability of a site to adapt to future needs. These priorities are displayed in Table 4 that follows.

TABLE 4: CRITERIA RANKING FROM A FACILITY PLANNING & MANAGEMENT PERSPECTIVE

Criteria	Priority
Proximity to High School	1
Traffic Ingress/Egress (Potential)	2
Space Available for Parking	3
Ability to Incorporate Support Facilities	4
Long Term M&O Cost	5
Adverse Construction Impact	6
Construction Schedule Impact	6
Site Impact (Establishing a Landmark)	8
Alignment with Master Plan	8
Previous Investment in the Site/Facility	10
Field Orientation (Fan Experience)	11

CUMULATIVE SITE RANKING

With the ranking of each potential site developed for each criterion established and the criteria prioritized from various stakeholder perspectives, the opportunity exists to then mathematically (read: objectively) compare alternatives. The mathematical exercise culminates with a single ranking or score for each site from each user group/perspective presented above. Three (3) separate rankings were thus developed in addition to a cumulative ranking (sum of all three) and average ranking (average of all three).

A detailed description of the methodology or approach developed/pursued is provided in Appendix C; findings and subsequently developed recommendations from the analysis performed follow.

V. ANALYSIS FINDINGS

The methodology provided herein was developed with the single goal of identifying the best or most appropriate site to construct a new stadium in the District as objectively as possible. Some subjective evaluation or interpretation was required to rank sites on the eleven (11) criteria defined as well as to prioritize the criteria from the perspective of various stakeholders. However, emotional or political influences were removed from the final development of cumulative rankings.

CUMULATIVE RANKINGS

Table 5 displays a summary of the weighted cumulative rankings for all three (3) sites from the three (3) defined stakeholder perspectives. **The scoring was established with a low score indicating the ideal site selection.**

TABLE 5: CUMULATIVE RANKING SUMMARY

Evaluation Perspective	Site 01 Stadium	Site 02 Track	Site 03 Practice Field
Community	2.50	1.67	1.65
District Administration	2.64	1.71	1.47
Facility Planning	2.63	1.66	1.50
Average Ranking	**2.59**	**1.68**	**1.54**
Total Ranking	**7.76**	**5.04**	**4.62**

The first note to make in reviewing this is that **Site 01 (Stadium) is clearly the least desirable location for a stadium** (of the sites considered). It is important to note this is not an indictment on previous planning, capital improvement, or management efforts but rather a conclusive finding that if a new stadium is considered by the District, better alternatives are available than reconstruction at the existing site.

The second, and more notable, element of the table is that **rankings from each stakeholder perspective are identical, identifying Site 03 (Practice Field) as the optimal stadium location**. Though a negligible difference is noted in rankings from the community vantage point, Site 03 (Practice Field) is a clear preference over Site 02 (Track) from both a facility planner's and district administrator's perspective.

This analysis and finding results in the recommendation that if stadium improvements are to be pursued by the District, all such improvements should be pursued at the current site of the High School Practice Field (Site 03).

VI. CAPITAL COST EVALUATIONS

With the optimal site identified independent of cost, it is only prudent to consider cost impacts at this site in comparison to alternatives. This should be pursued as it is understood capital investment is a critical component of project pursuit. **Even though cost does not make one site better than another from a facility perspective, it may make project pursuit more achievable for an owner.**

The following presents conceptual, high level, and conservative program cost estimates and site plans only. Plans shown are not in any way intended to reflect actual provisions proposed but rather were developed as a point of comparison between potential sites. **Prior to pursuing any stadium construction plan it is recommended the District consult with qualified facilities professionals to more firmly establish desires, needs, and objectives as well as to refine construction cost estimates**.

COST ASSUMPTIONS

For this work, the following assumptions affecting costs presented herein were utilized. Each assumption, if different from District desire, can significantly impact total program cost at project pursuit; therefore, it is critical to take note of each item.

