



# Seattle Mariners T-Mobile Park Long-Term Capital Needs Assessment REPORT / MAY 2022



# SECTIONS

1.0 Preface

- 2.0 Introduction
- 3.0 **Executive Summary**
- 4.0 **Baseline Improvements Analysis**
- 5.0 Facility Assessment
- 6.0 Necessary Improvements Analysis

# **EXHIBITS**

- A. Baseline Matrix
- **B.** Necessary Matrix
- C. Technology in Reference Ballparks
- D. Roof System Assessments

# O1 preface

# 1.0 - PREFACE

In 2022, Brailsford & Dunlavey, Inc. ("B&D" or "B&D Venues") and CAA ICON were engaged by the Seattle Mariners L.L.L.P. ("Mariners") and Washington State Major League Baseball Stadium Public Facilities District ("PFD") to investigate the extent, cost, and timing of Necessary Improvements that will likely be needed at T-Mobile Park ("facility" or "ballpark") through 2043 (the "Planning Assignment").

B&D and CAA ICON directed an interdisciplinary team of experts that included Gensler; M-E Engineers, Inc.; Duray J.F. Duncan Industries, Inc.; Lund Opsahl; and additional supporting service providers (collectively, the "Consulting Team"). Overviews of each Consulting Team member are provided below and an organizational chart is provided to the right.

- B&D VENUES is a practice group dedicated to serving professional sports organizations, public agencies, and non-profit clients. This specialized group's expertise encompasses stadiums, ballparks, arenas, convention centers, conference centers, performing arts centers, and other sports and assembly facilities.
- CAA ICON is the world's leading owner's representative and strategic management consulting firm for public and private sports and entertainment facility owners/operators, professional franchises, and leagues. With more than 50 sports, entertainment, and public assembly projects and over 1,500 consulting engagements in its portfolio, CAA ICON has managed the development of many of the most successful venues in the world.



- GENSLER is a global design and architecture firm pioneering great spaces for over 50 years. The Gensler Sports practice approaches projects with the mentaility that every single detail matters when crafting a big moment.
- ME ENGINEERS, INC. is a global mechanical and electrical engineering design firm founded in 1981. Its portfolio includes some of the most recognized buildings in the world. ME's services are primarily delivered through architects in the development of plans for new facilities, and by working directly for facility owners in the form of enhancements, renovations, and energy retrofits.
- DURAY J.F. DUNCAN INDUSTRIES, INC. is a design services group specializing in the unique requirements of commercial hospitality foodservice facilities within sports and public assembly venues. Duray was first established in 1944 and has operated continuously for 78 years.
- LUND OPSAHL is a single-focus structural engineering firm providing building structural design, master planning and structural studies, construction support engineering, and other services.
- Service Providers familiar with T-Mobile Park also supported the site visit and assessment. Eltec is a Seattle headquartered full-service vertical transporation maintenance and repair, and installation company. Vital Mechanical Service has been successfully serving the Puget Sound area since 2004 by providing maintenance, repair, and replacement services for mechanical, plumbing, and control systems. Cochran is the Pacific Northwest's leader in electrical systems design, installation, and maintenance.

The findings of this report constitute the professional opinions of the Consulting Team based on the assumptions and conditions detailed throughout. The Consulting Team has developed recommendations using both primary and secondary sources that are deemed reliable, but whose accuracy cannot be guaranteed. The Planning Assignment included observation of primary building systems, but did not include detailed testing or inspections. The assessment was intended to determine the overall condition of the facility and provide a basis upon which necessary improvement costs through 2043 could reasonably be anticipated. Due to variations in national and global economic conditions, actual expenditures and capital investment required may vary from projections, and those variations may be material.

# Introduction

# 2.0 – INTRODUCTION

T-Mobile Park opened in July 1999. The 47,000-seat facility is located approximately one (1) mile to the south of downtown Seattle and is bordered by the streets of 1<sup>st</sup> Avenue South, Edgar Martinez Drive, South Royal Brougham Way, and 3<sup>rd</sup> Avenue South. The site consists of approximately 20 acres and is in the northernmost portion of the industrial district immediately south of the Pioneer Square neighborhood.

#### **Original Funding and Ownership**

T-Mobile Park is owned by the Washington State Major League Baseball Stadium Public Facilities District ("PFD"), a municipal corporation created by the Washington State Legislature and King County Council, and is operated by the Mariners with oversight from the PFD. The cost to build T-Mobile Park in 1999 was \$517 million. The Mariners contributed \$145 million, including \$100 million in cost overruns. The facility was financed through King County general obligation bonds issued in 1997 through the funding mechanisms listed below:

- Half percent (.5%) sales tax on food and beverage in King County;
- > Five percent (5%) admissions tax on events at the ballpark;
- ע Two percent (2%) sales tax on rental cars in King County;
- A 0.017 percent (.017%) of existing state sales tax generated in King County; and
- Sales of baseball-themed lottery games and license plates.

As of 2022, all tax streams imposed to fund the ballpark have been retired, except for the 5% admissions tax and a 10% parking tax, both of which

are used to fund ballpark capital improvements.

#### 2018 Ballpark Operations and Lease Agreement

The Ballpark Operations and Lease Agreement ("Lease") executed between the PFD and Mariners in 2018 is effective through December 31, 2043. The Lease contains provisions for an annual base rent payment of \$1,500,000, subject to an inflation adjustment and two (2) three-year extensions.

As part of the Lease, the Mariners are solely and exclusively responsible for performing all work necessary to meet the "Applicable Standard" as defined by the Lease. The Applicable Standard generally requires maintaining and improving T-Mobile Park, including all of the major systems and components therein consistent with a majority of the ten (10) "Reference Ballparks" as defined by the Lease. The Applicable Standard is intended to be a holistic view of T-Mobile Park as compared to the Reference Ballparks, without regard to any one particular aspect of a single ballpark. The Applicable Standard considers both improvements required to maintain the ballpark in a first-class manner through the Lease term ("Necessary Improvements"), as well as improvements designed to enhance the spectator experience, create additional revenue streams, or attract additional groups to the ballpark ("Upgrade Improvements").

#### 2022 Long-term Capital Needs Assessment

The Lease states that the Mariners and PFD shall cooperate in commissioning any update to the B&D Report referenced in the Lease, and that if completed before the 10<sup>th</sup> Lease Year, it shall replace and not be in addition to the B&D Report or to a prior Facility Assessment, as

applicable. Accordingly, this analysis serves as a replacement of the B&D Report and no comparisons to that report are made herein.

The Mariners are required to submit a provisional CapEx Work Plan by May 1 of each Lease Year that is subject to provisional PFD approval, provided the submittal in in conformance with the Applicable Standard. Final plans must be submitted by September 1 of each Lease Year and are subject to final review and approval by the PFD within 60 days of submittal. The PFD's review is to ultimately ensure the ballpark is maintained and enhanced to meet the Applicable Standard.

The PFD and Mariners agreed at the outset of this long-term capital needs assessment that it would serve as the Mariners' provisional CapEx Work Plan submission for fiscal year 2023 and would, more broadly, guide the Mariners' submissions in Lease Years 2023, 2024, and 2025. The Consulting Team acknowledges that circumstances will change over the duration of the plan and has developed it to provide operational flexibility by identifying major projects and supplementing those major projects with annual allowances based on historical investment levels. Furthermore, the Mariners' compliance with the Applicable Standard is determined by T-Mobile Park's standing in relation to Reference Ballparks in the Lease; actual capital expenditure amounts could vary from the amounts specified herein for a variety of factors (economic conditions, project scope, etc.) that cannot be determined or foreseen at the time of this analysis.

#### **CapEx Funding Sources**

Annual capital expenditure funding sources include a Mariners contribution of \$3.25 million per year, which is adjusted annually according to the CPI, as well as PFD contributions in the form of \$250,000 from base rent (if funds available); 100% of admissions and parking tax collected by Mariners; Revenue sharing on tickets (1.5% / 2.0%); and any additional amounts the PFD allocates from the PFD Operating Account at its discretion. Certain capital expenditures may also be reimbursed by the King County Tax Revenues Fund from its hotel and lodging tax. Potentially eligible projects for County Tax revenues include infrastructure such as building systems, including plumbing, electrical, HVAC, and structural elements, and the retractable roof. Upgrades with revenue-generating potential are not eligible. Eligibility for County Tax funding will be assessed by the PFD and the Mariners together with each year's annual plan submission.

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# EXECUTIVE SUMMARY

# 3.0 - EXECUTIVE SUMMARY

# **Objectives**

The primary objective of this engagement is to identify the extent, cost, and timing of Necessary Improvements deemed necessary to maintain T-Mobile Park through 2043 in a condition that meets the Applicable Standard, which are primarily related to infrastructure and not included as Upgrade Improvements. The Consulting Team completed a thorough evaluation of T-Mobile Park, including three key tasks:

- Development of a Baseline Improvements Matrix that quantifies previous investment levels.
- Completion of a facility assessment that included visual inspections of key systems and equipment (provided herein as the Existing Conditions Report).
- Development of a Necessary improvements Matrix that can be reasonably anticipated to maintain compliance with the Applicable Standard through 2043.

# **Applicable Standard**

The Applicable Standard requires maintaining and improving T-Mobile Park and each of its major systems and components so all are consistent with a majority of the Reference Ballparks at any given time. Importantly, the Applicable Standard is intended to be a holistic view of T-Mobile Park as compared to the Reference Ballparks (listed below), without regard to any one aspect of a single ballpark.

#	Reference Ballpark	Location
1	Petco Park	San Diego, CA
2	Coors Field	Denver, CO
3	Nationals Park	Washington, DC
4	loanDepot Park	Miami, FL
5	Truist Park	Cobb County, GA
6	Target Field	Minneapolis, MN
7	Busch Stadium	St. Louis, MO
8	Yankee Stadium	New York, NY
9	Citi Field	New York, NY
10	American Family Field	Milwaukee, WI

FIGURE 3.1: Reference Ballpark List

The condition of T-Mobile Park and its key systems and components in relation to the conditions at Reference Ballparks was a guiding principle for the identification of the type, timing, and extent of investments required. One or more of the Consulting Team members have been involved in the planning, design, or construction of each Reference Ballparks. This experience gives the team a unique perspective to evaluate the park in relation to the Reference Ballparks.

#### **Baseline Improvements**

An analysis of the historical level of capital expenditures made at T-Mobile Park ("Baseline Improvements Analysis") was used as a reference guide for the Consulting Team to understand the timing and extent of previous capital investments in the facility. The timing of previous investments also helps inform future investment based on each system's or component's typical useful lifecycle. The analysis includes a review of investments made from 2001 to 2022 (records for 1999 and 2000 were unavailable). Approximately \$133.9 million has been invested in T-Mobile Park between 2001 and 2021, an average of \$6.4 million annually. If adjusted for 3% inflation up to 2022, the investment in present day dollars would be \$179.0 million (\$8.5 million annually). Annual investment (unadjusted) ranged from a low of \$2.2 million in 2006 to a high of \$20.6 million in 2011. The significant 2011 investment was driven in large part by an AT&T distributed antenna system. For additional details regarding historical expenditures, please refer to Section 4.0 - Baseline Improvements Analysis.

#### **Facility Assessment**

The main objective of the facility assessment is twofold: 1) establish an overall understanding of the current physical and functional condition of building systems and components at T-Mobile Park and 2) inform the development of recommendations for Necessary Improvements that could reasonably be anticipated to keep T-Mobile Park in compliance with the Applicable Standard through 2043.

The Consulting Team collaborated with the PFD and Mariners to conduct the assessment. The Consulting Team also conducted subject matter expert interviews with members of the Mariners facility and operations staffs, which in certain cases were supplemented by interviews with local service contractors experienced with building systems within the ballpark. Building systems / components were assigned a condition rating of "excellent," "good," "adequate," "marginal," or "poor."

The Consulting Team found T-Mobile Park to be in generally good condition for a ballpark of its age, thanks to preventative maintenance work performed by the Mariners. However, after 22+ years of use, certain systems and components are beginning to show signs of age and a number will require replacement in the next five years

(particularly those that cannot be run to failure without compromising ballpark operations). The primary focus areas in the initial years of the plan include food service, technology, and associated infrastructure items, and, to a lesser extent, premium spaces that are less operationally critical to the ballpark's operations. Detailed findings follow below. Emphasis is placed on specific projects that require substantial investment.

#### Architectural

Sitework, the building envelope, and seating bowl are all generally in good condition, but certain components are showing signs of age. Most notably, stadium seating and sealant joints in the seating bowl are nearing or have passed the end of their recommended useful lives and should be addressed within five years. The Consulting Team anticipates that a concrete sealer or coating may be required on the majority of the stadium's precast stadium seating members to limit potential significant water intrusion issues.

The conditions of interior spaces vary depending on when they were last improved . The main team store, administrative offices, green rooms, and staff support spaces are all dated and should ideally be addressed in the near term, though these projects are candidates for deferral to later years of the plan due to their limited importance to the operation of the ballpark. Signage and graphics are not included in this evaluation. The Mariners plan to update the largely original signage and graphics package presently in place.

Overall, the ballpark's structural systems are in good condition, but there is isolated cracking and spalling within concrete slabs and expansion joint assemblies, and there are signs of rust on steel components. Issues appear to be aesthetic and should be treated to avoid future issues. The Mariners have implemented a preventative steel painting program that will take place in the near future.

# **Parking Garage**

The structural systems of the parking garage appear to be in good condition. These systems include the concrete slabs, concrete beams, walls, and columns. The parking garage presents limited near-term concern.

## **Food Service**

General food service areas range from adequate to poor condition. Much of the equipment is in poor condition and should be replaced in a phased approach over the near term. There are concerns about architectural finishes and lighting within some areas, which should be addressed in the first three years of the plan. Food service represents one of the most significant near-term needs.

## **Premium Areas**

T-Mobile Park has three major premium seating areas: the Diamond Club, ROOT SPORTS Terrace Club, and luxury suites. The Diamond Club was renovated prior to the 2022 season. The ROOT SPORTS Terrace Club is in adequate condition but limited from an experiential standpoint. The suites are mostly original and dated; a complete overhaul of units is recommended within three years. There are two new premium options, including the "Press Club" (new in 2023) and loge boxes and tables (new in 2020). For analytical purposes and as discussed with the Mariners and the PFD, the Consulting Team assumed that suites would be refinished only and not completely overhauled.

# Mechanical / HVAC

The central plant is a condenser water and boiler plant, which includes cooling towers, boilers, pumps, and heat exchangers. The plant's major equipment is now 22 years old but in relatively good condition since it has been well maintained; therefore, continued use of this aging equipment is viable for the short term. Some end-of-service-life

repairs/replacements have already been accomplished or are underway. The biggest current concern was the boilers, which reached the end of their service lives. The Mariners are in the process of replacing them. The building mechanical system is due to be recommissioned because it has been over 10 years since it was last performed. Undertaking this re-commissioning would likely decrease operating costs and identify latent operational issues.

## Electrical

The electrical service is in good condition. The main service is a 2500A, 480/277 service that serves the central plant equipment and broadcast trucks, with secondary service with an oil-filled utility transformer adjacent to the central plant. Most of the distribution is located within the main electrical room with a few panels and a transformer outside. The electrical distribution inside has been well maintained, while equipment outside should be replaced within three to five years due to exposure to the elements.

# Plumbing

The plumbing systems throughout T-Mobile Park are in good condition; however, domestic water heaters for central kitchens were in poor condition and are in the process of being replaced by the Mariners. The fire protection systems are in good condition with no reports of deterioration. Most of the air compressors for the dry sprinkler system are at or near the end of their service lives. They should be replaced within 10 years. Walk-in freezers and coolers also lack sprinkler heads, which is now a code requirement for all enclosed spaces.

# **Playing Field**

The playing field system, including turf, root zone, subsurface drainage, sub-air system, and irrigation is in marginal condition with the exception of the turf, which has been replaced a number of times. It is recommended that the entire playing field system be replaced within the next three to five years. Dugouts, field wall pads, netting, and batting cages are in adequate condition.

## Vertical Transportation

Escalators are the most significant near-term concern for vertical transportation systems. Due to age and idle time, the Consulting Team recommends replacement of escalators within the first four years of the plan. This timing is influenced by lack of available replacement parts. Currently, the elevators are operating safely and dependably, and most needed replacement parts are available; however, elevators #1 and #10 are no longer supported by the manufacturer and should be replaced within the first two years of the plan. The remaining elevators can be addressed within a five to ten years.

# Audio / Visual

The audio and visual systems are in good to marginal condition, with some of the major audio systems upgraded in the last two to five years. The visual systems (LED screens and televisions) are all either past or nearing the end of their service lives. There are planned replacements of the ribbon board and out-of-town scoreboard. Conference room equipment was recently replaced by the Mariners. Currently, there is a plan to start moving to an IPTV / RF hybrid solution for all digital inventory in 2022 and 2023.

## Broadcasting

The broadcast systems are in marginal to poor condition. Major components of the broadcast video system (switcher, router, and replay systems) were upgraded in 2013 or before. The broadcast audio console was upgraded in 2016. The original copper cabling system needs to be replaced with fiber for future growth. The broadcast video system, including router, switcher, cameras, playback devices, capture devices, graphics machines, and LED screen / ribbon boards, should

be upgraded to 4K within the next one to three years to align with the current industry standard.

#### **Data Network**

The data network is a traditional tier topology Cisco-based network. The technology supports the Mariners corporate network, VoIP phone system, point of sale systems, security, timekeeping, building management systems, lighting control, ticketing, and audio. The access layer of the data network is comprised of a mix of Cisco Catalyst 2960 switches. The switches at T-Mobile Park average 10 to 15 years of age, while a 7-to-8-year refresh rate is typical elsewhere. Cisco is no longer supporting the product line, which poses both maintenance and system security concerns.

# **Technology Infrastructure**

The telecommunications raceway systems are well planned to support cable distribution throughout the park; however, due to initial cable fill and additions, the backbone raceways are full and in adequate to poor condition. The cable infrastructure needs to be culled and abandoned cables need to be removed from the cable trays and riser conduits.

# Other Technology Categories

The telephone system is a Mitel Voice over IP (VoIP)model, which is in good condition. The phone system utilizes a softphone technology from Ring Central. Mitel and Ring Central have formed a strategic partnership that allows for transition to a cloud-based communications system. Wi-Fi, DAS, ticketing, and POS (food, beverage, and retail) systems are provided through third-party agreements.

## FF&E

The quality and condition of T-Mobile Park's FF&E varies according to their location and age. There are several areas that contain a significant amount of original FF&E that is functional but showing signs of wear

and tear. Annual FF&E investments from 2001 to 2021 averaged approximately \$73,000, with limited variance. The Consulting Team recommends an annual FF&E allowance of \$100,000 to account for FF&E in unassigned areas. Furthermore, the Mariners provided the Consulting Team with an itemized list of operational equipment according to back-of-house department. Based on this itemized list, as well as a review of historical investment levels (\$96,000 annually), the Consulting Team recommends an annual allowance of \$100,000 for operational equipment.

#### **Team Facilities**

The home clubhouse is in adequate condition though much of the FF&E is original. Support areas (dining, weight and fitness, and training) are in adequate to marginal condition. A modernization of the home clubhouse should ideally take place within five to seven years. The visitors' clubhouse has received limited investment and a basic modernization should be planned after the home clubhouse is addressed.

## **Baseball Operations**

Baseball operational equipment is largely comprised of video coaching cameras and equipment, including instant replay, pitch track, and motion capture platforms. The condition of video coaching equipment varies by age, but overall, the system is in good shape. Mariners staff indicated that ongoing investment is required to keep pace with industry-leading systems.

## **Necessary Improvements Analysis**

The Necessary Improvements are the estimated capital investments needed to meet the Applicable Standard through 2043. Project profiles were developed for each line item in the Necessary Improvements Matrix, which includes the following information:

- Current condition of the equipment according to the rating system described above;
- Suggested year for initial implementation of each project;
- Information regarding project scope with additional detail provided for projects occurring within the first three years;
- Cost budgets for each project, which are considered "designto" budgets, inclusive of FF&E and soft costs. Budgets were developed with input from the Mariners and subcontractors, as well as from the Consulting Team's experience with similar projects, both in the Seattle market and elsewhere;
- Five percent (5%) annual escalation in the first three years and three percent thereafter (3%); and
- A 15% contingency to account for project scope expansions and unforeseen conditions.

Based on the methodology described above, the Consulting Team estimates that T-Mobile Park will require \$480 million in capital investment through 2043. Over the duration of the plan, the average annual investment required is approximately \$22.9 million. In terms of present-day dollars, T-Mobile Park will require an estimated \$290 million by 2043 or approximately \$13.8 million annually. Additional explanation of these costs is provided below.

The early years of the plan generally require more investment than the latter ones. There is a significant valley over the middle years and latter half of the plan. The Consulting Team refined the plan to moderate peaks and valleys to the extent possible.

FY	lı	nvestment	Escalation			ontingency	Total	Rank
2023	\$	15,912,500	\$	795,625	\$	2,506,219	\$ 19,214,344	14
2024	\$	18,682,561	\$	1,914,963	\$	3,089,629	\$ 23,687,152	10
2025	\$	21,133,966	\$	3,331,241	\$	3,669,781	\$ 28,134,988	6
2026	\$	21,978,820	\$	4,227,708	\$	3,930,979	\$ 30,137,508	4
2027	\$	18,788,507	\$	4,286,116	\$	3,461,193	\$ 26,535,816	7
2028	\$	16,810,173	\$	4,454,160	\$	3,189,650	\$ 24,453,983	8
2029	\$	16,107,557	\$	4,879,255	\$	3,148,022	\$ 24,134,833	9
2030	\$	19,614,115	\$	6,708,119	\$	3,948,335	\$ 30,270,569	3
2031	\$	11,771,894	\$	4,499,980	\$	2,440,781	\$ 18,712,655	15
2032	\$	7,691,198	\$	3,259,013	\$	1,642,532	\$ 12,592,743	20
2033	\$	7,051,448	\$	3,289,111	\$	1,551,084	\$ 11,891,643	21
2034	\$	7,870,000	\$	4,017,148	\$	1,783,072	\$ 13,670,220	19
2035	\$	8,411,667	\$	4,674,794	\$	1,962,969	\$ 15,049,430	17
2036	\$	8,141,667	\$	4,904,733	\$	1,956,960	\$ 15,003,360	18
2037	\$	15,313,000	\$	9,961,052	\$	3,791,108	\$ 29,065,160	5
2038	\$	19,126,833	\$	13,389,000	\$	4,877,375	\$ 37,393,209	2
2039	\$	8,541,520	\$	6,414,781	\$	2,243,445	\$ 17,199,746	16
2040	\$	9,587,187	\$	7,703,707	\$	2,593,634	\$ 19,884,528	13
2041	\$	9,700,587	\$	8,319,692	\$	2,703,042	\$ 20,723,320	11
2042	\$	9,091,813	\$	8,304,260	\$	2,609,411	\$ 20,005,484	12
2043	\$	17,401,813	\$	16,893,316	\$	5,144,269	\$ 39,439,399	1
Totals	\$	289,000,000	\$	126,000,000	\$	62,000,000	\$ 477,000,000	

FIGURE 3.2: Capital Investment Required Through 2043

#### **Baseline Matrix Comparison**

Figure 3.3 examines the variance between Baseline and Necessary Improvements Matrices. There is a 62% increase in required investment when costs are normalized to 2022 dollars, excluding contingency. Investment composition among major categories stays mostly consistent. New and larger projects for seating replacement, concrete sealer, food service equipment, and premium renovations drive greater spending in Architectural and Spectator Amenities. Technology also increases due to the rapid evolution of technology and the deferment of investments until the early years of the plan.

The similarities in terms of required investments across categories lends credibility to the estimates. The largest discrepancy is in technology (7%) though technology increases in annual investment amount (\$4.3 million as compared to \$3.2 million previously). Similarly, architecture accounts for four percentage points more moving ahead, but the actual amount spent is approximately double the average amount spent between 2001 and 2021.

Major Category	Baseline Avg. 2001-2021		Pro	ojected Avg.	Baseline %	Projected %	Diff.
Architectural	\$	1,869,747	\$	3,542,937	22%	26%	4%
Retractable Roof	\$	960,278	\$	1,136,905	11%	8%	(3%)
Garage	\$	79,032	\$	83,095	1%	1%	(0%)
Spectator Amenities	\$	1,145,871	\$	2,135,902	13%	16%	2%
Building Systems	\$	840,072	\$	1,770,533	10%	13%	3%
Technology	\$	3,224,619	\$	4,183,667	38%	30%	(8%)
FF&E	\$	244,669	\$	200,000	3%	2%	(1%)
Team Spaces	\$	161,280	\$	695,952	2%	5%	3%
Annual Average	\$	8,525,568	\$	13,748,992	100%	100%	0%

FIGURE 3.3: Baseline and Necessary Improvement Matrix Comparison (2022\$)

# Annual Investment Required by Group

Figure 3.4 examines investment composition by major category in three-year groups. Cells are shaded progressively green as a greater percentage of investment is attributed to each major category. Key drivers behind major investments in each group are:

- Technology and infrastructure investments comprise a large portion of **Group 1** due to replacement of T-Mobile Park's data and broadcast cable infrastructure, video boards, and other end-of-life renewals.
- Group 2 includes food service equipment replacements and architectural investments in the seating bowl.
- Group 3 includes the ongoing painting of the retractable roof as well as team clubhouse spaces.
- **Group 4** represents an investment valley with fewer recurrences in general, except for some tech infrastructure, video boards, and audio.
- **Group 5** includes the planned reoccurrence of technology investments in control room, main scoreboard, and Wi-Fi network equipment.
- **Groups 6** and **7** are most impacted by escalation.

	Group 1		Group 2		Group 3		Group 4		Group 5	l	Group 6	(	Group 7
Major Category Years 1 t 3		Years 4 to 6		Years 7 to 9		Years 10 to 12		Yars 13 to 15		Years 16 to 18		Years 19 to 21	
Architectural	\$ 17,975,714	\$	21,157,750	\$	16,740,806	\$	7,026,618	\$	5,324,475	\$	27,571,952	\$	30,197,247
Retractable Roof	\$ 6,182,400	\$	2,119,132	\$	12,735,978	\$	6,214,262	\$	2,764,986	\$	3,021,375	\$	5,284,634
Garage	\$ 595,358	\$	358,382	\$	544,839	\$	50,592	\$	679,863	\$	518,518	\$	67,992
Spectator Amenities	\$ 6,778,526	\$	21,594,606	\$	10,446,689	\$	1,887,141	\$	2,119,823	\$	14,010,037	\$	18,337,132
Building Systems	\$ 6,770,719	\$	16,797,394	\$	5,293,668	\$	2,469,043	\$	11,455,666	\$	9,882,565	\$	8,450,947
Technology	\$ 30,428,755	\$	16,640,663	\$	12,893,601	\$	18,668,401	\$	33,514,016	\$	17,871,708	\$	12,865,418
Furniture, Fixtures, & Equipment	\$ 761,329	\$	847,653	\$	926,253	\$	1,012,142	\$	1,105,994	\$	1,208,550	\$	1,320,615
Team Spaces	\$ 1,543,683	\$	1,611,728	\$	13,536,224	\$	826,405	\$	2,153,125	\$	392,779	\$	3,644,218
Total by Grouping	\$71,036,484	\$	81,127,307	\$	73,118,057	\$	38,154,605	\$	59,117,949	\$	74,477,483	\$	80,168,203
Percent of Total	17%		20%		18%		9%		14%		18%		19%

FIGURE 3.4: Adjusted Annual Investment by Groups

# 04 BASELINE IMPROVEMENT ANALYSIS

# 4.0 - BASELINE IMPROVEMENTS ANALYSIS

# **Objectives**

The Baseline Improvements Analysis provides an analysis of the historical level of capital expenditures made at T-Mobile Park. The analysis was used as a reference guide for team members to understand the timing and extent of historical investments at the facility. The analysis was used by the Consulting Team in several different ways:

- Historical annual investment across T-Mobile Park is instructive in understanding at a high level the costs required to maintain the facility, which is approximately 1.2 million total square feet.
- Historical annual investment in today's dollars to allow for a time-adjusted comparison of future projected capital expenditures associated with Necessary Improvements.
- Peaks and valleys in terms of annual investment levels.
- Previous major investments and when they are likely to recur based on the Consulting Team's understanding of the current condition and useful lifecycle of the equipment.

# Methodology

The analysis includes investments from 2001 to 2021; 2022 Necessary Improvements are in progress and not included in this analysis. Records for 1999 and 2000 were unavailable. Further, no distinction between Necessary and Upgrade Improvements was made prior to the 2018 lease extension, resulting in a limited number of Upgrade Improvements being included in the totals.

### Annual Investment

The greatest amount of annual capital investment was \$20.6 million in 2011, while the lowest level was \$2.2 million in 2006. Peaks occurred in 2011, 2013, and 2020. Key factors that influenced the investment levels included:

- Expenditures in 2001 were largely comprised of investments in architectural exteriors and third-party contributions of high-definition cable and food service equipment. From 2002 to 2006, no year received more than \$4 million in investment.
- Fiscal years 2011 and 2013 received a combined \$32 million in investment, \$26 million of which was attributable to technology and infrastructure. Investments included a distributed antenna system (DAS), LED ribbon boards, and a new main video display board. In 2020, investment was largely driven by replacement of the facility sound reinforcement equipment, roof wheel assemblies, and lighting control system.
- Third-party investments comprised nearly \$25 million of the \$89 million total. These investments included the DAS mentioned above (\$12.5 million), Wi-Fi system (\$5 million), miscellaneous technology investments (\$2.5 million), and Centerplate (now Sodexo Live) food service equipment contributions (\$4.8 million).



## **Cumulative Investment**

The graph below shows annual capital investment through 2022. From 2001 to 2021 \$132.9 million was invested, an average annual investment of \$6.3 million. Please note records for capital investment in 1999 and 2000 were unavailable and not reflected in the table below or in the total investment amount. Investment increases to \$179M (\$8.5M average annual investment) when adjusted for 3.0% annual escalation.



FIGURE 4.2: Cumulative Investment (Including Third-Party Investments)

## **Investment Composition**

Figure 4.3 examines investment composition by major category from 2001 to 2021. The average annual investment was \$8.5 million, allocated largely between the technology (\$3.2 million (38%)) and architectural (\$1.9 million (22%)) categories. Spectator amenities, retractable roof, and building systems all had average investments ranging from \$1.1 million to \$840,000 (13% to 10%). The remaining categories, which include FF&E, team spaces, and the garage, accounted for a combined 6% of historical annual investment. Historic investment composition is compared and contrasted with estimated future investment requirements in

Major Category	Bas 2	seline Avg. 001-2021	% of Total		
Architectural	\$	1,869,747	22%		
Retractable Roof	\$	960,278	11%		
Garage	\$	79,032	1%		
Spectator Amenities	\$	1,145,871	13%		
Building Systems	\$	840,072	10%		
Technology	\$	3,224,619	38%		
FF&E	\$	244,669	3%		
Team Spaces	ŝ	161,280	2%		
Annual Average	\$	8,525,568	100%		

FIGURE 4.3: Average annual investment 2001 – 2021 adjusted for escalation (in 2022 dollars)

# Adjusted Annual Investment

Adjusted annual investment by year is shown below. The graph shows a more stable trendline in terms of annual investment as the facility has aged in relation to the unadjusted annual investment amount. The first year is heavily influenced by "day after" changes, which is typical of facilities with original design flaws. The peak year investment in 2011 is also pronounced at \$28.5 million.



FIGURE 4.4: Adjusted Annual Investment (Including Third-Party Investments)

# Largest Investments

The Consulting Team summarized the top 25 largest investments. Projects such as ongoing structural steel painting that are being completed as part of an extended program have not been included. Five of the 25 projects exceeded ss \$5 million, 12 exceeded \$2 million, and 22 exceeded \$1 million. The largest investment was a third-party's installation in 2011 of the AT&T DAS. The next largest was the scoreboard control room upgrade began in 2013 and was ultimately implemented in 2015. The roof wheel axle program began in in 2013 and has occurred in various years, including from 2013 to 2016 and 2019 to 2021.

#	Project Description	Year	Amount
1	AT&T DAS	2011	\$12,500,000
2	Prostar and matrix / scoreboard control room upgrades	2013	\$9,000,000
3	Roof wheel axles	2013 to 2016	\$5,385,000
4	Replace facility sound reinforcement system	2020	\$5,081,764
5	Wi-Fi System	2014	\$5,000,000
6	Phased replacement of bogie wheels for retractable roof	2020 to 2021	\$3,846,499
7	Motor drive and control system project	2018	\$3,600,000
8	LED ribbon boards	2011	\$2,900,000
9	Perimeter security hardening / bollard project	2020 to 2021	\$2,572,272
10	First avenue improvements	2001	\$2,325,000
11	Replace POS software	2016 and 2021	\$2,301,389
12	Bullpen Market Renovation	2011	\$2,300,000
13	Video board replacement	2003	\$1,732,000
14	Intumescent coating (2007)	2007	\$1,700,000
15	Structural steel painting (roof track, skybridge, garage)	2012	\$1,500,000
16	Roof wheel assembly	2019	\$1,500,000
17	NHK Cable	2001	\$1,500,000
18	ADA seat compliance	2019	\$1,350,000
19	Hit-it-here café interior	2002	\$1,333,000
20	ADA compliance replacements & modifications	2020 and 2021	\$1,081,726
21	Paint upper bowl canopy and the north lighting tower	2009	\$1,054,839
22	Out-of-town scoreboard - led	2010	\$1,052,000
23	Replace lighting control system	2020	\$983,636
24	Enlarge sewer lines	2007	\$800,000
25	Ballpark Signage and Graphics	2019	\$750,000

Source: Seattle Mariners.

FIGURE 4.5: Top Investments

# O5 FACILITY ASSESSMENT

# 0.1 – APPROACH Overview

The main objective of the facility assessment is twofold: 1) Establish an overall understanding of the current physical and functional conditions of building systems and components at T-Mobile Park; and 2) Inform the development of recommendations for capital improvements that could reasonably be anticipated to keep T-Mobile Park in compliance with the Applicable Standard through the end of the current Lease term in 2043.

This assessment does not focus on reporting granular conditions; rather, it is intended to assess major building systems / components associated with Major League Baseball (MLB) ballparks in order to develop a roadmap of capital needs to keep T-Mobile park compliant, Findings and recommendations are presented by the major categories and sub-categories listed in Figure 5.1, with a narrative summary provided for each category.

## Methodology

In January 2022, the Consulting Team collaborated with the PFD and Mariners to conduct a three-day onsite existing conditions assessment of T- Mobile Park. The assessment began with a kick-off meeting among representatives from the PFD, Mariners, and Consulting Team during which the PFD and Mariners shared their perspectives on the ballpark and desired outcomes for the Facility Assessment, and then B&D / CAA ICON reviewed the project approach and discussed logistics for the assessment. Following the kick-off meeting, the Consulting Team conducted subject-matter expert interviews with members of the Mariners' facility and operations staff, which in certain cases were supplemented by local service

contractors experienced with building systems within the ballpark. These interviews were focused on determining the functionality of various building systems, assessing overall conditions, and identifying any systemic or problematic issues, as well as reviewing the baseline improvements matrix, including a discussion of timing and impact of previously made improvements.

It should be noted that the facility assessment was conducted during the MLB off-season when the Mariners were performing maintenance activities and work was under way in multiple areas around the ballpark as part of planned improvements; therefore, the photographs contained herein are illustrative of existing conditions during the tour and not necessarily indicative of conditions that would be experienced during the MLB season.



## Categorization

Subject matter expert interviews and building tours were framed around a series of assessment categories, including major categories and sub- categories as described in Figure 5.1. In addition, each subcategory is assigned an abbreviation for use in identifying specific observations and improvements in the existing conditions assessment.

The building systems below were excluded from the facility assessment because the Mariners have separately contracted with firms to assess these systems.

- Signage and graphics
- Retractable roof (structure, mechanical elements, painting, roofing membrane, etc.)
- Access control / security
- Keying

The costs of the improvements recommended by the Mariners and their consultants for these systems will be incorporated into the Necessary Improvement Matrix. Additional detail and findings in these areas will be captured in separate individual reports. The retractable roof assessment is included in Exhibit D for reference.

Ma	jor Categories / Sub-Categories	Sub-category Abbreviation					
1.	Architectural						
	1. Site Work	SW					
	2. Building Envelope	BE					
	3. Seating Bowl and Concourses	SB					
	4. Structural	SC					
	5. Interiors	IN					
	6. Signage and Graphics (see Appendix) *						
2.	Retractable Roof (see Appendix) *						
3.	Parking Garage	PG					
4.	Spectator Amenities						
	1. Food Service	FS					
	2. Premium Spaces	PS					
5.	5. Building Systems						
	1. Mechanical / Plumbing / Fire Protection	MP					
	2. Electrical / Lighting	EL					
	3. Building Automation	BA					
	4. Playing Field	PF					
	5. Vertical Transportation	VT					
6.	Technology						
	1. Audio / Visual	AV					
	2. Broadcasting	BR					
	3. Data Networking and Low Voltage Systems	DL					
	4. Technology Infrastructure	ТІ					
	5. Security / Access Control (see Appendix) *						
7.	Furnishings, Fixtures and Equipment	FF					
8.	Team Spaces						
	1. Team Facilities	TF					
	2. Baseball Operations	BO					

FIGURE 5.1: Major and Minor Categories

# Rating System

In conjunction with the subject matter expert interviews, the Consulting Team toured the ballpark to examine areas relevant to each member's individual specialization to better understand the current state of building systems and document conditions with notes and photographs. Building systems / components were assigned a condition rating of "excellent," "good," "adequate," "marginal," or "poor," which are defined in Figure 5.2. While visual inspections of primary building systems / components were conducted, the Consulting Team did not conduct detailed testing, building audits, or building code inspections.

