

City of Austin

Parks and Recreation Department Security Audit

Findings and Recommendations Report

Reference: Final Report

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Arup Americas Inc.
560 Mission Street, Suite 700
San Francisco, CA 94105
USA
arup.com

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Contents

1.	Introduction	1
2.	Approach and Methodology	1
2.1	Phase 1: Project Kick-off & Work Plan	1
2.2	Phase 2: Research & Site Visits	2
2.3	Phase 3: Security Assessment Tool & Recommendations Development	5
2.4	Phase 4: Final Report & Recommendations	6
3.	Security Audit Key Findings	6
3.1	Safety and Security Threat Environment	6
3.2	Security Governance	9
3.3	Unsheltered Homeless Encampments	11
3.4	Natural Surveillance and Lighting	13
3.5	Park and Facilities Rules Enforcement	19
4.	Recommendation Development	19
4.1	Core Security Principles	20
4.2	Safety and Security by Design	20
4.3	Phase of Implementation	21
5.	Security Audit Key Recommendations	22
5.1	Security Recommendations	22
5.2	Lighting Recommendations	32
6.	References	35

Tables

Table 1. Security audit asset group description	3
Table 2. Stakeholder interview dates and groups	5
Table 3. Lighting recommendations and requirements by space type	33

Figures

Figure 1. Outline of project phases	1
Figure 2. Security audit collections plan	2
Figure 3. Phase 2 tasks	2
Figure 4. Security audit locations and counts by park / facility type	4
Figure 5. APD reported crime within 50 feet of parks by year (top) and by park type (bottom), 2019 - 2023	7
Figure 6. Park Ranger operations contacts, park rules violation counts, 2019 – 2023	7
Figure 7. Park Ranger operations security-related contact map, 2019 - 2023	8
Figure 8. PARD Homeless Activity Reporter map, 2024	9

Figure 9. Example of unmitigated risk and wasted resources. Source: Interagency Security Committee Risk Management Process, 2024	11
Figure 10: Core security principles	20
Figure 11: Basic principles of safety and security by design	21
Figure 12. PARD organization chart based on security recommendations	24
Figure 13. Examples of park fencing	26
Figure 14. Example of non-rated vehicle access control gate	26
Figure 15. Examples of existing park entry signage in West Bouldin Creek Greenbelt (left) and 125 Large Welcome Sign design template from the PARD 2023 <i>Signage and Wayfinding Guidelines</i> (right)	27
Figure 16. Examples of wall mounted (left) and light pole mounted (right) video surveillance cameras.	28
Figure 17. Example of a park pathway with clear lines of sight	28
Figure 18. Examples of seating (left) and recreation spaces (right) along park paths to promote natural surveillance	29
Figure 19. Example of graffiti removal from an exterior surface coated with an anti-graffiti epoxy	30
Figure 20. Leake Street Tunnel (London, England)	31
Figure 21. Examples of existing location indicators in Mayfield Park (left) and Pease Park Conservancy (right)	31
Figure 22. Examples of location indicators with unique identification numbers along trails	32
Figure 23. Lighting hierarchy for different location types in PARD parks and facilities	34

Drawings

No table of figures entries found.

Pictures

Picture 1. Individuals experiencing homelessness are often observed at the park perimeter where there is heavy vegetation, and they are less likely to be seen	13
Picture 2. Narrow, winding trail at West Bouldin Creek Greenbelt (top) and wide trail at Pease Park (bottom)	14
Picture 3. Play structures and trails behind the South Austin Recreation Center activate the area behind the building which is largely out of view from street traffic and houses on adjacent properties	14
Picture 4. Vandalized park bench, nearby empty alcohol container and trash, and poor visibility due to dense vegetation all negatively impacts perception of safety	15
Picture 5. Ineffective placement of activity generator to encourage increased natural surveillance; the picnic table is isolated from other areas of the park, and the dense vegetation obstructs sightlines of the surrounding area	15
Picture 6: Alliance Children's Garden featuring pathway lighting and bench lighting	16
Picture 7. Shipping containers at George Morales Recreation Center	16
Picture 8. Multiple surveillance cameras are installed at the same building corner and are pointed between and around two shipping containers because of the blind spots they create	17

Photographs

No table of figures entries found.

Attachments

No table of figures entries found.

Appendices

Appendix A :	Desktop Studies	A-1
Appendix B :	Stakeholder Interviews & Survey	B-1
Appendix C :	Site Visits	C-1
Appendix D :	Security Audit Recommendations	D-1

1. Introduction

The City of Austin Parks and Recreation Department (PARD) is dedicated to creating an inclusive and welcoming park system, while also promoting an environment where park users and program participants feel and are safe. Concerns around encampments, cleanliness and safety, and inclusivity have been consistent themes through each of the community engagement activities described in Our Parks, Our Future Long-Range Plan 2020-2030. As such, a review of existing conditions and development of security recommendations for PARD parkland and facilities was conducted.

A key approach includes the use of Crime Prevention Through Environmental Design (CPTED) principles to support the audit and development of security recommendations for PARD parkland and facilities. The project also incorporates a nighttime analysis to understand why some parks or facilities feel unsafe based on lighting metrics.

Accompanying this report are two spreadsheets, *PARD Security Audit Recommendations* and *PARD Security Costing*, that detail asset-specific security recommendations and their associated costs, respectively.

This report was made possible by funding from Austin Parks Foundation (APF). For more information about APF 's work supporting parks, please visit austinparks.org.

2. Approach and Methodology

For this effort, Arup carried out the phases of work outlined in Figure 1.