- **All cost estimates presented are given in 2010 dollars and provide for roughly one (1) year of inflation.** All costs are subject to additional market inflation over an extended period of time.[4]
- **Costs estimated for stadium facilities (e.g. field house, concessions, etc.) assume economical finishes and installations**. For example, the cost per square foot for field house construction assumes use of vinyl tile flooring where possible rather than a longer life (read: higher cost) ceramic or terrazzo tile. Square footages used to derive facility cost estimates were identified with conceptual programs of requirements for each site (provided for the field house, Appendix A, and concessions/restrooms, Appendix B).
- Parking estimates aim to provide a density of one (1) space per 2.67 seats where possible.[5]
- **Field construction assumes installation of a field turf (artificial grass) playing surface.** This is presented as the higher cost alternative to a sand base, natural grass surface to ensure conservative estimates are provided.[6]
- The estimate for a new scoreboard, time clocks, and public address system does not assume a replay capable, video scoreboard but rather a new installation similar in provision to that provided at the current stadium.
- The lump sum cost estimate provided for a new **press box at each facility is**

[4] If a project is pursued within five (5) years an inflation rate of 10% per year should be applied to estimates. Beyond that horizon, an annual inflation rate of 5% is adequate for planning purposes.

[5] This density is based on conceptual plans previously developed for stadium construction at Site 02 (Track) by Fromberg Associates, Ltd.

[6] The decision to implement a field turf or natural grass system requires careful consideration from an annual maintenance and operations cost perspective that is outside the scope of this work.

indicative of a single level, pre-engineered facility with necessary provisions to meet accessibility codes.

- Bleacher construction can vary significantly in quality and cost. The assumption here was for **angle frame bleacher construction to seat 800 people** (500 home and 300 visitor fans). Such an installation is similar in provision to the current visitor bleachers at the existing stadium (rather than the home bleachers that are supported by a concrete structure).

The following presents conceptual development considerations of each site with a primary focus on cost (utilizing the above assumptions) but also including discussions of site limitations, phasing options, and long term occupancy plans.

SITE 01 (STADIUM)

The most notable aspect of the existing stadium is the fact **the site cannot support a competition track** without significant adverse impact to other campus features (most notably the baseball field). This is evident in the conceptual plan provided. Reconstruction or renovation of this site would preferably include moving the home bleachers from the east to the west to make the fan experience more pleasurable (by avoiding the setting sun). Assuming the baseball field is to remain in its current location, changing the home bleachers would likely require moving at least a portion of the grandstands onto what is now a track surface. This not only prevents construction of a full competition track in the future but also likely eliminates, or renders useless, a portion of the current (non competition) track surface. The following depicts a conceptual plan for development of the site, identifying potential parking, bleacher orientation, and sidewalk provisions.

FIGURE 2: SITE 01 (STADIUM) CONCEPTUAL PLAN

Another notable conclusion in evaluation of this site is the **lack of comparable space for parking**. Parking provisions as shown in Figure 2 can accommodate roughly 120 spaces, a provision of one (1) space per 6.61 seats (as compared to the desire of 1:2.67 previously stated).

Critical to the cost assumption provided as Table 6 (and evident in the plan shown) is the lack of new facilities. **A basic assumption for development of this site is that minimal new facilities are required** but rather existing facilities can be renovated and reused. Accordingly, the conceptual estimate provided includes renovation rather than new construction.

Components of the cost estimate that are noteworthy and represent differences from other cost evaluations are as follows.

- **Lighting:** Assumed existing field lighting can be reused in a new/renovated stadium. The only cost requirement

would be to run primary power to a new location (i.e. a new press box).

- **Facilities:** Assumed reuse of existing facilities necessitates renovation rather than construction of new space.
- **Competition Track:** Inability to physically incorporate a complete competition track results in a significant capital savings but provides a less functional athletic complex.

TABLE 6: SITE 01 (STADIUM) CONCEPTUAL PROGRAM COST ESTIMATE

Item	Estimated Cost
Clear and grub	$ -
Demolition of existing parking facilities	17,200
Demolition of existing sidewalks	5,700
Field irrigation	2,000
Site utilities and stormwater collection	95,400
Parking facilities	320,000
Sidewalks and site accessibility	108,000
Fencing and site access control	11,500
Field surface construction (field turf)	950,000
Stadium lighting	30,000
Competition track & field events	-
Scoreboard, PA system, time clocks, etc.	140,000
Bleachers (home and visitor)	120,000
Press box	500,000
New ticket booth(s)	34,000
New field house	-
New concessions & restrooms	-
Renovate existing facilities	652,500
Construction Subtotal	**$ 2,986,300**
General Contractor Overhead & Profit	$ 448,000
Construction Total	**$ 3,434,300**
Survey, Geotech, and Materials Testing	$ 104,000
Planning, Design, & Project Management	413,000
Soft Cost Subtotal	**$ 3,951,300**
Conceptual Program Contingencies	$ 791,000
TOTAL CONCEPTUAL ESTIMATE	**$ 4,742,300**