In addition to the conditions rating scale, certain systems / components that may require additional investigation to confirm current building codes requirements or miscellaneous items that are not easily categorized are noted as "Other" with the timing of recommended improvements varying by item.

Priority	Condition	Description
5	Excellent	No visible defects; components new or near new condition; may still be under warranty, if applicable. Improvements may or may not be required.
4	Good	No longer new, may have some slightly defective or deteriorated components, but generally functional. Improvements recommended will vary depending upon life cycle of components.
3	Adequate	Moderately deteriorated or defective components but system has not exceeded useful life. Improvements recommended within years 3 to 10.
2	Marginal	Defective or deteriorated components in need of replacement; exceeded useful life. Improvements recommended within years 1 to 3.
1	Poor	Critically damaged components or in need of immediate repair; well past useful life. Improvements recommended within year 1 of the plan.

FIGURE 5.2: Rating System

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# 1.1 – ARCHITECTURAL: SITEWORK Summary:

The sitework category is generally comprised of the following systems/components:

- Concrete paving
- Planters and landscaping
- Statues and artwork
- Site furniture
- Fencing
- Light poles

Overall, the sitework is in good condition, but certain components, such as the concrete paving, are showing signs of age and wear in the form of cracking, isolated heaving, and deterioration of sealant joints, which should be addressed over time.

The Mariners are currently pursuing a project to install vehicle bollards around the perimeter of the site (except the east side) to address MLB security requirements. This work is expected to be completed in the next three to five years and will likely correct some deficiencies noted with the concrete paving as part of the work. Consideration should be given to coordinate deficient concrete slab work with the planned perimeter bollard work if cost efficiencies can be obtained by working the areas together.

#### **Observation SW-1: Concrete Paving**

The concrete paving within the ballpark property line is in generally good condition; however, in certain areas there are deteriorated sealant joints and cracks in the slabs. In certain locations, there has been differential settlement, which has required grinding of the concrete to avoid trip hazards.

#### Rating: Adequate

#### **Recommendation:**

The long-term goal should be to patch or replace damaged concrete as necessary to avoid tripping hazards over  $\frac{1}{4}$ " in height and/or correct cracking.



Example of concrete paving ground down to eliminate trip hazards

#### T-MOBILE PARK



Cracked concrete within property line

# Observation SW-2: Aging Street Light and Pedestrian Light Poles

All perimeter streetlight poles, and pedestrian light poles are designated to remain and are coordinated with the planned perimeter bollard project. These light poles are the property of Seattle City Light so it is unlikely that a Mariners investment will be required.

#### Rating: Adequate

#### **Recommendation:**

Coordinate with Seattle City Light regarding any potential deficiencies or future improvements.



Seattle City Light pole

#### **Observation SW-3: Existing Planters**

It is the Consulting Team's understanding that existing site planters will be removed and not replaced as part of the perimeter bollard project; therefore, no investment is anticipated for planters in the future.

Rating: Other

**Recommendation:** N/A

#### **T-MOBILE PARK**

#### **Observation SW-4: Statutes and Artwork**

The Griffey and Martinez statues are relatively new (2017 and 2021, respectively). The Griffey statue was recently hit by a vehicle, damaging its base, which requires repair. The majority of the artwork around the ballpark and is original and is in good to adequate condition. Conservation measures for statues and artwork should be considered within the next 10 to 15 years.

#### Rating: Good to Adequate

#### **Recommendation:**

Restore and preserve statues and artwork within the site, as necessary. Suggest engaging an art conservation consultant to develop specific recommendations.



The Mitt at Centerfield entrance

#### FACILITY ASSESSMENT



Ken Griffey Jr. statue at Homeplate entrance

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# 1.2 – ARCHITECTURAL: BUILDING ENVELOPE Summary: Observation BI

The building envelope category includes systems/components that form the perimeter of the ballpark and the exterior shell that protects interior spaces from elements, including:

- Masonry and precast concrete façade
- Architectural metal panels
- Metal louvers
- Painting of exposed steel (structural and non-structural)
- Perimeter metal fencing and gates
- Roofing and canopies
- Exterior doors, windows, and glazing systems
- Overhead coiling doors and shutters

Overall, the building envelope is in good condition and has been well maintained. Certain areas of the masonry and precast façade, perimeter fencing and gates, and architectural metal panels require refurbishment or replacement in the near term.

The Mariners are currently painting the exposed steel (structural and nonstructural) at the 300 level. This work will continue downward over the next several years. This painting program is included in Section 1.3 – Structural / Coatings of this report, and it should address most of the painting observations identified in this section. Note: this review does not include the retractable roof and its components.

#### **Observation BE-1: Perimeter Fencing and Gates**

The perimeter fencing and gates are showing signs of age and wear in certain locations.

Rating: Good

#### **Recommendation:**

Refurbish or replace damaged or deteriorated fence and gate components, including hinges and locking hardware, and paint exposed steel.



Perimeter gates

#### T-MOBILE PARK

#### FACILITY ASSESSMENT



Perimeter gate

#### **Observation BE-2: Exterior Metal Panels**

Overall, the exterior metal panels are in good condition but require painting of exposed steel. However, the exterior metal panels are rusted and/or damaged in some locations.

Rating: Adequate

#### **Recommendation:**

Refurbish or replace rusted and/or damaged metal panels at the exterior façade.



#### Rusted metal panel



Damaged Metal Panels

#### T-MOBILE PARK

#### FACILITY ASSESSMENT

#### **Observation BE-3: Stained or Discolored Exterior Facade**

In certain locations, areas of the masonry and precast facade appear discolored or stained, which could be caused by water intrusion and/or simply environmental conditions.

#### Rating: Good

#### **Recommendation:**

Inspect masonry and precast façade components to confirm there is no water damage, weep holes are clear, and mortar and sealant joints are in good condition. Refurbish or replace defective components. Power wash components as part of a regular maintenance program.



Stained masonry and precast facade

#### **Observation BE-4: Masonry and Precast Facade**

The masonry and precast façade are generally in good condition; however, certain areas have voids and adhesive left over from signage replacements.

#### Rating: Good

#### **Recommendation:**

Inspect masonry and precast façade components for cracks and voids, confirm there is no water damage, verify that weep holes are clear and mortar joints and sealant joints are in good condition. Patch and seal areas affected by signage replacements.



Metal studs at masonry wall from previous sign placement
## FACILITY ASSESSMENT

## T-MOBILE PARK



Holes in masonry and adhesive from signage replacement

#### **Observation BE-5: Storefront Glazing and Doors**

Overall, the storefront glazing system is in good condition; however, in certain areas the seals and gaskets around glass and at doors appear to be failing, which could lead to degradation of the system. In addition, certain glass panes are scratched and/or framing is damaged.

#### Rating: Good

#### **Recommendation:**

Inspect storefront glazing systems and replace deteriorated seals and gaskets and door hardware. Replace any severely scratched glass and damaged framing components. Plan to replace door hardware within the next five years.



Storefront glazing system



Storefront and automatic door a Hit It Here Cafe

## FACILITY ASSESSMENT

#### **Observation BE-6: Flat Roofs**

The flat roofs in the ballpark are original and nearing the end of their useful lives (30 years +/-). The roofs appear to be in adequate condition although there is standing water in certain locations.

#### Rating: Adequate

#### **Recommendation:**

Engage a roofing consultant or contractor to inspect all flat roofs and develop a plan for their eventual replacement over the next 10 to 12 years. Selectively patch or replace roofs that fail or leak in the interim.



Flat membrane roof

#### **Observation BE-7: Overhead Doors @ Service Level**

The exterior overhead doors themselves are in good condition; however, their operating mechanisms (motors, pullies, hardware, seals, etc.) have started to fail and should be replaced within the next 10 years or as they fail.

#### Rating: Adequate

#### **Recommendation:**

Refurbish or replace overhead door mechanical components over the next 10 years.



Exterior overhead door mechanism

## FACILITY ASSESSMENT

#### **Observation BE-8: Exterior of Central Plant**

The exterior enclosure of the central plant is in generally good condition, including the roof, siding, doors, and perimeter fencing.

#### Rating: Good

Recommendation: Refurbish or replace components if they fail.



Exterior of central plant building

#### **Observation BE-9: Ticket Windows**

Similar to other storefront windows, the ticket windows are in good condition. However, in certain areas the seals and gaskets around glass and at doors appears to be failing, which could lead to degradation of the system. In addition, certain glass panes are scratched and/or framing is damaged.

#### Rating: Good

#### **Recommendation:**

Inspect ticket windows and replace deteriorated seals and gaskets. Selectively replace any severely scratched glass and damaged framing components. Replace two-way speaker system within next 5 to 10 years. Refurbish stainless steel deal tray components as necessary.



Ticket windows near Homeplate entrance

#### **Observation BE-10: Exterior Canopies**

Exterior metal canopies around the exterior of the ballpark are in good condition. The roof membranes at the canopies are original and likely nearing the end of their useful lives.

#### Rating: Good

**Recommendation:** Paint exposed steel as part of the ongoing painting program. Similar to flat roofs, recommend engaging a roofing consultant or contractor to inspect all canopy roofs and develop a plan for their eventual replacement over the next 10 to 12 years. Selectively patch or replace roofs that fail or leak in the interim.



Canopy along First Avenue



Canopy at Homeplate entrance

#### **Observation BE-11: Overhead Doors @ Terrace Club**

The glass overhead doors at the Terrace Club are in good condition; however, their operating hardware should be replaced within the next 5 years or as it fails.

Rating: Adequate

#### **Recommendation:**

Refurbish or replace overhead door mechanical components over the next 5 to 10 years.



Interior view of glass overhead doors at Terrace Club



Exterior view of glass overhead doors at Terrace Club

## **Observation BE-12: Overhead Coiling Shutters**

The overhead coiling shutters located throughout the facility are typically located at concession and merchandise stands and are generally in adequate condition, but the operating mechanisms are in various states of disrepair.

#### Rating: Adequate

#### **Recommendation:**

Engage an overhead door contractor to inspect all coiling shutters and develop a plan for refurbishment or replacement over the next 10 years to align with planned renovations of concession and merchandise stands. Selectively replace coiling shutters that fail or are damaged in the interim.



Interior view of overhead coiling shutter

#### **Observation BE-13: Damaged CMU Wall Corners**

There CMU walls in the concourses are in good condition; however, there are chips at the corners in certain areas.

## Rating: Good

#### **Recommendation:**

Consider adding corner guards to protect CMU walls, especially those in high traffic areas.



CMU wall at upper concourse

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# 1.3 – ARCHITECTURAL: SEATING BOWL AND CONCOURSES Summary:

The seating bowl and concourses category includes the following spaces of the ballpark:

- Entrance Gate Areas
- Open air Stairs and Ramps
- Open air Concourses
- Seating Bowl

## Seating Bowl

The seating bowl is generally comprised of the following components:

- Precast concrete stadia treads and risers, aisle steps, stairs, and wall panels
- Concrete floor slabs
- Expansion joints
- Sealant joints
- Stadium seating
- Stormwater drains
- Metal and glass railings
- Metal fencing
- Glazing system at top of the 300 level
- Awnings

Overall, the seating bowl is in good condition, but certain components, such the stadium seating and sealant joints, are nearing or have passed the end of their useful lives and should be addressed within the first five years of the plan.

## Concourses

The concourses are generally comprised of the following components:

- Concrete floor slabs
- Precast concrete stairs
- Sealant joints
- Metal railings
- Metal fencing

Overall, the concourses are in good condition, but certain components, such as stair nosings at the stair towers, are showing signs of age and wear and should be addressed within the first five years of the plan.



## Observation SB-1: Sealant Joints and Expansion Joints in Concrete Stadia

The sealant joints between precast concrete stadia within the seating bowl are nearing the end of their useful lives and have failed in certain locations. The expansion joints within the seating bowl appear to be in adequate condition and have been selectively replaced over time.

#### Rating: Adequate to Marginal

#### **Recommendation:**

Replace seating bowl sealant joints within the near term, especially any joints that have failed. Ideally, large-scale replacement of sealant joints and expansion joints should occur in conjunction with replacement of stadium seating to make the replacement work more efficient.



Sealant joint between precast stadia



Expansion joint between precast seating stadia



Sealant joint between precast seating stadia

## FACILITY ASSESSMENT

#### **Observation SB-2: Stadium Seating**

The stadium seating (armchairs and bleachers) and associated components such as cupholders, trip guards, and anchor bolts, are nearing or have exceeded their useful lives. The Mariners were in the process of replacing seat bottoms at the 200 level in advance of the 2022 season.

#### Rating: Adequate to Marginal

#### **Recommendation:**

Initiate a phased replacement of stadium seating and associated components.



Padded seat pan at club level



Underside of seat pan at club level



Cast iron seating stanchion

### FACILITY ASSESSMENT

## T-MOBILE PARK



Aluminum bleacher seating below scoreboard

#### **Observation SB-3: Railings, Guardrails, and Fencing**

Railings, guardrails, and fencing within the seating bowl are in generally adequate condition; however, in certain locations there is exposed metal and rusting and overall degradation of the coating. The Mariners are in the process of repainting metal components on the 300 level.

Rating: Adequate

#### **Recommendation:**

Refurbish and repaint railings, guardrails, and fencing within the seating bowl over the next 10 years.



Exposed metal at handrail



Guardrails and fencing at edge of 300 level

## FACILITY ASSESSMENT

#### **Observation SB-4: Drink Rails**

The drink rails are in generally adequate condition; however, they are damaged in certain locations.

#### Rating: Adequate

#### **Recommendation:**

Repair or replace damaged drink rails within the first 10 years of the plan.



Drink rail in centerfield

#### **Observation SB-5: Elevated Walkways**

The elevated walkways below the scoreboard seating are generally in good condition. However, there is standing water in certain areas that poses an inconvenience and creates the potential for water to degrade the concrete slab and steel structure.

Rating: Good

**Recommendation:** 

Prepare concrete and apply an engineered topping to existing concrete slabs to remediate areas of standing water.



Standing water at elevated walkways at scoreboard seating

#### **Observation SB-6: Aisle Steps in Seating Bowl**

The concrete aisle steps in the seating bowl are generally in good condition, but there are cracks, spawls, and exposed reinforcing steel in certain areas that should be patched. Overall, the tread striping is faded and should be repainted.

Rating: Good

#### **Recommendation:**

Patch and restripe concrete aisle steps in seating bowl.



Concrete aisle step at 200 level



## **Observation SB-7: Glass Panels at Upper Seating Bowl**

The glass panels at the top of the upper seating bowl are generally in good condition.

Rating: Good

## **Recommendation:**

No foreseeable improvements required.



Glass panels at top of 300 level seating

Concrete aisle step with metal riser at Hit It Here Cafe

## FACILITY ASSESSMENT

#### **Observation SB-8: Galvanized Steel Grating**

The galvanized steel grating located in camera bays, access stairs, and catwalks is in adequate condition; however, some units are rusting and potentially staining areas below.

#### Rating: Adequate

#### **Recommendation:**

Refinish or replace significantly rusted galvanized steel grating units.



Metal grating at first base camera platform

#### **Observation SB-9: Stair Nosings at Open-Air Stair Towers**

The concrete stairs in open-air stair towers are generally in good condition; however, the metal nosings embedded in the stair treads are showing signs of age and wear and should be refurbished in the near term.

#### Rating: Adequate

#### **Recommendation:**

Refurbish damaged concrete and metal stair nosings at stair towers.



Metal stair nosings at stair towers



Metal stair nosings at stair towers

## **Observation SB-10: Grout at Guardrails**

Overall, the guardrails are in good condition; however, grout is missing at the base of the railing in some locations. It is not deemed a structural concern unless more than 40% is missing.

Rating: Other

#### **Recommendation:**

Replace grout at guardrail bases where more than 20% is missing.



Missing grout at guardrails

#### **Observation SB-11: Finishes at Rooftop Boardwalk**

The rooftop boardwalk was recently added on the 300 level and is in excellent condition; however, certain components such as the decking and concrete sealer will need replaced in 10+ years.

#### Rating: Excellent

#### **Recommendation:**

Replace concrete coating and wood decking.



Rooftop boardwalk concrete and wood finishes

#### **Observation SB-12: Vinyl Awnings**

The vinyl awnings at various locations within the seating bowl, such as

homeplate and the bullpens, are in adequate condition.

Rating: Adequate to Marginal

#### **Recommendation:**

Replace vinyl awnings as they reach end of their useful lives.



Awning at homeplate field entrance



Awning at bullpens

#### **Observation SC-8: Expansion Joints in Concourses**

The expansion joints in the concourses have been replaced over time as they became problematic, and they are in adequate condition.

#### Rating: Adequate

#### **Recommendation:**

Create an allowance to replace concourse expansion joints and cover plates over the term of the plan.



Expansion joint and cover plate at upper concourse

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## 1.4 – ARCHITECTURAL: STRUCTURAL

## Summary:

The structural category includes the following components:

- Structural steel columns, beams, channels, and trusses
- Metal decking
- Concrete columns, beams, and slabs
- Precast concrete stadia

Overall, the structural components are in good condition, but some issues require attention, such as miscellaneous cracking and spalling within concrete slabs and signs of rust on steel members at the first row of seating and outboard side of concourses. Areas noted appeared aesthetic in nature and not concerning, but if left untreated, could compromise the structure in the future as further deterioration would likely occur.

#### **Observation SC-1: Upper Concourse Level Concrete Slabs**

Numerous cracks were found throughout the upper concourse level concrete slabs. Most of these cracks appear to have already been infilled and mitigated.

Rating: Adequate

#### **Recommendation:**

Monitor cracking and remove any loose material. Fill in cracks that are wider than 1/8".



Upper concourse concrete slab.



Upper concourse concrete slab

## Observation SC-2: Concrete Spalling at Guardrail/Handrail Bases

Numerous areas at the guardrail/handrail bases were observed to have spalling and cracking in the concrete.

#### Rating: Adequate

#### **Recommendation:**

Monitor cracking and remove any loose material. Fill in cracks that are wider than 1/8". Spalled concrete should be cleaned of any debris and patched with an appropriate product.



Spalled concrete at railing post base

## Observation SC-3: Deck Edge Corrosion at Perimeter of Concourses

The outboard deck edges around the ballpark were observed to have a gap between the concrete deck and steel deck edge, possibly due to the shrinkage of the concrete deck. Certain locations appear to have collected water and other loose material over time and show signs of rust.

#### Rating: Adequate

#### **Recommendation:**

Gaps should be cleared of any loose material and excessive moisture then sealed with caulking material to prevent future intrusions. Steel elements should be removed of rust, primed with a rust-inhibited epoxy primer, and painted to match the existing structure.



Rust observed at upper concourse deck edges

#### FACILITY ASSESSMENT

#### T-MOBILE PARK



Rust observed at upper concourse deck edges

#### Observation SC-4: Front Rails of 200 and 300 Level Seating

Overall, the railings in the seating bowl are in good condition; however, rust and corrosion were observed in certain locations at the front rails of the 200- and 300-level seating bowl. Additionally, areas showed signs of deterioration but only for the paint layer. Steel elements showed signs of rust, but no signs of corrosion were observed.

#### Rating: Adequate to Marginal

#### **Recommendation:**

Remove deteriorated elements and clean area of debris and loose material. Steel elements should have any rust removed and cleaned, primed with a rust-inhibitive epoxy primer, and painted to match the existing structure. Remove and patch grout pockets that have deteriorated to the extent that cracks or joints could potentially allow water intrusion.



Rust and corrosion observed at the club and suite level guardrails



Rust and corrosion observed at the club- and suite-level guardrails

## FACILITY ASSESSMENT

#### **Observation SC-5: Main Concourse Level Concrete Slabs**

Numerous cracks were found throughout the main concourse level concrete slabs. Most appear to have already been infilled and mitigated.

#### Rating: Adequate

#### **Recommendation:**

Monitor cracking and remove any loose material. Fill in cracks that are wider than 1/8".



Main concourse concrete slab

#### **Observation SC-6: Steel Column Bases at Main Concourse**

Concrete slabs at the main concourse have cracked and spalled around steel column bases and there are signs of rust.

#### Rating: Adequate

#### **Recommendation:**

Monitor cracking and remove any loose material. Fill in cracks that are wider than 1/8". Steel elements should be removed of any rust and cleaned then primed with a rust-inhibitive epoxy primer and painted to match the existing structure. Spalled concrete should be cleaned of any debris and patched with an appropriate product.



Steel column base with signs of cracking and spalling in the concrete

#### **Observation SC-7: Field Level Concrete Slabs**

Numerous cracks were found throughout the service level concrete slabs. The majority of these cracks appear to have already been infilled and mitigated.

#### Rating: Adequate

#### **Recommendation:**

Monitor cracking and remove any loose material. Fill in cracks that are wider than 1/8".



Cracking in concrete slab at field level tunnel.

#### **Observation SC-8: Spalled Concrete at Field Level**

Numerous areas at the field level were found to have spalling in the concrete.

Rating: Good

#### **Recommendation:**

Spalled concrete should be cleaned of any debris and patched with an appropriate product.



Field level slab with spalling concrete

## FACILITY ASSESSMENT

#### **Observation SC-9: Ramp Curbs**

Ramp curbs are in good condition but were observed to have spalling at various locations.

#### Rating: Good

#### **Recommendation:**

Spalled concrete should be cleaned of any debris and patched with an appropriate product.



Rampway curb with spalling concrete

#### **Observation SC-10: Ramp Walls**

Rampway walls are in good condition but were observed to have cracking and spalling in certain locations. Exposed reinforcement was also observed.

#### Rating: Good

#### **Recommendation:**

Monitor cracking and remove any loose material. Fill in cracks that are wider than 1/8". Exposed reinforcement should have any rust removed, cleaned, then primed with a rust-inhibitive epoxy primer. Spalled concrete should be cleaned of any debris and patched with an appropriate product.



Cracks observed in rampway walls.

#### FACILITY ASSESSMENT



Exposed rebar observed in rampway wall.

#### **Observation SC-11: Painting of Exposed Steel**

The Mariners have an ongoing painting program for exposed steel (structural and non-structural) that is currently performing work at the 300 level. This work will move downward over the next several years. Note: this review does not include the retractable roof and its components.

#### Rating: Adequate

**Recommendation:** All structural steel should be painted every 10 years and all non-structural components, such as handrails, guardrails, fencing, and gates, should be painted every 5 to 10 years depending upon age and wear.



Exposed steel structural and non-structural components



Exposed steel components

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# 1.5 – ARCHITECTURAL: INTERIORS Summary:

Interiors include architectural finishes throughout enclosed areas of the ballpark that are separate from other sections of this report, such as food service, premium spaces, and team facilities. Interiors are generally comprised of the following components:

- Flooring, wall, and ceiling finishes
- Interior lighting (see Electrical)
- Acoustical treatments
- Metal stairs and railings
- Architectural woodwork
- Cabinetry
- Interior doors, windows, and glazing
- Fixed and operable partitions
- Interior specialties

For the purposes of this report, architectural finishes were assessed as spaces rather than individual components. For example, the existing condition of the main retail store was considered as one space inclusive of its flooring, wall and ceiling finishes, cabinetry, interior specialties, etc. rather than individual components.

#### **Observation IN-1: Corner Guards at Field Level**

Corner guards are in excellent condition as this area of the venue appears almost new.

Rating: Excellent

**Recommendation:** 



Corner guards

## FACILITY ASSESSMENT

#### **Observation IN-2: Building Maintenance Shop**

The maintenance area is in great shape for its age. The space is well kept and organized.

#### Rating: Good

#### **Recommendation:**

Repaint finishes in 10 years.



Maintenance shop

## **Observation IN-3: Event Staff Pick-up**

Setup, overhead door, and façade are all in good condition.

Rating: Good

## **Recommendation:**

None.



Event staff area

## FACILITY ASSESSMENT

#### **Observation IN-4: Green Rooms**

Green rooms are generally in good condition, finishes are relatively new, and the furniture is in good condition, but finished wet areas could be updated.

#### Rating: Good

#### **Recommendation:**

Replace finishes in wet areas.



Green room sitting area (storage racks only there in off-season

#### **Observation IN-5: Gameday Staff Locker Area**

Game day staff locker area is in good condition. The flooring is in good condition and the ceiling is in adequate condition.

Rating: Adequate

#### **Recommendation:**

Repaint and replace ceiling in 10 years.



Game day staff locker room

## FACILITY ASSESSMENT

#### **Observation IN-6: Gameday Staff Wet Areas**

The tile is in adequate to marginal condition, but the tile work in this area will need to be redone within the current lease period.

Rating: Adequate to Marginal

#### **Recommendation:**

Replace tile and finishes in 10 years.



Restroom

#### **Observation IN-7: Gameday Staff Restroom**

The tile is in adequate to marginal condition, but the tile work in this area will need to be redone within the current lease period.

Rating: Adequate to Marginal

#### **Recommendation:**

Replace tile and finishes in 10 years.



Restroom

## FACILITY ASSESSMENT

#### Observation IN-8: Staff Uniform Storage

The uniform storage area is clean, organized, and good sized.

#### Rating: Good

#### **Recommendation:**

Continue maintenance on the custom uniform storage rack.



Storage racks

#### **Observation IN-9: Stadium Operations Offices**

The offices are buried in the bowels of the stadium with inadequate lighting, dated cubicles, and random furniture.

Rating: Adequate

#### **Recommendation:**

Provide new workstations, lighting, and furniture.



Office area

### **Observation IN-10: Dock Levelers**

Dock levelers are in good working condition.

Rating: Good

## **Recommendation:**

N/A



Dock Levelers

## FACILITY ASSESSMENT

## **Observation IN-11: Auxiliary Locker Rooms**

The auxiliary locker rooms are generally in good condition.

Rating: Good

## **Recommendation:**

N/A



Locker room

#### **Observation IN-12: Mariners Lobby and Ellis Pavilion**

The Mariners entrance lobby and Ellis Pavilion are well maintained and in overall good condition. However, both are aesthetically dated due to limited investment to date. Ellis Pavilion received new lighting, FF&E, and audio though no improvement has been made since 2006.

#### Rating: Good to Marginal

#### **Recommendation:**

Recommend a modernization or repurposing of the space for another use.



Mariners entrance lobby



Ellis Pavilion

#### **Observation IN-13: Main Merchandise Store**

The main merchandise store on 1<sup>st</sup> Avenue is in good condition. The finishes are wearing reasonably well and are not outdated.

Rating: Good

#### **Recommendation:**

Recommend modernization of the store in the next 5-

10 years.



Main merchandise store



Main merchandise store

## FACILITY ASSESSMENT

## **Observation IN-14: First Aid and Fan Accommodations**

First aid and fan accommodations are in adequate condition.

#### Rating: Adequate

## **Recommendation:**

Update finishes in 5 to 10 years.



First aid room

#### **Observation IN-15: Kids Area**

The kids area on the 100 level is in adequate to marginal condition but is experiencing wear and tear from use and being exposed to the elements. A new kids area was recently added on the 300 level of the ballpark.

Rating: Adequate to Marginal

#### **Recommendation:**

Recommend a full replacement and modernization in the next 5 to 10 years.



Kids play area on 100 level
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# 2.0 – RETRACTABLE ROOF

# Summary:

Please see Exhibit D at the end of this report for information provided by the Mariners related to the retractable roof system and its components.

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# 3.0 – PARKING GARAGE

# Summary

The parking garage category includes the following exterior and interior systems/components:

- Masonry and precast concrete façade
- Precast concrete columns, beams, and deck slabs
- Metal louvers
- Painted exposed steel
- Perimeter metal fencing and gates
- Roofing and canopies
- Exterior doors, windows, and glazing systems
- Sealant and expansion joints
- Overhead coiling doors and shutters
- Parking specialties

Overall, the parking garage is in good condition and has been well maintained. However, there were areas observed that require attention, such as places where rust or miscellaneous cracking and spalling need attention. Areas noted appeared aesthetic in nature and not concerning but if left untreated, could compromise the structure in the future as further deterioration would likely occur.

## **Observation PG-1: Spalling at Concrete Walls**

Concrete walls within the parking garage are generally in good condition; however, spalling in some areas was observed, but no signs of exposed reinforcing steel were noted.

Rating: Good to Adequate

#### **Recommendation:**

Spalled concrete should be cleaned of any debris and patched with an appropriate product.



Concrete wall with spalling observed.



Concrete wall with spalling observed.

## FACILITY ASSESSMENT

## **Observation PG-2: Cracks at Concrete Beams**

Overall, the concrete beams in the parking garage are in good condition; however, diagonal cracks in some beams were observed at various locations. These cracks were located at either the mid-span or support ends.

## Rating: Adequate

#### **Recommendation:**

Fill in cracks that are wider than 1/8" and monitor cracks for any increase in length or width.



Diagonal crack observed at beam end.



Diagonal crack observed at beam mid-span.

# FACILITY ASSESSMENT

# Observation PG-3: Overhead Cracks and Spalling at Concrete Deck

Overall, the concrete decks in the parking garage are in good condition, though limited cracking and spalling was observed at various locations.

## Rating: Adequate

#### **Recommendation:**

Loose material shall be removed to prevent any falling hazards. Spalled concrete shall be patched with an appropriate product. Fill in cracks that are wider than 1/8" and monitor for any increase in length or width.



Overhead cracking and spalling observed in the concrete decks.

## **Observation PG-4: Rust on Anchor Bolts at Vehicle Barriers**

Overall, the vehicle barriers are in good condition; however, rust on anchor bolts in certain locations was observed. Anchors do not appear to be painted or galvanized.

#### Rating: Adequate

#### **Recommendation:**

Anchors, nuts, and washers should be replaced with hot-dipped galvanized components. Alternatively, elements should have any rust removed, be cleaned, primed with a rust-inhibitive epoxy primer, and painted to match the existing structure.



Vehicle barrier with signs of rust in at the anchors.

## FACILITY ASSESSMENT

## **Observation PG-5: Perimeter Fencing and Gates**

In certain locations the perimeter fencing and gates are showing signs of age and wear.

## Rating: Good

## **Recommendation:**

Refurbish or replace damaged fence and gate components, including hinges and locking hardware. Paint exposed steel.



Metal fencing, rails, and structural members



Rust on fencing



Rust on gate hinges

# FACILITY ASSESSMENT

## **Observation PG-6: Missing Weatherproof Electrical Covers**

Some of the exterior outlets do not have weatherproof covers.

## Rating: Other

## **Recommendation:**

Verify code requirements for exterior electrical outlets in the garage and provide covers as appropriate.



Parking garage outlet – missing weatherproof outlet cover

# **Observation PG-7: Grout and Sealant at Masonry Facade**

Overall, the masonry and precast façade are in good condition; however, grout and sealant joints at certain locations have deteriorated, possibly due to water penetration and freeze / thaw cycles.

Rating: Adequate

**Recommendation:** Replace defective grout and sealant.



Parking garage exterior

# FACILITY ASSESSMENT

## **Observation PG-8: Rust at Exposed Metal Decking**

Rust is forming at the edges of steel members in some locations.

## Rating: Adequate

## **Recommendation:**

Remove rust and refinish surfaces.



Rust at metal deck

## **Observation PG-9: Parking Lot Paint and Stripping**

Parking lot paint and striping are generally in adequate to marginal condition with certain areas showing excessive wear.

Rating: Adequate to Marginal

#### **Recommendation:**

Repaint concrete parking striping and accessibility graphics.



Accessibility graphic in area of increased foot traffic

## **Observation PG-10: Illuminated Exit Signage**

Some exit signs appear to have issues showing illuminated colors due to weather exposure and dirt.

Rating: Marginal

# **Recommendation:**

Refurbish or replace signage as needed to ensure effective egress notification.



Dirty exit signage

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# 4.1 – SPECTATOR AMENITIES: FOOD SERVICE summary and-go markets, gue

The food service category includes the following spaces within the ballpark:

- Main commissary
- Club and suite level kitchens
- Concession stands
- Portable food and beverage stands
- Non-premium restaurants and g roup a reas, such as Edgars Home Run Porch, Power Alley at the Pen, Trident Deck, and Hit It Here Café

General food service areas throughout the ballpark are essentially what would be expected in a ballpark of its age, with conditions ranging from adequate to poor. The production equipment is generally in adequate to poor condition and will become difficult to keep functional. It should be replaced in a phased approach. There are concerns about architectural finishes and lighting within certain food service areas, which should be addressed in the first five years of the plan. Walk-in freezers and coolers are in adequate condition, though most are original and will eventually need to be replaced or refurbished. Other equipment and support spaces are mostly in adequate condition; however, storage space and equipment in certain areas is lacking.

In addition to the physical obsolescence of some equipment, the general food service areas are very dated in their service style, display presentation, preparation methods, transaction methods, cooking methods, etc. Consideration should be given to modernizing some of these areas as part of an overall renovation plan to include current concepts such as grab-

and-go markets, guest-facing cooking where possible, and high efficiency queue lines, service areas, and cashiering systems.

#### **Observation FS-1: Production Equipment**

The majority of the production equipment, such as fryers, griddles, popcorn machines, hot dog steamers, concession carts, etc. are dated and have reached the end of their useful lives. They should be replaced. Some equipment has been changed out; it should be preserved and reused after the renovations.

Rating: Adequate to Poor

#### **Recommendation:**

Implement a phased replacement of production equipment in conjunction with planned concession and kitchen renovations. In the interim, replace equipment as it fails.



Grill in concession stand



Drawer warmer in room M06A

#### **Observation FS-2: Exhaust Hoods**

Most of the exhaust hoods in the facility are water wash-down hoods. In discussions with building operations staff, it does not appear this system is used. Some of the equipment under the existing hoods has been swapped out, creating problems with capture clearances, equipment under the wrong type of hood, and sufficient Ansul fire suppression system coverage. Exhaust hoods in some locations do not appear to have adequate CF/FPM air draw to extract smoke.

#### Rating: Adequate

#### **Recommendation:**

Perform a detailed analysis of equipment under all hoods and evaluate the hood coverage and fire systems' performance.



Exhaust hood in room C27C



Exhaust hood in concession room M01A

# FACILITY ASSESSMENT

#### **Observation FS-3: Stainless Steel Tables and Sinks**

Most of the stainless-steel tables, sinks, and hand sinks are in adequate condition and only need faucets and drains replaced.

#### Rating: Adequate

#### **Recommendation:**

Implement a phased refurbishment of stainless-steel tables, sinks, and hand sinks in conjunction with planned concession and kitchen renovations. In the interim, replace equipment as it fails.



Stainless steel table in room M06A

#### **Observation FS-4: Stainless Steel Counters**

The stainless-steel transaction counters and back counters are original and were specifically designed for an outdated operational/equipment plan and would not be useful as part of a redesign.

#### Rating: Adequate

#### **Recommendation:**

Implement a phased refurbishment of stainless-steel counters in conjunction with planned concession and kitchen renovations. In the interim, replace equipment as it fails.



Back counter in room U16A

### **Observation FS-5: Millwork and Cabinetry**

The millwork and cabinetry in the concession stands are failing and should be replaced.

#### Rating: Adequate

#### **Recommendation:**

Implement a phased replacement of millwork and cabinetry in conjunction with planned concession and kitchen renovations. In the interim, replace items as they fail.



Cabinet at room UD23D

## **Observation FS-6: Concession Lighting**

Lighting in virtually all food service areas, especially concession areas on the concourses, does a poor job of highlighting the food and may not meet current code if the venue were built new today. T-Mobile Park is likely grandfathered in at this time; however, any renovations could potentially require the enforcement of current Washington State Retail Food Code requirements. and. The lighting should be addressed within the first three years of the plan.

FACILITY ASSESSMENT

#### Rating: Marginal

#### **Recommendation:**

Implement a phased replacement of lighting at concessions in conjunction with planned concession and kitchen renovations.



Concessions room M10A

## FACILITY ASSESSMENT



Concession room M07A

#### **Observation FS-7: Concession Floor, Wall, and Ceiling Finishes**

The Mariners have been replacing or refurbishing floor, wall, and ceiling finishes in the food service areas, but these finishes in some areas have reached the end of their useful lives and should be replaced. Ceiling conditions include uncleanable, grease-laden ceiling tiles and rusting ceiling grids, which are sometimes above food preparation areas. These conditions should be addressed as soon as possible.

#### Rating: Adequate to Poor

#### **Recommendation:**

Address ceiling deficiencies as soon as possible. Implement a phased replacement of architectural finishes, including a review of potential deficiencies such as ADA access and hard-to-clean areas in conjunction with planned concession and kitchen renovations.