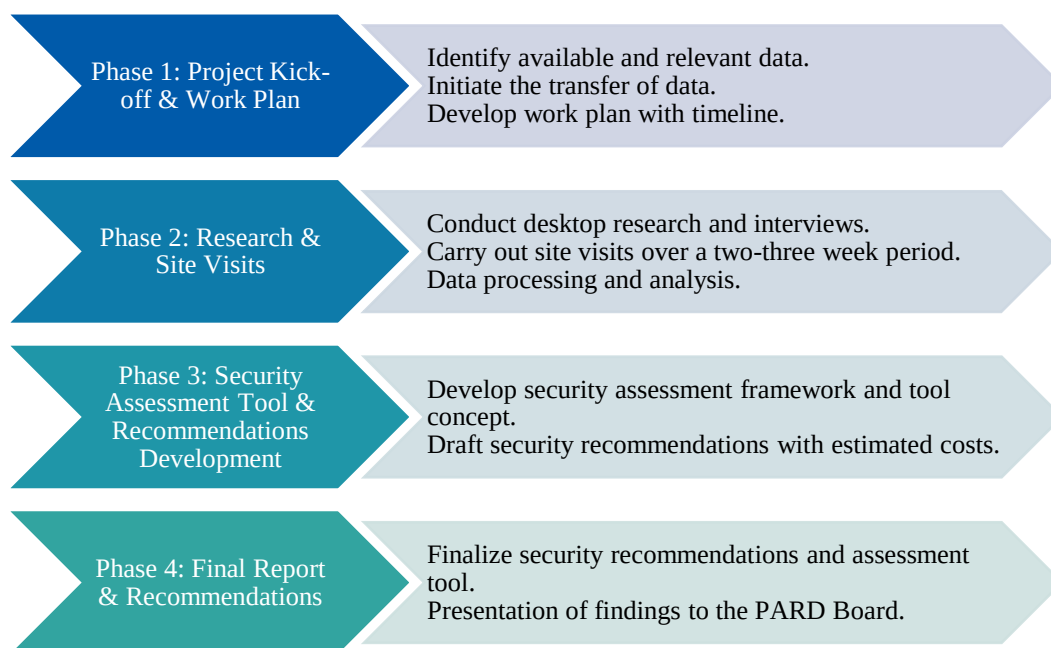


Figure 1. Outline of project phases

2.1 Phase 1: Project Kick-off & Work Plan

During Phase 1, project security goals and objectives are established to provide clarity and focus on proceeding tasks, ensure alignment with stakeholder expectations, and facilitate better communication and collaboration.

Additionally, the document transfer process for relevant data and information is initiated during this phase after PARD approves the data collections plan (see Figure 2).

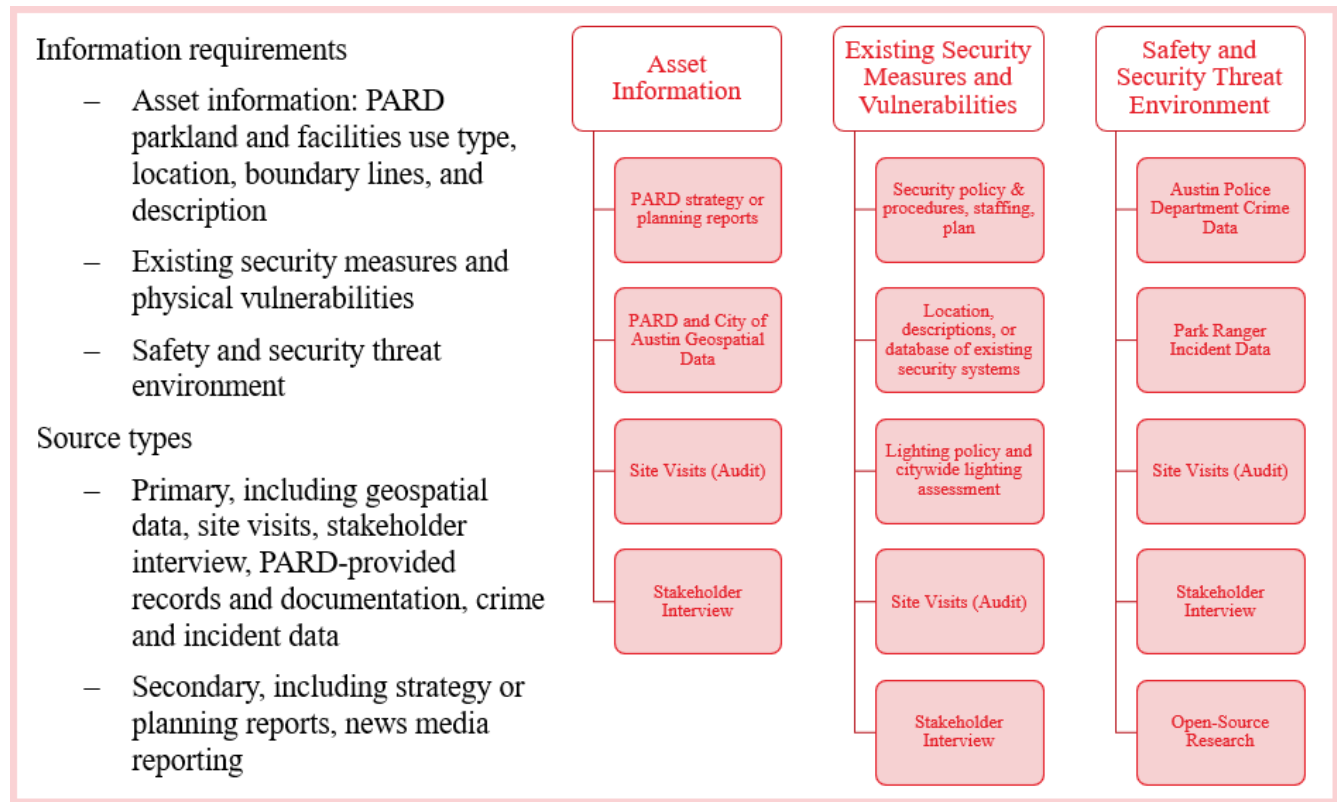


Figure 2. Security audit collections plan

2.2 Phase 2: Research & Site Visits

Phase 2 consists of a broad investigation to understand the local threat context, current conditions, key issues, and motivation to enhance physical security practices for PARD parkland and facilities. Phase 2 is organized into three primary streams of activities.