The estimate provided represents the lowest capital cost of site alternatives considered. However, this program is considered to represent minimal development requirements of stadium reconstruction at this site. In order to meet the District's objective of providing a new, modern athletic complex to accommodate varsity athletic events, **there is no major item that could delayed or stricken from the program**, thus all work would be pursued collectively in a single phase.[7]

SITE 02 (TRACK)

Notable aspects of the track site are earthwork and facility orientation. The conceptual plan (Figure 3) shows approximate topography with major contour lines.[8] As shown, there is the potential for as much as a +15-ft drop in elevation from one corner of the site to the other. This would **require significant earthwork and stormwater collection design** to minimize downstream impact. Additionally, space available at the northeast portion of the site (along E Ash Dr) is questionable with regard to its ability to accommodate a comprehensive locker room facility. It could likely be done but would require precise programming. As a conservative approach, the assumption of the conceptual plan shows such facilities at the southwestern end of the site.

[7] This is in contrast to Site 03 (Practice Field) most notably, with a complete discussion provided herein.
[8] Major contour lines for this graphic are considered to be at 5-ft elevation intervals and are shown with green lines.

FIGURE 3: SITE 02 (TRACK) CONCEPTUAL PLAN

Components of the cost estimate (provided as Table 7) that are noteworthy and represent differences from other cost evaluations are as follows.

- **Parking:** Site location is such that new parking would be recommended, if not required, at the site to accommodate all patrons. Although existing High School parking could potentially be utilized, the travel distance 9and elevation change) from the High School to the site would be significant and likely considered inaccessible for mobility impaired persons. Accordingly, the desirable program for this site would not rely on High School parking but rather include construction of new parking facilities to serve the stadium. With existing High School parking not considered for this site, the result is the estimated construction of roughly 300 parking spaces as opposed to 120 for Site 01 (Stadium) and 144 new spaces for Site 03 (Practice Field).
- **Site Utilities:** Earthwork required in the area to accommodate parking features will result in significant drainage design, reflected in the conceptual estimate (when compared to other sites).
- **Field House:** The field house as shown is approximately 8,600-square feet, considerably less than that depicted in the conceptual plan for Site 03 (Practice Field). For a complete discussion on the development of this figure, see Appendix A.[9]
- **Track:** Because a full competition track exists, the only required work associated with the track is repair due to damage that may occur during construction. The cost estimate provided reflects this.

The conceptual estimate for Site 02 is 76% greater than that estimated for Site 01, see Table 7. This is a considerable difference but understood given the programmatic differences. With one (1) exception, **this estimate (like Site 01) represents what are considered minimal provisions for stadium construction and occupancy**. The lone exception is the possibility of reducing parking provisions to a level comparable with that of Site 02.

[9] Note conceptually programmed concessions and restroom areas are not shown on graphics provided. Due to their comparably small size (see Appendix B) they can be incorporated at sites with relative ease and do not have as great an impact on site development and orientation as the field house.

TABLE 7: SITE 02 (TRACK) CONCEPTUAL PROGRAM COST ESTIMATE

Item	Estimated Cost
Clear and grub	$ 12,350
Demolition of existing parking facilities	-
Demolition of existing sidewalks	-
Field irrigation	10,000
Site utilities and stormwater collection	224,000
Parking facilities	600,000
Sidewalks and site accessibility	153,000
Fencing and site access control	48,300
Field surface construction (field turf)	950,000
Stadium lighting	200,000
Competition track & field events	45,000
Scoreboard, PA system, time clocks, etc.	140,000
Bleachers (home and visitor)	120,000
Press box	500,000
New ticket booth(s)	34,000
New field house	1,505,000
New concessions & restrooms	702,000
Renovate existing facilities	-
Construction Subtotal	**$ 5,243,650**
General Contractor Overhead & Profit	$ 787,000
Construction Total	**$ 6,030,650**
Survey, Geotech, and Materials Testing	$ 181,000
Planning, Design, & Project Management	724,000
Soft Cost Subtotal	**$ 6,935,650**
Program Contingencies	$ 1,388,000
TOTAL CONCEPTUAL ESTIMATE	**$ 8,323,650**

Reducing the number of parking spaces shown in Figure 3 and eliminating construction of the alternative exit depicted could **potentially reduce the capital estimate above by $500,000**. However, making these changes would make the site less desirable due to negative impacts to ingress/egress patterns and is still considered only a minor (6%) savings.