Ceiling in dish room – room C27C



Flooring, wall, and cove base in M01A

## FACILITY ASSESSMENT

#### **Observation FS-8: Walk-in Freezers and Coolers**

Walk-in freezers and coolers are in adequate condition and, with the exception of hardware components, can continue to be used. Most of the units are original and refrigeration components will need to be replaced as they fail.

#### Rating: Adequate

#### **Recommendation:**

Because of current supply chain delays and long equipment lead times, consider a proactive, phased replacement of existing condensing units and general refurbishment within the first ten years of the plan.



Walk-in freezers at commissary



Walk-in cooler and freezer in room M40B

#### **Observation FS-9: Storage Space and Equipment**

Concession storage space and equipment is severely limited. Creative solutions may need to be considered to keep pace with current stadium offerings and operational methods.

Rating: Other

#### **Recommendation:**

N/A



Concession storage in room C27C

# Observation FS-10: Open Concession Stands at Main Concourse and Pen

T-Mobile Park has a number of open concessions stands that are not equipped with any enclosure, doors, coiling shutter, walls, etc. These configurations create maintenance and security difficulties.

#### Rating: Other

#### **Recommendation:**

As part of renovation planning, consider enclosing these stands or creating front market area pick-up stations with back-of-house spaces enclosed.



Open concessions room M13B



Open concessions room M13B



Open concessions room M10A

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# 4.2 – SPECTATOR AMENITIES: PREMIUM SPACES Summary

The Premium Spaces category includes the following spaces within the ballpark:

- Luxury Suites
- Diamond Club
- New Premium Club (Press Club)
- Terrace Club
- All-Star Club

Architectural finishes and food & beverage equipment within premium spaces are essentially what would be expected in a ballpark of its age, with conditions ranging from adequate to marginal. The Mariners are in the process of renovating the Diamond Club and are constructing a new premium club on the press level behind Homeplate (Press Club). Beyond these two assets, the architectural finishes and food & beverage equipment in the premium spaces are dated and nearing or at the end of useful life. Consideration should be given to modernizing these spaces as part of an overall renovation plan.

#### **Observation PS-1: Luxury Suites and Party Suites**

T-Mobile Park has a total of 61 suite units. The suite finishes and food & beverage equipment are dated when compared with other MLB ballparks and nearing or past the end of useful life. The suite units themselves are primarily original to the building and well past the typical 10- to 15-year refresh lifecycle for such spaces. The architectural finishes should be updated in conjunction with food service equipment and FF&E.

Rating: Adequate to Marginal

#### **Recommendation:**

Modernize architectural finishes and food & beverage equipment in the Suites within the first 3 to 5 years of the plan. Coordinate with electrical, lighting, and FF&E.



Luxury Suite

## FACILITY ASSESSMENT



Accordion window at Suites



Undercounter refrigerator and ice maker



Surface mounted electric chafing dishes

#### **Observation PS-2: Diamond Club**

The Diamond Club presently has a total of 422 seats and is currently being renovated; therefore, no assessment of the space's condition is provided. The new footprint will reportedly measure 13,000 square feet and accommodate 400 Diamond Club season ticketholders. Preliminary plans for the renovation include a full-service bar, a massive LED television, and a variety of upscale food options including farm-to-table dishes. The club will reportedly have upscale, wood tone finishes consistent with finishes seen at most ballpark's premier club.

Rating: Excellent

#### **Recommendation:**

Modernize architectural finishes and food & beverage equipment in the Diamond Club within 10 to 15 years, including restrooms and bars. Coordinate with electrical, lighting, and FF&E.

#### **Observation PS-3: Press Club**

The Mariners are in the process of creating a new premium club, presently known as the "Press Club", in the area currently utilized for the writing press behind Homeplate. According to the Mariners, the club will measure 14,000 square feet, in total, and seat approximately 200 guests. The existing writing press area will be downsized and relocated to the 200 Level.

#### Rating: Excellent

#### **Recommendation:**

Modernize architectural finishes and food & beverage equipment in the New Premium Club within 10 to 15 years, including restrooms and bars. Coordinate with electrical, lighting, and FF&E.

#### **Observation PS-4: ROOT SPORTS Terrace Club**

The ROOT SPORTS Terrace Club serves 4,186 patrons (including loge boxes and tables). The finishes throughout the club, and food & beverage equipment are dated when compared with other MLB and competing venues, and the equipment is nearing the end of its useful life. The Terrace Club received new furniture in 2008 and televisions in 2009 but has received limited investment since. The architectural finishes should be updated in conjunction with food service equipment and FF&E.

#### Rating: Adequate

#### **Recommendation:**

Modernize architectural finishes and food & beverage equipment in the ROOT SPORTS Terrace Club within the first 5 to 10 years of the plan. Coordinate with electrical, lighting, and FF&E.



Terrance Club seating



Terrace Club bar

# FACILITY ASSESSMENT

# T-MOBILE PARK



Ceramic tile wall finish



Club restrooms



ROOT SPORTS Terrace Club Bar



ROOT SPORTS Terrace Club Concession

## FACILITY ASSESSMENT

#### **Observation PS-5: All-Star Club**

The All-Star Club has a total of 160 suites and is located on the suite level of the ballpark in the right field corner. Club finishes and food & beverage equipment are generally in good condition. Some of the food & beverage equipment can be reused, while bringing the balance up to current best practices with undermount induction chafers. The architectural finishes should be updated in conjunction with food service equipment and FF&E.

#### Rating: Good

#### **Recommendation:**

Modernize finishes and food & beverage at the All-Star Club within the first 5 to 7 years of the plan. Coordinate with electrical, lighting, and FF&E.



All-Star Club bar and high-top seating



Buffett at All Star Club Suite



Buffett at All Star Club Suite

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# 5.1 – BUILDING SYSTEMS: MECH. / PLUMBING / FIRE PROTECTION Summary: Central Plant

The Mechanical / Plumbing / Fire Protection category is generally comprised of the following systems and components:

- Central Plant
- Mechanical System
- Plumbing System
- Fire Protection System

The Central Plant is a condenser water and boiler plant including cooling towers, boilers, pumps, and heat exchangers. The facility's original major equipment is now 22 years old, and all are approaching the end of their service lives. The plant has been well maintained and is generally in good condition, making continued use of this aging equipment viable for the short term. Some end-of-service-life repairs/replacements have already been accomplished or are underway. The biggest current concern is the boilers, which have reached the end of their service life. The boilers have been experiencing major component failures and should be replaced in the near term. It was also noted that the building mechanical system has not been re-commissioned in over 10 years. Undertaking this effort would likely decrease operating costs and ferret out lingering operational issues.

## **Observation MP-1: Cooling Towers**

The Evapco cooling towers are original equipment. There are three towers serving the facility. Overall, the towers are in good structural condition. The evaporative media has been replaced in all towers. One is currently undergoing a fan motor replacement.

#### Rating: Good

## **Recommendation:**

Complete motor replacement and monitor towers for basin corrosion and leaks.



Cooling Towers

## **Observation MP-2: Cooling Tower Pumps**

Cooling tower pumps are operational. There are three Armstrong vertical inline pumps serving the cooling towers, two serving the building condenser water distribution, and 4 serving the heating water loop. They are in good condition and have been well maintained, including seal replacement as needed. No repairs associated potential corrosion were noted.

## Rating: Good

#### **Recommendation:**

Continue with regular maintenance and normal repairs. Pumps should be replaced in the next 10-15 years.



**Cooling Tower Pumps** 



Building Condenser Water Pumps

# FACILITY ASSESSMENT

## **Observation MP-3: Cooling Tower Basin Cleaning System**

A Lakos tower water separator system is currently used to remove sediment from the tower water. The system pump motor is being replaced. Overall, it appears to be in good working order.

## Rating: Good

#### **Recommendation:**

The system is aging, though it is not a critical system and has few moving parts so it can wait for replacement. Recommend full replacement in 5-10 years.



Solids Separator

### **Observation MP-4: Condenser Water Heat Exchangers**

The plant incorporates two Polaris plate and frame heat exchangers to separate the cooling tower water from the building condenser water loop. They appear to be in good condition.

#### Rating: Good

#### **Recommendation:**

The service life of heat exchangers is about 25 years. Given that these are stainless steel plates, they may well outlast that standard. The heat exchanger plates should be opened and cleaned every 10 years unless pressure drop increases significantly.



Condenser Water Heat Exchangers

## **Observation MP-5: Heating Water Boilers**

There are five 2-million Btu Aerco Benchmark 2.0 boilers providing heating water to the ballpark. Two are currently down due to cracked internal heat exchangers. They are original equipment and have reached the end of their service life. The Mariners were in the process of replacing these hot water heaters in advance of the 2022 season.

## Rating: Other

#### **Recommendation:**

N/A



Heating Water Boilers



**Boiler Control Cover** 

# Mechanical System

The ballpark mechanical systems are primarily water source heat pumps. Some units are cooling only with heating water coils for heat. The equipment has been well maintained and is in good condition for its age. At 22-years old, most of the equipment has reached or exceeded its anticipated service life. This will extend the normal replacement schedule in many cases.

## **Observation MP-6: Home Locker Room Heat Pump**

The original Mammoth air handler has recently been fully rebuilt, including replacement of cooling scroll compressors, controls, motors, and various internal parts.

Rating: Excellent

#### **Recommendation:**

With the rebuild complete, this piece of equipment should continue to function for another 15-20 years. Door and panel seals should be monitored for leaks.



Mammoth Unit Serving Locker Room

# FACILITY ASSESSMENT

## **Observation MP-7: Four Pipe Air Handling Units (AHUs)**

There are 18 Trane air handlers utilizing water cooled compressors for cooling and hot water for heating (similar to the rebuilt Mammoth unit). The AHUs serve larger spaces like clubs, locker rooms, administrative VAV systems, etc.).

#### Rating: Adequate

#### **Recommendation:**

The service life on these AHUs typically 20 years. If the casings are solid, then rebuilds may be possible. These are not built as stout as the Mammoth unit so replacement may be the better option.



Four Pipe Air Handler

## **Observation MP-8: Heating and Condenser Water Piping**

The heating and condenser water piping is a combination of steel and copper pipe with mechanical couplings and soldered joints. No issues have been reported with the piping system.

#### Rating: Excellent

#### **Recommendation:**

With good anti-corrosion chemical treatment, the piping should last another 15-20 years. All piping should be monitored for leaks to be sure a systemic problem does not arise.



Circulation Piping entering and leaving Central Plant

# FACILITY ASSESSMENT

## **Observation MP-9: Small Single Zone Heat Pumps**

There are 200 original Trane water source heat pumps throughout the ballpark including each suite. Only a half dozen have had compressors replaced. That is an exceptional track record for these types of devices. Compressor and fan motor failures will undoubtably increase in the coming years.

#### Rating: Adequate

#### **Recommendation:**

Track the replacement frequency each year. As failures become more frequent, initiate a phased replacement plan over a 5–10-year period.



Typical Trane Water Source Heat Pump

## **Observation MP-10: Cooking Exhaust Fans**

Utility set and upblast rooftop grease exhaust fans are located on rooftops around the ballpark. Service life is generally 20-25 years for these fans. Grease systems are cleaned annually which has left this equipment in good condition.

### Rating: Adequate

#### **Recommendation:**

With regular service and occasional repairs these fans should last another 5-10 years. Replacement should take place whenever updating kitchen and concession hoods.



Right Field Stair Tower Roof

# FACILITY ASSESSMENT

## **Observation MP-11: VAV and Fan Powered VAV Boxes**

The original Trane terminal boxes are still in place throughout the ballpark. Service life is generally 20 years. These boxes are reportedly in good working condition.

#### Rating: Good

#### **Recommendation:**

Due to their age, parts (seals, actuators, fan motors, etc.) and controls for these boxes may become unavailable in the coming years. Replacing the boxes as areas are remodeled is recommended, as is a phased plan to replace the boxes over the next 10-15 years.



Fan Powered VAV Box in Weight Room Ceiling

# **Plumbing System**

The plumbing systems throughout appear to be in good working order. Toilets in women's public restrooms have been replaced with lower flow fixtures. Urinals have been reduced to 0.5-gallon flush fixtures. Water heaters for central kitchens are in poor shape and in need of replacement.

#### **Observation MP-12: Water Entry Points**

The two primary water entry points with their associated backflow preventers are in good working order. All are up to current code. Water service enters the building at 110 PSI and is reduced to 80 PSI on the Main Level. Pressure is a little higher at service level and about 60 PSI at upper levels.

Rating: Excellent

#### **Recommendation:**

With regular tests and inspections these backflow devices can last another 10-15 years.



Reduced Pressure Backflow Preventer in Central Plant

## **Observation MP-13: Central Kitchen Water Heaters**

The original Aerco water heaters serving two main kitchens are beyond their service life of 15-20 years. They are in poor condition and have had frequent repairs needed. The Mariners were in the process of replacing these hot water heaters in advance of the 2022 season.

## Rating: Other

## **Recommendation:**

N/A



Central Kitchen Water Heaters

## **Observation MP-14: Domestic Water Heaters**

Hot water for spaces outside the main kitchens is provided by 6 one million Btu Aerco Innovation 1060 water heaters. These were installed 7-8 years ago and are in good working order.

Rating: Good

## **Recommendation:**

Continue maintenance and service as needed. These heaters should last another 10-15 years.



Ballpark Domestic Water Heaters

# FACILITY ASSESSMENT

#### **Observation MP-15: Toilets**

The original 3.5 gpf fixtures in men's rooms remain and are in good condition. Women's restroom toilets were replaced with 1.6 gpf fixtures and are in good working order.

### Rating: Good

## **Recommendation:**

Continue maintenance and service as needed. These fixtures and flush valves should last another 15-20 years. Consider replacement of men's room toilets with low flow similar to women's rooms.



Men's Restroom Toilet

## **Observation MP-16: Urinals**

Most public restroom urinals have been replaced with new 0.5 gpf fixtures. They are in good working order.

Rating: Good

#### **Recommendation:**

Continue maintenance and service as needed. These fixtures should last another 15-20 years.



Public Restroom Urinals
#### **Observation MP-17: Public Restroom Lavatories**

Restroom hand sinks are original fixtures with metered push button faucets. Padding/insulation has been provided at ADA locations. Few problems have been reported.

#### Rating: Good

#### **Recommendation:**

These fixtures should last another 10-15 years before they begin to wear, and parts become scarce. Review all ADA locations and confirm good condition of insulation on drain lines where needed.



Public restroom lavatories

#### **Observation MP-18: Natural Gas Service**

Natural gas enters the ballpark at the loading dock. The high-pressure utility service is reduced at the pressure reducing valve to low pressure for distribution within the ballpark. The main low-pressure line is 10". A separate service at the cooling tower yard provides 5 PSI gas to the boilers.

#### Rating: Good

#### **Recommendation:**

No work recommended.



Ballpark Gas Service Entrance

#### **Observation MP-19: Grease Traps**

Local grease traps are used at grease-producing fixtures throughout the ballpark. There are no central interceptors. Traps are top access and set into the floor. They have had no significant issues with the traps.

#### Rating: Good

#### **Recommendation:**

Monitor grease traps for corrosion and replace, as necessary. There are no moving parts so these traps may last as long as the piping system.



Concession Grease Trap in Main Concourse Deck

# Fire Sprinkler System

The entire facility is fully sprinklered. There are two water services and no fire pump. Much of this system is dry covering concourses and other unconditioned spaces. There are no reports of MIC (microbial induced corrosion) or other significant pipe deterioration.

#### **Observation MP-20: Fire Sprinkler Water Entry**

There are two 8" fire sprinkler water entry points with double check backflow preventers. One is in an unheated room at the street level in left field. That service is insulated, and heat traced. All components appear to be in good working order.

#### Rating: Good

#### **Recommendation:**

With regular service and inspection these backflow preventers should last another 20 years. Heat trace will need replacement about every 10 years. Heat trace system should be monitored and alarmed at BMS.



Fire Sprinkler Water Service (one of two)

# FACILITY ASSESSMENT

#### **Observation MP-21: Dry Fire Sprinkler Valves**

Open concourses and other unconditioned spaces are served with dry pipe sprinkler zones. These are air charge via local compressors. All dry systems are equipped with drip drains that are checked seasonally.

#### Rating: Adequate

#### **Recommendation:**

There were no reports of issues with the dry valves themselves. They have at least a 20–25-year service life. With regular inspections and maintenance, they should provide at least 10 more years. Most of the air compressors are at or nearing the end of their service life. A systematic replacement should take place over the next 5-10 years.



Dry Pipe Zone Valve and Air Compressor

#### **Observation MP-22: Cooler/Freezer Boxes**

There are numerous food service coolers and freezers located around the ballpark. In new building construction these spaces are required to have dry sprinkler heads serving the inside of the coolers. None were apparent in our walk.

#### Rating: Other

#### **Recommendation:**

Verify code requirements for sprinklers in coolers and freezers in existing buildings.



Beer Distribution Cooler Without Sprinkler Coverage

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# 5.2 – BUILDING SYSTEMS: ELECTRICAL / LIGHTING Summary:

The Electrical / Lighting category is generally comprised of the following systems and components:

- Electrical Utility Service
- Electrical Power System
- Exterior and Interior Lighting
- Lighting
- Fire Alarm
- CO2 Detection
- Lightning Protection

# **Electrical Utility Service**

The main electrical service consists of a secondary service with an oilfilled utility transformer adjacent to the Central Plant. It is a 2500A 480/277 service that serves the Central Plant equipment and broadcast trucks. Most of the distribution is located within the main electrical room with a few panels and transformer outside. The electrical distribution inside has been well maintained and is generally in good shape, making continued use of this aging equipment viable for now. The equipment outside is showing more age due to weather and should be replaced within 1 to 3 years. The distribution boards inside show indication that testing has been performed since the original installation and has been ongoing.

#### **Observation EL-1: Incoming Buss Duct Service**

The overhead buss duct is the incoming service from the utility transformer.

#### Rating: Good

#### **Recommendation:**

Exterior buss duct, even with the galvanized flashing on top, is subject to corrosion. Regular inspection of the surface, splices, and terminations are recommended to ensure there is not a fault within the buss duct causing an extended outage of the central plant and a potentially unsafe condition.



Overhead buss duct



Overhead buss duct

#### **Observation EL-2: Main Electrical Service**

The overhead buss duct enters through the wall into the 2500A main service.

#### Rating: Good

#### **Recommendation:**

The main service has been well maintained and is generally in good shape, making continued use of this aging equipment viable for now. Testing is being performed on the breakers for torque, ground fault, etc.



Incoming buss duct



Incoming service

#### **Observation EL-3: Exterior Electrical Equipment**

There is electrical distribution equipment serving the exterior central plant equipment. The equipment is exposed to the elements and showing significant sign of corrosion.

#### Rating: Adequate

#### **Recommendation:**

Replace the distribution equipment on the exterior of the Central Plant prior to failure. Recommended replacement in 1 to 5 Years



Central Plant Exterior Equipment



Central Plant Exterior Equipment

# **Electrical Power System**

The main service to the consists of a 3 secondary service near Right Field served by oil-filed utility transformer in an adjacent vault and 3 secondary service on the third base line served by oil-filled utility transformer in an adjacent vault. The electrical distribution inside has been well maintained and is generally in good shape, making continued use of this aging equipment viable for now. Testing of the electrical distribution found premature failure of distribution breakers in the recent year due to a manufacturing defect, which was resolved in 2022.

The ballpark has two diesel generators located on the main level within the building footprint. The generators appear to be well maintained and staff indicated they have been exercised regularly with the integral load banks that are rated to half of the generator's nameplate capacity. The air in the room is through mechanical dampers. During the routine testing of the generator there have been no record high temperature alarms, which implies there is adequate airflow during operation. Exercising the generators is required by code. A "Full Mains" test is recommended. This test would simulate an outage of the normal electrical service and initiate the generator to start and the ATS's to operate under an operation condition.

The Fire Alarm system head end has recently been upgraded. Many of the notification appliances are original to the building. Replacements of devices have occurred when a device has failed, or a renovation of a space has occurred.

A majority of the light fixtures seen by the public have been converted or replaced with LED's, including the sports lighting. The back-of-house spaces have a phased approach currently in progress for replacement of the original fluorescent fixtures.

#### **Observation E-4: Incoming Electrical Service 3rd Base line**

In general, the room was clear of debris. The equipment is currently being used by electricians that are currently working on other projects within the building. The original factory metering on each of the services is no longer operational.

#### Rating: Good

#### **Recommendation:**

Continue Infrared testing of the equipment to ensure there are no hot spots occurring in the electrical distribution system. Replace the factory-installed metering or provide an external metering on the main service/feeder breakers to measure/log the loads.



3rd Base Main Electrical Room



3rd Base Main Electrical Room



3rd Base Main Electrical Room

#### **Observation E-5: Electrical Room 3rd Base line**

There is a known leak above an electrical transformer adjacent to emergency panels. Currently, there is a bucket that catches water and drains it to a lower bucket. It appears the leak is caused by a building expansion joint above the panels that has failed.

#### Rating: Poor

#### **Recommendation:**

Repair leak immediately to ensure the is not an unsafe condition.



3rd Base Main Electrical Room Leak

#### FACILITY ASSESSMENT

# T-MOBILE PARK



3rd Base Main Electrical Room Leak

#### **Observation EL-6: Generator Room 3rd Base line**

Shown is an indoor 800kW/1000kVA Cummins diesel generator with adjacent diesel day tank on the third base line. The generator has an integral load bank on the radiator discharge and load bank circuit breaker. It was reported that regular testing with the load bank has been performed.

#### Rating: Adequate

#### **Recommendation:**

Continue regular maintenance of the generator on the load bank. Operate the generator under building load to ensure the Automatic Transfer Switches adequately transfer the load to the generator. The generator should operate reliably for 3-10 years without major service, at that point a more intensive rebuild of components maybe required.



3rd Base Generator



3rd Base Generator Room

#### **Observation E-7: Incoming Electrical Service Right Field**

In general, the room was clear of debris. The equipment is currently being used by electricians that are currently working on other projects within the building. The original factory metering on each of the services is no longer operational.

#### Rating: Good

#### **Recommendation:**

Continue Infrared testing of the equipment to ensure there are no hot spots occurring in the electrical distribution system. Replace the factory installed metering or provide an external metering on the main service/feeder breakers to measure/log the loads.



Right Field Main Electrical Room



Right Field Main Electrical Room

#### **Observation EL-8: Generator Room Right Field**

Shown is an indoor 1000kW1250kVA Cummins diesel generator with adjacent diesel day tank. The generator has an integral load bank on the radiator discharge and load bank circuit breaker. It was reported that regular testing with the load bank has been performed.

#### Rating: Adequate

#### **Recommendation:**

Continue regular maintenance of the generator on the load bank. Operate the generator under building load to ensure the Automatic Transfer Switches adequately transfer the load to the generator. The generator should operate reliably for 3-10 years without major service, at that point more invasive rebuild of components may be required



Right Field Generator Room



Right Field Generator Room

#### **Observation EL-9: Typical Electrical Riser Room**

Many of the riser rooms have little-to-no room for additional panels. The equipment in the room is in good condition and well maintained.

Rating: Good

#### **Recommendation:**

Continue regular maintenance of equipment and consider a phasing of panel and transformer replacement starting in 10 years. The phasing could occur by electrical room, riser, level etc. Additionally, if extensive renovations occur within a portion of the building, consider replacing the distribution equipment associated with the renovation ILO repurposing electrical distribution.



Typical Electrical Riser Room



Typical Electrical Riser Room

#### **Observation EL-10: Concession/Kitchen Electrical Panels**

Electrical panels within the concessions areas are showing corrosion on the exterior of the panels due to moisture and cleaning agents.

Rating: Marginal

#### **Recommendation:**

Replace panels in in conjunction with planned concession and kitchen renovations.



**Concession Electrical Panels** 



**Concession Electrical Panels** 



Upper Concourse Kitchen Electrical Panels

# FACILITY ASSESSMENT

# Lighting

#### **Observation EL-11: Lighting**

A majority of the public-facing spaces have been converted or replaced with LED. There are back-of-house and front office spaces that still should be converted from linear/compact fluorescent to LED.

#### Rating: Good

#### **Recommendation:**

Continue replacing the fluorescent lighting with LED in a phased approach or as spaces are renovated.



Concourse LED Lighting



Concession Fluorescent Lighting and Incandescent Track Lighting

#### **Observation EL-12: Exterior Building Mounted Lighting**

The lighting fixtures at the exterior façade are original construction and generally in adequate condition but nearing the end of their useful life.

#### Rating: Adequate

#### **Recommendation:**

Verify quality of lighting and potential for modernizing with LED bulbs.



Exterior lighting near Homeplate entrance



Exterior lighting on Upper Concourse Level

# **Observation EL-13: LED Sports Lighting**

The LED Sports Lighting and controls for the sports lighting has been upgraded in recent years.

Rating: Excellent

#### **Recommendation:**

There have been limited failures that have occurred since the replacement. Replace individual fixtures/components as they fail. The drivers typically have a useful life of 10-15 years and replacements may be more frequent at that time.

#### **Observation EL-14: Lighting Controls**

The lighting controls have had head end replacement recently for the sports lighting, which has been upgraded in recent years.

#### Rating: Excellent

#### **Recommendation:**

The lighting control head end and respective panels have been upgraded in recent years and with routine maintenance and firmware upgrades will likely last 25-30 years. Additional control zones would be useful for operations and provide additional energy savings.

# Fire Alarm

#### **Observation EL-15: Fire Alarm Control Panel**

The fire alarm panel has been upgraded in recent years.

#### Rating: Excellent

#### **Recommendation:**

The fire alarm head end and respective panels have been upgraded in recent years and with routine maintenance and firmware upgrades and will likely last 25-30 years.

#### **Observation EL-16: Fire Alarm Notification Appliances**

The fire alarm notification appliances exposed to sunlight are showing signs of yellowing and are being replaced as required when identified by the Fire Marshall. There is a mix of speaker and horn notification appliances. Speakers have been going in where renovations have occurred.

#### Rating: Adequate

#### **Recommendation:**

Appliances from the original build are nearing the end of useful life. As failures become more frequent, initiate a phased replacement in 3-10 years. The initial phase should focus on the exterior appliances.

#### **Observation EL-17: Fire Alarm**

Simplex 4100 Fire Alarm Control Panel

#### Rating: Excellent

#### **Recommendation:**

The Fire alarm head end and respective panels have been upgraded in recent years and with routine maintenance and firmware upgrades will likely last 25-30 years.



Central Plant Fire Alarm Panel

# FACILITY ASSESSMENT

# CO2 Detection

#### **Observation EL-18: CO2 Detection at Keg Distribution Rooms**

There are numerous food service coolers and freezers located around the ballpark. In new building construction these spaces are required to have CO2 detectors inside of the coolers with carbonators. None were apparent in our walk.

Rating: Other

#### **Recommendation:**

Verify code requirements for CO2 detection in coolers and freezers in existing buildings. CO2 detection in this space should be strongly considered for the safety of personnel in these areas of distribution.



Keg Distribution Room (3rd Base)



Keg Distribution Room (Left Field)

#### FACILITY ASSESSMENT

# Lightning Protection

#### **Observation EL-19: Lightning Protection System**

The building does not appear to have a traditional (franklin or ESE) lightning protection system; however, the retractable roof is all steel and has a continuous path to ground.

#### Rating: Good

#### **Recommendation:**

Continue inspection to ensure the bonding of the steel system is continuous and has minimal corrosion.





Lightning Protection System

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# 5.3 – MAJOR BUILDING SYSTEMS: BUILDING AUTOMATION

#### **Observation BA-1: Building Management System**

The current Building Management System (BMS) is a Johnson Controls (JCI) system using Metasys, furnished and installed by Johnson Controls Bothell Branch Office (contact Pulkit Gaur). The consulting team suggests replacing the front end ADX server (main terminal) and software first, and then replacing the six network controllers as needed over time.

The Mariners could consider a graphics update as a potential upgrade improvement concurrent with the ADX server replacement. Graphics upgrades are not a required improvement but may be worth it for ease of use and clarity. The consulting team assumes that individual equipment controllers, thermostats, air and water sensors, etc. will be replaced as the respective equipment is replaced, which is the most cost-effective approach. Any brand controller can be used with the JCI system as long as it is BacNet compatible.

#### Rating: Adequate

#### **Recommendation:**

Replace obsolete devices and migrate to new software within the next 3 to 10 years.

Additional assessment of the BMS, including final plans and budgets for system update, should be performed by a specialized BMS-focused consultant and service provider.

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# 5.4 – BUILDING SYSTEMS: PLAYING FIELD

# Summary:

The Playing Field category is generally comprised of the following systems/components:

- Playing field system
- Bullpens
- Field walls and pads
- Foul ball poles
- Backstop and protective netting
- Batter's Eye
- Grow lights
- Groundskeeping Area

Overall, the playing field systems/components are in good to adequate condition, but certain items such as the playing field system and batter's eye should be addressed within the first 5 years of the plan.

# **Observation PF-1: Playing Field**

The playing field turfgrass was replaced within the last 3 years and is in good condition, however the field system itself is original construction and nearing the end of useful life and the SubAir system has been decommissioned due to poor operating performance.

#### Rating: Adequate

#### **Recommendation:**

Replace the entire playing field system, including turfgrass, rootzone, drainage and SubAir, and irrigation be replaced within the first 5 years of the plan.



Playing field



SubAir equipment for playing field

# FACILITY ASSESSMENT

#### **Observation PF-2: Field Wall Posts and Gates**

The field wall posts and gates are galvanized steel and appear to be in good condition.

#### Rating: Good

#### **Recommendation:**

Selectively replace components as they fail, but otherwise the system should not need to be replaced within the plan timeframe.



Galvanized steel field wall posts in outfield

#### **Observation PF-3: Field Wall Pads**

The field wall pads are in adequate condition and the useful life can likely be extended for several years through normal repair and maintenance.

Rating: Adequate

### **Recommendation:**

Replace field wall pads within the first 5 years of the plan.



Field wall padding

# FACILITY ASSESSMENT

#### **Observation PF-4: Bullpens**

The home and visitor bullpens are in generally good condition.

#### Rating: Good

#### **Recommendation:**

Replace turf in conjunction with playing field replacement.



Bullpens in Leftfield

# **Observation PF-5: Batters Eye**

The batters eye is worn and faded. It's understood that the Mariners are in the process of refinishing the batters eye during this offseason, which should extend the useful life by approximately 5 years.

#### Rating: Good

#### **Recommendation:**

Reassess the condition of the batters eye in 3-5 years and determine whether it can be refinished again or requires full replacement.



Batters Eye in Centerfield

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# 5. 5 – BUILDING SYSTEMS: VERTICAL TRANSPORTATION Summary:

The Vertical Transportation category is generally comprised of the following systems and components:

- Elevators
- Escalators

The elevators and escalators are original equipment installed in 1998 and are approaching 25 years in age. Although some service upgrades have been made over time, overall, the systems are still original. Using industry standards, the existing vertical transportation systems are nearing the end of their useful life and are approaching obsolescence issues due to control components and future software support. The concern would be a failure during peak season. We have found that these software issues can result in multiple weeks of outage. For these reasons, this vintage of equipment is being targeted for full modernization.

# Elevators

The elevators are generally in adequate condition and have been well maintained. All testing and maintenance are up-to-date, and code compliant. However, the Dover DMC control systems is original. The Dover DMC control systems have been deemed obsolete by Dover, and components are not supported. As such the units are at the end of their collective useful lives, and the elevator systems should be considered for modernization.

# **Observation VT-1: Car 1 at Team Store**

The unit is at the end of its useful life and should be considered for Modernization.

Rating: Marginal

#### **Recommendation:**

Modernize controls, power unit, fixtures, door operator and door equipment at Car 1. Coordinate with mechanical, electrical, and fire protection.



Car 1 entrance

# FACILITY ASSESSMENT

# T-MOBILE PARK



Car 1 controller

#### **Observation VT-2: Car 2**

The unit is nearing the end of useful life and should be considered for Modernization.

#### Rating: Adequate

#### **Recommendation:**

Modernize controls, AC VVVF motor and machine refurbishment, fixtures, door operator and door equipment at Car 2. Coordinate with mechanical, electrical, and fire protection.



Car 2 entrance



Car 2 shaft

# FACILITY ASSESSMENT

#### **Observation VT-3: Cars 3 and 4**

The units are nearing the end of useful life and should be considered for Modernization.

#### Rating: Adequate

#### **Recommendation:**

Modernize controls, AC VVVF motor and machine refurbishment, fixtures, door operator and door equipment at Cars 3 and 4. Coordinate with mechanical, electrical, and fire protection.



Car 3 and 4 Controllers



Car 4 motor

#### **Observation VT-4: Cars 5 and 6**

The units are nearing the end of useful life and should be considered for Modernization.

Rating: Adequate

#### **Recommendation:**

Modernize controls, AC VVVF motor and machine refurbishment, fixtures, door operator and door equipment at Cars 5 and 6. Coordinate with mechanical, electrical, and fire protection.



Car 5 and 6 entrances



Car 5 and 6 motors

## **Observation VT-5: Cars 7 and 8**

The units are nearing the end of useful life and should be considered for Modernization.

Rating: Adequate

#### **Recommendation:**

Modernize controls, AC VVVF motor and machine refurbishment, fixtures, door operator and door equipment at Cars 7 and 8. Coordinate with mechanical, electrical, and fire protection.



Car 7 controller

# FACILITY ASSESSMENT



Car 8 motor

#### **Observation VT-6: Car 9**

The unit is nearing the end of its useful life and should be considered for Modernization.

#### Rating: Adequate

#### **Recommendation:**

Modernize controls, AC VVVF motor and machine refurbishment, fixtures, door operator and door equipment at Car 9. Coordinate with mechanical, electrical, and fire protection.



Car 9 controller



Car 9 motor

#### **Observation VT-7: Car 10**

The unit is nearing the end of its useful life and should be considered for Modernization.

#### Rating: Adequate

#### **Recommendation:**

Modernize controls, AC VVVF motor and machine refurbishment, fixtures, door operator and door equipment at Car 10. Coordinate with mechanical, electrical, and fire protection.



Car 10 entrance



Car 10 controller

# Escalators

The escalators are generally in adequate condition and have been well maintained. All testing and maintenance are up-to-date and code compliant. However, the KONE E-5000 unit is original and has had little to no operational upgrades since its installation. The system receives limited support from OEM as parts and components are becoming obsolete. As such the unit is nearing the end of its useful life, and it is our recommendation that the escalator system should be considered for replacement, except for Escalator 21 that is recommended for a modernization due to its unique configuration and location within the structure of the ballpark

#### **Observation VT-8: Escalator 11**

This unit is nearing the end of useful life and should be considered for replacement.

Rating: Adequate

#### **Recommendation:**

Replace complete escalator.



Escalator 11

# **Observation VT-9: Escalator 12**

This unit is nearing the end of useful life and should be considered for replacement.

Rating: Adequate

# **Recommendation:**

Replace complete escalator.



Escalator 12

# FACILITY ASSESSMENT

#### **Observation VT-10: Escalator 13**

This unit is nearing the end of useful life and should be considered for replacement.

#### Rating: Adequate

#### **Recommendation:**

Replace complete escalator.



Escalator 13

# **Observation VT-11: Escalator 14**

This unit is nearing the end of useful life and should be considered for replacement.

Rating: Adequate

**Recommendation:** Replace complete escalator.



Escalator 14

# FACILITY ASSESSMENT

#### **Observation VT-12: Escalator 15**

This unit is nearing the end of useful life and should be considered for replacement.

#### Rating: Adequate

#### **Recommendation:**

Replace complete escalator.



Escalator 15

# **Observation VT-13: Escalator 16**

This unit is nearing the end of useful life and should be considered for replacement.

Rating: Adequate

# **Recommendation:**

Replace complete escalator.



Escalator 16

# FACILITY ASSESSMENT

#### **Observation VT-14: Escalator 17**

This unit is nearing the end of useful life and should be considered for replacement.

#### Rating: Adequate

#### **Recommendation:**

Replace complete escalator.



Escalator 17

# **Observation VT-15: Escalator 18**

This unit is nearing the end of useful life and should be considered for replacement.

Rating: Adequate

# **Recommendation:**

Replace complete escalator.



Escalator 18
#### **Observation VT-16: Escalator 19**

This unit is nearing the end of useful life and should be considered for replacement.

Rating: Adequate

#### **Recommendation:**

Replace complete escalator.



Escalator 19

## **Observation VT-17: Escalator 20**

This unit is nearing the end of useful life and should be considered for replacement.

Rating: Adequate

Recommendation:

Replace complete escalator.



Escalator 20

#### **Observation VT-18: Escalator 21**

This unit is nearing the end of its useful life and due to its unique configuration and location within the structure of the ballpark, we believe that it should be considered for modernization.