Figure 3. Phase 2 tasks

2.2.1 Task 2A: Desktop Studies

Upon receipt of all available data, a baseline understanding is established for the PARD park system, local threat context, and existing security countermeasures currently in place (e.g., security and lighting policies and plans, operating procedures, access control, camera locations, etc.). Specific activities include:

- Review available GIS layers and PARD asset data to define parkland and facility categories.
- Conduct crime analysis using both Austin Police Department (APD) and Park Ranger incident data to understand the local threat context and their impacts to the park system.
- Review security policies, procedures, and staffing in place across PARD parkland and facilities that govern security protocols during normal operations.

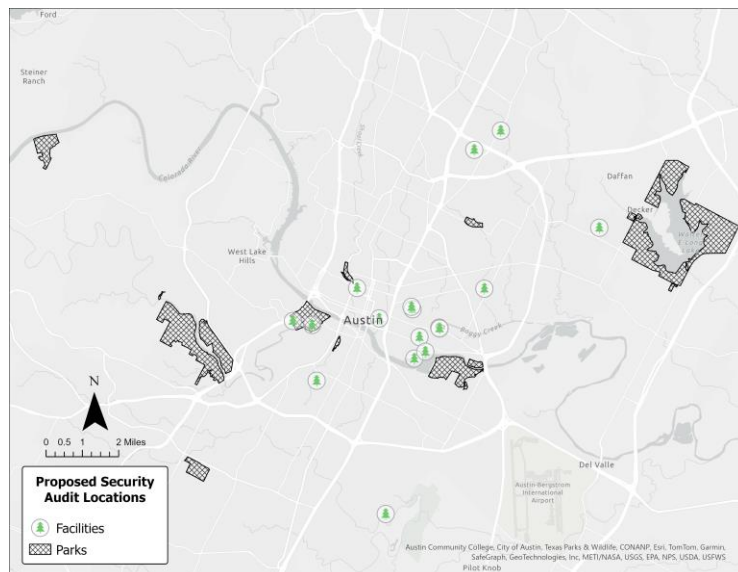
- Review available information related to PARD’s existing security countermeasures, including cameras, fencing, security gates and notification systems.
- Develop project-specific security and lighting audit framework using CPTED principles, along with a selection process for site visits. This includes setting audit objectives, collections plan, and methodology.

PARD asset types and classes are organized into “security audit asset groups.” These groupings largely follow the descriptions provided in PARD Long Range Plan [3] and expect to have similar security measures due to their similar use types and characteristics. Security recommendations are organized according to the security audit asset groups listed in Table 1.

Table 1. Security audit asset group description

Asset Category	Security Audit Asset Groups	Description
Park	Metropolitan	Larger, developed parks with a mix of amenities, playscapes, and active recreational facilities. Size of metropolitan parks are over 200 acres.
Park	District	Sites for major indoor facilities, specialized/large outdoor facilities. Natural features may play a more central role in the park. Size of district parks range from 31 to 200 acres.
Park	Neighborhood	Typically located in the center of a single neighborhood with a local recreation focus. Size of neighborhood parks range from 2 to 30 acres.
Park	Pocket / Button / Other	Smaller parks or other spaces, including cemetery, planting strips, triangles, and non-green spaces (plazas, courtyards, paseos, pedestrian malls).
Park	Nature	Unstructured, wild, cultivated, and natural spaces. This includes managed habitat, nature preserves, greenbelts, and trails.
Facility / Recreation	Administrative / Operation / Other	Facilities supporting PARD administrative and operational functions, including retail and vendor spaces.
Facility / Recreation	Arts & Culture	Facilities which include cultural, arts, and community centers, performance venues, historic sites, classrooms, and art installations.
Facility / Recreation	Active Recreation	Facilities or areas developed for active recreation including athletic fields, ranges, courses, gyms, campgrounds, aquatic activities, and associated amenities (RV dump station, bathhouses...etc.).
Facility / Recreation	Passive Recreation	Passive recreation facilities include off-leash dog areas, playgrounds, picnic areas, pavilions, benches, scenic overlooks, and other structures or amenities which encourage passive use of the area.

As PARD park system encompasses 355 parks, 20,041 acres of parkland, dozens of recreational and cultural facilities, and 269 miles of trail, the primary objective of Task 2A is the selection of 30 representative sites for in-person security and lighting assessments. Selected audit locations are show in Figure 4.



Park / Facility Type	Count of ID	Security Audit Category
Recreation Center	11	Active Recreation
Metro Park	6	Metropolitan / District
Cultural/Arts Center	4	Arts & Culture
Pool	3	Active Recreation
Nature Preserve	2	Nature
Greenbelt	2	Nature
Park (garden)	1	Nature
Neighborhood Park	1	Neighborhood
Playground	1	Passive Recreation
District		Metropolitan / District
Park/Conservancy	1	District
Community Garden	1	Nature
Activity Center	1	Active Recreation
Metro Playfields	1	Active Recreation

Figure 4. Security audit locations and counts by park / facility type

No “Pocket / Button / Other” park type is included in the proposed audit locations; therefore, no parks of these types were surveyed.

2.2.2 Task 2B: Site Visits

Findings from the baseline study inform the development of site visit objectives and collections plan (e.g., specifically what physical elements need to be evaluated and documented, what type of information and pictures are required, etc.). These are used to facilitate efficient and productive site visits where data is collected in a format and method that is in alignment with a project-specific security and lighting auditing framework.