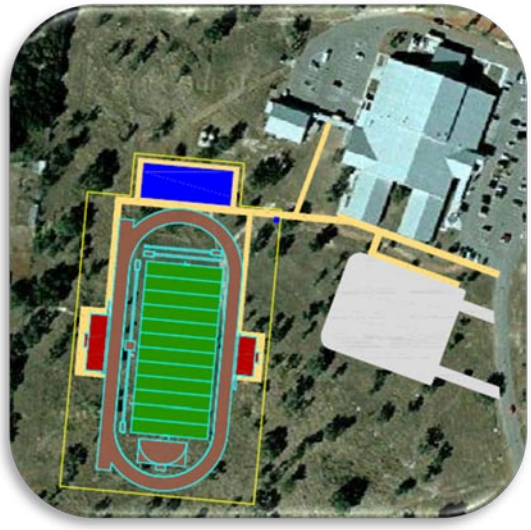
SITE 03 (PRACTICE FIELD)

This site is the most versatile of those evaluated, which is in large part why it was identified as the optimal location. **Its proximity to the High School allows the District to pursue improvements in phases, unlike the alternative sites** where the cost and plans presented are considered minimal requirements. To better explain and define the opportunities, two (2) considerations are presented below.

SITE 03 – SINGLE PHASE CONSTRUCTION

The ideal scenario would be to pursue improvements in a single construction phase, as it minimizes design and management costs, shortens project schedules, reduces construction inconvenience, and avoids the need for multiple moves or transitions to new space. The following figure displays a conceptual plan for stadium improvements at Site 03 if pursued in a single phase.

FIGURE 4: SITE 03 (PRACTICE FIELD) SINGLE PHASE CONCEPTUAL PLAN



This figure shows complete parking provisions providing a ratio of one (1) space per 2.67 seats[10], a 13,400-square foot field house (see Appendix A for a complete discussion regarding size), and a competition track. A conceptual cost estimate for a complete, master planned athletic complex for the District at this recommended site is provided as Table 8.

[10] To achieve this ratio it is assumed parking currently provided at the High School would be utilized.

TABLE 8: SITE 03 (PRACTICE FIELD) SINGLE PHASE CONCEPTUAL PROGRAM COST ESTIMATE

Item	Estimated Cost
Clear and grub	$ 23,275
Demolition of existing parking facilities	-
Demolition of existing sidewalks	-
Field irrigation	2,500
Site utilities and stormwater collection	134,450
Parking facilities	260,000
Sidewalks and site accessibility	135,000
Fencing and site access control	51,750
Field surface construction (field turf)	950,000
Stadium lighting	200,000
Competition track & field events	900,000
Scoreboard, PA system, time clocks, etc.	140,000
Bleachers (home and visitor)	120,000
Press box	500,000
New ticket booth(s)	34,000
New field house	2,345,000
New concessions & restrooms	702,000
Renovate existing facilities	-
Construction Subtotal	**$ 6,497,975**
General Contractor Overhead & Profit	$ 975,000
Construction Total	**$ 7,472,975**
Survey, Geotech, and Materials Testing	$ 225,000
Planning, Design, & Project Management	897,000
Soft Cost Subtotal	**$ 8,594,975**
Program Contingencies	$ 1,719,000
TOTAL CONCEPTUAL ESTIMATE	**$ 10,313,975**

This estimate is considerably greater than Site 01 (117%) as well as Site 02 (24%). The primary reason for the cost differential is in the construction of a considerable field house facility (56% larger than that assumed for Site 02) and construction of a competition track (to provide a complete athletic complex). These features, in addition to the added parking, are considered long term objectives of this site but not immediate needs; therefore, an alternative (or phased) program is worth considering given that Site 03 was previously identified as the optimal location.

SITE 03 – MULTI PHASE CONSTRUCTION

A multi phase approach may possibly allow the District to pursue improvements at the ideal site (Site 03) more economically. **Phase 1 would include construction of only facilities considered necessary to accommodate varsity athletic competition.** Later phases would continue build out of the complex as funding became available in the future.

With the site's location and proximity to the High School the following elements of the master planned (single phase) complex previously presented could conceivably be eliminated or delayed to later phases.