#### Rating: Adequate

#### **Recommendation:**

Modernize escalator, including:

- Existing escalator should be disassembled and removed down to the truss
- Existing truss should be certified by structural engineer
- Complete escalator system should be installed in existing truss
- Includes track, all gears including bull gear, rollers, steps, handrails, balustrade covers, controller, and all associated equipment



Escalator 21

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# 6.1 – TECHNOLOGY: AUDIO / VISUAL Summary:

The Audio / Visual category is generally comprised of the following systems and components:

- Sound System
- Visual Display Systems

The audio / visual systems are generally in good condition, with some of the major audio systems being upgraded in the last 2-5 years. There are some auxiliary audio systems that were not upgraded and are 15+ years old and should be considered for replacement. The visual systems (LED screens, TVs around facility) are all either past or nearing end of their useful life. There are currently RFPs out for replacement of the ribbon boards and out-of-town board, but no timeline has been established. All conference spaces, suites, locker rooms, and the Ellis pavilion need an audio

/ visual refresh as they have not been updated since the ballpark's opening. Currently, there is a plan to move to an IPTV / RF hybrid solution for all digital signage and displays in 2022 and 2023.

## Observation AV-1: Speakers at Outdoor Gates and Misc. Areas of Seating Bowl

The seating bowl sound system was replaced in 2020; however, certain locations throughout the ballpark were not replaced at that time, including the First Base and Third Base Clubs on 200 Level, Hit Here Café, All-Star Club, and outdoor entrance gate areas. These speakers are original and have reached end of useful life.

Rating: Marginal

#### **Recommendation:**

Replace speakers within the next 3 to 5 years to avoid component failure, either due to weather exposure or parts availability.



Example of speakers at gates and entrances to seating bowl

### Observation AV-2: Out of Town and Ribbon Board LEDs

Both the out-of-town and ribbon board LEDs are at the end of their useful service life (installed in 2010 and 2011) and need replacement, either due to parts availability and or weather.

#### Rating: Poor

#### **Recommendation:**

Both systems should be replaced in the next 1-2 years to avoid failure in the middle of a game and parts are not available to resolve any issues that arise.



Wear and tear due to weather and other factors on mask for the ribbon boards

## **Observation AV-3: Mariners Vision (Main LED)**

This system appears to be in relatively good condition; however, it is at the end of its recommended service life (installed 2013) and parts are becoming harder to come by, resulting in difficulties with performing maintenance should it arise.

#### Rating: Marginal

#### **Recommendation:**

LED screen should be replaced in the next 1 to 3 years to avoid failure in the middle of a game since parts are limited (or not available) to resolve any issues that arise.



Production date of Mariners Vision LED tiles

## FACILITY ASSESSMENT

#### **Observation AV-4: Suites**

Audio and visual systems are original, and not end-user friendly.

#### Rating: Adequate

#### **Recommendation:**

All suites should be upgraded to current technology, control panels, 4K displays, IPTV, enhanced audio to line up with top 10 list.



Suite audio control

#### **Observation AV-5: Conference rooms**

Audio and visual systems are original and not conducive to today's basic teleconferencing functions. The Mariners were in the process of replacing A/V equipment in conference rooms in advance of the 2022 season.

Rating: Other

#### **Recommendation:**

N/A



Example of a conference room audio / video control setup

## FACILITY ASSESSMENT

#### **Observation AV-6: Ellis Pavilion**

Ellis Pavilion is a multipurpose space that serves internal meetings, drafts, on boarding / off boarding, wedding, and corporate events. Audio and visual are original and not conducive technologically to all the different uses.

#### Rating: Adequate

#### **Recommendation:**

A full audio / visual modernization should be considered to better accommodate all the different uses.



Overview of one of the partitions showing projection, misc. lighting, analog audio connections

#### **Observation AV-7: Children's Play Area / Daycare**

This area appears to be original or an afterthought space for players' children that is not technologically appealing or up to date.

Rating: Marginal

#### **Recommendation:**

A visual and auditory facelift should be considered to provide a welcoming space for the players' children to be when on site.



Children's daycare space

## FACILITY ASSESSMENT

#### **Observation AV-8: Home Clubhouse**

Audio and visual systems are original but in adequate condition.

#### Rating: Adequate

#### **Recommendation:**

Home Clubhouse A/V systems should be replaced with current technology, control panels, 4K displays, IPTV, enhanced audio. Perform modernization in tandem with complete clubhouse modernization.



Home team locker room overview

#### **Observation AV-9: Visitors' Clubhouse**

Audio and visual systems are original construction and not current technology but in adequate condition.

#### Rating: Adequate

#### **Recommendation:**

Visitor Clubhouse A/V systems should be replaced with current technology, control panels, 4K displays, IPTV, enhanced audio.



Audio connections to speakers in visitors' locker room

## **Observation AV-10: Batting Cages**

Audio and visual systems are original but in adequate condition.

#### Rating: Marginal

#### **Recommendation:**

Batting cages A/V systems should be replaced with current technology, control panels, 4K displays, IPTV, enhanced audio.



Audio and visual setup in batting cages

## FACILITY ASSESSMENT

#### **Observation AV-11: Audio network infrastructure**

Audio network infrastructure was upgraded in 2020 adding a QLAN / Dante backbone for the new bowl audio system.

Rating: Good

#### **Recommendation:**

Network switches need to be evaluated for replacement as they were at end of life in 2020 and will be end of support in 2025. The system will need to be evaluated for replacement in 7-10 years.



Audio network in broadcast control room

## **Observation AV-12: Bowl Audio**

The seating bowl audio system was replaced in 2020 adding a d&b xS series system with 18S-SUBs.

Rating: Excellent

### **Recommendation:**

None at this time. System will need to be evaluated for replacement in 7 to 10 years.



Example of bowl audio locations

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# 6.2 – TECHNOLOGY: BROADCAST Summary:

The Broadcast category is generally comprised of the following systems and components:

- Broadcast Equipment
- MATV System
- Broadcast Cabling and Pathways

The broadcast video and audio systems are in marginal to poor condition. Major components of the broadcast video system such as switcher, router, and replay systems were upgraded in 2013 or before. The broadcast audio console was upgraded in 2016. The infrastructure to support the original copper cabling for the broadcast system needs to be evaluated and convert to a fiber-based infrastructure that will allow for future growth and adaptation of technologies that are already in major broadcast facilities. The broadcast video system including the router, switcher, cameras, playback devices, capture devices, graphics machines and LED screen / ribbon boards should be upgraded in the next 1-3 years to 4K to align with the current industry standard.

## **Broadcast Equipment**

#### **Observation BR-1: Broadcast Switcher**

The Ross Vision switcher is over 10 years old, and the product line ended in 2013. Finding parts and support will become increasingly difficult in the event major issues arise.

#### Rating: Marginal

#### **Recommendation:**

Replace switcher in the next 1-3 years with a 4K version to support the current technology and have current parts and support.



Broadcast video switcher in control room

## FACILITY ASSESSMENT

#### **Observation BR-2: Router and Card Frames**

The router, DA cards, and card frames were upgraded in 2013. These are nearing the end of their recommended service life. Finding parts and support will become increasingly difficult in the event major issues arise.

#### Rating: Marginal

#### **Recommendation:**

The router should be replaced with current 4K technology. Both systems should be replaced in the next 1-3 years to avoid a potential failure in the middle of a game and avoid a situation in which parts may not be available to resolve any issues that arise.



Broadcast router in core

#### **Observation BR-3: Replay System**

This system was updated in 2011 and is outdated both from a software and control side. Finding parts and support will become increasingly difficult in the event major issues arise.

#### Rating: Marginal

#### **Recommendation:**

The replay system should be replaced with the latest version of software and Live Slow Motion (LSM) controller.



Replay systems in broadcast control room

## FACILITY ASSESSMENT

#### **Observation BR-4: Graphics, video playback systems**

The graphics systems are a Ross XPression system that was upgraded in 2016. Video playback system(s) are IPDirector and Ross Blackstorm.

#### Rating: Adequate

#### **Recommendation:**

The graphics system and video playback systems should be upgraded in the next 3-5 years or sooner if a 4K broadcast system is installed.



Ross XPression graphics software

#### **Observation BR-5: Cameras (wired, wireless)**

There are (2) cameras with RCPs and (2) wireless cameras with an RF transmitter / receiver for each.

Rating: Marginal

#### **Recommendation:**

Cameras should be upgraded in the next 1-3 years to 4K with a broadcast upgrade to align with current standards. Wireless units are from 2006 and should be replaced in the next 1-3 years.



ENG cameras with RF transmitters

## FACILITY ASSESSMENT

#### **Observation BR-6: Intercom (Wired and Wireless)**

Wired intercom has a combination of analog party line and matrix i-Stations / v-panels. Wireless intercom is an EOL Tempest system.

#### Rating: Marginal

#### **Recommendation:**

Pico Matrix is latest version (HX), but it was upgraded in 2014 so it's nearing the end of its recommended service life and should be replaced in the next 1-3 years along with any i-Station panels. Wireless intercom was also at the end of its recommended service life and no longer supported as of 2015. This should be replaced in the next 1-3 years.



Wireless intercom shown on orange padding

#### **Observation BR-7: Audio Console**

The audio console was replaced in 2016 and serves the bowl and concourses.

Rating: Adequate

#### **Recommendation:**

This console is in adequate condition but should be replaced in the next 3-5 years as parts and support will become hard to find as it's already a 10-year-old product line.



Broadcast Audio Console

## FACILITY ASSESSMENT

#### **Observation BR-8: Closed Captioning System**

During the subject matter expert conversations, it was mentioned that the closed captioning system was homemade and 16-years old. It also is not functioning properly or efficiently. The Mariners were in the process of replacing the closed captioning system in advance of the 2022 season.

#### Rating: Other

#### **Recommendation:**

None currently due to ongoing replacement.

#### **Observation BR-9: Radio / Commentators' booths**

There are several booths with audio consoles, audio processing, ISDN infrastructure, and commentators' headset connection points.

Rating: Marginal

#### **Recommendation:**

Replace in the next 1 to 3 years and systematize each of these rooms with digital audio infrastructure to allow for maximum flexibility.



Radio / commentators' system

## FACILITY ASSESSMENT

## MATV System

#### **Observation BR-10: MATV Headend**

MATV is a system that seems to have grown over the years and is a combination of new and old modulators and de-modulators around the building. The Mariners have started a phase change over to IPTV with the menu boards being done in advance of the 2022 season, and the next step will be to fully migrate from MATV to IPTV in the next 1 to 2 years.

#### Rating: Varies

#### **Recommendation:**

MATV is scheduled to become a hybrid system with IPTV in 2023. The current system should be culled through and reduced to essential infrastructure and replacement equipment should be purchased.



MATV amplifiers in headend room

## Broadcast Cabling and Pathways

#### **Observation BR-11: JBTs and SMPTE fiber**

Only a few junction boxes for television broadcast (JBT's) around the stadium have been converted from triax to fiber cabling. This conversion has generally been by requested by end users.

#### Rating: Marginal

#### **Recommendation:**

Remove triax from infrastructure and replace with SMPTE to align with current broadcast standards.



JBT showing triax (at the bottom) and new SMPTE fiber

## FACILITY ASSESSMENT

#### **Observation BR-12: Truck Dock**

All audio and video tie lines from JBTs land in the truck dock to interface with broadcast trucks that pull in.

#### Rating: Adequate

#### **Recommendation:**

Remove triax from infrastructure and replace with SMPTE to align with current broadcast standards.



Truck dock racks (red covers are triax connections)

#### **Observation BR-13: Infrastructure Cabling**

Both horizontal and vertical pathways and risers are filled to capacity or over capacity.

Rating: Marginal

#### **Recommendation:**

Remove triax from infrastructure and replace with SMPTE to align with current broadcast standards. Remove coax tie lines and replace with SMFO fiber infrastructure that can be utilized for audio, video, or data.



Full risers and pathways

#### **Observation BR-14: Abandoned systems**

There are several rooms that seemed to have a collection of abandoned or end-of-life analog video or audio gear.

#### Rating: Marginal

#### **Recommendation:**

Remove and cleanup all unused end-of-life gear and cabling infrastructure.



Abandoned / crossed out patch points (cabling associated with these still in rear of rack)

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## 6.3 – TECHNOLOGY: DATA NETWORK / LOW VOLTAGE SYSTEMS Summary: Catalyst 2960-C PoE switch was deployed to support PoE

The Data Network / Low Voltage Systems category is generally comprised of the following systems and components:

- Data Network
- Telephone System
- Wireless LAN (Wi-Fi)
- Ticketing System
- Point of Sale Systems
- Cellular Distributed Antenna System (DAS)
- Security & Access Control

## **Data Network**

The data network is a traditional tier topology Cisco-based network. The Mariners network supports the following systems:

- Mariners Corporate Network (BOH operations, Team Operations)
- VoIP Phone system
- POS (F&B, Retail)
- Security (CCTV, Access)
- Timekeeping (Kronos)
- BMS (Metasys)
- Lighting Control (Pharos)
- ticketing (Ticketmaster)
- Audio (QLAN)

The data network system utilizes a pair of Cisco Nexus 9504 core switches that were upgraded in 2018. The Access Switches are a series of Catalyst 2960s with installed between 2006-2008. The 2960s utilize a 10G MMFO uplink, in support of 48 1G ports. The venue has a mix of PoE, PoE+ and non-PoE 2960s. In support of some CCTV upgrades, a newer (post 2011)

Catalyst 2960-C PoE switch was deployed to support PoE needs where non-PoE 2960s were utilized. All of the Cisco 2960 lines currently utilized in the ballpark have been discontinued by Cisco. This includes further sales, as well as maintenance of the products. The Wi-Fi network is a fully independent system as noted later.

#### **Observation DL-1: Data Network**

The access layer of the data network is comprised of a mix of Cisco Catalyst 2960 switches, including both the 48-port and compact LAN 8port. The switches average 10-15 years of age on a typical 7–8-year refresh rate. Cisco is no longer supporting the product line which poses both an upkeep concern for parts, but also a cyber security concern.

#### Rating: Poor

#### **Recommendation:**

The access layer switches need to be replaced. A capital project is planned to start replacement of the switches in 2022.



Access Switches wall mounted in a IDF room



## Telephone System

The telephone system is a Voice over IP (VoIP) from Mitel. The system utilizes an on-premises IP-PBX. The product was a lease-to-own and is between 8-10 years old. Additionally, the phone system utilizes a softphone technology from Ring Central.

#### **Observation DL-2: Telephone System**

The phone system is deployed with hardware via the Mitel system and unified communications as a service via the Ring Central deployment.

#### Rating: Good

#### **Recommendation:**

Mitel and Ring Central have formed a strategic partnership which may allow for a transition to a cloud-based communications system, if desired to replace the on-premises PBX.



Mitel On-Premises IP-PBX

## Wireless LAN (Wi-Fi)

The Wireless LAN (Wi-Fi) system is provided by MLB under the DAS agreement that was initiated in 2011. The first installation of the DAS system was installed in 2014 as a Cisco-based Wi-Fi 5 solution. As of October 2021, through January 20, 2022, the entire solution has been replaced with an Extreme Wi-Fi 6 solution throughout the Ballpark. The head-end of for the Wi-Fi is within the MLB rack room outside the ballpark adjacent to the Video Production truck dock.

#### **Observation DL-3: Wireless LAN (Wi-Fi)**

New installation of the Wi-Fi system throughout the venue, including concourses, bowl seating and BOH spaces.

Rating: Excellent

#### **Recommendation: N/A**





Bowl Wi-Fi AP. New MLB Wi-Fi access switch, old Wi-Fi switch

## **Ticketing System**

The ticketing system is fully deployed by Ticketmaster. The Mariners support Ticketmaster by providing an internet portal for their cloud-based solution, as well as cabled and Wi-Fi support of ticket readers throughout the venue. In addition to the wireless handheld ticket readers, (30) new Axxess ticket pedestals have been deployed throughout the venue. Ticketmaster utilizes a cloud-based solution in the Venue.

The box office utilizes Ticketmaster-based PCs for will-call and day of game ticket transactions.

**Observation DL-4: Ticketing System** Ticketmaster ticketing system including Axxess Pedestals.

Rating: Good

Recommendation:

NA



Axxess ticketing pedestal

## Point of Sale System - Food Service

Centerplate operates the food and beverage POS system over a VLAN on the Mariners LAN. The POS hardware and system have been upgraded recently, but will undergo further changes, due to an end-of-life notice from the manufacturer. The system will be an NCR Silver deployment with a Quest BOH system. The system operates both on premises and in the cloud as a hybrid deployment.

Prior to 2022 opening day, a new Walkout Amazon solution will be deployed at the renovated concession 126. This will be the first on-site deployment.

## Point of Sale System - Food Service

The Retail POS system is an Aptos system. The physical POS hardware is at the end of its recommended service life and scheduled for replacement. The Aptos software can be upgraded, as necessary. The system utilizes both portable and mobile stations within the Retail stores.

## Cellular Distributed Antenna System (DAS)

The Cellular DAS is an AT&T Neutral host 4G solution deployed throughout the venue, with AT&T, Verizon, and T-Mobile as connected carriers. The solution was deployed in 2011/12. The initial 10-year contract has expired, and the ballpark is in the first of two 5-year renewals.

The headend of the DAS is located on the field level, first base side in the outfield, and in a Mezzanine, Room located above a large storage room. The headend room is supplied with dedicated cooling and electrical services. Each of the carriers has a dedicated footprint for their carrier equipment, as well as the neutral host head-end equipment. Many of the IDF rooms host CommScope distribution equipment and remote units of the DAS solution. Within the IDF rooms the equipment is a combination of

2-post rack mounted and wall mounted, depending on the space available within the specific IDF room.

The Mariners are in discussions with T-Mobile about deploying a 5G solution. Due to the technology available, there is not a neutral host 5G solution, and each carrier must deploy their own independent solution outside of the 4G solution within the venue. Future discussions are pending with Verizon and AT&T for deployment of their 5G solution.

#### **Observation DL-5: Cellular DAS**

The AT&T neutral host 4G DAS over CommScope infrastructure is well maintained.

Rating: Good

#### **Recommendation:**

NA



DAS Room



RAU within IDF room

### FACILITY ASSESSMENT

# 6.4 – TECHNOLOGY: TECHNOLOGY INFRASTRUCTURE Cabling and Pathways

The Technology Infrastructure category is generally comprised of the following systems and components:

- Cabling and Pathways
- Equipment Rooms

The telecommunications raceway systems are well planned to support cable distribution throughout the park. However, due to initial cable fill and continued additions over the last 20 years the backbone raceways are in adequate to poor condition. The cable infrastructure needs to be culled and older/abandoned cables need to be removed to free up space within the existing cable trays and riser conduits.

The telecommunications backbone systems are mostly original, with newer projects and renovations using new backbone cabling. The existing backbone cabling includes a significant amount of original analog cabling distributed around the ballpark.

The telecommunications horizontal cabling system is also mostly original to the building. Again, new projects and renovations have installed new horizontal cabling in support of additions and changes, as well as increased bandwidth data needs.

## Observation TI-1: Cable Tray – Service Level

Cable trays are at capacity for fill.

Rating: Marginal

#### **Recommendation:**

Remove older and abandoned cables from the cable trays.



Full trays with cut cables remaining

## FACILITY ASSESSMENT

## **Observation TI-2: Cable Tray – Communications Room**

Cable trays are at capacity for fill.

Rating: Marginal

## **Recommendation:**

Remove older and abandoned cables from the cable trays.



Full trays within Comm Rooms

## **Observation TI-3: Backbone Conduits**

Backbone conduits are at capacity for fill.

Rating: Marginal

#### **Recommendation:**

Remove older and abandoned cables from the backbone riser conduits.



Full backbone riser conduits

## FACILITY ASSESSMENT

#### **Observation TI-4: Backbone Fiber Optics**

Mariners backbone fiber is primarily multi-modal fiber. Special projects over the years have added single-mode fiber. Backbone cable bundles are typically 6- to 12-strand MMFO between the MDF and IDF rooms. Additionally, single-mode fiber has been added in support of MLB Wi-Fi.

#### Rating: Marginal

#### **Recommendation:**

A capital project is being planned to upgrade/replace the existing MMFO cabling with SMFO.



OM2 multi-mode fiber cross connect patch panels in the MDF

#### **Observation TI-5: Backbone Cat3**

Each of the IDF rooms is serviced by a large pair count Cat3 Backbone cable ~100-pair.

Rating: Adequate

#### **Recommendation:**

Analog services throughout the venue have declined year over years with only a few lines utilized in each TR room. The backbone could be consolidated to remove valuable real-estate in both the cable tray and vertical backbone conduits.



Cat3 main cross connect in the MDF

## FACILITY ASSESSMENT

#### **Observation TI-6: Horizontal Cable**

Horizontal cable is primarily Cat5e terminated on 110-wall blocks. Patch cables are then routed to wall-mounted access switches via a complex cable management system.

#### Rating: Adequate

#### **Recommendation:**

A capital project is being planned to upgrade/replace the existing Cat5e with Cat6a cabling.



Cat5e horizontal termination wall-field and patching system

## **Equipment Rooms**

The Park has an adequate number of Immediate Distribution Frame rooms (IDF's) and equipment cabinets to stay within Ethernet cable distance; under 295-feet of cable run. The equipment rooms do not have a uniform shape or size. However, most of the rooms are a minimum of 90 square feet and most rooms have a minimum dimension of 8 feet in one direction. The rooms do not "stack" vertically between floors, as there is an offset between rooms.

Each of the IDF rooms is supported by MEP systems for cooling and electrical distribution. Each of the IDF rooms is supported by forced air cooling. Several of the rooms including the datacenter and DAS room were supported with dedicated cooling units, to support the load demand of room.

The TR rooms have dedicated rack-mounted or floor-mounted UPS in support of localized loads, to bridge power outages and function as a line conditioner.

The IDF rooms support several systems distribution including:

- Mariners data network
- Mariners audio network
- Mariners RF Video systems
- Broadcast interconnect panels
- AT&T Cellular DAS
- MLB Wi-Fi
- Other MLB dedicated systems

## FACILITY ASSESSMENT

#### **Observation TI-7: Equipment Room Planning**

Equipment room (IDF – Immediate Distribution Frame Room) coverage is provided throughout the ballpark to stay within Ethernet distance and providing adequate overlap zones. Telecom cabinets have been added to the outfield seating sections where base building IDF rooms did not provide coverage for the tele/data needs of the outfield seating above the Main Concourse.

#### Rating: Good



Telecom Coverage circles and IDF Rooms shaded – Field Level

#### **Observation TI-8: Equipment layout/Utilization**

The original installation utilized the wall field for the backbone cable terminations (fiber, cat3) and the horizontal distribution of Cat5e including termination and patching. Additionally, the Mariners data network switches are wall-mounted vertically, with floor-mounted UPS in support. Over time two-post floor racks and wall mounted four-post racks have been installed in support of new systems including AT&T DAS and MLB Wi-Fi. The shape and size of many of the rooms, including the minimum width around 8 feet, have made a traditional linear rack arrangement impractical

While each of the systems have found space for their systems by utilizing available wall space or floor space, this has caused each system and rack to be a unique installation throughout the venue.

#### Rating: Marginal

**Recommendation:** A standard approach should be considered for installation/mounting as part of capital projects for replacing/upgrading backbone fiber optic and horizontal tele/data cabling. Additionally, a cleaning/culling is needed in each of these rooms to remove unused/abandoned equipment. Many systems remain mounted and, in some cases, powered, while not being utilized. To avoid needing to find new space for communications equipment, these rooms need to be maintained.

The rooms are also being used for storage of non-IT systems. Use of the IDF rooms for non-IT storage should be viewed as a security concern. General access provides a cyber security concern, and non-IT storage increases the risk for physical damage, cable disconnects, and limits access to the necessary equipment for any maintenance necessary.



Intermediate Distribution Frame (IDF) Rooms with storage of non-IT systems

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## 7.0 – FURNISHINGS, FIXTURES & EQUIPMENT Summary • Architectur

The Furnishings, Fixtures & Equipment (FF&E) category includes the following components.

- Furniture
- Strength and Conditioning Equipment
- Interview and Assembly Space Equipment
- Operational Equipment

The quality and condition of T-Mobile Park's FF&E varies according to space in the ballpark and date of the most recent investment. There are several areas, such as lower-level administrative suite, broadcast press areas, home clubhouse, club level, luxury suites, and Hit it Here Cafe that contain a significant amount of FF&E original to the building. The dated FF&E in many areas is functional (some of it has been replaced on an asneeded basis) but original FF&E is showing signs of wear and tear from 20 plus years of usage.

The Mariners are presently planning or in the process of making several investments throughout the ballpark at the time this assessment was conducted. Investment in these spaces has logically resulted in a deferral of FF&E modernization that will take place as part of broader projects. Presently, the Mariners are modernizing the suite-level administrative offices and other planned investments include:

- A complete modernization of the Diamond Club
- The addition of a club area in the current writing press area
- Conversion of existing club seats into additional semiexclusive seating products such as tables and couches
- A retrofit of the Hit it Here Café

 Architectural renderings, budgets, and schedules for implementation for the proposed improvements are unavailable at the time of this assessment. The Consulting Team has included photographic documentation of the current condition of these spaces for reference, but it is anticipated that investment will occur shortly after the time of this assessment.

The Consulting Team has not prepared an itemized schedule of FF&E for all spaces throughout the ballpark due to the expansiveness of T-Mobile Park and the thousands of pieces of FF&E within the stadium. Instead, the Consulting Team has assumed that planned modernization of certain spaces (e.g., broadcast press) will include FF&E modernization. Project profiles and associated budget estimates have considered FF&E costs as a result. In spaces such as suites, which are more FF&E-intensive, greater allocations have been made. The Consulting Team has also analyzed historical FF&E investment amounts made by the Mariners to account for miscellaneous FF&E investments in common area spaces.

The Consulting team has prepared itemized list of major operational equipment (e.g., groundskeeping equipment, forklifts, carts, etc.). Planned investment dates in operational equipment have been assumed according to current condition and the recommended lifecycles of equipment. [To Be Completed]

#### **Observation FF-1: Diamond Club FF&E**

The Diamond Club is T-Mobile Park's most exclusive premium seating space. The club serves over 400 patrons and is located behind home plate on the event level and has a private entrance next to Ellis Pavilion. The club is noticeably dated and last received major investment in 2016. The Mariners were in the process of renovating the Diamond Club.

#### Rating: Other

#### **Recommendation:**

N/A



Diamond Club

#### **Observation FF-2: Luxury Suite FF&E**

The suite level contains over 60 total suites. The suites have a significant number of original furnishings that are dated and contribute to a dated aesthetic feel in the units. Upholstery, wood, and partitions all show sign of degradation. Placards outside the suites are beginning to show signs of wear and tear and are missing letters in some instances. The suite level corridor is well maintained and received investment in 2018 in the form of new carpet and paint.

#### Rating: Marginal

#### **Recommendation:**

Program a modernization of suites and corridors to provide an experience similar to other Applicable Standard Ballparks. This planned investment should be made in the first three years of the plan.



Suite Furniture

#### **Observation FF-3: Club Level FF&E**

The club level services the ROOT SPORTS Terrace Club patrons. The club provides upscale food and beverage options and offerings for club patrons only. Recently, loge boxes and tables were added to the club level on the first base line and these products will also be added along the third base line as well. The club level itself is very well kept. Finishes are basic and the space has an industrial feel. At the time of the assessment, furniture was not on display, but it is the Consulting Team's understanding that it contains a mix high-top tables and other basic seating options that were primarily introduced in 2008.

With potential introduction of a new club in the existing writing press area, the ROOT Sports Terrace Club will become the third-tier club in the ballpark after the Diamond Club and new press club. The club area itself appears to be generally in good repair.

#### Rating: Good to Marginal

#### **Recommendation:**

Program a modernization of the club space approximately five years into the plan. Replace with like basic FF&E commensurate with its positioning in relation to other club spaces throughout T-Mobile park.



ROOT SPORTS Terrace Club
## FACILITY ASSESSMENT

## **Observation FF-4: Hit it Here Cafe FF&E**

Hit it Here Café FF&E is highly basic and consists of metal seats and drink rails. The metal furniture in the space was introduced in 2015 and contributes to an industrial, basic feel that provides an experience one step below the ROOT Sports Terrace Club. Mariners staff has indicated that, partially due to the space's location in the ballpark, that it receives comparatively limited utilization than some other more popular ballpark areas and is generally only well utilized for the most in-demand games.

## Rating: Adequate

### **Recommendation:**

It is the Consulting Team's understanding the Hit it Here Café may be modernized as part of planned upgrade investments. In the absence of such a project, the Consulting Team would recommend a modernization of the space approximately 5 to 7 years into the plan to align with its utilization.



### Hit it Here Café

## **Observation FF-5: Administrative Office FF&E**

The administrative offices are largely located behind home plate and along the third baseline on the club and suite levels of the ballpark. Suite-level administrative offices are being modernized to create a more modern and flexible workspace. Lower-level administrative offices and associated meeting spaces are well kept but showing clear signs of wear and tear. Furniture has also been replaced in some instances, leading to different qualities throughout the space.

## Rating: Excellent to Marginal

## **Recommendation:**

Program a modernization of FF&E in conjunction with a modernization of administrative offices on the club level, similar to that of the suite level. Consider retrofit of administrative spaces in the first three years to maximize economies of scope and scale with the current administrative office modernization project.

## FACILITY ASSESSMENT

## **Observation FF-6: Home Clubhouse FF&E**

The home clubhouse is generally in good condition but is starting to show signs of age – particularly with regard to player locker millwork and technology aspects. Furniture in the clubhouse is generally consistent with what is provided in peer ballparks, though dining areas furniture is noticeably basic and in need of improvement to provide improved player comfort. The player lockers lack technology amenities that are frequently integrated into similar space in contemporary MLB ballparks.

## Rating: Good

### **Recommendation:**

Program a modernization of FF&E in conjunction with an overhaul of the home clubhouse. Program the home clubhouse overhaul within 3 to 5 years.



Home Clubhouse

## **Observation FF-8: Home Clubhouse Training Space FF&E**

The training area appears to be adequately sized but contains primarily older weight and fitness equipment that is showing clear signs of age. The sports medicine area contains a mixture of equipment, some of which has been replaced at various points, and is generally well maintained despite lacking in architectural character. The hydrotherapy room is noticeably dated, and equipment is presently being replaced by the Mariners.

## Rating: Marginal

## **Recommendation:**

Program a modernization of the training space in conjunction with an overhaul of the home clubhouse. Plan for overhaul of team spaces within 3 to 5 years.



Home Clubhouse Weight and Fitness Space

## **Observation FF-9: Ellis Pavilion FF&E**

Ellis Pavilion is located in right field adjacent to the administrative suite entrance. It has been historically utilized for meetings and small group outings. The space has historically received a limited amount of investment, including new tables and chairs, lighting, and an audio system. According to the Mariners, the space receives somewhat limited utilization.

## Rating: Good

## **Recommendation:**

Ellis Pavilion's limited utilization suggests that FF&E improvements be deferred in terms of priority order. The space itself could be evaluated for a potential conversion or upgrade due to its limited utilization.

## **Observation FF-10: General FF&E Replacement**

Approximately \$73,000 has been invested annually in general FF&E from 2001 to 2021. This figure increases to approximately \$106,000 when adjusted for time value of money at 3%. Average annual investment amounts were \$86,000 from 2001 to 2005; \$68,000 from 2006 to 2010; \$76,000 from 2011 to 2015; and \$66,000 from 2016 to 2020. The highest investment amount years were \$234,000 in 2001 (day after changes) in 2011 at \$222,000. The only FF&E investment over \$50,000 in the past five years was for waste receptacles at \$100,000 – highlighting how FF&E has been purchased in smaller increments.

## Rating: Varies

## **Recommendation:**

The Consulting Team recommends programming an annual FF&E replacement fund of \$100,000 given the consistency of investment over the first 21 years with completed Capex records.

## Observation FF-11: Operational Equipment Replacement

The Mariners provided the Consulting Team an itemized list of operational equipment by back-of-house department. The list included engineering equipment (9 items), housekeeping equipment (9 items), loading dock equipment (5 items), groundskeeping equipment (24 items – includes grow lights), food and beverage equipment (18 items) and security (two items). Based on the inventory provided, the Consulting Team estimates there is approximately \$1 million in operational equipment. Assuming a typical lifecycle of 12 to 15 years, an annual fund would range in size from approximately \$70,000 to \$100,000 based on the inventory outlined above. In comparison, approximately \$96,000 has been invested annually in operational equipment from 2001 to 2021. This figure increases to approximately \$140,000 when adjusted for the time value of money.

Rating: Varies

## **Recommendation:**

The Consulting Team recommends programming an annual operational equipment replacement fund of \$100,000.

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## 8.1 - TEAM SPACES: TEAM FACILITIES

## Summary:

The Team Facilities category is generally comprised of the following systems/components:

- Home Clubhouse and Training
- Home Hydrotherapy Area
- Home Strength & Conditioning
- Visitor Clubhouse
- Batting & Pitching Tunnels
- Dugouts
- Umpires Locker Room

Overall, the Team Facilities are in adequate condition, but finishes are outdated and nearing the end of useful life and should be replaced within the first 5 years of the plan.

## **Observation TF-1: Home Clubhouse**

The Home Clubhouse is currently undergoing a minor refresh with some painting and updated graphics. Overall, it's in adequate condition, but needs a modernization. The finishes and surfaces are worn, and the lighting is a variety of different fixtures that don't provide quality illuminance.

## Rating: Adequate

## **Recommendation:**

Replace finishes at Home Clubhouse, including training area. Coordinate renovation with MEP systems and FF&E.



Entrance to Home Clubhouse



Player lockers

## FACILITY ASSESSMENT



Coach's office



Player restroom



Player showers



Player dining area

## FACILITY ASSESSMENT

## **Observation TF-2: Hydrotherapy Area**

The Hydrotherapy area finishes, and equipment are in adequate condition, but needs a modernization to be in alignment with other MLB clubhouses. The finishes and equipment are worn and should be replaced in the nearterm.

## Rating: Adequate

## **Recommendation:**

Replace finishes and equipment at the Hydrotherapy areas in the first eight years of the plan. Coordinate renovation with MEP systems.



Visitor locker room

## **Observation TF-3: Visitor Clubhouse**

The Visitor Clubhouse is in adequate condition but needs a modernization to be in alignment with other MLB clubhouses. The finishes and surfaces are worn, and the lighting is a variety of different fixtures that don't provide quality illuminance.

## Rating: Adequate

## **Recommendation:**

Replace finishes at Visitor Clubhouse, including training area within first eight years of the plan. Coordinate renovation with MEP systems and FF&E.



Visitor locker room



Visitor training area

## **Observation TF-4: Batting & Pitching Tunnels**

The Batting & Pitching Tunnels are in adequate condition, but areas of carpeting are mismatched and worn and appear to have water damage. Netting needs repair in certain locations and the lighting could be improved.

Rating: Marginal

## **Recommendation:**

Replace finishes and netting at the Batting & Pitching Tunnels within the first five years of the plan. Coordinate with lighting, technology, and FF&E.



Visitor training area



Visitor training area

## **Observation TF-5: Dugouts**

The home and visitor dugouts are in generally good condition, but certain components like the flooring and seating take abuse and require regular replacement. The Mariners were in the process of replacing flooring in both dugouts in advance of the 2022 season.

Rating: Other

## **Recommendation:**

N/A





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## 8.2 - TEAM SPACES: BASEBALL OPERATIONS

## Summary:

The Baseball Operations category includes the following systems/components:

- Video Coaching
- Instant Replay
- Pitch Track
- Humidor for Baseball Storage

Overall, the Baseball Operations equipment is in excellent to adequate condition, however, technologies are ever changing and there is a need to remain competitive with other MLB teams and compliant with MLB requirements.

## **Observation BO-1: Equipment Allowance**

The Mariners have historically averaged \$50,000 per year in spending on Baseball Operations equipment.

Rating: Excellent to Good

### **Recommendation:**

Establish an annual allowance for Baseball Operations equipment.



Video coaching displays

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# 06 NECESSARY IMPROVEMENT ANALYSIS

## 6.0 – NECESSARY IMPROVEMENTS ANALYSIS

## **Objectives**

The primary objective of this engagement is to identify the extent, cost, and timing of Necessary Improvements to maintain T-Mobile Park in a condition that meets the Applicable Standard through 2043. The Necessary Improvements Analysis relies heavily on findings from the Facility Assessment, which are detailed in Section 5.0 – Facility Assessment. The Consulting Team refined the initial Necessary Improvements Matrix entries through collaboration with Consulting Team partners, the Mariners, and third-party industry resources to develop a refined plan through 2043. The Consulting Team also summarized the major projects contributing to cost exposures in three-year increments to provide an understanding of key elements influencing cost.

## Methodology

All Necessary Improvements listed in the Matrix are described briefly in this section and include the major category, sub-category, location description, suggested period for implementation, brief project description, recommended life cycle, phasing assumption, initial investment year, and estimated cost adjusted for escalation. Figure 6.1 below provides an example of this methodology for replacement of piping. The Consulting Team recommends that hot water and condenser water piping replacement begin in 2035 and be phased in over five (5) years. The Consulting Team utilized the following assumptions for all matrix entries:

- Figures assume annual construction cost escalation of 5% from 2022 through 2025 and 3% from 2026 onwards;
- Costs utilized in the matrix were estimated utilizing historical data, industry resources, relevant experience, and input from the Mariners;
- Investment reoccurrence assumptions are fixed based on the Consulting Team's prior experience;
- A 15% contingency was also applied to each year's annual estimate.