Physical security and CPTED assessments are conducted during both the day and nighttime. The goal of the onsite audit is to document existing physical and operational security measures for each location, conduct a CPTED and lighting technical assessment, and collect observations of operational or physical vulnerabilities. Details of the site visit approach, assessment methodology, and data collected are described in Appendix C in this report.

2.2.3 Task 2C: Stakeholder Interviews and Survey

Stakeholder interviews and surveys are conducted to understand safety and security experiences unique to different PARD teams. Additionally, the interviews provide stakeholders with the opportunity to provide feedback on the effectiveness of existing security measures, as well as strategies or projects which has improved the safety and security condition of PARD parks and facilities.

A total of four interviews were completed between December 2 to 6, 2024. Multiple PARD teams were invited to participate in the interviews, and they were organized into four groups (see Table 2). Not all PARD teams listed had representatives available to attend the interviews. Digital survey links with the interview questions were sent to all contacts on the PARD stakeholders list to accommodate those who could not attend.

Refer to Appendix A of this report for summary notes and key findings from the stakeholder interviews and surveys.

Table 2. Stakeholder interview dates and groups

Interview Date	Interview Group	PARD Teams
December 2, 2024	Parkland Operations	North Team South Team Horticulture Land Management Forestry Community Gardens Historic Sites/Signage
December 3, 2024	Safety / Security Technical Support, Contracts, Communication	Safety Team Park Rangers Austin Police Department Communications & Engagement Unit (CEU) Contracts Team
December 6, 2024	Facilities Programs Facilities Operations	Community Recreation Cultural Centers Nature Programs Aquatics Centralized Programs Building Services Aquatics Maintenance Golf / Cemeteries Athletics Maintenance Facilities Management
December 6, 2024	PARD Leadership	Interim Director Programs Planning, Capital Improvement Projects (CIP), Assets, Facilities, Operations and Maintenance Cemeteries, Golf, Special Events, Aquatics Chief Financial Officer

2.2.4 Task 2D: Data Processing & Analysis

Data processing and transformation is conducted so that all the data collected across the multiple streams of activities can be analyzed as part of the auditing process and framework. Additionally, data quality assurance (QA) activities will be carried out during this phase to resolve anomalies and inconsistencies in the data.

After the completion of the QA activities, all observations and findings from the baseline study, policy and procedures review, site visits, interviews, and photographs are reviewed to identify patterns and trends between spaces that feel and are safe and those that do not. The overlay of different data collected provide a comprehensive understanding of what the security concerns are, where and when they are occurring, and the effectiveness of existing security measures.

2.3 Phase 3: Security Assessment Tool & Recommendations Development

To complete the Security Assessment Tool & Recommendations we have conducted the following activities:

- Developed security options and recommendations in a holistic manner, considering how recommended modifications to policies and procedures may also influence physical design controls in achieving a balanced approach to security, combining operations, technology solutions, and physical/planning solutions. The security assessment and guideline development has included the following components:
 - CPTED (e.g. planning, layout, lighting, signage, space activation, public art)
 - Physical security (e.g., access control and video surveillance)

- Protective design (e.g., forced entry protection, barriers, fence)
 - Security policies and procedures
 - Security and maintenance staffing
- Provided high-level context around the types of mitigations (e.g., design elements, products, operational) and levels of protection (e.g., low, medium, high) they afford to aid PARD's understanding of each recommendation's level of effectiveness.
 - Made recommendations for security procedural and staffing improvements.
 - Cost estimates for each security recommendation where practical.

Arup has developed an Assessment Tool (refer to Appendix D) which meets the following objectives:

- Organizes the recommendation options and provides the capability to filter the data by level of effectiveness, estimated cost, and short-term/long-term.
- Tracks progress as options are implemented and could be reviewed on an annual basis.

2.4 Phase 4: Final Report & Recommendations

Based on PARD feedback provided at the end of Phase 3, Arup updated and finalized the recommendations, draft report, and assessment tool.

3. Security Audit Key Findings

Data gathered from the desktop studies, site visits, interviews, and surveys are reviewed altogether to gain a comprehensive understanding of the current security condition at PARD parks and facilities. Findings from the security audit are organized into five key themes: Safety and Security Threat Environment, Security Governance, Unsheltered Homeless Encampments, Natural Surveillance and Lighting, and Park and Facility Rules Enforcement. They form the basis for the development of security recommendations.

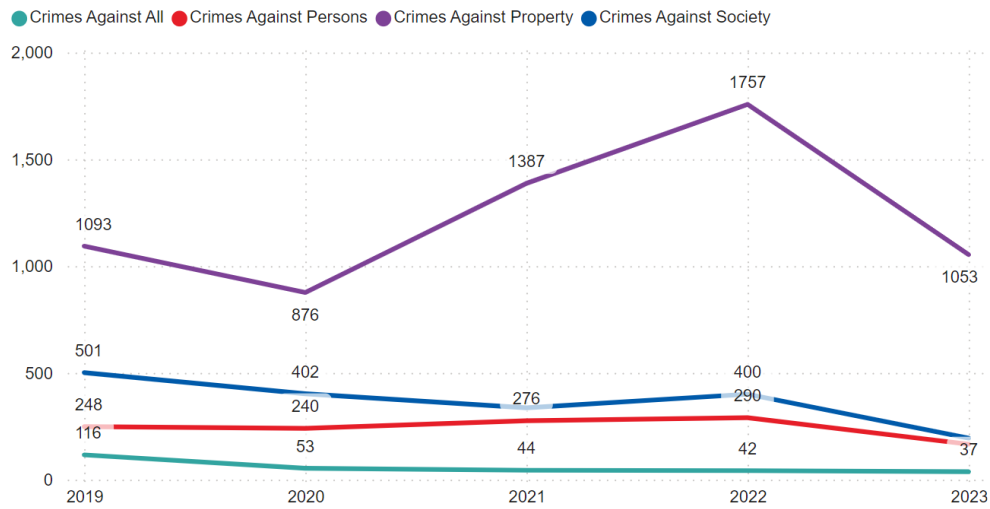
3.1 Safety and Security Threat Environment

An analysis using APD crime and PARD safety and security-related data was conducted to understand the local threat context and its impact on the park system.