- **Competition Track:** A competition track already exists on the greater property, even though construction of a stadium here would separate the two features by a considerable distance. A master planned athletic complex would ideally include these elements in one site to provide greatest space utilization; however, pursuit of those improvements could be pursued at a later date with ease at Site 03.
- **Additional Parking:** The existing High School parking lot can provide one space per five (5) seats based on assumed stadium capacities.[11] Although this ration is not considered ideal, it is greater than provisions at the current stadium, thus the expansion could easily be delayed until a later date when needed or funding was available.
- **Field House:** It is conceivable athletic programs could continue to utilize space (i.e. locker rooms and coaches' offices) in the High School rather than requiring a field house adjacent to the competition field. This is not true of

[11] This ratio does is based only on marked spaces at the High School (front and rear), thus no overflow parking along or off of E Ash Dr is considered.

Site 02 because no facilities (e.g. locker rooms and restrooms) are currently provided at the track. Phasing of field house construction would offer significant cost savings while presenting only some inconvenience.[12]

Each of the preceding items is considered ideal for a master planned athletic complex but not critical for immediate implementation at Site 03. Figure 5 displays an initial conceptual development plan excluding the above items.

FIGURE 5: SITE 03 MULTI PHASE CONCEPTUAL PLAN (PHASE 1)

By phasing construction of the site, the potential cost savings in initial development is significant. **The following table displays what is considered to be minimal requirements of a new stadium constructed at the optimal location in the District, Site 03 (Practice Field).**

TABLE 9: SITE 03 MULTI PHASE CONCEPTUAL PROGRAM COST ESTIMATE (PHASE 1)

Item	Estimated Cost
Clear and grub	$ 14,725
Demolition of existing parking facilities	-
Demolition of existing sidewalks	-
Field irrigation	2,500
Site utilities and stormwater collection	134,450
Parking facilities	-
Sidewalks and site accessibility	99,000
Fencing and site access control	47,150
Field surface construction (field turf)	950,000
Stadium lighting	200,000
Competition track & field events	-
Scoreboard, PA system, time clocks, etc.	140,000
Bleachers (home and visitor)	120,000
Press box	500,000
New ticket booth(s)	34,000
New field house	-
New concessions & restrooms	702,000
Renovate existing facilities	-
Construction Subtotal	**$ 2,943,825**
General Contractor Overhead & Profit	$ 442,000
Construction Total	**$ 3,385,825**
Survey, Geotech, and Materials Testing	$ 102,000
Planning, Design, & Project Management	407,000
Soft Cost Subtotal	**$ 3,894,825**
Program Contingencies	$ 779,000
TOTAL CONCEPTUAL ESTIMATE	**$ 4,673,825**

This total (roughly $4.7 million) is significant for two key reasons: 1) it is less than half the single phase, master planned total (Table 8), and 2) it is actually a little more than 1% less than improvements required at Site 01 (Stadium), the previously identified least expensive but least desirable location of all considered.

[12] Most notably during halftime coaches and players would be required to walk ~1,000-feet to the High School for an enclosed, conditioned space.

VII. RECOMMENDATIONS & CONCLUSION

Identifying the appropriate or best site for development of a stadium is an exercise best pursued independent of capital cost requirements. If attention is turned to cost too early, the long term benefits of a site can quickly be overshadowed by the short term economic impact. **In light of this reality, the optimal site was identified without any regard to capital cost as Site 03 (Practice Field).**

This site exhibits the greatest functional relationship to the High School, which is likely to promote greatest use of the asset. If stadium improvements at the District are to be pursued it is recommended a capital program be built around long term occupancy of this site with a vision toward ultimate development of a comprehensive varsity athletic complex. **A first phase (initial development) capital program should be built in consideration of the District's funding capability** with alternatives outlined previously.

With this base recommendation in place, the following are presented as additional points for the District to consider in potentially pursuing stadium reconstruction.

COMPETITION TRACK

Simply put the ideal football stadium/athletic complex includes a competition track. It is logical to incorporate the two elements in one site to most fully utilize support facilities (e.g. bleachers and parking) and minimize total environmental impact. However, it is understood the District has a track facility in place that is in good condition and capable of several years of additional service.

Most importantly, the existence of a track facility at a site considered in this analysis should not in any way impact future development alternatives. It is recommended the current track be viewed as a sunk cost, defined as "money already spent and permanently lost…[that] should be considered irrelevant to future decision making."[13] This can be a difficult emotional barrier but is one that must be broken through as the District looks to the future rather than the past.