ID	Category	Sub- Category	Location Code	Location Description	Project Description	Life Cycle (needs to be done every "X" years)	Phasing (phase the project over "X" years)	Initial Year	Project Budget Amount (2022 \$)
55	Building Systems	Mechanical / HVAC	General	HW & Condenser Water Piping	Replacement of piping	25	5	2035	\$6,000,000

FIGURE 6.1: Necessary Improvement Matrix Example

## Project Budget Limitations and Material Considerations

The budgets utilized in the Necessary Improvements Matrix have a number of limitations and considerations and the budgets utilized for projects in the Necessary Improvements Matrix may differ from the actual amount invested. As a result, the budget estimates are one of the more significant variables in the plan for several reasons:

- The scope of the project may differ from what is outlined herein due to a variety of factors, including extension of service life of key components or refurbishment of components that results in a more economic project. Such a change ultimately benefits the Mariners and PFD by making other funds available for other potential projects.
- Due to current **construction market increases** in Seattle, the budgets are highly variable and subject to fluctuation. The Consulting Team has utilized five percent as a reasonable escalation figure in the first two years, with three percent thereafter.
- The budgets are not detailed cost estimates. The Consulting Team has relied upon its expertise, feedback from the Mariners, and industry resources to develop project budget estimates. These budgets are design-to-budgets, inclusive of soft costs (including FF&E). The budgets were developed primarily using parametric estimating, benchmarking, and references to similar projects in the Baseline Matrix.

Despite the limitations above, it should be noted that additional emphasis was placed on developing refined budgets for projects in excess of \$1 million due to their impact on the overall plan. The Consulting Team anticipates that actual expenditures for these projects should be generally in alignment with budgets prescribed herein. When material deviations are present, the Consulting Team anticipates it will be due, in large part, to one of the factors above that are largely outside the Consulting Team's control.

## **Necessary Improvements Phasing**

Identifying the original investment year is arguably the most critical step in quantifying total cost since it establishes the basis for reoccurrence. However, since many of the building's systems and equipment are original and already exceeding their recommended service lives, numerous investments are required within the first three years of the plan, including in technology, food service, and premium areas, to catch up. As a result, there are many competing investment needs within this timeframe and the Consulting Team had to prioritize investments. In an effort to develop achievable early-year investment requirements, the Consulting Team utilized the following approach to program the first investment occurrence:

- The improvement is essential to the ballpark's operational reliability. Improvements responding to this criterion largely remained in their originally recommended year, regardless of competing investment requirements. As an example, some of the more costly food service and technology projects were examined for potential deferral to later years but ultimately were deemed operationally critical and remained in their originally planned year.
- 2. The space may be of lower standard or quality compared to similar spaces or equipment at Reference Ballparks utilized in the Applicable Standard. The Consulting Team, collectively, has experience at each of the ten Reference Ballparks used in the Applicable Standard, giving it a unique perspective to compare and contrast the condition and quality of systems at T-Mobile Park to them. In general, the Consulting Team observed that technology, food service, and premium spaces were areas that likely required the most attention in the first few years of the plan. These systems were also frequently rated lower on the rating scale.

3. The improvement maintains aesthetic appeal and spectator impressions. These improvements received lowest priority and the Consulting Team often deferred these investments to years with lower investment requirements.

In addition, related projects were strategically timed together to avoid redundant work and maximize efficiency. Key factors influencing specific phasing decisions included:

- Although the stadium seating throughout the bowl is in relatively good condition given its age, replacement is necessary within the next 3-5 years. In order to maximize economies of scope and scale and optimize phasing, seat replacements in the lower, upper, Terrace Club, and bleacher areas are scheduled to coincide with the application of a concrete coating or sealer in those areas while the old seats are removed.
- The majority of food service equipment is original, and many pieces are well beyond their recommended service lives. The Consulting Team used a phased approach to program general equipment replacement over six years beginning in 2024, with separate projects for hoods and walk-in coolers and freezers.
- The premium suites are well kept but noticeably dated. In the Consulting Team's professional opinion, the spaces fail to deliver an experience consistent with those at Reference Ballparks. A replacement-in-kind of suite fixtures is programmed for 2026 in the Necessary Improvements matrix. The Mariners plan to make Upgrade Improvements to the suites as well, potentially to include a major reconfiguration to a more modern layout and addition of social spaces. Reconfigurations or repurposing would be reflected

in an Upgrade Improvements Matrix, which is beyond the scope of this current Consulting Team engagement.

- While escalators are presently safe and dependable, the Consulting Team recommends replacing or modernizing them between 2024 and 2027 due to their ages, as well as idle time during the winter. In terms of elevators, the Consulting Team recommends prioritizing elevators #1 and #10 for replacement in the first two years of the plan since their manufacturer and suppliers have stated they no longer support these systems. For the remaining elevators, phasing replacement over a seven-year span is recommended given that most parts and replacement components are available with no current plans by the manufacturer to discontinue them.
- Several major investments in technology will be required from 2023 to 2026. Many technology projects are planned as phased multi-year endeavors for strategic and logistical benefits. The main LED scoreboard replacement assumes a down payment and spending on supporting infrastructure in 2025 and the installation of the board in 2026. Similarly, the cabling project roll-up is slated to kick off in 2023 with design and initial clearing making the way for later replacement and modernization phases in 2024 and 2025.

The following page examines the required annual investments. All figures are adjusted to 2022 dollars.

## Annual Investment Required

T-Mobile Park will require an estimated \$289 million (in 2022 dollars) in capital investment through 2043. This figure is prior to the application of any contingency or escalation, the impacts of which are discussed on the following pages. Over the duration of the plan, the average annual investment required is approximately \$13.7 million. This figure represents a 61% increase over the \$8.5 million previously invested on an average annual basis in 2022 dollars. The years with the greatest required investment are 2026 at \$22.0 million and 2038 at \$19.1 million, while 2033 requires the least at \$7.0 million.



FIGURE 6.2: Annual Investment Required Through 2043 (2022 Dollars, no contingency)

The downward trend line in required annual investments demonstrates the abundance of competing needs within the first five (5) years of the plan. Later in the 21-year plan, investment reoccurrences drive similar peaks in 2037 – 2038 and 2043. The Consulting Team acknowledges that the Mariners have been able to extend the lives of key systems and equipment through preventative maintenance; therefore, several investment reoccurrences happen beyond the 2043 horizon.

## Expenditure Comparison: Baseline vs. Forecast

Figure 6.3 examines the variance between the Baseline and Necessary Improvements matrices. As previously mentioned, there is a 61% increase in required investment when costs are normalized to 2022 dollars, excluding contingency. Investment composition among major categories stays mostly consistent. New and larger projects in seating replacement, concrete sealer, food service equipment, and premium renovations drive greater relative spending in Architectural and Spectator Amenities.

The similarities in terms of investment allocation of costs across categories lend credibility to the estimates. The largest discrepancy is in technology (7%), though technology increases in annual investment amount (\$4.2 million as compared to \$3.2 million previously). Similarly, architecture accounts for four percentage points more moving ahead, but the actual amount spent is approximately double the average amount spent between 2001 and 2021.

Major Category	Ba	aseline Avg. 2001-2021	Pro	ojected Avg.	Baseline %	Projected %	Diff.
Architectural	\$	1,869,747	\$	3,542,937	22%	26%	4%
Retractable Roof	\$	960,278	\$	1,136,905	11%	8%	(3%)
Garage	\$	79,032	\$	83,095	1%	1%	(0%)
Spectator Amenities	\$	1,145,871	\$	2,135,902	13%	16%	2%
Building Systems	\$	840,072	\$	1,770,533	10%	13%	3%
Technology	\$	3,224,619	\$	4,183,667	38%	30%	(7%)
FF&E	\$	244,669	\$	200,000	3%	1%	(1%)
Team Spaces	\$	161,280	\$	695,952	2%	5%	3%
Annual Average	\$	8,525,568	\$	13,748,992	100%	100%	0%

FIGURE 6.3: Baseline and Necessary Improvements Matrices Comparison (2022 \$)

## Adjusted Annual Investment

To improve the accuracy of projections and estimated investment required through 2043, the Consulting Team applied annual escalation and 15% contingency estimates to the Necessary Improvements costs. Consequently, the total investment required is \$477 million over the duration of the plan, or an annual average of \$22.7 million.



## Adjusted Annual Investment (15% contingency, inflation adjusted)

	2023	2024	2025	2026	2027	2028	2029	2030	2031		2032
Cost in 2022 \$	\$ 15,912,500	\$ 18,682,561	\$ 21,133,966	\$ 21,978,820	\$ 18,788,507	\$ 16,810,173	\$ 16,107,557	\$ 19,614,115	\$ 11,771,894	\$	7,691,198
Escalation	\$ 795,625	\$ 1,914,963	\$ 3,331,241	\$ 4,227,708	\$ 4,286,116	\$ 4,454,160	\$ 4,879,255	\$ 6,708,119	\$ 4,499,980	\$	3,259,013
Contingency	\$ 2,506,219	\$ 3,089,629	\$ 3,669,781	\$ 3,930,979	\$ 3,461,193	\$ 3,189,650	\$ 3,148,022	\$ 3,948,335	\$ 2,440,781	\$	1,642,532
Total	\$ 19,214,344	\$ 23,687,152	\$ 28,134,988	\$ 30,137,508	\$ 26,535,816	\$ 24,453,983	\$ 24,134,833	\$ 30,270,569	\$ 18,712,655	\$ :	12,592,743

2033	2034	2035	2036	2037	2038		2039		2040	2041	2042	2043
\$ 7,051,448	\$ 7,870,000	\$ 8,411,667	\$ 8,141,667	\$ 15,313,000	\$ 19,126,833	\$	8,541,520	\$	9,587,187	\$ 9,700,587	\$ 9,091,813	\$ 17,401,813
\$ 3,289,111	\$ 4,017,148	\$ 4,674,794	\$ 4,904,733	\$ 9,961,052	\$ 13,389,000	\$	6,414,781	\$	7,703,707	\$ 8,319,692	\$ 8,304,260	\$ 16,893,316
\$ 1,551,084	\$ 1,783,072	\$ 1,962,969	\$ 1,956,960	\$ 3,791,108	\$ 4,877,375	\$	2,243,445	\$	2,593,634	\$ 2,703,042	\$ 2,609,411	\$ 5,144,269
\$ 11,891,643	\$ 13,670,220	\$ 15,049,430	\$ 15,003,360	\$ 29,065,160	\$ 37,393,209	\$:	17,199,746	\$:	19,884,528	\$ 20,723,320	\$ 20,005,484	\$ 39,439,399

FIGURE 6.4: Adjusted Annual Investment (2023-2043)

## Adjusted Annual Investment Required

Figure 6.5 below examines investment composition by major category in three-year groups. Cells are shaded progressively greener as a greater percentage of investment is attributed to each major category. Key drivers behind major investments in each group are:

- Technology and infrastructure investments comprise a large portion of **Group 1** due to replacement of T-Mobile Park's data and broadcast cable infrastructure, video boards, and other end-of-life renewals.
- Group 2 includes food service equipment replacements and architectural investments in the seating bowl.
- Group 3 includes the ongoing painting of the retractable roof as well as team clubhouse spaces.
- **Group 4** represents an investment valley with fewer recurrences in general, except for some tech infrastructure, video boards, and audio.
- **Group 5** includes the planned reoccurrence of technology investments in control room, main scoreboard, and Wi-Fi network equipment.
- Groups 6 and 7 are most impacted by escalation as well as Architectural recurrences in the Seating Bowl and Concourses.

	Group 1		Group 2		Group 3	(	Group 4		Group 5	(	Group 6	(	Group 7
Major Category	Years 1 to 3	Ye	ears 4 to 6	Ye	ears 7 to 9	Y	ears 10 to 12	Ya	rs 13 to 15	Ye	ears 16 to 18	Ye	ears 19 to 21
Architectural	\$ 17,975,714	\$	21,157,750	\$	16,740,806	\$	7,026,618	\$	5,324,475	\$	27,571,952	\$	30,197,247
Retractable Roof	\$ 6,182,400	\$	2,119,132	\$	12,735,978	\$	6,214,262	\$	2,764,986	\$	3,021,375	\$	5,284,634
Garage	\$ 595,358	\$	358,382	\$	544,839	\$	50,592	\$	679,863	\$	518,518	\$	67,992
Spectator Amenities	\$ 6,778,526	\$	21,594,606	\$	10,446,689	\$	1,887,141	\$	2,119,823	\$	14,010,037	\$	18,337,132
Building Systems	\$ 6,770,719	\$	16,797,394	\$	5,293,668	\$	2,469,043	\$	11,455,666	\$	9,882,565	\$	8,450,947
Technology	\$ 30,428,755	\$	16,640,663	\$	12,893,601	\$	18,668,401	\$	33,514,016	\$	17,871,708	\$	12,865,418
Furniture, Fixtures, & Equipment	\$ 761,329	\$	847,653	\$	926,253	\$	1,012,142	\$	1,105,994	\$	1,208,550	\$	1,320,615
Team Spaces	\$ 1,543,683	\$	1,611,728	\$	13,536,224	\$	826,405	\$	2,153,125	\$	392,779	\$	3,644,218
Total by Grouping	\$71,036,484	\$	81,127,307	\$	73,118,057	\$	38,154,605	\$	59,117,949	\$	74,477,483	\$	80,168,203
Percent of Total	17%		20%		18%		9%		14%		18%		19%

FIGURE 6.5: Adjusted Annual Investment by Groups

# EXHIBIT A

## BASELINE MATRIX

T-Mobile Park Baseline Imrovements Matrix

									Actuals	\$														
# E Summary Line Itom	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Sum (1999 to 2021)
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	ouni (1999 to 2021)
1 Architectural	\$0	\$0	\$3,407,500	\$2,045,000	\$514,000	\$572,000	\$1,116,900	\$684,500	\$2,303,000	\$461,400	\$1,607,839	\$324,200	\$405,975	\$1,853,800	\$371,000	\$363,980	\$1,048,075	\$627,060	\$1,682,480	\$1,596,140	\$3,870,085	\$2,664,303	\$3,597,191	\$31,116,428
Interior	\$0	\$0	\$365,000	\$1,610,000	\$49,000	\$39,000	\$38,100	\$84,000	\$48,500	\$85,000	\$210,000	\$104,000	\$0	\$31,800	\$0	\$40,000	\$173,000	\$237,300	\$432,000	\$155,800	\$885,000	\$41,437	\$20,009	\$4,648,946
Exterior	\$0	\$0	\$2,450,000	\$0	\$0	\$90,000	\$0	\$75,000	\$0	\$0	\$0	\$0	\$60,000	\$0	\$0	\$35,000	\$400,000	\$60,000	\$243,000	\$23,000	\$0	\$181,287	\$21,351	\$3,638,637
Building Envelope	\$0	\$0	\$45,000	\$50,000	\$90,000	\$0	\$115,000	\$30,000	\$0	\$30,000	\$0	\$0	\$42,000	\$200,000	\$0	\$0	\$0	\$0	\$20,000	\$218,400	\$108,000	\$130,520	\$21,595	\$1,100,515
Painting	\$0	\$0	\$0	\$15,000	\$10,000	\$50,000	\$50,000	\$98,000	\$75,000	\$0	\$1,054,839	\$0	\$0	\$1,500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$400,000	\$396,388	\$488,014	\$4,137,241
Signage and Graphics	\$0	\$0	\$215,000	\$20,000	\$0	\$20,000	\$0	\$41,000	\$300,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$45,000	\$45,000	\$900,000	\$27,646	\$0	\$1,613,646
Structural	\$0	\$0	\$30,000	\$0	\$310,000	\$350,000	\$766,000	\$120,000	\$1,700,000	\$0	\$25,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$206,180	\$76,252	\$3,583,432
Player Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$6,000	\$12,000	\$24,000	\$20,000	\$10,000	\$33,000	\$52,400	\$116,000	\$0	\$17,980	\$63,500	\$107,210	\$0	\$125,000	\$67,035	\$60,926	\$6,100	\$721,151
Operational Equipment	\$0	\$0	\$69,000	\$255,000	\$10,000	\$0	\$87,000	\$57,500	\$139,500	\$196,400	\$178,000	\$137,000	\$30,000	\$6,000	\$350,000	\$7,000	\$165,950	\$132,150	\$99,800	\$44,800	\$12,000	\$0	\$34,161	\$2,011,261
Furniture, Fixtures, and Equipment	\$0	\$0	\$233,500	\$95,000	\$25,000	\$23,000	\$51,500	\$167,000	\$16,000	\$115,000	\$20,000	\$20,200	\$221,575	\$0	\$21,000	\$117,000	\$20,625	\$90,400	\$65,500	\$34,140	\$140,550	\$0	\$48,801	\$1,525,791
Code and Regulatory	\$0	\$0	\$0	\$0	\$20,000	\$0	\$3,300	\$0	\$0	\$15,000	\$110,000	\$30,000	\$0	\$0	\$0	\$147,000	\$225,000	\$0	\$777,180	\$950,000	\$1,357,500	\$1,619,918	\$2,880,909	\$8,135,807
2 Roof Specific	\$0	\$0	\$175,000	\$0	\$87,800	\$146,600	\$0	\$12,000	\$90,000	\$525,000	\$377,000	\$25,000	\$250,000	\$0	\$1,250,000	\$2,000,000	\$945,000	\$1,589,000	\$74,000	\$3,675,000	\$1,689,000	\$1,643,965	\$2,438,850	\$16,993,215
3 Garage	\$0	\$0	\$30,000	\$0	\$0	\$0	\$230,000	\$20,000	\$52,000	\$54,000	\$85,000	\$60,250	\$141,000	\$190,000	\$150,000	\$60,000	\$33,500	\$0	\$0	\$0	\$0	\$18,440	\$34,161	\$1,158,351
4 Spectator Amenities	\$0	\$0	\$2,501,750	\$1,472,000	\$540,000	\$1,276,200	\$1,315,200	\$938,000	\$530,000	\$989,700	\$837,000	\$570,600	\$2,426,000	\$25,000	\$755,000	\$36,500	\$332,800	\$525,767	\$441,100	\$758,100	\$683,780	\$386,661	\$391,143	\$17,732,302
Food Service	\$0	\$0	\$1,818,500	\$600,000	\$400,000	\$400,000	\$521,500	\$400,000	\$400,000	\$400,000	\$400,000	\$453,500	\$2,356,000	\$10,000	\$750,000	\$0	\$9,800	\$277,614	\$441,100	\$350,000	\$368,280	\$354,886	\$366,011	\$11,077,190
Seating Bowl	\$0	\$0	\$375,250	\$350,000	\$40,000	\$60,000	\$35,000	\$30,000	\$30,000	\$0	\$360,000	\$15,000	\$0	\$0	\$0	\$16,500	\$155,000	\$13,000	\$0	\$0	\$305,000	\$6,458	\$25,133	\$1,816,341
Premium Spaces	\$0	\$0	\$308,000	\$522,000	\$100,000	\$816,200	\$758,700	\$508,000	\$100,000	\$589,700	\$77,000	\$102,100	\$70,000	\$15,000	\$5,000	\$20,000	\$168,000	\$235,153	\$0	\$408,100	\$10,500	\$25,317	\$0	\$4,838,770
5 Building Systems	\$0	\$0	\$212,500	\$320,000	\$599,300	\$149,600	\$223,500	\$60,000	\$957,000	\$482,000	\$45,000	\$1,891,100	\$821,000	\$479,500	\$935,500	\$542,500	\$835,920	\$617,900	\$216,500	\$1,363,500	\$91,000	\$2,014,237	\$425,304	\$13,282,861
Mechanical	\$0	\$0	\$0	\$50,000	\$338,000	\$10,000	\$35,000	\$18,000	\$40,000	\$170,000	\$0	\$939,900	\$231,000	\$35,000	\$35,000	\$170,000	\$0	\$240,000	\$14,000	\$78,000	\$0	\$100,997	\$152,138	\$2,657,035
Electrical	\$0	\$0	\$175,000	\$0	\$154,300	\$10,000	\$37,500	\$0	\$0	\$0	\$0	\$562,850	\$100,000	\$310,000	\$0	\$93,000	\$0	\$22,000	\$30,000	\$180,000	\$70,000	\$1,644,053	\$162,997	\$3,551,699
Plumbing	\$0	\$0	\$0	\$200,000	\$56,000	\$0	\$45,000	\$32,000	\$845,000	\$57,000	\$45,000	\$303,350	\$0	\$59,500	\$7,500	\$172,500	\$117,500	\$150,500	\$0	\$30,000	\$21,000	\$59,517	\$103,154	\$2,304,521
Playing Field	\$0	\$0	\$37,500	\$36,000	\$41,000	\$116,000	\$51,000	\$10,000	\$62,000	\$227,000	\$0	\$85,000	\$460,000	\$57,000	\$770,000	\$72,000	\$385,420	\$15,000	\$67,000	\$1,069,500	\$0	\$181,406	\$0	\$3,742,826
Vertical Transportation	\$0	\$0	\$0	\$34,000	\$10,000	\$13,600	\$55,000	\$0	\$10,000	\$28,000	\$0	\$0	\$30,000	\$18,000	\$123,000	\$35,000	\$333,000	\$190,400	\$105,500	\$6,000	\$0	\$28,264	\$7,015	\$1,026,779
6 Technology	\$0	\$0	\$55,000	\$51,000	\$1,732,000	\$20,000	\$142,000	\$74,900	\$51,000	\$388,650	\$56,000	\$1,370,000	\$3,679,898	\$35,000	\$9,193,500	\$1,083,720	\$164,000	\$1,210,000	\$190,000	\$511,000	\$345,350	\$6,887,301	\$305,009	\$27,545,328
Facility Sound Reinforement	\$0	\$0	\$30,000	\$0	\$0	\$0	\$57,000	\$34,900	\$0	\$248,250	\$0	\$279,000	\$0	\$3,000	\$0	\$0	\$0	\$61,500	\$0	\$278,000	\$0	\$5,081,764	\$0	\$6,073,414
Video Displays / Production	\$0	\$0	\$25,000	\$0	\$1,732,000	\$0	\$65,000	\$0	\$0	\$0	\$0	\$1,052,000	\$2,900,000	\$0	\$9,000,000	\$0	\$6,000	\$0	\$10,000	\$75,000	\$0	\$0	\$0	\$14,865,000
Security	\$0	\$0	\$0	\$48,000	\$0	\$20,000	\$20,000	\$40,000	\$51,000	\$97,400	\$0	\$33,000	\$0	\$12,000	\$58,500	\$41,000	\$90,000	\$178,500	\$180,000	\$158,000	\$240,000	\$61,566	\$122,004	\$1,450,969
POS Systems	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$40,000	\$56,000	\$0	\$600,000	\$0	\$0	\$71,000	\$15,000	\$970,000	\$0	\$0	\$20,000	\$1,331,389	\$0	\$3,103,389
Baseball Operations	\$0	\$0	\$0	\$3,000	\$0	\$0	\$0	\$0	\$0	\$3,000	\$0	\$6,000	\$179,898	\$20,000	\$135,000	\$971,720	\$53,000	\$0	\$0	\$0	\$85,350	\$412,582	\$183,005	\$2,052,556
7 Infrastructure	\$0	\$0	\$1,530,000	\$76,000	\$15,000	\$80,000	\$450,600	\$378,300	\$766,500	\$618,350	\$432,800	\$604,500	\$12,884,700	\$275,000	\$32,000	\$5,193,000	\$173,300	\$762,500	\$323,000	\$0	\$179,000	\$92,860	\$183,005	\$25,050,416
Total by Year (Unadjusted)	\$0	\$0	\$7,911,750	\$3,964,000	\$3,488,100	\$2,244,400	\$3,478,200	\$2,167,700	\$4,749,500	\$3,519,100	\$3,440,639	\$4,845,650	\$20,608,573	\$2,858,300	\$12,687,000	\$9,279,700	\$3,532,595	\$5,332,227	\$2,927,080	\$7,903,740	\$6,858,215	\$13,707,767	\$7,374,664	\$132,878,900

T-Mobile Park Baseline Imrovements Matrix

									Actuals	i														
** E Summary Line Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Sum (1999 to 2021)
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
1 Architectural	\$0	\$0	\$6,338,954	\$3,693,497	\$901,302	\$973,792	\$1,846,066	\$1,098,422	\$3,587,999	\$697,909	\$2,361,166	\$462,232	\$561,964	\$2,491,352	\$484,071	\$461,079	\$1,289,000	\$748,742	\$1,950,455	\$1,796,470	\$4,228,946	\$2,826,559	\$3,705,107	\$42,505,084
Interior	\$0	\$0	\$679,008	\$2,907,839	\$85,922	\$66,395	\$62,973	\$134,795	\$75,561	\$128,570	\$308,392	\$148,279	\$0	\$42,737	\$0	\$50,671	\$212,768	\$283,349	\$500,806	\$175,354	\$967,063	\$43,961	\$20,609	\$6,895,053
Exterior	\$0	\$0	\$4,557,722	\$0	\$0	\$153,219	\$0	\$120,353	\$0	\$0	\$0	\$0	\$83,054	\$0	\$0	\$44,337	\$491,950	\$71,643	\$281,704	\$25,887	\$0	\$192,327	\$21,991	\$6,044,186
Building Envelope	\$0	\$0	\$83,713	\$90,306	\$157,816	\$0	\$190,077	\$48,141	\$0	\$45,378	\$0	\$0	\$58,138	\$268,783	\$0	\$0	\$0	\$0	\$23,185	\$245,811	\$118,015	\$138,469	\$22,242	\$1,490,074
Painting	\$0	\$0	\$0	\$27,092	\$17,535	\$85,122	\$82,642	\$157,261	\$116,848	\$0	\$1,549,067	\$0	\$0	\$2,015,875	\$0	\$0	\$0	\$0	\$0	\$0	\$437,091	\$420,528	\$502,654	\$5,411,714
Signage and Graphics	\$0	\$0	\$399,963	\$36,122	\$0	\$34,049	\$0	\$65,793	\$467,390	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$52,167	\$50,648	\$983,454	\$29,330	\$0	\$2,118,917
Structural	\$0	\$0	\$55,809	\$0	\$543,587	\$595,852	\$1,266,081	\$192,565	\$2,648,545	\$0	\$36,713	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$218,736	\$78,540	\$5,636,427
Player Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$9,917	\$19,256	\$37,391	\$30,252	\$14,685	\$47,050	\$72,534	\$155,894	\$0	\$22,777	\$78,097	\$128,014	\$0	\$140,689	\$73,251	\$64,636	\$6,283	\$900,727
Operational Equipment	\$0	\$0	\$128,360	\$460,558	\$17,535	\$0	\$143,798	\$92,271	\$217,336	\$297,073	\$261,399	\$195,329	\$41,527	\$8,063	\$456,671	\$8,867	\$204,098	\$157,794	\$115,696	\$50,423	\$13,113	\$0	\$35,186	\$2,905,096
Furniture, Fixtures, and Equipment	\$0	\$0	\$434,379	\$171,581	\$43,838	\$39,156	\$85,122	\$267,986	\$24,927	\$173,948	\$29,371	\$28,800	\$306,712	\$0	\$27,400	\$148,212	\$25,366	\$107,942	\$75,932	\$38,425	\$153,583	\$0	\$50,265	\$2,232,945
Code and Regulatory	\$0	\$0	\$0	\$0	\$35,070	\$0	\$5,454	\$0	\$0	\$22,689	\$161,539	\$42,773	\$0	\$0	\$0	\$186,215	\$276,722	\$0	\$900,965	\$1,069,233	\$1,483,377	\$1,718,571	\$2,967,336	\$8,869,944
2 Roof Specific	\$0	\$0	\$325,552	\$0	\$153,958	\$249,577	\$0	\$19,256	\$140,217	\$794,110	\$553,637	\$35,644	\$346,058	\$0	\$1,630,966	\$2,533,540	\$1,162,231	\$1,897,349	\$85,786	\$4,136,245	\$1,845,616	\$1,744,083	\$2,512,015	\$20,165,841
3 Garage	\$0	\$0	\$55,809	\$0	\$0	\$0	\$380,155	\$32,094	\$81,014	\$81,680	\$124,825	\$85,902	\$195,177	\$255,344	\$195,716	\$76,006	\$41,201	\$0	\$0	\$0	\$0	\$19,563	\$35,186	\$1,659,672
4 Spectator Amenities	\$0	\$0	\$4,653,992	\$2,658,596	\$946,893	\$2,172,645	\$2,173,825	\$1,505,215	\$825,723	\$1,497,010	\$1,229,163	\$813,539	\$3,358,151	\$33,598	\$985,104	\$46,237	\$409,302	\$627,793	\$511,356	\$853,248	\$747,185	\$410,209	\$402,878	\$26,861,661
Food Service	\$0	\$0	\$3,382,946	\$1,083,667	\$701,402	\$680,973	\$861,960	\$641,883	\$623,187	\$605,036	\$587,413	\$646,583	\$3,261,255	\$13,439	\$978,580	\$0	\$12,053	\$331,485	\$511,356	\$393,928	\$402,429	\$376,499	\$376,991	\$16,473,065
Seating Bowl	\$0	\$0	\$698,076	\$632,139	\$70,140	\$102,146	\$57,850	\$48,141	\$46,739	\$0	\$528,672	\$21,386	\$0	\$0	\$0	\$20,902	\$190,630	\$15,523	\$0	\$0	\$333,282	\$6,851	\$25,887	\$2,798,364
Premium Spaces	\$0	\$0	\$572,971	\$942,790	\$175,351	\$1,389,526	\$1,254,015	\$815,191	\$155,797	\$891,974	\$113,077	\$145,570	\$96,896	\$20,159	\$6,524	\$25,335	\$206,619	\$280,785	\$0	\$459,320	\$11,474	\$26,859	\$0	\$7,590,233
5 Building Systems	\$0	\$0	\$395,313	\$577,956	\$1,050,876	\$254,684	\$369,411	\$96,282	\$1,490,975	\$729,068	\$66,084	\$2,696,256	\$1,136,456	\$644,408	\$1,220,615	\$687,223	\$1,028,076	\$737,805	\$250,983	\$1,534,631	\$99,438	\$2,136,904	\$438,063	\$17,641,508
Mechanical	\$0	\$0	\$0	\$90,306	\$592,685	\$17,024	\$57,850	\$28,885	\$62,319	\$257,140	\$0	\$1,340,073	\$319,758	\$47,037	\$45,667	\$215,351	\$0	\$286,573	\$16,230	\$87,790	\$0	\$107,147	\$156,703	\$3,728,536
Electrical	\$0	\$0	\$325,552	\$0	\$270,566	\$17,024	\$61,982	\$0	\$0	\$0	\$0	\$802,490	\$138,423	\$416,614	\$0	\$117,810	\$0	\$26,269	\$34,778	\$202,592	\$76,491	\$1,744,176	\$167,887	\$4,402,652
Plumbing	\$0	\$0	\$0	\$361,222	\$98,196	\$0	\$74,378	\$51,351	\$1,316,482	\$86,218	\$66,084	\$432,505	\$0	\$79,963	\$9,786	\$218,518	\$144,510	\$179,705	\$0	\$33,765	\$22,947	\$63,142	\$106,249	\$3,345,021
Playing Field	\$0	\$0	\$69,761	\$65,020	\$71,894	\$197,482	\$84,295	\$16,047	\$96,594	\$343,358	\$0	\$121,190	\$636,748	\$76,603	\$1,004,675	\$91,207	\$474,018	\$17,911	\$77,671	\$1,203,732	\$0	\$192,454	\$0	\$4,840,660
Vertical Transportation	\$0	\$0	\$0	\$61,408	\$17,535	\$23,153	\$90,907	\$0	\$15,580	\$42,353	\$0	\$0	\$41,527	\$24,190	\$160,487	\$44,337	\$409,548	\$227,348	\$122,303	\$6,753	\$0	\$29,985	\$7,226	\$1,324,639
6 Technology	\$0	\$0	\$102,316	\$92,112	\$3,037,072	\$34,049	\$234,704	\$120,193	\$79,456	\$587,868	\$82,238	\$1,953,292	\$5,093,839	\$47,037	\$11,995,432	\$1,372,824	\$201,699	\$1,444,803	\$220,262	\$575,135	\$377,373	\$7,306,737	\$314,159	\$35,272,603
Facility Sound Reinforement	\$0	\$0	\$55,809	\$0	\$0	\$0	\$94,212	\$56,004	\$0	\$375,500	\$0	\$397,787	\$0	\$4,032	\$0	\$0	\$0	\$73,434	\$0	\$312,891	\$0	\$5,391,244	\$0	\$6,760,914
Video Displays / Production	\$0	\$0	\$46,507	\$0	\$3,037,072	\$0	\$107,435	\$0	\$0	\$0	\$0	\$1,499,900	\$4,014,278	\$0	\$11,742,959	\$0	\$7,379	\$0	\$11,593	\$84,413	\$0	\$0	\$0	\$20,551,537
Security	\$0	\$0	\$0	\$86,693	\$0	\$34,049	\$33,057	\$64,188	\$79,456	\$147,326	\$0	\$47,050	\$0	\$16,127	\$76,329	\$51,938	\$110,689	\$213,138	\$208,669	\$177,830	\$262,254	\$65,315	\$125,664	\$1,799,774
POS Systems	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$60,504	\$82,238	\$0	\$830,540	\$0	\$0	\$89,941	\$18,448	\$1,158,231	\$0	\$0	\$21,855	\$1,412,470	\$0	\$3,674,226
Baseball Operations	\$0	\$0	\$0	\$5,418	\$0	\$0	\$0	\$0	\$0	\$4,538	\$0	\$8,555	\$249,021	\$26,878	\$176,144	\$1,230,946	\$65,183	\$0	\$0	\$0	\$93,264	\$437,709	\$188,495	\$2,486,152
7 Infastructure	\$0	\$0	\$2,846,251	\$137,264	\$26,303	\$136,195	\$744,773	\$607,060	\$1,194,182	\$935,310	\$635,581	\$861,872	\$17,835,438	\$369,577	\$41,753	\$6,578,337	\$213,137	\$910,465	\$374,446	\$0	\$195,598	\$98,516	\$188,495	\$34,930,553
Total by Year (Adjusted)	\$0	\$0	\$14,718,186	\$7,159,425	\$6,116,404	\$3,820,941	\$5,748,935	\$3,478,522	\$7,399,566	\$5,322,955	\$5,052,694	\$6,908,738	\$28,527,085	\$3,841,316	\$16,553,657	\$11,755,246	\$4,344,646	\$6,366,958	\$3,393,288	\$8,895,729	\$7,494,157	\$14,542,570	\$7,595,904	\$179,036,922