APD reported crimes within 50 feet of metropolitan parks account for the most incidents as shown in Figure 5 (bottom). Pocket/button/other parks account for the second most reported incidents. Crimes against property account for approximately 70% of incidents reported in metropolitan and pocket/button/other parks, with burglary and theft alone accounting for 2,155 of these 3,869 incidents (56%).

Crimes against property account for the most reported incidents within 50 feet of parks, increasing overall since 2020 through 2023. Roughly 80% of reported crimes against property are either larceny or motor vehicle theft. Crimes against society account for the second most reported incidents, steadily decreasing until 2022, when these incidents saw an increase to 400. Disorderly conduct accounts for almost 50% of these incidents, followed by drug offenses at 30%. Crimes against persons maintained a consistent rate over this time, with assault accounting for over 75% of these offenses. There were 10 total homicides reported, with 2 reported during the daytime [4].

Crime Within 50 feet of Parks (APD Crime Data, 2019 - 2023)



Crime Within 50 feet of Parks by Park Type (APD Crime Data, 2019 - 2023)

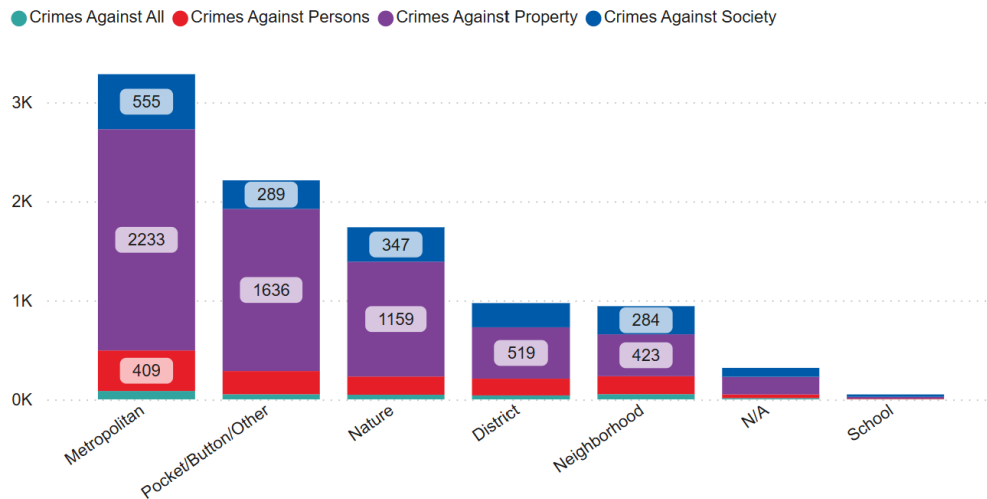


Figure 5. APD reported crime within 50 feet of parks by year (top) and by park type (bottom), 2019 - 2023

Park Rules Violations (2019 - 2023) by Contact Type

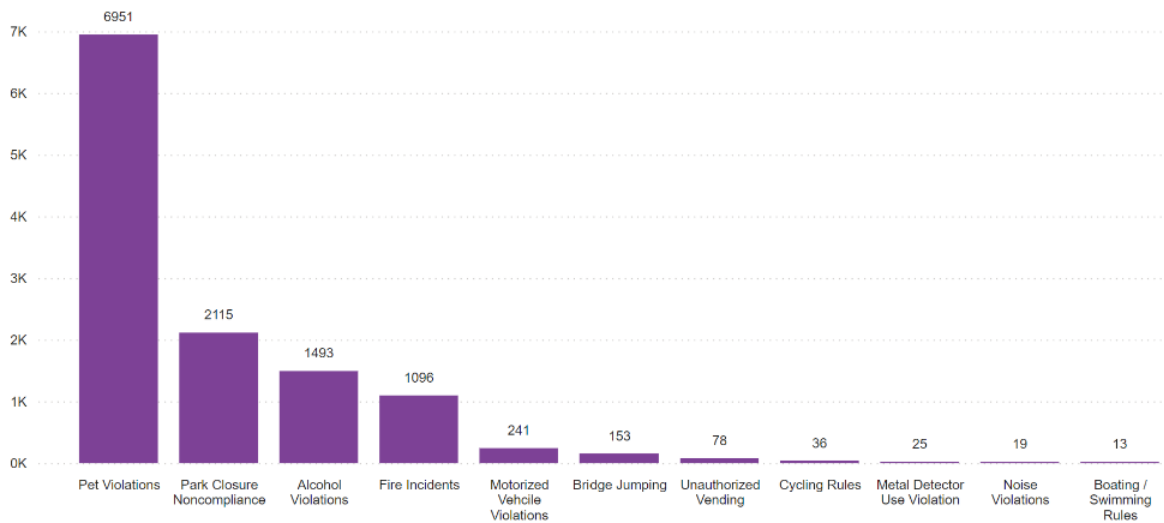


Figure 6. Park Ranger operations contacts, park rules violation counts, 2019 – 2023

Between 2019 and 2023, there were 13,377 Park Ranger safety and security-related contacts (this number excludes contact types that were considered irrelevant to the study). Relevant contacts include those related to park rules compliance, encampments or interactions with individuals experiencing homelessness, violent or property crimes (under security incidents category), and APD assistance.