With that in mind, the decision to include a competition track in this project should be based on capital funding available. If sufficient funds exist to include a track in stadium development, it is recommended the improvement be pursued. At no point in the life of a stadium at this site will it be as convenient or economical as it is now to construct a track. If a track were included the current track (without modification) could remain in place as a community facility, thus ensuring the investment is not lost but rather transferred in the community as a whole.

However, if funding is not available to incorporate a track the District should minimally **ensure plans prepared for any new stadium provide ample space to later construct a track**. This is a prudent life cycle (or long term) asset management practice.

EXISTING STADIUM

If stadium construction is pursued away from the existing site, it is **recommended the current stadium continue to be utilized by the District**.

[13] BusinessDictionary.com, 2010

While the stadium and support facilities are dated and not providing desired service for varsity athletic events, the field and supporting assets remain useable by the District. Maintaining the complex for junior varsity or junior high athletic events as well as practices or community events remains a viable alternative to the District to maximize benefits realized for lifetime costs incurred. This again is prudent asset management with the benefit of the District as a whole in mind.

CONCLUSION

At the conclusion of analyses, the underlying comparison to be made and evaluated is cost versus value. With Site 03 (Practice Field) conclusively identified as the optimal site but requiring a significant capital investment, that relationship is critical**. It is recommended selection of a stadium site be made independent of development cost to the greatest extent possible.** Alternatively, the selection should be based on long term viability, cost effective operation (life cycle operation), and the ability for the District to provide functional relationships between all facilities.

The site of the practice field is both functional and versatile and offers the District an opportunity to establish a new landmark in the community while meeting athletic needs of the District for years to come. Phased implementation presents an opportunity for both cost effective development and long term occupancy that cannot be matched at other sites.

As an improvement program is developed in the future stadium features and associated costs presented herein should be evaluated on a benefit/cost basis. **This document serves as a site selection recommendation and conceptual budgetary figure only that should be further refined collectively with facility professionals prior to ultimate project pursuit.** In any regard, the work completed here has laid a solid foundation from which the District can now build upon in its efforts to continue serving the students and community of Johnson City.

APPENDIX A

Table 10 details a conceptual Program of Requirements (POR) for a new field house facility. The comparison is between Site 02 (Track) and Site 03 (Practice Field); Site 01 (Stadium) is not included as facilities are already in place at that site that can be reused if stadium construction were pursued. The difference in requirements shown is a result of a stadium's location relative to other facilities.

Placement of a stadium at Site 02 (Track) would require construction of a standalone field house facility. Due to the distance of this site from the High School (roughly 2,000-feet along a 35 to 40-foot elevation change) it is impractical to:

- Utilize space in the High School building to support any stadium events; and/or,
- Utilize field house space at the site for coaches' offices or instructional needs during the school day (e.g. weight training or video rooms typically utilized during athletic periods).[14]

For the above reasons, it is recommended a field house at this site include only the minimal provisions required to host athletic competition (primarily locker rooms with showers and restrooms). At a Site 02 field house there would be no need to include significant office facilities or meeting rooms preferred in a full service field house optimally located.

Site 03 (Practice Field) is within 1,000-feet of the High School (no elevation change), ideally located for a full service athletic complex. With this close proximity construction of a full service field house serving all competitions utilizing the stadium for practice (both during and after the school day) and competition is recommended. In addition to space programmed at Site 02, a facility here would ideally include, for example, a weight room, storage for the drill team and cheerleaders, coaches' office space, and auxiliary athletic meeting space.

It should however be clearly noted that field house programs for each site are presented here as typical possibilities or preferences. They have been noted in an attempt to provide conservative cost and planning estimates for the District. No evaluation was done of current athletic space provisions or offerings to determine the actual needs of the Johnson City ISD for such space in a facility of this type (such an effort was beyond the scope of this work). A programming effort for stadium construction, if pursued, is still required to determine actual space needs, which could be less than that presented here.

Table 10 outlines a conceptual POR for these sites. The total square footage provided for each site was utilized in developing conceptual cost estimates for facilities.

[14] These spaces would be required in the High School facility to maximize instructional time and avoid, to the greatest extent possible, excessive pedestrian travel through or around the High School site.