# EXHIBIT B

## NECESSARY MATRIX

## T-Mobile Park

Necessary Improvements 10-Year Plan

ID	Category					Forecas	t Year					Totals
Code		1	2	3	4	5	6	7	8	9	10	10-Year Plan
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	(2023-2032)
					1	lecessary Im	provements					
1	Architectural	\$2,724,750	\$5,875,061	\$7,031,244	\$6,121,369	\$7,661,547	\$4,615,126	\$4,145,552	\$6,466,226	\$3,945,444	\$4,007,808	\$52,594,130
	Sitework	\$682,500	\$0	\$260,466	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$942,970
	Building Envelope	\$0	\$45,938	\$82,963	\$85,452	\$822,843	\$113,847	\$117,263	\$248,271	\$186,606	\$85,424	\$1,788,610
	Seating Bowl & Concourses	\$430,500	\$4,798,286	\$5,096,081	\$5,159,537	\$2,906,659	\$2,981,209	\$3,070,646	\$3,576,442	\$2,973,252	\$0	\$30,992,610
	Structural / Coatings	\$525,000	\$551,250	\$578,813	\$596,177	\$614,062	\$632,484	\$651,459	\$671,002	\$691,132	\$711,866	\$6,223,250
	Interiors	\$1,086,750	\$38,588	\$549,872	\$280,203	\$3,317,983	\$887,586	\$306,186	\$1,970,510	\$94,455	\$3,210,517	\$11,742,650
	Signage and Graphics	\$0	\$441,000	\$463,050	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$904,050
2	Retractable Roof	\$3,281,250	\$1,515,938	\$578,813	\$596,177	\$614,062	\$632,484	\$3,583,022	\$3,690,513	\$3,801,228	\$3,915,265	\$22,208,750
3	Garage	\$31,500	\$0	\$486,203	\$0	\$153,516	\$158,121	\$87,947	\$385,826	\$0	\$0	\$1,303,110
4	Spectator Amenities	\$325,500	\$2,650,271	\$2,918,599	\$4,278,595	\$4,406,952	\$10,092,371	\$4,646,411	\$3,092,155	\$1,345,511	\$523,148	\$34,279,510
	Food Service	\$315,000	\$2,341,301	\$2,594,180	\$2,497,641	\$2,572,570	\$2,649,747	\$2,729,240	\$1,117,469	\$988,824	\$523,148	\$18,329,120
	Premium Spaces	\$10,500	\$308,970	\$324,419	\$1,780,954	\$1,834,382	\$7,442,624	\$1,917,171	\$1,974,686	\$356,687	\$0	\$15,950,390
5	Building Systems	\$2,170,875	\$1,662,019	\$2,054,688	\$3,800,755	\$8,062,718	\$2,742,957	\$2,348,052	\$1,696,495	\$558,642	\$1,130,088	\$26,227,290
	Mechanical / HVAC	\$1,128,750	\$82,688	\$687,243	\$707,861	\$876,963	\$565,947	\$582,925	\$168,287	\$173,336	\$676,273	\$5,650,270
	Electrical	\$223,125	\$234,281	\$198,243	\$174,382	\$179,613	\$185,002	\$182,408	\$201,301	\$207,340	\$227,797	\$2,013,490
	Plumbing / Fire Protection	\$819,000	\$99,225	\$104,186	\$107,312	\$110,531	\$113,847	\$117,263	\$126,148	\$129,933	\$133,831	\$1,861,280
	Building Automation System	\$0	\$0	\$0	\$56,863	\$42,677	\$43,958	\$45,276	\$46,635	\$48,034	\$49,475	\$332,920
	Playing Field	\$0	\$0	\$231,525	\$0	\$4,949,341	\$0	\$0	\$671,002	\$0	\$42,712	\$5,894,580
	Vertical Transportation	\$0	\$1,245,825	\$833,490	\$2,754,337	\$1,903,593	\$1,834,204	\$1,420,180	\$483,122	\$0	\$0	\$10,474,750
6	Technology	\$6,846,000	\$8,524,898	\$11,088,890	\$10,115,929	\$1,666,155	\$2,688,057	\$4,527,637	\$5,267,368	\$1,416,821	\$783,053	\$52,924,810
	Audio / Visual	\$1,653,750	\$3,941,438	\$6,276,257	\$6,464,545	\$100,297	\$94,873	\$97,719	\$100,650	\$103,670	\$177,967	\$19,011,160
	Broadcast	\$2,987,250	\$1,501,238	\$1,576,299	\$317,961	\$0	\$0	\$0	\$2,348,508	\$0	\$35,593	\$8,766,850
	Wi-Fi and DAS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Point of Sale / Ticketing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Data Networking	\$1,260,000	\$55,125	\$57,881	\$59,618	\$61,406	\$1,264,968	\$3,973,897	\$2,348,508	\$829,359	\$71,187	\$9,981,950
	Access Control / Security	\$525,000	\$964,688	\$1,012,922	\$1,043,310	\$1,320,234	\$252,994	\$260,583	\$268,401	\$276,453	\$284,747	\$6,209,330
	Technology Infrastructure	\$420,000	\$2,062,410	\$2,165,531	\$2,230,496	\$184,219	\$1,075,223	\$195,438	\$201,301	\$207,340	\$213,560	\$8,955,520
7	FF&E	\$210,000	\$220,500	\$231,525	\$238,471	\$245,625	\$252,994	\$260,583	\$268,401	\$276,453	\$284,747	\$2,489,300
8	Team Spaces	\$1,118,250	\$148,838	\$75,246	\$1,055,233	\$264,047	\$82,223	\$1,387,607	\$5,455,249	\$4,927,774	\$306,103	\$14,820,570
	Team Facilities	\$540,750	\$16,538	\$17,364	\$995,615	\$202,641	\$18,975	\$1,322,461	\$5,388,149	\$4,858,661	\$234,916	\$13,596,070
	Baseball Operations	\$577,500	\$132,300	\$57,881	\$59,618	\$61,406	\$63,248	\$65,146	\$67,100	\$69,113	\$71,187	\$1,224,500
	Number of Improvements	43	49	60	60	56	51	48	46	35	37	485
	Subtotal	\$16,708,125	\$20,597,524	\$24,465,207	\$26,206,528	\$23,074,623	\$21,264,333	\$20,986,812	\$26,322,234	\$16,271,874	\$10,950,211	\$206,847,470
	Contingency @ 0%	\$2,506,219	\$3,089,629	\$3,669,781	\$3,930,979	\$3,461,193	\$3,189,650	\$3,148,022	\$3,948,335	\$2,440,781	\$1,642,532	\$31,027,121
	Grand Total of Proposed Improvements:	\$19,214,344	\$23,687,152	\$28,134,988	\$30,137,508	\$26,535,816	\$24,453,983	\$24,134,833	\$30,270,569	\$18,712,655	\$12,592,743	\$237,874,591

## T-Mobile Park

Necessary Improvements Lease Term Plan

ID	Category			-							Foreca	ist Year											Totals
Code		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Lease Term
		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	(2023-2043)
											Necessary II	nprovements											
1	Architectural	\$2,724,750	\$5,875,061	\$7,031,244	\$6,121,369	\$7,661,547	\$4,615,126	\$4,145,552	\$6,466,226	\$3,945,444	\$4,007,808	\$1,165,824	\$936,472	\$2,777,016	\$953,442	\$899,521	\$5,270,885	\$9,214,150	\$9,490,575	\$9,403,762	\$8,836,769	\$8,017,944	\$109,560,490
	Sitework	\$682,500	\$0	\$260,466	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$73,322	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,083,928	\$2,100,220
	Building Envelope	\$0	\$45,938	\$82,963	\$85,452	\$822,843	\$113,847	\$117,263	\$248,271	\$186,606	\$85,424	\$0	\$0	\$933,451	\$0	\$0	\$697,005	\$105,061	\$108,213	\$111,459	\$114,803	\$0	\$3,858,600
	Seating Bowl & Concourses	\$430,500	\$4,798,286	\$5,096,081	\$5,159,537	\$2,906,659	\$2,981,209	\$3,070,646	\$3,576,442	\$2,973,252	\$0	\$307,953	\$128,387	\$326,708	\$96,145	\$16,505	\$697,855	\$7,471,894	\$7,696,051	\$7,926,932	\$4,509,347	\$5,058,491	\$65,228,880
	Structural / Coatings	\$525,000	\$551,250	\$578,813	\$596,177	\$614,062	\$632,484	\$651,459	\$671,002	\$691,132	\$711,866	\$733,222	\$755,219	\$777,876	\$801,212	\$825,248	\$850,006	\$875,506	\$901,771	\$928,824	\$956,689	\$985,390	\$15,614,210
	Interiors	\$1,086,750	\$38,588	\$549,872	\$280,203	\$3,317,983	\$887,586	\$306,186	\$1,970,510	\$94,455	\$3,210,517	\$51,326	\$52,865	\$738,982	\$56,085	\$57,767	\$3,026,020	\$61,285	\$63,124	\$436,547	\$3,255,931	\$890,135	\$20,432,720
	Signage and Graphics	\$0	\$441,000	\$463,050	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$700,405	\$721,417	\$0	\$0	\$0	\$2,325,870
2	Retractable Roof	\$3,281,250	\$1,515,938	\$578,813	\$596,177	\$614,062	\$632,484	\$3,583,022	\$3,690,513	\$3,801,228	\$3,915,265	\$733,222	\$755,219	\$777,876	\$801,212	\$825,248	\$850,006	\$875,506	\$901,771	\$928,824	\$956,689	\$2,709,821	\$33,324,150
3	Garage	\$31,500	\$0	\$486,203	\$0	\$153,516	\$158,121	\$87,947	\$385,826	\$0	\$0	\$43,993	\$0	\$591,185	\$0	\$0	\$0	\$0	\$450,886	\$0	\$0	\$59,123	\$2,448,300
4	Spectator Amenities	\$325,500	\$2,650,271	\$2,918,599	\$4,278,595	\$4,406,952	\$10,092,371	\$4,646,411	\$3,092,155	\$1,345,511	\$523,148	\$538,843	\$579,001	\$596,371	\$614,262	\$632,690	\$11,421,243	\$671,221	\$90,177	\$2,346,953	\$2,417,361	\$11,181,018	\$65,368,660
	Food Service	\$315,000	\$2,341,301	\$2,594,180	\$2,497,641	\$2,572,570	\$2,649,747	\$2,729,240	\$1,117,469	\$988,824	\$523,148	\$538,843	\$579,001	\$596,371	\$614,262	\$632,690	\$651,671	\$671,221	\$90,177	\$92,882	\$95,669	\$98,539	\$22,990,450
	Premium Spaces	\$10,500	\$308,970	\$324,419	\$1,780,954	\$1,834,382	\$7,442,624	\$1,917,171	\$1,974,686	\$356,687	\$0	\$0	\$0	\$0	\$0	\$0	\$10,769,572	\$0	\$0	\$2,254,070	\$2,321,693	\$11,082,479	\$42,378,210
5	Building Systems	\$2,170,875	\$1,662,019	\$2,054,688	\$3,800,755	\$8,062,718	\$2,742,957	\$2,348,052	\$1,696,495	\$558,642	\$1,130,088	\$541,118	\$475,788	\$2,668,113	\$2,427,672	\$4,865,664	\$4,365,629	\$2,812,125	\$1,415,780	\$1,421,101	\$3,434,513	\$2,493,036	\$53,147,830
	Mechanical / HVAC	\$1,128,750	\$82,688	\$687,243	\$707,861	\$876,963	\$565,947	\$582,925	\$168,287	\$173,336	\$676,273	\$256,628	\$113,283	\$1,983,583	\$2,043,090	\$2,682,057	\$2,167,514	\$2,232,540	\$135,266	\$139,324	\$143,503	\$2,118,588	\$19,665,650
	Electrical	\$223,125	\$234,281	\$198,243	\$174,382	\$179,613	\$185,002	\$182,408	\$201,301	\$207,340	\$227,797	\$146,644	\$151,044	\$155,575	\$160,242	\$165,050	\$170,001	\$175,101	\$180,354	\$185,765	\$191,338	\$197,078	\$3,891,680
	Plumbing / Fire Protection	\$819,000	\$99,225	\$104,186	\$107,312	\$110,531	\$113,847	\$117,263	\$126,148	\$129,933	\$133,831	\$137,846	\$135,939	\$140,018	\$144,218	\$1,886,517	\$1,943,113	\$404,484	\$198,390	\$1,096,012	\$172,204	\$177,370	\$8,297,390
	Building Automation System	\$0	\$0	\$0	\$56,863	\$42,677	\$43,958	\$45,276	\$46,635	\$48,034	\$49,475	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$332,920
	Playing Field	\$0	\$0	\$231,525	\$0	\$4,949,341	\$0	\$0	\$671,002	\$0	\$42,712	\$0	\$0	\$311,150	\$0	\$49,515	\$0	\$0	\$901,771	\$0	\$57,401	\$0	\$7,214,420
	Vertical Transportation	\$0	\$1,245,825	\$833,490	\$2,754,337	\$1,903,593	\$1,834,204	\$1,420,180	\$483,122	\$0	\$0	\$0	\$75,522	\$77,788	\$80,121	\$82,525	\$85,001	\$0	\$0	\$0	\$2,870,067	\$0	\$13,745,770
6	Technology	\$6,846,000	\$8,524,898	\$11,088,890	\$10,115,929	\$1,666,155	\$2,688,057	\$4,527,637	\$5,267,368	\$1,416,821	\$783,053	\$6,928,951	\$8,521,388	\$5,263,625	\$7,825,169	\$16,053,829	\$10,157,568	\$919,281	\$4,463,767	\$1,904,089	\$956,689	\$8,326,542	\$124,245,710
	Audio / Visual	\$1,653,750	\$3,941,438	\$6,276,257	\$6,464,545	\$100,297	\$94,873	\$97,719	\$100,650	\$103,670	\$177,967	\$5,609,151	\$5,399,816	\$2,522,910	\$194,962	\$8,799,897	\$9,052,560	\$218,876	\$225,443	\$139,324	\$143,503	\$147,808	\$51,465,410
	Broadcast	\$2,987,250	\$1,501,238	\$1,576,299	\$317,961	\$0	\$0	\$0	\$2,348,508	\$0	\$35,593	\$0	\$402,783	\$2,118,415	\$2,181,967	\$4,695,662	\$0	\$0	\$0	\$0	\$47,834	\$0	\$18,213,510
	Wi-Fi and DAS	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Point of Sale / Ticketing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Data Networking	\$1,260,000	\$55,125	\$57,881	\$59,618	\$61,406	\$1,264,968	\$3,973,897	\$2,348,508	\$829,359	\$71,187	\$73,322	\$1,132,829	\$77,788	\$4,887,392	\$1,980,596	\$510,003	\$87,551	\$2,344,605	\$1,114,589	\$95,669	\$6,010,876	\$28,297,170
	Access Control / Security	\$525,000	\$964,688	\$1,012,922	\$1,043,310	\$1,320,234	\$252,994	\$260,583	\$268,401	\$276,453	\$284,747	\$1,026,511	\$302,088	\$311,150	\$320,485	\$330,099	\$340,002	\$350,202	\$360,708	\$371,530	\$382,676	\$1,379,545	\$11,684,330
	Technology Infrastructure	\$420,000	\$2,062,410	\$2,165,531	\$2,230,496	\$184,219	\$1,075,223	\$195,438	\$201,301	\$207,340	\$213,560	\$219,967	\$1,283,872	\$233,363	\$240,364	\$247,574	\$255,002	\$262,652	\$1,533,011	\$278,647	\$287,007	\$788,312	\$14,585,290
7	FF&E	\$210,000	\$220,500	\$231,525	\$238,471	\$245,625	\$252,994	\$260,583	\$268,401	\$276,453	\$284,747	\$293,289	\$302,088	\$311,150	\$320,485	\$330,099	\$340,002	\$350,202	\$360,708	\$371,530	\$382,676	\$394,156	\$6,245,680
8	Team Spaces	\$1,118,250	\$148,838	\$75,246	\$1,055,233	\$264,047	\$82,223	\$1,387,607	\$5,455,249	\$4,927,774	\$306,103	\$95,319	\$317,192	\$101,124	\$104,158	\$1,667,001	\$110,501	\$113,816	\$117,230	\$1,644,019	\$411,376	\$1,113,490	\$20,615,790
	Team Facilities	\$540,750	\$16,538	\$17,364	\$995,615	\$202,641	\$18,975	\$1,322,461	\$5,388,149	\$4,858,661	\$234,916	\$21,997	\$22,657	\$23,336	\$24,036	\$1,584,477	\$25,500	\$26,265	\$27,053	\$1,551,136	\$315,707	\$1,014,951	\$18,233,180
	Baseball Operations	\$577,500	\$132,300	\$57,881	\$59,618	\$61,406	\$63,248	\$65,146	\$67,100	\$69,113	\$71,187	\$73,322	\$294,535	\$77,788	\$80,121	\$82,525	\$85,001	\$87,551	\$90,177	\$92,882	\$95,669	\$98,539	\$2,382,610
	Number of Improvements	43	49	60	60	56	51	48	46	35	37	30	31	38	30	37	36	27	30	28	29	38	840
	Subtotal	\$16,708,125	\$20,597,524	\$24,465,207	\$26,206,528	\$23,074,623	\$21,264,333	\$20,986,812	\$26,322,234	\$16,271,874	\$10,950,211	\$10,340,559	\$11,887,148	\$13,086,460	\$13,046,400	\$25,274,052	\$32,515,834	\$14,956,301	\$17,290,894	\$18,020,278	\$17,396,073	\$34,295,130	\$414,956,600
	Contingency @ 15%	\$2,506,219	\$3,089,629	\$3,669,781	\$3,930,979	\$3,461,193	\$3,189,650	\$3,148,022	\$3,948,335	\$2,440,781	\$1,642,532	\$1,551,084	\$1,783,072	\$1,962,969	\$1,956,960	\$3,791,108	\$4,877,375	\$2,243,445	\$2,593,634	\$2,703,042	\$2,609,411	\$5,144,269	\$62,243,490
	Grand Total of Proposed Improvements:	\$19,214,344	\$23,687,152	\$28,134,988	\$30,137,508	\$26,535,816	\$24,453,983	\$24,134,833	\$30,270,569	\$18,712,655	\$12,592,743	\$11,891,643	\$13,670,220	\$15,049,430	\$15,003,360	\$29,065,160	\$37,393,209	\$17,199,746	\$19,884,528	\$20,723,320	\$20,005,484	\$39,439,399	\$477,200,090

Architectural

ID	Facility				Estimated	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
No.	Assessment Ref.	Sub-Category	Location	Project Description	Cost (2022 \$)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
1	BE-1	Building Envelope	Entry Gate Gate	Refurbish or replace damaged or defective gate and fencing components, including hinges and locking hardware	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$777,876	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2	BE-6	Building Envelope	General Flat Ro	Engage a roofing consultant or contractor to inspect all flat roofs and develop a plan for the eventual ofs replacement of these roofs over the next 10 years. Selectively patch or replace roofs that fail or leak in the interim	\$150,000	\$0	\$0	\$34,729	\$35,771	\$36,844	\$37,949	\$39,088	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3	BE-5	Building Envelope	Exterior Storefr Façade glazir	Replace seals at storefront glazing, Glazing and Framing will last as long as the seals are replaced. The seals have not been replaced yet and if they are not the entire units will need to be replaced eventually.	\$150,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$100,650	\$103,670	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4	BE-2	Building Envelope	Exterior Exteri Façade Dana	or Replace damaged and/or deteriorated metal panels at exterior facade.	\$100,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$155,575	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5	SB-11	Seating Bowl & Concourses	Upper Concours Boardv	pp Replace wood decking valk	\$75,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$116,681	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6	BE-7	Building Envelope	Exterior Coilir Façade Dara	ead Replace overhead coiling doors at exterior façade.	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$67,100	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
7	BE-11	Building Envelope	Exterior Façade Canop	Replace roofing system at Canopies. Engage roof ies inspector or contractor to identify areas of highest	\$40,000	\$0	\$0	\$0	\$0	\$49,125	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
8	BE-13	Building Envelope	General Conces	ssio Replace coiling shutters at Concession and Merchandise stands.	\$125,000	\$0	\$45,938	\$48,234	\$49,681	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
9		Building Envelope	General Exteri Door	Replace door hardware, and retinish or replace doors panels and frames at exterior doors not included in other replacements.	\$300,000	\$0	\$0	\$0	\$0	\$0	\$75,898	\$78,175	\$80,520	\$82,936	\$85,424	\$0	\$0	\$0	\$0	\$0	\$102,001	\$105,061	\$108,213	\$111,459	\$114,803	\$0
14		Interiors	Mair Field Level Mercha se Sto	Replace finishes and equipment at Main Merchandise andi Store. ore	\$1,500,000	\$0	\$0	\$0	\$0	\$1,842,187	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,870,067	\$0
15		Interiors	Field Level Game Staf	Day Replace finishes at Game Day Staff areas, including f locker rooms and restrooms.	\$750,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,067,800	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
16		Building Envelope	Club Level Pres	ng Replace operable windows at Writing Press s	\$350,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$595,004	\$0	\$0	\$0	\$0	\$0
17		Interiors	Club Level Broadd	ast Replace finishes at Broadcast Press. s	\$1,000,000	\$0	\$0	\$0	\$0	\$1,228,124	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
18		Building Envelope	Club Level Broadd	ast Replace operable windows at Broadcast Press	\$600,000	\$0	\$0	\$0	\$0	\$736,875	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
20		Interiors	Suite All St	ar Replace All Star Club finishes	\$1,400,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,878,807	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
21		Interiors	Club Level Admi	n Replace finishes at Team Admin Offices	\$750,000	\$787,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,275,009	\$0	\$0	\$0	\$0	\$0
22		Interiors	Main Concours Kids P	Replace finishes at Kids Area, including playground a equipment and Kids retail shop.	\$500,000	\$0	\$0	\$0	\$0	\$0	\$632,484	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$850,006	\$0	\$0	\$0	\$0	\$0
23		Interiors	Back General Hous	of Replace finishes at back of house spaces (Box office, security offices, 4 locker rooms, tunnel)	\$500,000	\$0	\$0	\$0	\$0	\$204,687	\$210,828	\$217,153	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$318,896	\$328,463
24		Interiors	Club Level Writin	ng Replace finishes at Writing Press.	\$495,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$841,506	\$0	\$0	\$0	\$0	\$0
25		Interiors	Suite Hit It H	ere Replace Hit it Here Cafe finishes, including bar.	\$440.000	\$0	\$0	\$509.355	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$684.531	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
20		Interiore	Eigld Lowel Gree	n Replace finishes at Green Rooms.	\$200,000	e0	¢0	¢0.	\$229.471	e0	e0	** *0	¢0	¢0	¢-	e0	¢-	¢0.	¢0	e0	80	80	e0	\$271.620	e0	*** **
20		Interiors	Publi	IS IC Replace finishes and accessories at Public	3200,000	φu	40	40	3230,471	90	30	40	ψU	40	40	90	40	40	40	40	40	30	90	\$371,330	40	30
27		Interiors	General Restro s	om Restrooms. Replace door hardware, and refinish or replace doors	\$100,000	\$0	\$0	\$0	\$0	\$0	\$0	\$43,431	\$44,733	\$46,075	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
28		Interiors	General Interi Door	or panels and frames at interior doors not included in other replacements. (Allowance)	\$20,000	\$21,000	\$22,050	\$23,153	\$23,847	\$24,562	\$25,299	\$26,058	\$26,840	\$27,645	\$28,475	\$29,329	\$30,209	\$31,115	\$32,048	\$33,010	\$34,000	\$35,020	\$36,071	\$37,153	\$38,268	\$39,416
29		Concourses	Seating Seale	Provide control country of dealer on product statut.	\$7,500,000	\$0	\$2,756,250	\$2,894,063	\$2,980,884	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,377,529	\$4,508,855	\$4,644,121	\$0	\$0
30	SB-2	Concourses	Seating Seating	ng	\$5,301,560	\$0	\$1,948,323	\$2,045,739	\$2,107,112	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,094,364	\$3,187,195	\$3,282,811	\$0	\$0
31		Concourses	Seating Seale	ere Provide concrete coating or sealer on precast stadia. ar	\$3,750,000	\$0	\$0	\$0	\$0	\$1,535,155	\$1,581,210	\$1,628,646	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,391,722	\$2,463,474
32	SB-2	Seating Bowl & Concourses	Upper Stadiu Seating Seating	Im Replace stadium seating, cupholders, and trip guards.	\$3,320,240	\$0	\$0	\$0	\$0	\$1,359,223	\$1,399,999	\$1,441,999	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,117,624	\$2,181,153
33	SB-5	Seating Bowl & Concourses	Bleacher Elevat Seating Walkw	Prepare existing concrete slab and apply engineered topping material (e.g., Ardex) to remediate areas of standing water.	\$100,000	\$105,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
34	SB-2	Seating Bowl & Concourses	Terrace Stadiu Club Seating	Replace stadium seating, cupholders, and trip guards Terrace Club	\$1,026,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,418,204	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
35		Seating Bowl & Concourses	Bleacher Concr Seating Seale	ete Provide concrete coating or sealer on precast stadia.	\$1,125,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,509,755	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
36	SB-2	Seating Bowl &	Bleacher Stadiu	m Replace stadium seating, cupholders, and trip guards.	\$1,500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,013,007	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
37		Seating Bowl &	Club Concr	ete Provide concrete coating or sealer on precast stadia.	\$1,125,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,555,048	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
38	SB-1	Seating Bowl &	Seating Seals Seals Lower Joints	ar Int Replace sealant joints and expansion joints. a / Coordinate with seating replacement.	\$200.000	\$210.000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$293.289	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$394.156
		Concourses	Stair Stair	sion is Refurbish damaged concrete and metal stair nosings																						
39	SB-9	Concourses	Towers & Nosin Ramps Seala	at Stair Towers. s Replace sealant joints and expansion joints.	\$100,000	\$105,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
40	SB-1	Seating Bowl & Concourses	Upper Joints Seating Expans	5 / Coordinate with seating replacement. sion	\$125,000	\$0	\$0	\$144,703	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$194,469	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
41	SB-6	Seating Bowl &	General Aisle	Patch and restripe concrete aisle steps in Seating	\$50,000	\$10,500	\$11,025	\$11,576	\$11,924	\$12,281	\$0	\$0	\$0	\$0	\$0	\$14,664	\$15,104	\$15,558	\$16,024	\$16,505	\$0	\$0	\$0	\$0	\$0	\$19,708

### Architectural

ID	Facility					Estimated	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
No	Assessment Ref.	Sub-Category	Loca	tion	Project Description	Cost (2022 \$)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
42	SB-1	Seating Bowl & Concourses	Club Seating	Sealant Joints / Expansion Joints	Replace sealant joints and expansion joints. Coordinate with seating replacement.	\$75,000	\$0	\$82,688	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$113,283	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
43	SB-4	Seating Bowl & Concourses	General	Drink Rails	Replace drink rails at Seating Bowl.	\$40,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$53,680	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
44	SB-1	Seating Bowl & Concourses	Bleacher Seating	Sealant Joints / Expansion Joints	Replace sealant joints and expansion joints. Coordinate with seating replacement.	\$50,000	\$0	\$0	\$0	\$59,618	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$80,121	\$0	\$0	\$0	\$0	\$0	\$0	\$0
45	SW-1	Sitework	Site	Sidewalks	Replace damaged and/or defective concrete sidewalks not addressed by the perimeter bollard project.	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$492,695
46		Sitework	Site	Sidewalks	Replace sealant joints where concrete sidewalks abut the building perimeter.	\$50,000	\$52,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$73,322	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$98,539
47	SC-3	Structural / Coatings	General	General	Restoration of steel channels and handrails at outside edge around the park, including removal of rust, application of rust-inhibitive epoxy primer, painting, and caulking of joints between steel channels and concrete slab.	\$400,000	\$420,000	\$441,000	\$463,050	\$476,942	\$491,250	\$505,987	\$521,167	\$536,802	\$552,906	\$569,493	\$586,578	\$604,175	\$622,300	\$640,969	\$660,199	\$680,005	\$700,405	\$721,417	\$743,059	\$765,351	\$788,312
48	SC-5, Various	Structural / Coatings	General	General	General concrete allowance: Crack monitoring, infilling, and patching of any significant cracking and spalling in the concrete topping slabs.	\$100,000	\$105,000	\$110,250	\$115,763	\$119,235	\$122,812	\$126,497	\$130,292	\$134,200	\$138,226	\$142,373	\$146,644	\$151,044	\$155,575	\$160,242	\$165,050	\$170,001	\$175,101	\$180,354	\$185,765	\$191,338	\$197,078
145		Interiors	General	Ellis Pavilion	Ellis Pavilion paint, carpets, modernize A/V components	\$1,470,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,092,887	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
153		Signage and Graphics	General	General	Signage & Graphics. Project includes Patch / tuck point voids in masonry and precast façade, including holes from old signage placements.	\$800,000	\$0	\$441,000	\$463,050	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$700,405	\$721,417	\$0	\$0	\$0
156		Seating Bowl & Concourses	Field Level, Club Level	Stadium Seating	Press and Diamond club seating	\$410,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$697,855	\$0	\$0	\$0	\$0	\$0
160		Interiors	Suite Level	All Star Club	All-Star Club ADA Modifications	\$250,000	\$262,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$492,695
166		Interiors	General	General	Ballpark Décor General Allowance	\$15,000	\$15,750	\$16,538	\$17,364	\$17,885	\$18,422	\$18,975	\$19,544	\$20,130	\$20,734	\$21,356	\$21,997	\$22,657	\$23,336	\$24,036	\$24,757	\$25,500	\$26,265	\$27,053	\$27,865	\$28,701	\$29,562
167		Sitework	General	General	Bollards Design and Pre-Construction	\$350,000	\$367,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
170		Sitework	General	General	Future Player Exterior Statue	\$225,000	\$0	\$0	\$260,466	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
174		Sitework	Suite Level	All Star Club	All-Star Club ADA Modifications	\$250,000	\$262,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$492,695

**Building Systems** 

ID	Facility					Estimated	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
No.	Assessment Ref.	Sub-Category	Lo	cation	Project Description	Cost (2022 \$)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
49		Electrical	General	Electrical Riser	Continue regular maintenance of equipment and replace panels/transformers.	\$150,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$67,100	\$69,113	\$71,187	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
				Room	Replace electrical equipment at exterior of Central																						
50	EL-3	Electrical	Site	Electrical Equipmen	Plant. It	\$25,000	\$0	\$0	\$28,941	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
51	EL-10	Electrical	General	Concessio	Replace electrical panels at Concessions as they are	\$25,000	\$0	\$0	\$7,235	\$7,452	\$7,676	\$7,906	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
- 52	FL-13	Electrical	Field	Sports	Continue localized replacement of lights/drivers.	\$10.000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$14 237	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	22-10	Liounda	Lights	Lighting Fire Alarm	Install CO2 detection and notification appliances in the	010,000	<b>\$</b> 0	<b>\$</b> 0	00	<b>\$</b> 0	<i><b>Q</b></i>	40	<b>\$</b> 0	00	00	014,201	40	<i></i>	<b>\$</b> 0	<b>\$</b> 0		00	40		<b>\$</b> 0	40	<b>\$</b> 0
53	EL-18	Electrical	General	Control Panel	Keg distribution rooms	\$225,000	\$118,125	\$124,031	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
54	EL-11	Electrical	General	Fixtures HW &	Replacement of piping	\$200,000	\$0	\$0	\$46,305	\$47,694	\$49,125	\$50,599	\$52,117	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
55	MP-8	Mechanical / HVAC	General	Condense r Water Pining	3	\$6,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,866,901	\$1,922,908	\$1,980,596	\$2,040,014	\$2,101,214	\$0	\$0	\$0	\$0
56	MP-7	Mechanical /	General	Four Pipe	Replacement of aging air handlers.	\$1,260,000	\$0	\$0	\$291,722	\$300,473	\$309,487	\$318,772	\$328,335	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
57	MP-5	Mechanical /	Loading	Boilers	Replace all five boilers	\$1 000 000	\$1.050.000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1 970 779
		HVAC	Dock		Replace plate frame heat exchangers (conduct regular	• .,,	******				**	**		**			**		**			**	**	÷-		**	•
58	MP-4	Mechanical / HVAC	Loading Dock	Plate frame hea exchanger s	cleaning every 10 years; timing of replacement might t be accelerated if parts become unavailable or r corrosion and leak repairs become too expensive).	\$240,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$341,696	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
59	MP-1	Mechanical / HVAC	Loading Dock	Cooling Towers	Replacement as parts become unavailable or corrosion becomes expensive to fix	\$200.000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$142,373	\$146,644	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
				Home	Replace heat pump at Locker Room (recently	+==+,===																					
60	MP-6	HVAC	Dock	Heat	accelerated if casings become damaged and internals become obsolete).	\$350,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$577,674	\$0	\$0	\$0	\$0	\$0	\$0
61	MP-2	Mechanical / HVAC	Loading Dock	Cooling Tower Pumps	Replace pumps as repairs become more frequent. Current pumps may last 10-15 more years.	\$45,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$64,068	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
62	MP-3	Mechanical / HVAC	Loading Dock	Tower Basin Cleaner Skid	Replace tower basin cleaner skid system (timing of replacement might be accelerated if parts become unavailable or repairs become too expensive).	\$15.000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$21,356	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
63	MP-9	Mechanical / HVAC	General	Small Heat	Replacement of heat pumps (cost assumes 125 HPs)		\$0	\$0	\$308,700	\$317,961	\$327,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
64	MD 11	Mechanical /	General	VAV/FPVA	A Replacement of VAV and FPVAV boxes (cost	\$800,000	80	¢0	60	¢0	\$61.907	662 764	\$65 667	\$67 627	900 666	<b>6</b> 0	¢0	¢0	\$0	¢0	80	60	\$0	03	¢0	80	£0
	WE-11	HVAC Mechanical /	General	V Boxes Cooking	assumes 84 units, average \$3/CFM) Replacement of cooking exhaust fans (cost assumes	\$252,000	30	30	30	40	301,087	303,734	\$03,007	401,031	\$05,000	30	<i>40</i>	40	30	30	30	30	30	40	30	40	30
65	MP-10	HVAC	General	Exhaust	21 grease fans)	\$210,000	\$0	\$0	\$0	\$0	\$85,969	\$88,548	\$91,204	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
66		Playing Field	Field Leve	el Protective Netting	Replace backstop and protective netting.	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$671,002	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$901,771	\$0	\$0	\$0
67	PF-3	Playing Field	Field Leve	el Field Wall	Replace pads at Field Wall.	\$200,000	\$0	\$0	\$231,525	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$311,150	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
68	PF-5	Playing Field	Batter's	Batter's	Refinish Batter's Eye material.	\$30,000	\$0	\$0	\$0	\$0	\$36,844	\$0	\$0	\$0	\$0	\$42,712	\$0	\$0	\$0	\$0	\$49,515	\$0	\$0	\$0	\$0	\$57,401	\$0
	10.44	Plumbing / Fire		Dom.	Replacement of domestic water heaters (cost																						
	MP-14	Protection	Field Leve	Heaters Fire	Replacement of double check backflow preventers	\$240,000	30	50	50	50	50	\$0	30	50	50	\$0	\$0	50	50	50	\$198,060	\$204,001	\$0	\$0	50	50	50
70		Protection Plumbing / Fire	General	Service Backflows Grease	(price each) 3 Grease Trap replacement allowance	\$20,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$36,071	\$0	\$0	\$0
	MP-19	Protection	General	Traps	- Install day perioder boods	\$40,000	\$42,000	\$44,100	\$46,305	\$47,694	\$49,125	\$50,599	\$52,117	\$53,680	\$55,291	\$56,949	\$58,658	\$60,418	\$62,230	\$64,097	\$66,020	\$68,000	\$70,040	\$72,142	\$74,306	\$76,535	\$78,831
72	MP-22	Plumbing / Fire Protection	General	ezer Boxes	g install ory sprinkler neads	\$340,000	\$357,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
73		Plumbing / Fire Protection	General	Water Service Backflows	Replacement of reduced pressure backflow preventers (price is each)	\$8,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,368	\$5,529	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
74	MP-21	Plumbing / Fire Protection	General	Dry Pipe Valves	Replacement of sprinkler dry pipe valves (price is each, valve and trim)	\$8,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,695	\$5,866	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
75	MP-15	Plumbing / Fire Protection	General	Public Restroom	Public toilet replacement including flush valves	\$1,022,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$843,404	\$868,706	\$0	\$0	\$0	\$0	\$0
76	MP-16	Plumbing / Fire Protection	General	Public Restroom	Public urinal replacement	\$562,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$463,790	\$477,703	\$0	\$0	\$0	\$0	\$0
77	MP-17	Plumbing / Fire Protection	General	s Public Restroom	Public lavatory replacement	\$423,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$232,720	\$239,702	\$246,893	\$0	\$0	\$0	\$0
78		Plumbing / Fire Protection	General	s General	Fire Alarm Strobe ADA requirement	\$350,000	\$367,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
79	VT-18	Vertical Transportation	Escalator	r Escalator 21	Modernize escalator by integrating new Schindler equipment into existing truss structure (not a candidate for renlacement)	\$1,500,000	\$0	\$0	\$0	\$0	\$1,842,187	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,870,067	\$0
80	VT-5	Vertical Transportation	Elevator	Cars 7 & 8	Modernize Controls, Power Unit, Fixtures, and Door Openers at Cars 7 & 8.	\$740,000	\$0	\$0	\$0	\$0	\$0	\$0	\$964,159	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
81	VT-3	Vertical Transportation	Elevator	Cars 3 & 4	Modernize Controls, Power Unit, Fixtures, and Door Openers at Cars 3 & 4.	\$700,000	\$0	\$0	\$0	\$0	\$0	\$885,478	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
82	VT-4	Vertical Transportation	Elevator	Cars 5 & 6	Modernize Controls, Power Unit, Fixtures, and Door Openers at Cars 5 & 6.	\$700,000	\$0	\$0	\$0	\$0	\$0	\$885,478	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
83	VT-10	Vertical	Escalator	Escalator	Replace complete escalator.	\$405,000	\$0	\$0	\$0	\$482,903	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
84	VT-11	Vertical	Escalator	Escalator	Replace complete escalator.	\$405,000	\$0	\$0	\$0	\$482,903	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
85	VT-14	Vertical	Escalato	14 Escalator	Replace complete escalator.	\$375.000	\$0	\$0	\$0	\$447 133	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	VT 4E	Transportation Vertical	Encolor/	17 Escalator	Replace complete escalator.	\$27E 000	en	00		\$447.400	**	en	 en	200 800	00	#0 P0	\$0 \$0	en	e0	**	e0	00 00	en	e0	**	200 800	00
00	VI-10	Transportation	CSC313101	18		221,2,000	au	ວບ	οu	\$447,133	\$U	\$U	au	ąυ	2U	<b>2</b> U	<b>ວ</b> ບ	φu	ąυ	au	2U	2U	\$U	φu	au	ąυ	ວບ