In addition to violations related to pets, such as dogs off-leash, the most common park rule infractions addressed by Park Rangers include noncompliance with park closure regulations, alcohol-related offenses, and fire incidents. During stakeholder interviews, PARD staff also reported high incidences of noise violations and minor cases of vandalism. While seemingly insignificant in isolation, the cumulative effect of these infractions can degrade park experience, deter positive use, and potentially escalate to more serious safety concerns.

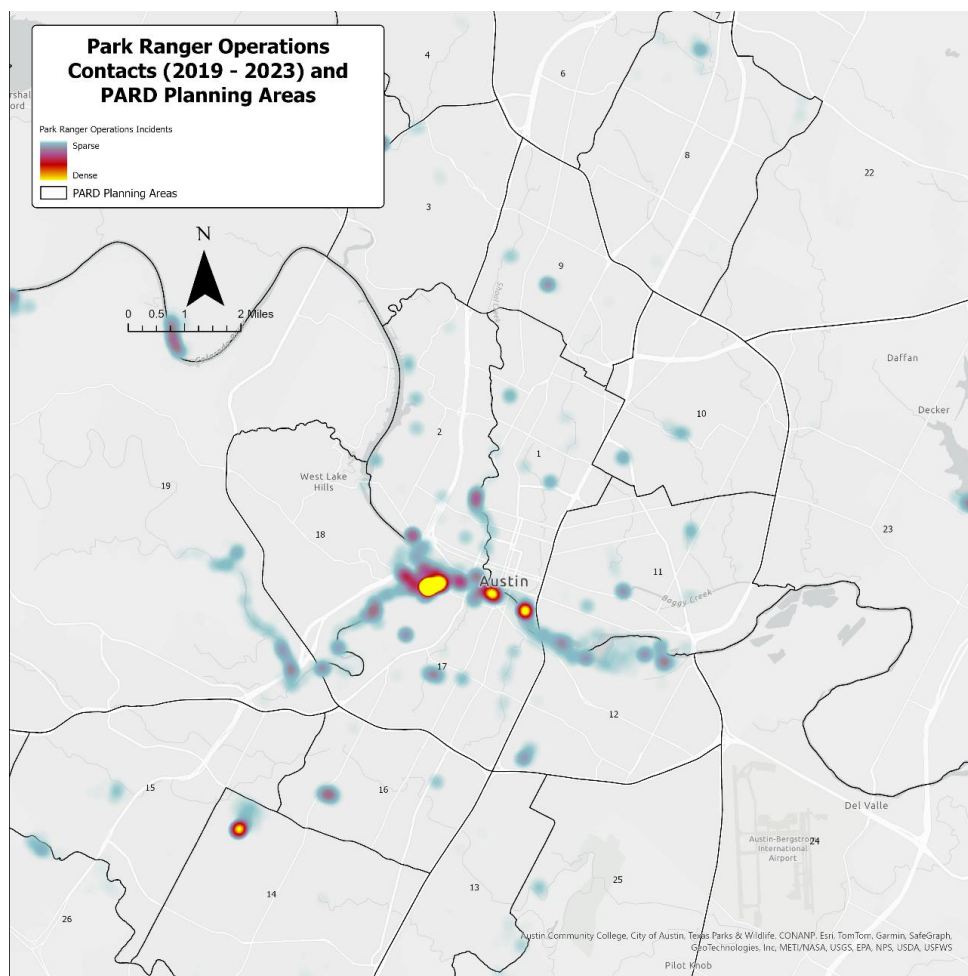


Figure 7. Park Ranger operations security-related contact map, 2019 - 2023

These violations are primarily concentrated around the city center and the Colorado River. Zilker Metropolitan Park, Barton Creek Greenbelt, and Town Lake Metropolitan Park accounted for approximately 40% of the total safety and security-related violations.

According to the PARD Homeless Activity Reporter, there were 2,371 investigations of activity related to individuals experiencing homelessness from 2020 to 2024.

Zilker Park alone accounts for roughly 200 of these reported incidents, followed by West Boudin Greenbelt with 103 reports. These incidents are generally reported in and around greenbelts and trails and along bodies of water, such as the Colorado River and Barton Creek.

In addition to issues around cleanliness and maintenance due to the increasing use of PARD parks and amenities for individuals' daily survival needs, there is also concern around the increased use of illegal substances in public spaces. The sale and use of drugs in parks is not an inherent aspect of homelessness but it is inextricable from the conversation due to the relationship between addiction and homelessness.

Other behaviors often associated with homelessness, such as outward presentation of mental illness, indecent exposure, vandalism, and littering, also negatively affect perceptions of safety and deter positive park use.

3.2 Security Governance

Absence of department-wide security requirements and guidelines has resulted in inconsistent application of security measures and procedures across PARD parks and facilities.

Several factors are crucial for ensuring a cohesive and effective security strategy across an organization. They include the establishment of security goals and objectives at the enterprise level, clearly defined public safety and security roles to manage activities related to achieving established goals, and development of physical security guidelines which could be consistently applied across all PARD parks and facilities. Currently, the absence of these has resulted in reactionary responses to security-related issues, and thus a patchwork of unevenly implemented security strategies and measures.

3.2.1 Security organizational structure

There is no formalized security role within PARD who is responsible for guiding the organization towards improving security across citywide parks and facilities. The type and location of security measures implemented is largely up to the discretion of the site supervisor or manager who oversees the maintenance and operation of each individual facility or park.