TABLE 10: FIELD HOUSE CONCEPTUAL PROGRAM OF REQUIREMENTS

Function/Space	Size (SF)	Site 02 Track	Site 03 Practice Field
Weight Room	1,500		✓
Varsity Football	1,500	✓	✓
Junior Varsity Football/Visitors	1,000	✓	✓
Drill Team/Cheerleaders	1,000		✓
Training Room	600	✓	✓
Athletic Director Office	225		✓
Coaches Offices (Suite)	750		✓
Video Room	200		✓
Team Room	400		✓
Storage (Football)	750	✓	✓
Storage (Track)	250	✓	✓
Laundry Room	200	✓	✓
Restrooms (2)	700	✓	✓
Showers (2)	500	✓	✓
Circulation	35%	✓	✓
Total Programmed Space (Conceptual)		**7,500**	**13,000**

APPENDIX B

The following is a conceptual Program of Requirements (POR) for new concessions, ticket, and restroom facilities. No comparison is provided between alternative sites but rather the POR developed serves as the basis for cost estimates to provide new facilities at both Site 02 (Track) and Site 03 (Practice Field). It is assumed existing facilities at Site 01 (Stadium), which is roughly 4,500-square feet, would be renovated rather than demolished and new facilities constructed. Therefore, the POR provided below does not in any way correlate to work or estimates provided at Site 01 (Stadium).

Placement of a stadium at either Site 02 or Site 03 would require construction of new support/auxiliary facilities. The assumed provisions desired are identified in Table 11, below, with conceptual space requirements based on current code provisions and experience in facility planning, design, and operation. The total square footage provided for the support facilities was utilized in developing conceptual cost estimates for all facilities/site options presented in the body of this work. Every attempt was made to provide conservative estimations here. For example, during programming efforts for facility construction the District may elect to construct a single restroom facility rather than provide both home and visitor restrooms (as shown below), thus the conceptual program provided here and cost estimates subsequently derived are conservative in nature to aid in sufficient budget establishment and project pursuit.

TABLE 11: SUPPORT FACILITIES CONCEPTUAL PROGRAM OF REQUIREMENTS

Function/Space	Size (SF)
Home Mens Restroom	300
Home Womens Restroom	500
Home Family Restroom	80
Visitor Mens Restroom	150
Visitor Womens Restroom	300
Visitor Family Restroom	80
Home Concessions & Food Storage	750
Visitor Concessions	500
Home Ticket Booth	100
Visitor Ticket Booth	100
Circulation	35%
Total Programmed Space (Conceptual)	**3,900**

APPENDIX C

The following is a detailed description of the mathematical methodology developed and followed to develop objective cumulative site rankings for the three (3) sites evaluated.

When analyzed collectively, the ranking of potential stadium sites for each criterion and the ranking (or prioritization) of criterion based on the various perspectives above creates an opportunity to mathematically (read: objectively) compare the three (3) sites.

To complete this exercise, each criterion was first assigned a weighting factor in accordance with the priority assigned. This was done by taking the inverse of the priority and dividing by the sum of all priorities. For example:

- Traffic Ingress/Egress is ranked as the highest priority of twelve (12) criteria from the Community perspective.
- The inverse of a ranking of 1 is 12.[15]
- This inverse was then divided by the sum of all rankings (78).[16]
- The resultant weight is 15% (12 / 78 * 100 = 15%).

This exercise was performed for all criteria for each perspective presented. To then apply the weighting, it was simply multiplied by the rank assigned to each site. For example:

- Site 02, Site 01, and Site 03 were ranked 1, 2, and 3 respectively with regard to Traffic Ingress/Egress.
- These ranks were multiplied by the weighting factor of 0.15 (15%) to have a weighted rank for Site 02, Site 01, and Site 03 of 0.15, 0.30, and 0.45 respectively.

When viewed in isolation, the weighted rank for any one criterion is not informative; however, when this exercise was completed for all twelve (12) criteria and the weighted rankings were summed, the result was an objective cumulative rating ideal for comparing multiple sites.

If a single site was ranked 1 in all criteria, its cumulative weighted ranking would be 1 as well, but as previously displayed these potential sites each offer unique pros and cons.[17] Accordingly, the weighted ranking methodology defined here completes the process of objectively identifying the optimal site for stadium construction of the three (3) reviewed.

The cumulative rankings and subsequent recommendations developed are provided in the following section of this report.

[15] Alternatively, the inverse of 2 is 11, 3 is 10, 4 is 9, and so on.

[16] 1 + 2 + 3 + … + 11 + 12 = 78.

[17] Each site is ranked 1 in at least three (3) categories, 2 in at least one (1) category, and 3 in at least one (1) category.