### **Building Systems**

ID	Facility	Sub Cotogony	Location	Design to Description	Estimated	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
No.	Ref.	Sub-Category	Location	Project Description	(2022 \$)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
87	VT-6	Vertical Transportation	Elevator Car 9	Modernize Controls, Power Unit, Fixtures, and Door Openers at Car 9.	\$360,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$483,122	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
88	VT-12	Vertical Transportation	Escalator Escalato	r Replace complete escalator.	\$350,000	\$0	\$0	\$0	\$417,324	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
89	VT-13	Vertical Transportation	Escalator Escalato	r Replace complete escalator.	\$350,000	\$0	\$0	\$0	\$417,324	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
90	VT-2	Vertical Transportation	Elevator Car 2	Modernize Controls, Power Unit, Fixtures, and Door Openers at Car 2.	\$350,000	\$0	\$0	\$0	\$0	\$0	\$0	\$456,021	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
91	VT-8	Vertical Transportation	Escalator Escalato	r Replace complete escalator.	\$335,000	\$0	\$369,338	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
92	VT-9	Vertical Transportation	Escalator Escalato	r Replace complete escalator.	\$335,000	\$0	\$369,338	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
93	VT-16	Vertical Transportation	Escalator Escalato	r Replace complete escalator.	\$335,000	\$0	\$0	\$387,804	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
94	VT-17	Vertical Transportation	Escalator Escalato	r Replace complete escalator.	\$335,000	\$0	\$0	\$387,804	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
95	VT-7	Vertical Transportation	Elevator Car 10	Modernize Controls, Power Unit, Fixtures, and Door Openers at Car 10.	\$220,000	\$0	\$242,550	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
96	VT-1	Vertical Transportation	Elevator Car 1	Modernize Controls, Power Unit, Fixtures, and Door Openers at Car 1.	\$190,000	\$0	\$209,475	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
146		Plumbing / Fire Protection	General General	Fire Alarm System replacement	\$500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$928,824	\$0	\$0
157	PF-1	Playing Field	Field Level	Comprehensive replacement of playing field, including irrigation, sub-grade, heating coils, sub-air, etc.	\$4,000,000	\$0	\$0	\$0	\$0	\$4,912,497	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
161		Electrical	General General	Electrical General Allowance	\$100,000	\$105,000	\$110,250	\$115,763	\$119,235	\$122,812	\$126,497	\$130,292	\$134,200	\$138,226	\$142,373	\$146,644	\$151,044	\$155,575	\$160,242	\$165,050	\$170,001	\$175,101	\$180,354	\$185,765	\$191,338	\$197,078
162		Mechanical / HVAC	General General	Mechanical and HVAC General Allowance	\$75,000	\$78,750	\$82,688	\$86,822	\$89,427	\$92,109	\$94,873	\$97,719	\$100,650	\$103,670	\$106,780	\$109,983	\$113,283	\$116,681	\$120,182	\$123,787	\$127,501	\$131,326	\$135,266	\$139,324	\$143,503	\$147,808
163		Plumbing / Fire Protection	General General	Plumbing General Allowance	\$50,000	\$52,500	\$55,125	\$57,881	\$59,618	\$61,406	\$63,248	\$65,146	\$67,100	\$69,113	\$71,187	\$73,322	\$75,522	\$77,788	\$80,121	\$82,525	\$85,001	\$87,551	\$90,177	\$92,882	\$95,669	\$98,539
172		Vertical Transportation	General General	Vertical Transportation Allowance (ADA Lifts)	\$250,000	\$0	\$55,125	\$57,881	\$59,618	\$61,406	\$63,248	\$0	\$0	\$0	\$0	\$0	\$75,522	\$77,788	\$80,121	\$82,525	\$85,001	\$0	\$0	\$0	\$0	\$0
182	BA-1	Building Automation System	General	Replace ADX server (main terminal) and software	\$47,690	\$0	\$0	\$0	\$56,863	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
183	BA-1	Building Automation System	General	Replace Network Automation Engines (NAEs) with Supervisory Network Controllers (SNEs). \$35K each, 6 total to be replaced in a phased approach	\$208,500	\$0	\$0	\$0	\$0	\$42,677	\$43,958	\$45,276	\$46,635	\$48,034	\$49,475	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

FF&E

ID	Facility				Estimated	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
No.	Assessment Ref.	Sub-Category	Location	Project Description	Cost (2022 \$)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
97		Furnishings, Fixtures & Equipment	General General	Annual Replacement and Renewal of Operating Equipment	\$100,000	\$105,000	\$110,250	\$115,763	\$119,235	\$122,812	\$126,497	\$130,292	\$134,200	\$138,226	\$142,373	\$146,644	\$151,044	\$155,575	\$160,242	\$165,050	\$170,001	\$175,101	\$180,354	\$185,765	\$191,338	\$197,078
149		FF&E	General General	Annual FFE Allowance	\$100.000	\$105.000	\$110.250	\$115,763	\$119.235	\$122.812	\$126,497	\$130.292	\$134,200	\$138.226	\$142.373	\$146.644	\$151.044	\$155.575	\$160.242	\$165.050	\$170.001	\$175,101	\$180.354	\$185,765	\$191.338	\$197.078

Garage

ID	Facility				Estimated	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
No.	Assessment Ref.	Sub-Category	Location	Project Description	Cost (2022 \$)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
98		Garage	General Restriping	Restripe parking stalls, ADA parking areas, and other markings at Garage.	\$250,000	\$0	\$0	\$289,406	\$0	\$0	\$0	\$0	\$335,501	\$0	\$0	\$0	\$0	\$388,938	\$0	\$0	\$0	\$0	\$450,886	\$0	\$0	\$0
99		Garage	General Sealant Joints	Replace floor and wall sealant joints at Garage.	\$100,000	\$0	\$0	\$115,763	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$155,575	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
100		Garage	General Expansion Joints	Replace expansion joints at Garage.	\$250,000	\$0	\$0	\$0	\$0	\$153,516	\$158,121	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
101		Garage	General Exterior Doors	Replace door hardware and refinish or replace door panels and frames at exterior doors.	\$75,000	\$0	\$0	\$0	\$0	\$0	\$0	\$48,859	\$50,325	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
102		Garage	Site Sealant Joints	Replace sealant joints where concrete sidewalks meet the building.	\$30,000	\$31,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$43,993	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$59,123
103		Garage	Exterior Sealant Façade Joints	Replace exterior façade sealant joints at Garage.	\$30,000	\$0	\$0	\$34,729	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$46,673	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
104		Garage	Entry Gate Overhead Doors	Replace overhead doors at Garage.	\$40,000	\$0	\$0	\$46,305	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
105		Garage	General Flat Roofs	Replace roofing system at Elevator Tower and Bridge. Engage roof inspector or contractor to identify areas of highest need.	\$30,000	\$0	\$0	\$0	\$0	\$0	\$0	\$39,088	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

### Retractable Roof

ID .	Facility				Estimated	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
No.	Assessment Ref.	Sub-Category	Location	Project Description	Cost (2022 \$)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
106		Retractable Roof	Retractabl e Roof wheels	Retractable Roof wheels	\$2,000,000	\$2,100,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
150		Retractable Roof	Retractabl Retractabl e Roof e Roof	Retractable Roof allowance	\$500,000	\$0	\$551,250	\$578,813	\$596,177	\$614,062	\$632,484	\$651,459	\$671,002	\$691,132	\$711,866	\$733,222	\$755,219	\$777,876	\$801,212	\$825,248	\$850,006	\$875,506	\$901,771	\$928,824	\$956,689	\$985,390
152		Retractable Roof	Retractabl Retractabl e Roof e Roof	Retractable Roof paint membrane	\$1,750,000	\$918,750	\$964,688	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1,724,432
155		Retractable Roof	Retractabl Retractabl e Roof e Roof	Roof structure painting	\$9,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$2,931,564	\$3,019,510	\$3,110,096	\$3,203,399	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
158		Retractable Roof	Retractabl Retractabl e Roof e Roof	Roof Rail Modifications	\$250,000	\$262,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

### Spectator Amenities

ID No. Facility Assessment Ref. Sub-Category				Estimated	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		
No.	Assessment Ref.	Sub-Category	Locatio	Location Suite Premium Rr Level Suites se Press Press R Level Club ar	Project Description	Cost (2022 \$)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
10	PS-1	Premium Spaces	Suite Pr Level S	remium Suites	Replace finishes at Premium Suites, including restrooms and operable windows. Includes exterior seating.	\$6,067,000	\$0	\$0	\$0	\$1,446,802	\$1,490,206	\$1,534,912	\$1,580,960	\$1,628,388	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,254,070	\$2,321,693	\$2,391,343
11	PS-3	Premium Spaces	Press F Level	Press Club	Replace finishes at Press Club, including restrooms and bars.	\$3,500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,950,040	\$0	\$0	\$0	\$0	\$0
12	PS-4	Premium Spaces	Club Level Te	errance Club	Replace finishes at Terrace Club, including restrooms, bars and concession fronts.	\$4,400,000	\$0	\$0	\$0	\$0	\$0	\$5,565,860	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$8,671,428
13	PS-2	Premium Spaces	Field Level Di	iamond Club	Replace finishes at Diamond Club, including restrooms and bars.	\$2,835,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,819,532	\$0	\$0	\$0	\$0	\$0
19	FS-6, FS-7	Food Service	General Co	ncessio ns	Replace floor, wall, and ceiling finishes at Concession Stands, including light fixture replacement.	\$927,368	\$0	\$511,212	\$536,772	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
107	FS-1, FS-3, FS- 4, FS-5	Food Service	Field Level		Replace permanent concession stand food service equipment (includes replacement of all equipment except for walk-ins and hoods, addressed separately)	\$3,450,841	\$0	\$634,092	\$665,797	\$685,771	\$706,344	\$727,534	\$749,360	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
108	FS-1, FS-3, FS- 4, FS-6	Food Service	Main Concours e		Replace permanent concession stand food service equipment (includes replacement of all equipment except for walk-ins and hoods, addressed separately)	\$2,783,334	\$0	\$383,578	\$402,757	\$414,840	\$427,285	\$440,104	\$453,307	\$466,906	\$480,913	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
109		Food Service	General		Replace portable food & beverage stands	\$2,000,000	\$0	\$367,500	\$385,875	\$397,451	\$409,375	\$421,656	\$434,306	\$0	\$0	\$0	\$0	\$503,479	\$518,584	\$534,141	\$550,165	\$566,670	\$583,671	\$0	\$0	\$0	\$0
110	FS-1, FS-3, FS- 4, FS-6	Food Service	Upper Concours e		Replace permanent concession stand food service equipment (includes replacement of all equipment except for walk-ins and hoods, addressed separately)	\$1,802,949	\$0	\$0	\$0	\$268,719	\$276,781	\$285,084	\$293,637	\$302,446	\$311,519	\$320,865	\$330,491	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
111		Food Service	General		Modernize beer systems facility-wide (includes glycol cooling, pumps, beer lines, etc.) – Costs phased over 5 years. Assuming significant conversion to packaged	\$500,000	\$0	\$91,875	\$96,469	\$99,363	\$102,344	\$105,414	\$108,576	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
112	FS-1, FS-3, FS- 5	Food Service	The Pen		Replace kitchen food service equipment (includes replacement of all equipment except for walk-ins and hoods, addressed separately).	\$884,691	\$0	\$162,562	\$170,690	\$175,811	\$181,085	\$186,518	\$192,113	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
113	FS-2	Food Service	General		Modernize cooking hoods facility-wide (includes assessment of existing hoods, modifications necessary to adjust for changes in equipment, replacement and/or refurbishment of existing hoods and Ansul systems)	\$736,638	\$0	\$135,357	\$142,125	\$146,389	\$150,781	\$155,304	\$159,963	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
114	FS-8	Food Service	General		Modernize walk-in freezers and coolers facility-wide (includes enclosures and compressors)	\$736,638	\$0	\$0	\$0	\$109,792	\$113,085	\$116,478	\$119,972	\$123,571	\$127,279	\$131,097	\$135,030	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
115	FS-1, FS-3, FS- 5	Food Service	Club Level		Replace permanent concession stand food service equipment (includes replacement of all equipment except for walk-ins and hoods, addressed separately)	\$703,928	\$0	\$0	\$135,814	\$139,889	\$144,085	\$148,408	\$152,860	\$157,446	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
116	PS-4	Premium Spaces	Club Level		Replace premium Terrance Club food service equipment (includes replacement of all equipment except for walk-ins and hoods, addressed separately)	\$2,064,362	\$0	\$284,495	\$298,720	\$307,681	\$316,912	\$326,419	\$336,212	\$346,298	\$356,687	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
117	PS-1	Premium Spaces	Suite Level		Replace suite food service equipment	\$61,000	\$0	\$13,451	\$14,123	\$14,547	\$14,983	\$15,433	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
148		Premium Spaces	General G	Seneral	Suite Hardwood Floor Allowance	\$50,000	\$10,500	\$11,025	\$11,576	\$11,924	\$12,281	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$19,708
164		Food Service	General G	Seneral	Food and Beverage General Allowance	\$300,000	\$315,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
169		Eood Service	General G	ieneral	Food and Beverage Equipment General Allowance	\$50,000	50	\$55 125	\$57,881	\$59.618	S61 406	\$63.248	\$65.146	567 100	\$69 113	\$71 187	\$73,322	\$75 522	\$77,788	\$80,121	582 525	\$85,001	\$87,551	\$90 177	592 882	\$95,669	\$98,539
### T-Mobile Park CapEx Plan - Necessary Improvements

Team Spaces

ID	Facility				Estimated	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
No.	Assessment Ref.	Sub-Category	Location	Project Description	Cost (2022 \$)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
118		Baseball Operations	Field Level Bullpens	Replace finishes and equipment at Bullpens, including turf.	\$70,000	\$0	\$77,175	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$105,731	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
119	TF-1	Team Facilities	Field Level Home Clubhouse	Replace finishes and equipment at Home Clubhouse Training	\$4,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,368,019	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
120	TF-3	Team Facilities	Field Level Visitor Clubhouse	Replace finishes at Visitor Clubhouse, including training area.	\$3,500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,837,927	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
121	TF-2	Team Facilities	Field Level Home Clubhouse	Redo Home Clubhouse Hydrotherapy	\$1,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$1,302,917	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
122	TF-4	Team Facilities	Field Level Home Batting & Pitching Tunnel	Replace finishes and netting at Home Batting & Pitching Tunnels.	\$500,000	\$525,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$985,390
123	TF-4	Team Facilities	Field Level Visitor Batting & Pitching Tunnel	Replace finishes and netting at Visitor Batting & Pitching Tunnels.	\$500,000	\$0	\$0	\$0	\$596,177	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$928,824	\$0	\$0
124		Team Facilities	Field Level Rooms	Replace finishes at Interview Rooms.	\$450,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$742,723	\$0	\$0	\$0	\$0	\$0	\$0
125		Team Facilities	Umpire's Field Level Locker Room	Replace finishes at Umpire's Locker Rooms.	\$345,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$569,421	\$0	\$0	\$0	\$0	\$0	\$0
126		Team Facilities	Field Level Clubhouse	Replace finishes and equipment at Visitor Hydrotherapy.	\$320,000	\$0	\$0	\$0	\$381,553	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$594,447	\$0	\$0
127	TF-5	Team Facilities	Field Level Dugouts	Replace finishes at Dugouts.	\$150,000	\$0	\$0	\$0	\$0	\$184,219	\$0	\$0	\$0	\$0	\$213,560	\$0	\$0	\$0	\$0	\$247,574	\$0	\$0	\$0	\$0	\$287,007	\$0
147		Baseball Operations	General General	Annual allowance for video coaching cameras and equipment.	\$50,000	\$52,500	\$55,125	\$57,881	\$59,618	\$61,406	\$63,248	\$65,146	\$67,100	\$69,113	\$71,187	\$73,322	\$75,522	\$77,788	\$80,121	\$82,525	\$85,001	\$87,551	\$90,177	\$92,882	\$95,669	\$98,539
168		Team Facilities	General General	Team Facilities General Allowance	\$15,000	\$15,750	\$16,538	\$17,364	\$17,885	\$18,422	\$18,975	\$19,544	\$20,130	\$20,734	\$21,356	\$21,997	\$22,657	\$23,336	\$24,036	\$24,757	\$25,500	\$26,265	\$27,053	\$27,865	\$28,701	\$29,562
171		Baseball Operations	General General	Humidor for Baseball Storage	\$75,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$113,283	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
181		Baseball Operations		Relocation of GM box	\$500,000	\$525,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

## T-Mobile Park CapEx Plan - Necessary Improvements

Technology

ID	Facility					Estimated	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
No.	Assessment Ref.	Sub-Category	Loca	ation	Project Description	Cost (2022 \$)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
					Replace Main LED (Mariners Vision), parts are EOL																						
128	AV-3	Audio / Visual	d	Main LED	and current gear is coming up on 10 years. Installation to take place in 2026	\$10,500,000	\$0	\$0	\$6,077,531	\$6,259,857	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$8,665,106	\$8,925,060	\$0	\$0	\$0	\$0	\$0
129	AV-2	Audio / Visual	Scoreboar d	Ribbon Boards -	Replace all ribbon boards in bowl, aged, physical wear, and parts are EOL	\$3,490,000	\$0	\$3,847,725	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,271,429	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
130	AV-12	Audio / Visual	General	Seating Bowl	Bowl Audio replacement	\$3,700,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,425,845	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
131	AV-2	Audio / Visual	Scoreboar	Out of Town	Replace Mitsubishi out of town board that is 10+ years old and parts are EOL	\$1,500,000	\$1,575,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,333,627	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
420	AV/ 44	Audia () Gaual	d Comme	Board	Audia Maturali Infrastructura	£100.000	80	60	057.004	050 040	<b>60</b>	60	80	60	60	674 407	670 000	<b>60</b>	80	80	60	60	007 EE4	600.477	60	80	80
400	AV-11	Audio / Visual	General	Outdoors	Replace Level 1, 2, 3, outdoor gates, seating bowl	\$100,000	30	50	\$37,001 646,005	\$39,010	50	50	30	50	50	\$/ 1,10/	\$13,322	30	06	\$U 664.007	50	30	307,331	\$90,177	30	30	30
	AV-1	Audio / Visual	General	entrances	entrance speakers	\$60,000	30	30	\$40,305	\$47,094	\$0	30	30	30	30	30	30	\$0	302,230	\$04,097	30	30	\$0	30	30	30	30
134	AV-5	Audio / Visual	General	e Rooms	Rooms	\$20,000	\$0	\$0	\$7,718	\$7,949	\$8,187	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$10,372	\$10,683	\$11,003	\$0	\$0	\$0	\$0	\$0	\$0
135	AV-7	Audio / Visual	General	Kids Play	Modernize audio/video components at Kids Area,	\$10,000	\$0	\$11,025	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$15,104	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
				MATV	Modernize MATV system to IPTV based infrastructure																						
136	BR-10	Broadcast	General	Headend		\$1,750,000	\$1,837,500	\$0	\$0	\$0	\$0	\$0	\$0	\$2,348,508	\$0	\$0	\$0	\$0	\$0	\$0	\$2,888,369	\$0	\$0	\$0	\$0	\$0	\$0
				System																							
127	PD 11	Prophost	General	JBTs and	Update JBTs with SMPTE fiber to replace triax	\$400.000	e0	\$147.000	\$154 250	\$150.001	¢0	\$0	¢0	80	£0	\$0	¢0	\$201 202	\$207 422	\$212 656	\$0	e0	¢0	¢0	¢0	\$0	<b>6</b> 0
-15/	DIV-11	Dioaucast	General	Fiber		\$400,000	30	3147,000	\$154,550	\$150,801	φυ	φU	30	30	30	φŪ	φu	3201,332	3207,433	9213,030	30	90	φŪ	φu	30	30	30
138	BR-12	Broadcast	General	Truck	Update truck dock to match JBT SMPTE fiber infrastructure	\$400,000	\$0	\$147,000	\$154,350	\$158,981	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$201,392	\$207,433	\$213,656	\$0	\$0	\$0	\$0	\$0	\$0	\$0
139	BR-8	Broadcast	Press	Broadcast	Closed Captioning System	\$25,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$35,593	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$47,834	\$0
140	DL-1	Data Networking	General	Data	Replace data network access switches (network edge)	\$1 150 000	\$1 207 500	\$0	\$0	\$0	\$0	\$0	\$0	\$1 543 305	\$0	\$0	\$0	\$0	\$0	\$0	\$1.898.071	\$0	\$0	\$0	\$0	\$0	\$0
141		Data Networking	General	POS	Replace POS system	\$1 100 000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$738 103	\$760.246	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$991.948	\$1 021 707	\$0	\$0
142	DI -4	Data Networking	General	Ticketing	Replace Ticketing system	\$250,000	\$0	\$0	\$0	\$0	\$0	\$316 242	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$425.003	\$0	\$0	\$0	\$0	\$0
				system Cable	Remove/replace/clean-up/ investigate space utilization							*****					**					•	**		••		
143	TI-2	Technology Infrastructure	General	Tray Comm	within the Comm Rooms and Cable Trays	\$250,000	\$262,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$492,695
				Rooms Wi-Fi	Replace Wi-Fi system through out the venue																						
144	DL-3	Data Networking	General	(Wireless LAN)		\$3,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$3,908,751	\$0	\$0	\$0	\$0	\$0	\$0	\$4,807,271	\$0	\$0	\$0	\$0	\$0	\$0	\$5,912,337
151		Access Control / Security	General	General	Security - Rekeying placeholder	\$500,000	\$525,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$733,222	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$985,390
154		Access Control /	General	General	Access Control, Cameras, Security Network	\$3,500,000	\$0	\$964,688	\$1,012,922	\$1,043,310	\$1,074,609	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
159		Access Control / Security	General		Security equipment general allowance	\$200,000	\$0	\$0	\$0	\$0	\$245,625	\$252,994	\$260,583	\$268,401	\$276,453	\$284,747	\$293,289	\$302,088	\$311,150	\$320,485	\$330,099	\$340,002	\$350,202	\$360,708	\$371,530	\$382,676	\$394,156
165		Technology	General	General	Technology Equipment General Allowance	\$75,000	\$78,750	\$82,688	\$86,822	\$89,427	\$92,109	\$94,873	\$97,719	\$100,650	\$103,670	\$106,780	\$109,983	\$113,283	\$116,681	\$120,182	\$123,787	\$127,501	\$131,326	\$135,266	\$139,324	\$143,503	\$147,808
173		Technology	General	General	Technology Network General Allowance	\$75,000	\$78,750	\$82,688	\$86,822	\$89,427	\$92,109	\$94,873	\$97,719	\$100,650	\$103,670	\$106,780	\$109,983	\$113,283	\$116,681	\$120,182	\$123,787	\$127,501	\$131,326	\$135,266	\$139,324	\$143,503	\$147,808
		Intrastructure			Consolidated cabling project including: replace existing																					-	
	TI 4 through	Teshesless			Cat5 with Cat6a; replace existing multi-mode fiber																						
175	TI5	Infrastructure	General	Cabling	remove older and abandoned cables from the cable	\$5,162,000	\$0	\$1,897,035	\$1,991,887	\$2,051,643	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
					trays, riser and backbone conduits across the building; update old coax, etc.																						
					Control Room project: includes replacement of																						
470		Decederat	Press	Broadcast	cameras (wired, wireless), broadcast switcher, router	¢2 205 000	84 440 750	64 007 000	£4 067 E00	60	<b>60</b>	<b>60</b>	60	60	60	¢0	<b>e</b> 0	*0	CA 702 E40	64 754 CEA	64 007 004	60	*0	*0	60	20	80
1/0		broaucas(	Level	Control	intercom (wired and wireless), replace system, audio console. Modernize audio systems	¢3,263,000	a1,149,750	¢1,207,238	a1,207,399	30	90	οu	30	30	30	οu	οu	οu	a1,703,348	a1,704,004	ə 1,007,294	ວບ	ອບ	φu	ວບ	30	ວບ
177		Data Networking	General	General	Full core network infrastructure refresh	\$700,000	\$0	\$0	\$0	\$0	\$0	\$885,478	\$0	\$0	\$0	\$0	\$0	\$1,057,307	\$0	\$0	\$0	\$0	\$0	\$1,262,479	\$0	\$0	\$0
178		i ecnnology Infrastructure	General	General	Fuii data intrastructure/storage refresh	\$700,000	\$0	\$0	\$0	\$0	\$0	\$885,478	\$0	\$0	\$0	\$0	\$0	\$1,057,307	\$0	\$0	\$0	\$0	\$0	\$1,262,479	\$0	\$0	\$0
179		Audio / Visual	General	General	AV/ Broadcast allowance	\$75,000	\$78,750	\$82,688	\$86,822	\$89,427	\$92,109	\$94,873	\$97,719	\$100,650	\$103,670	\$106,780	\$109,983	\$113,283	\$116,681	\$120,182	\$123,787	\$127,501	\$131,326	\$135,266	\$139,324	\$143,503	\$147,808
180		Data Networking	General	POS	PUS Allowance	\$50,000	\$52,500	\$55,125	\$57,881	\$59,618	\$61,406	\$63,248	\$65,146	\$67,100	\$69,113	\$71,187	\$73,322	\$75,522	\$77,788	\$80,121	\$82,525	\$85,001	\$87,551	\$90,177	\$92,882	\$95,669	\$98,539

# EXHIBIT C

## Technology in Reference Ballparks

#### T-Mobile Park

Reference Ballpark Technology Matrix

#### Consistency with Reference Ballparks



	Reference Ballparks														
	Petco Park	Coors Field	Marlins Park	Truist Park	Target Field	Busch Stadium	Yankee Stadium	Citi Field	Nationals Park	American Family Field	Composite of		T-Mobile Park		
	San Diego Padres	Colorado Rockies	Miami Marlins	Atlanta Braves	Minnesota Twins	St. Louis Cardinals	New York Yankees	New York Mets	Washington Nationals	Milwaukee Brewers	Reference Ballparks	Seattle Mariners			
Ballpark Context															
Park Opened	2001	1995	2012	2017	2010	2006	2009	2009	2008	2001			1999		
Latest All Star Game	2016	2021	2017	2021	2014	2009	2008	2013	2018	2002			2001		
Sound															
Bowl Sound	2014, BSS processing, Crown amps, JBL speakers	2018, Bowl upgrades	EAW	EAW	JBL	2017, Bowl upgrades	2009 - JBL	2009 - EAW		2011	Updated Bowl sound (Avg 2018) full bowl audio - dedicated Dante Network	Consistent	Updated Bowl sound (2020), full bowl audio - dedicated Dante Network		
Audio Production	Harman HiQnet Audio Arch			QSC	2018 - Dante Audio Network		Audion	Harman BSS		Peavey Media Matrix	Updated with bowl sound (Avg 2018).	Consistent	Quality Audio production for the venue. (2016).		
Video															
Main LED Scoreboard	2015 Dak	2018 Dak 13mm	2012 DAK	2017 - Panasonic	2023 - Dak	2016 (\$6M) - DAK	2009 - Mitsubishi Diamond Vision 1080p	2023 - Samsung (2015-Dak)	2008 - Mitsubishi Diamond Vision 1080p	2011 (\$12M w/ Audio)	LED Main Board (Avg 2015).	Partially consistent	Main board remains one of the largest in the MLB, however the age of the board is showing with replacement part availability. (2013)		
Aux LED Scoreboard	2018 Dak	2018 Dak		2017 - Panasonic	2010 - Dak	2018 - Dak	2018 - Dak		2018 - Dak	2018 - Dak 2006 (\$1.5M)	Aux LED boards (Avg 2018).	Potentially inconsistent	Out of Town LED Board is older and has significant part availability issues. (2010)		
Ribbon Boards	2015 Dak 2016 DAK	2018 Dak 15mm		2017 - Panasonic	2014 - Dak	2016 (\$2M) - DAK	2009 - Dak	2015 - Dak		2006 (\$1.6M)	LED Ribbon Boards (Avg 2015)	Potentially inconsistent	LED Ribbon Boards are older and have significant part availability issues. (2011)		
TV Distribution		PingHD - Digital Signage	2018 TriplePlay 2012 - Dak/Haivision IPTV	2017 Cisco Stadium Vision IPTV	2010 - Cisco StatdiumVision IPTV	2006 RF based TV. IPTV upgrade?	2009 - Cisco StadiumVision IPTV	PingHD - Digital Signage 2023 IPTV	2008 RF based TV. IPTV upgrade?	2011 - Coax based System, HD/SD	IPTV is prevelant in all of the Top 10 Venues in some form.	Potentially inconsistent	The coax based TV distribution is scheduled to be upgraded to IPTV as a capital project, and phased into the venue over 2022 and 2023.		
Video Production	2015 - HD - Sony MVS800x, ChyronHego, ClickEffects	2018 - HD HDR Viedeoboard control room.	2012 - Sony MVS- 7000	2017 - Panasonic	2023 -	2016 - Grass Valley 3M/E Karrera K-Frame S-Series production switcher	2009 - MVS- 8000G production switcher	2023 - 4K	2008 - Sony MVS- 8000	2011 - HD Ross Video 4M/E Octane	Full HD Video Production rooms are typical of all of the Top 10 venues, with some making the move to 4K / HDR (Avg 2012)	Potentially inconsistent	HD Video Production room is showing age with needed software and hardware updates necessary. (2011/2013). Parts availability is/will become a concern.		
Network															
WiFi	2010 Verizion WiFi - Cisco (400) 600-2016	2021 - Cisco WiFi 6	MLB - Extreme WiFi 6	Xfinity Wifi	2010 Existing WiFi - details TBD	MLB - Extreme WiFi 6	2009 Existing WiFi - details TBD	MLB - Extreme WiFi 6	MLB - Extreme WiFi 6	2007 Time Warner Cable	Majority of the parks are part of the MLB - Extreme WiFi 6 partnership deal.	Consistent	WiFi is upgraded 2022, as part of MLB - Extreme WiFi 6 partenership deal.		
Data Network		2021 Cisco 9500/9300		Cisco	Cisco		Cisco	Cisco			Average install or recent All Star Game (2014) - Assume network upgrades in line with All Star game needs.	Potentially inconsistent	Average network gear age 2008. Several Core upgrades, and pending capital project.		
DAS	2010 Verizon Commscope ION- B 4G, 5G upgrades	2015 AT&T DAS	2012 - Extenet Neutral Host	2017 Verizon led NH DAS (DRAN)	2010 Insite DAS (limited areas). Since expanded	2018 - AT&T upgrades	2009 Existing DAS - details TBD	2013 Verizon led DAS upgrade.	2018 JMA Teko Neutral Host, 4G	2012 AT&T DAS	4G DAS with some carrier specific 5G placements.	Partially consistent	4G DAS, no 5G placments to date.		

Public Address and CBRS information not readily available

# EXHIBIT D

Roof System Assessments

#### SEATTLE MARINERS

#### MECHANICAL INSPECTION REPORT DECEMBER 2021

#### **T-MOBILE PARK ROOF**



PREPARED BY HARDESTY & HANOVER, LLC



#### **MECHANICAL INSPECTION - PURPOSE AND SCOPE**

The purpose of the mechanical inspection is to perform a general inspection of the movable roof bogie wheel and truck supports, rail and rail support systems, the roof drive machinery systems, and the hydraulically operated locking spud systems of the retractable roof structure at T-Mobile Park, Seattle, Washington. The scope of the 2021 inspection included visual inspection of rails, bogies, bogie drive machinery, hydraulic spud locking machinery, and overtravel and end of travel buffers.

At the time of inspection, power to the roof mechanization systems were locked out from operation due to ongoing work on the retractable roof superstructure. Because of this, roof operations were not observed during the course of the inspection.

#### **MECHANICAL INSPECTION - DESCRIPTION OF MECHANICAL SYSTEMS**

#### <u>General</u>

Each retractable roof panel includes four independent mechanical systems: the bogic machinery that support and drive the roof panels, the spud machinery that lock the panels in stationary position, the buffers, and the rails.

The bogie machinery consists of the wheels, wheel bearings, wheel shafts, bull gears, pinion shafts, pinion bearings, bevel gearboxes, couplings, and motors. Six of the eight wheels making up each bogie assembly are powered. Each powered wheel is driven by a single 10 HP motor. Roof Panels 1 and 3 have 32 wheels and 24 motors each, while roof Panel 2 has 64 wheels and 48 motors.

The locking spud machinery consists of the spuds, spud guides and receivers, hydraulic cylinders, hydraulic piping, and the hydraulic power units (HPUs). The locking spuds are engaged when each panel is stopped in either the fully retracted or fully extended position. The locking spuds restrain the roof panels from unintentional or seismically provoked movements.

Three nested buffers are located at the end of travel at the corner of each roof panel. The buffers are designed to cushion the roof panels to a stop, in the event of unintentional over-travel. The buffers are not engaged during normal roof operations.

There are four rail sections. Each runway supports two rail sections. Rail 1N and Rail 1S support roof Panels 1 and 3. Rail 2N and Rail 2S support roof Panel 2. Each rail rests atop steel plates that are fastened to the runway using sole plate anchors, Gantrex rail clip anchors, and seismic clip anchors.

#### **Bogie Wheel Assemblies**

Each bogie wheel is supported by two spherical roller bearings set on rotating support axles. The T Mobile Park maintenance records indicate that the original spherical roller bearings are of three different manufacturers: SKF, LSB, and Hyatt. The bearings, particularly on roof Panels 1 and 3 have had prior incidents of premature wear and failure. This problem was attributed to racking of the panels and improper location of the spud receivers with respect to the roof geometry. When existing original bearings become worn, they are replaced with SKF Explorer bearings.

A long-term project to replace and upgrade the bogie wheel assemblies (including wheels, wheel bearings and bearing housings, wheel shafts and drive gears) with an improved design commenced in February/March of 2014. At the time of the 2021 general inspection, all bogie wheel/axle/bearing assemblies have been replaced with the improved design with the exception of Roof Panel 3 North Bogie 1 and Roof Panel 3 North Bogie 2.



Bogie wheel bearings continue to receive routine maintenance and inspection. During these procedures, signs of wear on some of the bearings are observed. Bogie wheel bearings which exhibit advanced deterioration are replaced during routine maintenance work intervals. At the time of the December 2021 inspection, visual and in-depth inspection of the roller bearings was not performed due to weather conditions.

There are 128 wheels on the T Mobile Park roof; Panel 2 has 64 wheels and Panels 1 and 3 each have 32 wheels. The wheels are flanged. The flanges prevent derailing and allow for the transverse loads to be transferred between the wheels and the rails.



#### **MECHANICAL INSPECTION - FINDINGS AND DISCUSSION**

#### **Bogie Trucks and Wheel Assemblies**

All the bogie truck assemblies were visually inspected for deformations, cracks, alignment, and any other abnormalities or deficiencies.

At P1S Bogie 1, the primary equalizer pin endcap on the inboard side, has a 1/16"-1/8" gap between the inner face of the endcap and the outer face of the bogie. All of the fasteners at this location are intact and this location should be monitored during subsequent inspection efforts

On several bogies, it was noted that multiple grease fittings had been painted over. At those locations, it can be assumed that the fittings are not being properly lubricated. The paint should be removed from the zerks that have been painted, and grease should be applied as needed.

P2N Bogies 2 and 3 both exhibited grease purging through the cap screw jack holes of several of the inboard wheels bearing caps (See Photo M-1). This might be an issue of improperly applied gasketing during the installation of the bearing retainer rings, however the grease penetration through these holes should provide proper protection from weather and debris. This condition should be monitored during maintenance and inspection activities and particularly that grease seepage does not leak to the track beam runways.

A loose inspection plug was identified at the P1N Bogie 2 and secured and tightened in the course of the inspection.

#### **Bogie Rails**

In April of 2015, large vertical cracks were discovered in the north side of the P1/P3 running rail on the North Runway. A 20-foot section of replacement rail was procured and installed in late May of 2015.

In March of 2016, a second replacement rail section was installed to replace the failed rail area on the P1/P3 North rail. This section was welded using the "thermite" welding process.

At the time of the 2021 inspection, the repaired P1/P3 North rail section was in good condition. The thermite welds were visually inspected and were found to be in good condition (See Photo M-2).

As reported since 2014 the P1/P3 North Runway Rail continues to exhibit westward horizontal movement. On June 10, 2015 approximately 18 inches of the west end of the P1/P3 North Runway Rail was cut off because the rail end was damaging the runway's concrete curb at the west end. At that time, paint and scribe marks were made to that rail end to monitor future rail movements. In 2016, the rail clips were replaced on the P1/P3 North roof rail. This effort had little effect on arresting the westward movement of the P1/P3 North roof rail.

As observed during the 2020 inspection, the P1/P3 South Runway Rail west end is in close proximity to the electrical conduit at the end of runway. During the 2021 inspection, the rail was noted to be in contact with the conduit (See Photo M-3). It is recommended that the conduit be relocated in 2022.

It was observed that rail support shim plates have shifted transversely approximately  $\frac{1}{4}$ " -  $\frac{1}{2}$ " from under the runway rail (See Photo M-4) in locations as follows. This occurrence was noted on the P1/P3 South Rail approx. 15 ft from the P1 fully closed position, and P1/P3 North Rail approx. 15 ft from the P3 retracted position. While minor and not detrimental to current operation, this condition should be monitored during subsequent maintenance and inspection periods.



The rail clips rubber noses are deteriorating and delaminating in many locations along the rails, indicating they may have exceeded their expected service life (See Photo M-5).