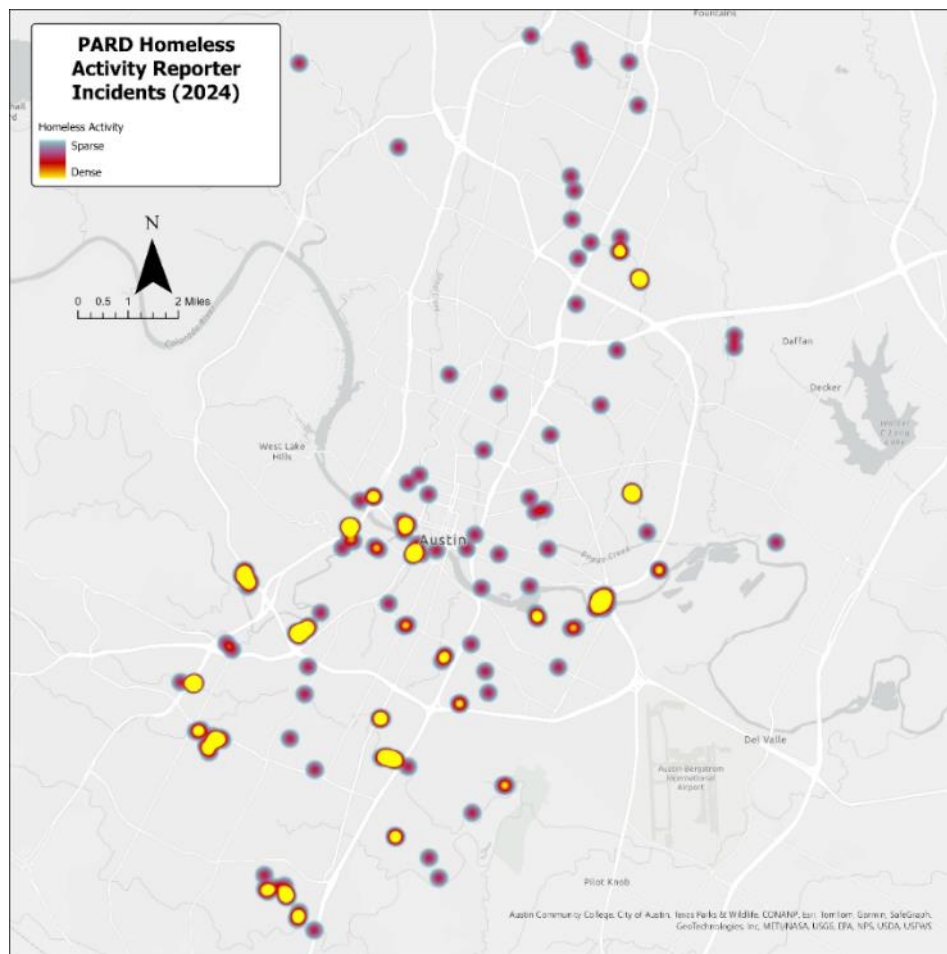


Figure 8. PARD Homeless Activity Reporter map, 2024

The PARD Occupational Safety Team conducts annual safety site walks, identifies physical security vulnerabilities in addition to safety hazards, and provides detailed recommendations for upgrades or repairs. While basic security is included in the safety checklist, the site walks are largely focused on identifying and resolving occupational safety hazards. It is the site supervisor's responsibility to carry out the Occupational Safety Team's recommendations, and the costs for the upgrades and repairs come from the site's annual operating budget. However, if the budget cannot accommodate the costs, the identified security vulnerability may remain unresolved.

For example, at Lorraine "Grandma" Camacho Activity Center, where dozens of bikes and a trailer were stolen in 2024, staff shared that they are unable to install a video surveillance system because it is cost prohibitive. Additionally, a security vulnerability identified many years ago during a safety site walk was never addressed, and burglars were able to access the facility through the security gap. Cost was the primary factor, because the security gap would have required the replacement of all ground level windows.

3.2.2 Compliance with organizational guidelines or standards

The lack of department-wide security requirements has led to significant disparities in the level of security between different sites, and many PARD parks and facilities are not in compliance with existing lighting standards. Noncompliance and inconsistent security standards across sites have created vulnerabilities, inefficiencies, higher costs, and ineffective risk management. It is important to establish and maintain consistent security measures and protocols to ensure comprehensive protection and operational efficiency.

PARD Exterior Lighting Handbook and Standards [5] outlines general lighting criteria for parks and facilities. During stakeholder interviews and surveys, most PARD staff indicated they did not know about the lighting handbook or expressed a lack of familiarity with the handbook contents. Additionally, from observations gathered from the site visits, there is a discrepancy between the light levels outlined in the handbook and what was measured at PARD parks and facilities. Some facilities had discrepancies in the measured light levels which were significantly different from the values outlined in the handbook.

PARD has a preferred vendor for video surveillance systems, Johnson Controls International (JCI). However, site supervisors are not mandated to use this vendor, and several different types of security cameras were observed during the site visits. Furthermore, many different types of fencing, vehicle barriers, access control, locking mechanism, and doors/gates were noted at each location. While this is typical for long-standing organizations with a portfolio of assets comprised of both aging facilities and new construction, the inconsistent deployment of security measures creates security gaps.

There are some guidelines in place for security-related contracts. For instance, hired security guards at PARD parks and facilities cannot be armed. However, because vendor selection, onboarding, contract negotiation, and performance monitoring are under the responsibility of each individual site, there is inconsistency in the type and quality of service provided by security guards hired through third-party security companies.

For example, at Big Stacy Pool, staff shared that private security guards were previously hired and stationed at the pool entrance. While the security guard did help to alleviate the security issues occurring at the facility, the site supervisor eventually ended the contract because of issues with the security guard's performance and level of professionalism with pool users.

At Givens Recreation Center, off-duty Austin Police officers were previously contracted and stationed at the facility. Staff had a very positive experience with this option. However, they eventually ended the contract because the site operating budget could not accommodate the additional cost.