Many of the fasteners at the rail uplift clamps exhibited signs of scraping caused by interference with the bogie uplift grabs (See Photo M-6). Maintenance staff indicated this issue started occurring after the bogie wheel assembly upgrades began. In response to this issue, maintenance personnel have begun removing the nuts from the clamp assembly where scraping was occurring, cutting them down to half-size, and replacing them as needed. In locations where the nuts were unable to be removed, they were ground down such that the uplift grabs can pass without interference. The bogie uplift grabs should be inspected to ensure that their positioning matches that of the original design. At the time of inspection, there were two nuts missing on the P2 South Rail uplift clamps, 2 clips to the east of the P2 extended location (See Photo M-7). These were noted as currently being replaced by maintenance staff.

P1/P3 North Rail noted minor plastic flow of the rail head flange that should be monitored during subsequent inspection cycles.

#### **Bogie Drive Machinery**

General visual inspection of the drive motors, brakes, and reducers was conducted.

Prior to the 2021 inspection, an issue occurred at the P2S Bogie 3 Wheel 2 drive motor. According to T-Mobile Park staff, the motor seized during operation and a manual override was performed to continue driving the roof. During this operation, the gearmotor flange bearing fasteners came loose allowing the tapered bearing sleeve to rotate around the pinion shaft resulting in minor circumferential scoring (See Photo M-8). The scoring was hand dressed by Contractor personnel and a spare assembly installed on the shaft.

All other drive machinery was observed to be in good condition. It was noted by maintenance staff that there have been a series of motor failures in recent years, though was not quantified. Spare motors should be refurbished and it recommended that in-service motors be inspected, balance checked to maintain proper operation of the equipment.

Minor oil leakage was noted at the following drives:

- P2S-B1-W2: reducer side and bearing housing
- P2S-B1-W3: housing cartridge
- P2S-B1-W5: housing cartridge
- P2S-B1-W6: bearing housing
- P2S-B1-W7: housing cartridge

The leakage at reducers should continue to be monitored during maintenance and inspection activities.

#### Spud Machinery

All components of the spud machinery were visually inspected. Panels 1 and 2 were in the unlocked position and Panel 3 was in the locked position. Due to retractable roof work activities the spud machinery was not operated during the inspection.

The hydraulic power units (HPU's) and their enclosures were found to be in generally good condition. Very minor leakage was observed at pipe connections that are collected by spill absorbent pads (See Photo M-9).

Scraping was observed on concrete in and around the spud holes. Maintenance staff indicated that the markings were caused by the spuds but has since been fixed. The concrete and spuds should continue to be monitored.



#### End of Travel Buffers and Over Travel Devices

All end of travel buffers and over travel devices were visually inspected.

The Panel 1 North top, inboard over travel buffer was found to be in the compressed position (See Photos M-10).

#### **MECHANICAL INSPECTION - CONCLUSIONS AND RECOMMENDATIONS**

Overall, the condition of the roof machinery is in good condition. Recommendations and corrective action from the 2021 mechanical inspection of the roof machinery systems are as follows.

#### **Bogie Wheel Rails**

- 1. Monitor rail shim plates that have shifted transversely
- 2. Replace rail clips where signs of excessive wear are present. It is recommended that rail clips that are replaced be shipped to the clip manufacturer for re-nosing in-lieu complete assembly replacement.
- 3. Replace missing rail uplift clamp nuts.
- 4. Study the rail movement issue and develop an anchorage detail to fix the east end of bogie rails to the runways (all locations).
- 5. Relocate the electrical conduit at the west end of the P1/P3 South Rail

#### **Bogie Wheel Assemblies**

- 1. Remove paint from grease fittings.
- 2. Monitor the P2N-B2 and P2N-B3 bogies where grease is purging through bolt holes. Clean excessive grease purge during maintenance activities.
- 3. Inspect bogie uplift grabs and make adjustments as necessary to maintain original clearances with rail runway clips.

#### **Bogie Drive Machinery**

1. Monitor oil leakage at reducers. Clean any excessive oil leakage, confirm oil levels and fill to manufacturer recommended levels.

#### Spud Machinery

1. Monitor condition of spud engagement, surrounding runway concrete, and spuds to ensure that there are no further interference issues. If interferences are noted roof control and travel limit switches should be inspected to confirm proper roof / spud positioning

#### End of Travel Buffers and Over Travel Devices

1. Maintenance personnel should confirm proper setting and operation of the P1 buffer assembly.



## APPENDIX M-I MECHANICAL PHOTOGRAPHS





Photo M-1: Observed grease purge (in red) within bearing retainer rings.





Photo M-2: Thermite welds found to be in good condition.





Photo M-3: P1/P3 South rail exhibits movement and is in contact with electrical conduit.





Photo M-4: Rail support shim plates shifted transversely.





Photo M-5: Nose on Gantrex rail clips exhibit failure





Photo M-6: Typical observed scraping at uplift clamps.





Photo M-7: Uplift clamp fastener nuts to be replaced by maintenance personnel.





Photo M-8: Circumferential scoring noted a P2S Bogie 3 wheel 2 shaft.





Photo M-9: Typical, hydraulic power unit equipment exhibits minor leakage.





Photo M-10: Panel 1 upper end of travel buffer noted in the compressed position.





#### Project

T-Mobile Park 2021 Retractable Roof Annual Inspection Report

#### Prepared For

THE SEATTLE MARINERS 1250 First Avenue South, Seattle, WA, 98134

#### Prepared By

Thomas Duffy P.E. Thornton Tomasetti Inc. 120 Broadway New York, NY 11271

TT Project #: N21390.00 December 30, 2021







#### **TABLE OF CONTENTS**

1.00	Introdu	ction2									
2.00	Received Documents2										
3.00	Structure Description2										
4.00	Limitations2										
5.00	Observ	ations3									
6.00	5.00 Conclusions and Recommendations6										
APPEN	DICES .										
Append	dix A:	Representative Photographs									
Append	dix B:	Coating Condition Assessment									
Append	dix C:	Roof Operation Photographs									
Append	dix M:	Hardesty & Hanover Mechanization Report (available soon)									

Page 1 of 6

#### 1.00 INTRODUCTION

The Seattle Mariners engaged Thornton Tomasetti, Inc. (TT) to conduct annual inspections of the retractable roof structural and mechanization systems of T-Mobile Park, located at 1250 First Avenue South, Seattle, WA, over a three-year cycle encompassing 2021-2023.

This three-year inspection program continues to build upon the baseline inspection of all roof structural elements with a particular focus on the bogies, roof trusses, and tower columns. Previous inspection cycles completed by Thornton Tomasetti include 2013-16, 2017-18 and 2019-20 inspection cycles, areas of the roof structures that were cited during the previous contract as deficient were inspected. Where possible, these areas were inspected 100% hands-on with visual inspection being performed on other portions of the roof structures. In addition, targeted areas of the system that were not inspected during the previous cycle were inspected visually using climbing access. Climbing access will allow 100% hands-on inspection to certain elements.

The overall objective of the inspection program is to identify deterioration of the retractable roof and supporting structure by performing a detailed, visual, and hands-on inspection of the roof structure and mechanization system. Further destructive or non-destructive testing is conducted as necessary. This report documents our findings and our recommendations for repair, renewal or replacement.

The primary areas of focus during the 2021 inspection included the North Runway Trestle and North Support Towers of all three roof panels which received a 100% hands-on visual inspection. The South Roof Panel Support Towers were inspected from the south runway.

This report covers the detailed inspection of North Runway Trestle and North and South Roof Panel Support Towers.

#### 2.00 RECEIVED DOCUMENTS

TT received and reviewed the following documents:

- A set of structural contract drawings.
- Previous inspection reports produced by Hardesty & Hanover dated 2006-2012.

#### 3.00 STRUCTURE DESCRIPTION

The roof is comprised of three separate movable truss-supported panels, two of which (Panels 1 and 3) nest below the larger Panel (2) in the retracted position. The roof panel towers are supported on single-line wheeled carts, or bogies, which drive on rails which in turn are supported on runways that are located on the north and south sides of the stadium. The runways are comprised of a reinforced concrete deck supported by a steel trestle for most of the runways length except for the portions over the rail lines on the east side of the facility which are supported by steel trusses.

#### 4.00 LIMITATIONS

The review is intended solely to investigate the extent of deterioration of the structural elements exposed to weather on behalf of the Seattle Mariners. Thornton Tomasetti disclaims liability for use by any other persons or entities. Thornton Tomasetti's findings, conclusions and opinions are based on Thornton Tomasetti's visual observations, professional experience, interviews with those knowledgeable with the conditions pertinent to

Page 2 of 6

the subject investigation, evaluation of documentation and sound investigation practices.

This report shall not be construed to warrant or guarantee the structure and/or any of its components under any circumstances. Thornton Tomasetti shall not be responsible for latent or hidden defects that may exist, nor shall it be inferred that all defects have been either observed or recorded. Items that do not constitute the stadium structure have not been inspected or reviewed as part of this report.

#### 5.00 OBSERVATIONS

Thornton Tomasetti, Inc. (TT) visited the T-Mobile Park located at 1250 First Avenue South, Seattle, WA on Monday July 19 through Friday July 23, 2021 to visually observe, evaluate and record the conditions as part of a periodical inspection of the following:

- Roof Panel Support Towers:
  - Panel 1 North Side (via rope access)
  - Panel 1 South Side
  - Panel 2 North Side (via rope access)
  - o Panel 2 South Side
  - Panel 3 North Side (via rope access)
  - o Panel 3 South Side
- Select North Runway and South Runway Bogies
- Left Field Lighting Tower
- Roof Trusses (via catwalks)
- Eyebrow Cables (via catwalks)

Other observations not technically part of the current year's inspection scope may be included for the information of Mariners Engineering and Maintenance personnel.

The observations and evaluation during the inspection were visual in nature; laboratory tests were not performed. The west portion of the North Runway Trestle was accessed using a ladder from the concourse beyond the left field bleachers. The Roof Panel Support Towers were accessed from the top of the roof by climbing and vertical access rope repelling.

#### **5.01GENERAL OBSERVATIONS**

Generally, the structure appears to be in a good condition and well maintained.

Light corrosion was observed in several locations at the roof panel support towers.

In addition to the inspection of the structural integrity of the area under consideration, a special emphasis of the 2021 inspection was the condition of the coating system. Paint chalk was observed in the steel structural elements (in particular in the roof panel support towers). The chalk is residue left after the deterioration of the coating's organic binder. Chalk results from exposure of the coating to direct sunlight or artificial UV light. All coatings chalk to some degree, but epoxies are more prone to chalk. Over coating chalked surfaces will result in poor adhesion and may result in delamination (separation of one coating layer from another coating layer) failure. Proper surface preparation must be followed prior to recoating.

Paint deterioration was observed in several locations at the roof panel support towers.

Please see Appendix B for a more detailed assessment of the coating condition.

Page 3 of 6

Splined ends still attached to the tension controlled (TC) bolts were observed in several locations. TC bolts were used throughout the facility to field join steel members. They typically have a button head at one end and a fluted spline on the other. Between the spline and the threads of the bolt, the cross section of the bolt shank is reduced to about 50% of the nominal bolt area. A special tool called a shear wrench holds the nut and turns the bolt from the spline end. The spline end of the bolt will shear off at the reduced section when the proper tension in the bolt is achieved. Since these ends separate from the TC bolts to indicate proper tensioning of the bolt, their presence may be the resultant of improper tensioning during installation.

These conditions have been noted in previous reports and the recommendation remains: there is generally sufficient redundancy at locations where this occurs, as well as a legitimate reason (such as insufficient room to properly make up the connection). Unless there is significant structural work that is being performed at or adjacent to this location, the condition can remain as-is, and should continue to be monitored during future inspections,

Slightly misaligned connections in the steel elements from initial construction were observed in several locations.

Isolated areas of debris build-up were observed along the roof panel support towers.

Several bird's nests were observed along the roof panel support towers.

Key observations are discussed in the sections below and summarized in tabular form in the appendices.

#### 5.02 PANEL 1 WEST TRUSS

The observations are listed below:

Occurrences of topcoat coating exhibiting significant areas of chalking, with minor areas of light corrosion or pitting. (Appendix A: Panel 1 Truss, Photos 1-6)

#### 5.03 PANEL 2 NORTH TOWER COLUMNS

The observations are listed below:

Occurrences of topcoat coating exhibiting significant areas of chalking, with minor areas of light corrosion or pitting. (Appendix A: Panel 1 Truss, Photos 1, 2, 4 & 6)

Birds nests that can lead to moisture retention and potential corrosion. (Appendix A: Panel 1 Truss, Photos 3 & 5)

#### 5.04 PANEL 2 SOUTH TOWER COLUMNS

The observations are listed below:

• Light chalking was observed at several locations.

#### 5.05 PANEL 3 EAST TRUSS

The observations are listed below:

- Bird's nest was observed and removed at two locations
- Chalking and paint delamination was observed at several locations
- Corrosion was observed at several locations (Appendix A)

Page 4 of 6

#### **5.06 ROOF OPERATIONS**

Appendix M produced by Hardesty & Hanover specifically addresses the roof mechanical and electrical systems. Additionally, Thornton Tomasetti notes the following observations affecting roof operations in the short and long term:

- There was an incident or incidents of debris (metal washer) on the rail surface during roof operation(s). Evidence suggests that as a bogie wheel passed over, the debris affixed to the wheel. Each time the debris encountered the rail, it made a permanent impression in the rail. This is expected since the wheels are specifically treated to be much harder than the rail material.
- The resultant is a series of indentations on the rail surface. At these locations the area of the wheel-rail contact patch is reduced. Since the load delivered by the wheel does not change, the smaller contact patch results in a higher contact stress at the wheel-rail interface. We recommend that these areas receive monitoring during subsequent inspections for any signs of distress.
- Observation of a roof retraction operation in "full speed" mode demonstrated that there is a visible separation between roof Panel 1 and Panel 2 during travel. It is our understanding that the control system was specified such that there is no separation between the panels. It is recommended that any anomalies of the roof control system be investigated and resolved in the next 12 months.

See Appendix C for accompanying Photographs

#### **5.07ADDITIONAL OBSERVATIONS**

The observations are listed below:

- The Panel 2 rail of the north runway is moving west.
- The Panel 1 & 3 rail of the north runway is moving west.
- The Panel 2 rail of the south runway is moving west.
- The Panel 1 & 3 rail of the south runway is moving west.

#### 6.00 CONCLUSIONS AND RECOMMENDATIONS

The facility is generally in a good condition and is being well maintained. There are some areas which require routine maintenance attention which can be addressed with the Mariners existing personnel. Others may require outside help to supplement existing staff.

The goal is to address each issue as a maintenance item at the Mariners discretion.

#### Minor Repairs:

#### Tighten/Replace Bolts

• Where possible, Tension Control bolts with splined ends attached should be tightened until the ends come off unless otherwise determined that the connection is intended to be slip critical, in which case, the bolts should be replaced with the proper bolt type as designated in the original structural drawings. Where not feasible, these locations should continue to be monitored for any sign of distress.

Clean & Paint

Page 5 of 6

- Power wash paint chalk elements. Paint during next scheduled recoating contract.
- Paint elements that are primed only should be painted
- Paint failure or corrosion should be cleaned and painted.
- Newly repaired cracks and newly replaced bolts should be painted.

Monitor

- Although additional areas of the North Runway were identified as showing crack initiation, no remedial action is recommended at this time
- Previously and newly repaired cracks and connections continue to be monitored annually.
- Paint cracks observed in diagonal members along the north roof panel support towers to be monitored.
- Construction defects to be monitored.
- Locations with paint chalk to be inspected annually to monitor the deterioration of the top coating.
- Locations where corrosion has been observed to be monitored.
- Eyebrow cables should be monitored annually.

#### Appendix A -Representative Photographs

Thornton Tomasetti	Panel 1	Truss
		PANEL 1 West truss (East Face)
Photo #1		
Description: Chalking of top coat paint.	<ul><li>☐ Guano</li><li>✓ Chalking</li></ul>	<ul> <li>☐ Buckling</li> <li>☐ Other</li> <li>✓ Paint Failure</li> </ul>
Recommendations: Refer to paint repair recommendations.	<ul><li>☐ Crack</li><li>☐ Bent</li><li>✓ Minor</li></ul>	<ul> <li>Corrosion</li> <li>Warping</li> <li>Moderate</li> <li>Significant</li> </ul>
Photo #2		PANEL 1 West truss (East Face)
Description: Chalking of top coat paint.		
Recommendations: Refer to paint repair recommendations.	<ul> <li>Guano</li> <li>✓ Chalking</li> <li>Crack</li> <li>Bent</li> <li>✓ Minor</li> </ul>	<ul> <li>Buckling</li> <li>Other</li> <li>✓ Paint Failure</li> <li>Corrosion</li> <li>Warping</li> <li>Moderate</li> <li>Significant</li> </ul>





#### Panel 2 North Tower Columns

	<u>P</u> A	NEL 2 COLUMN 4 ELEVATION
Photo #1		
Description: Chalking of top coat paint		☐ Bucking ☐ Other
Bosommondations:		
Refer to paint repair recommendations.	Bent	Warping
	Minor	Moderate Significant
Description:	PA	NEL 2 COLUMN 4 ELEVATION
Chalking of top coat paint.		
Recommendations: Refer to paint repair recommendations		☐ Buckling
		✓ Paint Failure
	Minor	☐ Moderate ☐ Significant

#### Panel 2 North Tower Columns

<image/> <image/>	<u>PA</u>	NEL 2 COLUMN 2 ELEVATION
Description:	Guano	☐ Buckling
Nest.	Chalking	Paint Failure
Recommendations:	Crack	
Remove nest.	Bent	U Warping
	✓ Minor	Moderate     Significant
	PA	NEL 2 COLUMN 2 ELEVATION
Photo #4	Guano	
Description:		
minor corrosion		
Recommendations:		
Refer to paint repair recommendations.		

#### Panel 2 North Tower Columns

	<u>P</u> A	NEL 2 COLUMN 1 E	LEVATION
Photo #5			
Description:			✓ Other
Nest.	Chalking	Paint Failure	
Recommendations: Remove nest.	Crack		
	Bent	Warping	_
	✓ Minor	Moderate	Significant
	<u>PA</u>	NEL 2 COLUMN 1 E	LEVATION
Photo #6	Guano	Buckling	Other
Description:	Chalking	Paint Failure	
Cnaiking of top coat paint with minor corrosion.	Crack	✓ Corrosion	
Recommendations:	Bent	Warping	
Refer to paint repair recommendations.	Minor	Moderate	Significant

#### Panel 2 South Towers



#### PANEL 2 COLUMN 1 ELEVATION

Photo #1	
Description:	

Chalking of top coat paint with minor corrosion.

Recommendations: Refer to paint repair recommendations.

	Guano	Buckling	Other
ith minor	Chalking	Paint Failure	
	Crack		
mandationa	Bent	Warping	
nendations.	Minor	Moderate	Significant





#### PANEL 2 COLUMN 1 ELEVATION

Photo #2	Guano	Buckling	✓ Other
Description:	Chalking	Paint Failure	
Nests	Crack	Corrosion	
Recommendations:	Bent	Warping	
Remove nest.	✓ Minor	Moderate	Significant
## **Panel 2 South Towers**



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#### PANEL 2 COLUMN 1 ELEVATION

## Photo #3

Description: Chalking of top coat paint with blistering.

Recommendations: Refer to paint repair recommendations.

	Guano	Buckling	Other
ring.	Chalking	Paint Failure	
	Crack		
ns.	Bent	Warping	
	Minor	Moderate	Significant





Photo #4 Description:

Topcoat failure.

Recommendations: Refer to paint repair recommendations.

## Panel 2 South Towers





## Photo #3

Description: Chalking of top coat paint with pinhole corrosion.

Recommendations: Refer to paint repair recommendations

	Guano	Buckling	Other
e	Chalking	Paint Failure	
	Crack		
1S.	Bent	U Warping	
	✓ Minor	Moderate	Significant





### PANEL 2 COLUMN 4 ELEVATION

Photo #4			
	Guano	Buckling	Other
Description: Chalking of top coat paint with minor surface	Chalking	✓ Paint Failure	
corrosion.	Crack		
Recommendations:	Bent	U Warping	
Refer to paint repair recommendations.	✓ Minor	Moderate	Significant











			B A North
Photo #11		PANEL 3 ELEVA	ΓΙΟΝ
Description: Nests (2 locations shown above).			
Recommendations: <i>Remove nests.</i>	<ul> <li>Guano</li> <li>Chalking</li> <li>Crack</li> <li>Bent</li> <li>Minor</li> </ul>	<ul> <li>Buckling</li> <li>Paint Failure</li> <li>Corrosion</li> <li>Warping</li> <li>Moderate</li> </ul>	✓ Other ☐ Significant
Photo #10         Description:		K J H C T PANEL 3 ELEVA	
Chalking of top coat. Recommendations: <i>Refer to paint repair recommendations.</i>	<ul><li>☐ Guano</li><li>✓ Chalking</li><li>☐ Crack</li></ul>	<ul> <li>Buckling</li> <li>Paint Failure</li> <li>Corrosion</li> </ul>	✓ Other

# **T-Mobile Park**

## Appendix B: Coating Condition Assessment



**Prepared For** The Seattle Mariners 1250 First Avenue South Seattle, WA

## **Prepared By**

Helen Hebert Thomas Duffy

Thornton Tomasetti, Inc.

December 2021

**Appendix B: Coating Condition Assessment** 

## 2.0 Analysis

### 2.1 Methodology

TT accessed the structural steel framing from the roof access catwalks and from rope rigging to obtain a close up, hands-on evaluation of the coating system and condition of the structural steel. TT photographed and recorded corrosion and other deleterious conditions such as missing bolts, nests, and bird guano by location. TT made visual assessments of the corrosion in general accordance with SSPC-Vis 2, Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces. TT reviewed information obtained in prior years' inspections as well as the hands-on, close up inspection performed this year. Despite repeated efforts, however, we could not obtain the coating maintenance history nor the original construction specifications.

TT spot checked the coating adhesion in accordance with ASTM D3359 Measuring Adhesion by Tape Test which involves cutting an X into the coated surface with a razor or knife, followed by the application of a pressure sensitive tape, then removing the tape and measuring the amount of coating that detached from the steel. Adhesion may be categorized by the following:

Classification	Percentage area removed	Description
5B	0%	Edges of the cuts are smooth, and no paint is removed
4B	Less than 5%	Small flakes detach along cut lines and at intersection
3B	5-15%	Small flakes detach no more than 15% of the overall area
2B	15 to 35%	Medium and small coating flakes are removed in 15 to 35% of the area
1B	35% to 65%	Medium and small coating flakes are removed in 35 to 65% of the area
0B	Greater than 65%	Large flakes of coating are removed more than 65% of the area

#### 2.2 Observations

T-Mobile Park is located in an urban marine environment. The structural steel is subjected to high humidity, high rainfall totals, and exposed to a coastal, saltwater climate. Most of the support steel for the roof is protected from direct precipitation and UV exposure by the roof. Although T-Mobile Park is in a coastal area, is not in a zone where direct salt spray is a consideration. The roof panels, when in the stored position, are directly over an active rail yard. A busy freeway interchange is located directly to the south of the Park. The Park is situated in an Industrial/Commercial zone surrounded by light manufacturing and commercial businesses. Airborne environmental pollutants are in the moderate range.

The coating system appears to be largely the original shop paint with finish-coat application in the field. Originally installed in 1999, the coating system has been in service for approximately 22 years. TT observed touch ups or maintenance painting primarily at field connections and readily accessible areas. The maintenance history for the touch up painting, however, is unknown.

Much of the existing coating appears to be in good condition. Coating defects and aging are evident in relatively predictable locations; on the bottom of the steel members where condensation collects, in connections, where provisions for drainage of collected water is absent, at welded connections where weld spatter was not removed, and at faying surfaces. The types of coating distress can be categorized as chalking, abrasion, and corrosion of the underlying steel in differing stages of severity. Adhesion

failure was evident on the bogies and related structures, but not at the steel supporting the roof panels. Other forms of coating failure such as cracking, "alligatoring", blistering, pin-holing, solvent lifting, or stress cracking were not evident.

#### 2.2.1 Chalking



Figure 2: Dislodged chalking on surface of painted steel.



Figure 3: Chalking with splotchy appearance at a connection plate.

Most prevalent is chalking, a whitish deposit observed generally on the bottom surface of the steel member (ground-facing). There is an observable, powdery layer on top of the paint film that easily dislodges by wiping with a finger or cloth. This chalking can be relatively uniform,



Figure 4: Chalking surface with distinct circular pattern that appears to be an artifact of the shop painting.

splotchy, or have the appearance of brush strokes. Chalking can occur as a result of the disintegration of the paint binder, due to UV exposure and high humidity conditions. It can also signal the formation zinc hydroxide, the chemical formed when the zinc-rich primer is exposed to moisture and oxygen in the environment.

#### 2.2.2 Abrasion

Abrasion damage is located in areas where the structural members are in the path of access for maintenance workers and staff. This occurs in very limited areas.



#### 2.2.3 Corrosion

Corrosion of the underlying steel has occurred in predictable areas where water or condensation collects, at connections where there is no provision to drain collected water, and on steel members exposed to direct precipitation and ultraviolet light. The types of corrosion extant at the time of TT's site visit can be categorized as follows:

Surface Rust

Surface rust is a bleed-through or blush of light corrosion through the coating. It is characterized by corrosion of the steel that discolors the surface of the coating. In Figures 5 and 6 below, the touched-up portion of the structural steel is evident below the surface corrosion visible in the older coating. The beginning of bleed-through corrosion can be seen at the touched-up area (lighter shade).



Figure 5: Close up of bleed-through corrosion beginning at the repainted steel.

Pitting

Pitting is characterized as small, localized areas of corrosion attack. This type of corrosion was observed primarily at joints and connections, most notably those where mill scale and weld spatter had not been cleaned from the surface of the steel.



Figure 6: Pitting in the coating caused by breakthrough corrosion.

Crevice Corrosion

Crevice corrosion occurs between faying surfaces.



Figure 7: Corrosion between connection pin and steel support.



Figure 8: Corrosion between plates.

Pack Rust

Pack rust is a localized expansive corrosion that occurs in a confined space.



Figure 9: Pack rust between steel edging and concrete walking surface at an elevated walkway.

### 2.2.4 No Provision for Drainage

One example of an area where water and environmental debris has collected. The whitish rings indicate pooled water had collected at this location.



Figure 10: Evidence of pooled water at a connection.

## 4.0 Discussion

During our research into the history of the paint, we spoke with Mr. Bill Newcomb at Long Painting in Seattle. Mr. Newcomb indicated that his company performed the finish coat, and the steel fabricator was responsible for the preparation of the steel and primer coat during the original construction of the Park. He stated that the product used for the paint system used was Sherwin Williams Corothane.

For structural steel in similar environmental and use, the product likely used for the primer coat is Corothane zinc-rich primer. The tie and finish coats could be Corothane 1 urethane and Corothane 1 HS aliphatic urethane respectively. This would be a typical specification for exposed structural steel for buildings and bridges. We sent our paint samples to Tech Services at Tnemec, however the tests did not yield conclusive results. The chemical profile generally appeared to be an alkyd paint.

We consulted a service life estimating chart for industrial coatings published by KTA<sup>1</sup>. The practical service life for this type of coating in a moderate industrial environment is approximately 19 years. The practical service life is reduced to 14 years in coastal environments. The Practical Service Life, or "P" is defined as the time until 5 to 10 percent breakdown of the coating occurs. At the end of the practical life, touch up painting is performed. A more extensive "Maintenance Paint" occurs, on average, at 1.33 P, with a full recoat at Maintenance Paint plus 50 percent of P. This results in the following calculation assuming the original system has an estimated Practical Service Life of 15 years:

Maintenance Stage	Formula	Year
Touch up	Р	15 years
Maintenance Paint	1.33 P	20 years
Full Repaint	1.33P + 0.5P	27.5 years

1. https://kta.com/kta-university/expected-service-life-coatings/

The existing coating is approximately 22 years old with disperse touch ups and of unknown vintage and scope. Based on the conditions we observed during our investigation, the facility is approximately 2 years overdue for a more comprehensive maintenance paint that addresses the locations where corrosion is evident.

## 5.0 Recommendations

The existing coating condition indicates that the paint has provided satisfactory corrosion prevention for the majority of the structural steel. Corrosion is limited and generally related to a lack of proper preparation of the steel prior to installation of the primer. The overall performance is average to better-than-average for similar conditions and exposure.

## 5.1 Options

Maintenance options in order of cost and complexity include deferral, spot repairs, spot repairs with full overcoat, and complete coating removal and replacement. Based on our observations, the two best alternatives are spot repairs or spot repair with full overcoat.

Thornton Tomasetti does not recommend that painting be deferred. Although corrosion is not severe, it will continue to propagate eventually compromising the structure and causing costs to rise. Full removal and replacement is not necessary at this point in the life of the coating. The service life can be extended adequately by spot repairs followed by a phased full overcoat.

Thornton Tomasetti recommends a comprehensive maintenance paint program be implemented targeting structural members and connections exhibiting corrosion or coating breakdown. The spot repairs should involve cleaning and surface preparation and installation of a coating to minimize damage and expansion of corrosion. We estimate that the area to be touched up during spot repairs is from 2 to 5 percent of the overall area of the structural steel of the roof panels.

An improved option would include a complete power wash and full overcoat along with spot repairs. This will extend the life of the existing coating system until a full removal and replacement is necessary. This would entail power wash cleaning which is complicated by the presence of the rail yard below the roof panels. Coordination of painting operations to avoid negative impact to the railroad is paramount. Containment of the wash water to areas away from the rail traffic is critical. The advantage of a full recoat is an improved appearance, better protection of the steel, and avoidance of expenditures to re-rig and remobilize the work. A proactive paint maintenance program can extend the life of the existing coating avoiding the expense of abrasive blast cleaning and complete paint removal. We recommend that spot repairs be initiated as soon as practicable with a full recoat starting two to three years in the future and completed in six years.

#### 5.2 Paint Specification

Option 1 – Epoxy/Urethane Surface	Good
Preparation:	SSPC-1 Solvent Clean just prior to mechanical surface preparation. SSPC-SP15 Commercial Grade Power Tool Clean all bare metal surfaces. All surfaces to be clean, dry and roughened prior to coating.
Spot Prime:	Series 394 PerimePrime, 2.5 to 3.5 mils DFT
Full Tie-in Coat:	Series L69F Hi-Build Epoxoline II, 3.0 to 5.0 DFT
Finish Coat:	Series 1094 Endura Shield gloss or Series 1095 Endura Shield semi-gloss or Series 1096 Endura Shield satin, 3.0 to 4.0 mils DFT
Total DFT:	6 to 9 mils
Option 2 – Epoxy/Fluoropolymer	Premium
Preparation:	SSPC-1 Solvent Clean just prior to mechanical surface preparation.
	SSPC-SP15 Commercial Grade Power Tool Clean all bare metal surfaces.
Spot Primer:	Series 394 PerimePrime, 2.5 to 3.5 mils DFT
Full Tie-in Coat:	Series L69F Hi-build Epoxyline II, 3.0 to 5.0 mils DFT

Finish Coat:	Series 1070V Fluoronar Gloss or Series 1071V Fluoronar semi- gloss or Series 1072V satin, 2.5 to 3.5 mils DFT		
Total DFT	5.5 to 8.5 mils		
Option 3 – Epoxy/Urethane/Fluoropolym	er Ultra Premium		
	Same as Option 1 with added second finish coat of fluoropolymer as in Option 2. Adds approx. \$1.30/SF but lasts 3 x longer than Option 1. Costs less over life of asset.		
Option 4 – Overcoat System for Question	onable Pre-existing Coatings		
Preparation:	For bare and previously painted steel: SSPC SP WJ-4 / NACE WJ-4: Low pressure Water Cleaning (LPWC) between 3,500 minimum and 5,000 psi maximum using a 0-degree rotating nozzle. All surfaces to be clean and dry, 5° above dew point.		
	SSPC-SP15 Commercial Grade Power Tool Clean all bare metal surfaces.		
Spot Primer:	For bare and / or corroded steel: Tnemec Series 118 Uni-bond Mastic, 6.0 to 8.0 DFT spray applied (only)		
Full Prime/Tie-in Coat:	Tnemec Series 118 Uni-bond Mastic, 6.0 to 8.0 DFT spray applied (only)		
Finish Coat:	Option 1 – Fluoropolymer Finish – Ultimate color and gloss retention, 25 to 30-year life		
	Series 1070V Fluoronar glass or Series 1071V Fluoronar semi- gloss or Series 1072V Fluoronar satin, 2.5 to 3.5 mils DFT (brush, roll, or air-spray)		
	Option 2 – Acrylic Finish – VE option		
	Series 1028 Enduratone gloss or Series 1029 Enduratone semi- gloss, 2.0 to 3.0 DMT		
Total DFT	8.5 to 11.5 mils		

## Appendix A -Representative Photographs

Chornton Tomasetti Panel 1 Truss		
		PANEL 1 West truss (East Face)
Photo #1		
Description: Chalking of top coat paint.	Guano [✔ Chalking	Buckling      Other     Paint Failure
Recommendations:	Crack	
Refer to paint repair recommendations.	Bent	Warping
Photo #2		PANEL 1 West truss (East Face)
Description: Chalking of top coat paint.		
Recommendations: <i>Refer to paint repair recommendations.</i>	<ul> <li>Guano</li> <li>✓ Chalking</li> <li>Crack</li> <li>Bent</li> <li>✓ Minor</li> </ul>	<ul> <li>Buckling</li> <li>Other</li> <li>Paint Failure</li> <li>Corrosion</li> <li>Warping</li> <li>Moderate</li> <li>Significant</li> </ul>





## Panel 2 North Tower Columns

	<u>P</u> A	NEL 2 COLUMN 4 ELEVATION
Photo #1		
Description: Chalking of top coat paint	Chalking	☐ Bucking ☐ Other
Becommondations:		
Refer to paint repair recommendations.	Bent	Warping
	Minor	Moderate Significant
Description:	PA	NEL 2 COLUMN 4 ELEVATION
Chalking of top coat paint.		
Recommendations: Refer to paint repair recommendations	Guano	☐ Buckling
		✓ Paint Failure
	Bent	☐ Warping
	Minor	Moderate Significant

## Panel 2 North Tower Columns

<image/> <image/>	<u>PA</u>	NEL 2 COLUMN 2 ELEVATION
Description:	Guano	☐ Buckling ✓ Other
Nest.	Chalking	Paint Failure
Recommendations:	Crack	
Remove nest.	Bent	Warping
	Minor	Moderate Significant
	PA	NEL 2 COLUMN 2 ELEVATION
Photo #4		Buckling Other
Description:		
minor corrosion		
Recommendations:		
Refer to paint repair recommendations.		Moderate     Significant

## Panel 2 North Tower Columns

Photo #5	<u>P</u> A	NEL 2 COLUMN 1 EI	LEVATION
	Guano		✓ Other
Description: Nest.			
Recommendations			
Remove nest.	Bent		
	✓ Minor	Moderate	Significant
	<u>P</u> A	NEL 2 COLUMN 1 EI	LEVATION
Photo #6 Description: Chalking of top coat paint with minor corresion	<ul><li>☐ Guano</li><li>☐ Chalking</li><li>☐ Crack</li></ul>	<ul> <li>Buckling</li> <li>Paint Failure</li> <li>Corrosion</li> </ul>	Other
	Bent	Warping	
Recommendations: Refer to paint repair recommendations.	✓ Minor	Moderate	Significant

## Panel 2 South Towers



## PANEL 2 COLUMN 1 ELEVATION

Photo #1	
Description:	

Chalking of top coat paint with minor corrosion.

Recommendations: Refer to paint repair recommendations.

	Guano	Buckling	Other
ith minor	Chalking	✓ Paint Failure	
	Crack		
mendations.	Bent	Warping	
	Minor	Moderate	Significant





## PANEL 2 COLUMN 1 ELEVATION

Photo #2	Guano	Buckling	✓ Other
Description:	Chalking	Paint Failure	
Nests	Crack		
Recommendations:	Bent	Warping	
Remove nest.	✓ Minor	Moderate	Significant

## **Panel 2 South Towers**



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#### PANEL 2 COLUMN 1 ELEVATION

## Photo #3

Photo #4 Description:

Topcoat failure.

Recommendations:

Description: Chalking of top coat paint with blistering.

Recommendations: Refer to paint repair recommendations.

	Guano	Buckling	Other
ng.	Chalking	✓ Paint Failure	
	Crack		
S.	Bent	Warping	
	Minor	Moderate	Significant



Refer to paint repair recommendations.



## Panel 2 South Towers





✓ Paint Failure

Corrosion

Warping

## Photo #3

Description: Chalking of top coat paint with pinhole corrosion.

**Recommendations:** Refer to paint repair recommendations.



Guano

Crack

Bent

Chalking











			B A North
Photo #11		PANEL 3 ELEVA	TION
Description: Nests (2 locations shown above).			
Recommendations: <i>Remove nests.</i>	<ul> <li>☐ Guano</li> <li>☐ Chalking</li> <li>☐ Crack</li> <li>☐ Bent</li> <li>✓ Minor</li> </ul>	<ul> <li>Buckling</li> <li>Paint Failure</li> <li>Corrosion</li> <li>Warping</li> <li>Moderate</li> </ul>	✓ Other
Photo #10         Description:		K U H C	
Chalking of top coat.			



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