3.2.3 Risk management

It is standard industry practice to take a risk-based approach to determine how funds and resources for security measures are allocated. Currently within PARD, there is no formalized or comprehensive process to identify priority sites for security upgrades or repairs, which has resulted in inefficient allocation of resources and unaddressed security risks and vulnerabilities.

Existing or planned security measures are largely based on whether it is a newer construction and if the site operating budget can support the cost. Because of this, there are notable differences in security measures between older and newly constructed PARD facilities. Newer facilities include security systems as part of their construction, while older facilities require significant upgrades or retrofits. This is particularly relevant because many older PARD facilities are located in Central Austin or historically disadvantaged neighborhoods with a higher incidence of security issues. Despite experiencing more security incidents and having aging infrastructure, older facilities are allocated similar operating budgets as their newer counterparts.

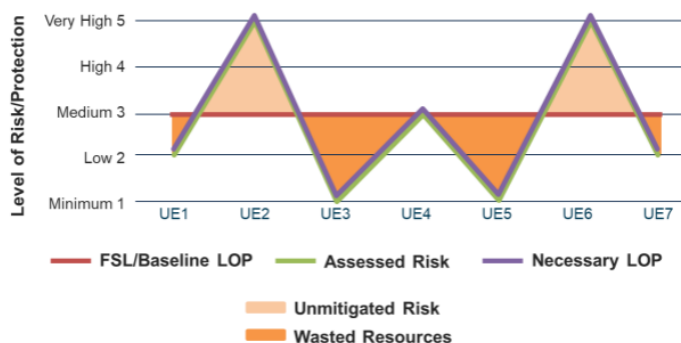


Figure 9. Example of unmitigated risk and wasted resources.
Source: Interagency Security Committee Risk Management Process, 2024

If upgrades or repairs are beyond what the site operating budget can support, work orders or requests may be submitted to PARD Facilities or Capital Improvement Program (CIP). Each year Facilities review a list of work orders and have an informal process for selecting projects to implement. For example, Facilities is currently working on a grand master keying project for different PARD Divisions (e.g., cemetery, aquatics, golf, etc). Division Managers provide input on work order priorities and may collaborate with Facilities to identify additional PARD budget as needed to fund site-specific work orders or projects.

CIP is responsible for developing new facilities and parks, repairing existing ones, and acquiring new land to meet PARD’s strategic objectives. As of December 2024, CIP has approximately 700 requests on the program’s rolling-needs list, and they utilize a process which prioritizes public-facing amenities, as opposed to maintenance or security infrastructure, for determining projects to move forward.

3.3 Unsheltered Homeless Encampments

The unsheltered homeless population uses PARD parks and facility amenities, which is beyond the maintenance and resources currently allocated to keep the facilities functioning and clean. For instance:

- There were observations of public camping in open areas of the parks and just outside PARD recreational facilities, because shade structure and other amenities, such as restrooms, drinking water fountains, and power outlets, are publicly available.
- Individuals often reside over an extended period of time in public restrooms or shower facilities. There are reports of individuals building fires, bathing, washing clothes, or carrying out illicit activities (such as drug use) in the restrooms.
- Utilities meant for facility or maintenance use, such as outdoor electrical power outlets and water spigots, are frequently used by the unsheltered homeless population who are camping nearby.
- Overnight parking occurs on a regular basis in PARD parks and facility parking lots.
- There is improper disposal of household trash in public spaces, greenbelts, and nature preserves.
- Vandalism or destruction of public property often occur alongside facility misuse. The facilities would be easier to maintain if more resilient and vandal-resistant materials, fixtures, and furniture were utilized at sites which serve a higher number of unsheltered homeless individuals.

According to the August 2024 Report on the State of the Homelessness Response System (HRS) in Austin/Travis County [1], “service providers in 2023 saw a 72% increase in the number of people seeking services from our HRS for the first time compared to 2022.” Additionally, homelessness service agencies in

Austin and Travis County reported that they provided resources to more than 24,300 unique individuals in 2023, a 60% increase since 2019. The large increase in demand for HRS services indicates a growing issue with homelessness across the county.

A Point in Time Count presented by ECHO in May 2023 [2] reported 1,266 individuals in Travis County were observed sleeping unsheltered outside, in tents, or in cars. The presentation indicated that the number of unsheltered individuals is likely significantly undercounted, because people must be seen to be counted. Since May 2021 when Austin voters approved a ban on public camping, more individuals experiencing unsheltered homelessness have moved into “hard-to-reach” and secluded places where they are less likely to be seen. The 2023 Point in Time Count reported an increase from 5.3% in 2020 to 13.6% in 2023 of unsheltered homeless individuals counted in City of Austin-owned parks, nature preserves, and greenbelts.

3.3.1 Collaboration with Homeless Strategy Office

While the unsheltered homeless population rely heavily on PARD parks and facilities for basic and daily survival needs (e.g., comfortable and safe place to be during the day, water, electrical outlets, and restrooms), there is no formal agreement or understanding which outlines the details of PARD’s collaboration with the Homeless Strategy Office (HSO) in alignment with the 2018 Action Plan to End Homelessness.

Furthermore, amongst staff, there is not a clear understanding of the various courses of action when interfacing with the unsheltered homeless population. This includes when to contact the Homeless Outreach Street Team (HOST) for further support or when to report an encampment to HSO. This has resulted in inconsistent responses by PARD staff across different sites. For example, some recreation centers allow individuals to remain at the site overnight, others are asked to leave, and at times APD is called.

3.3.2 Public Access Impacts

The unsheltered homeless population use of PARD parks and facilities significantly impacts public access and use. Due to the availability of essential resources such as water, electricity, and shelter, there is often a significant concentration of individuals experiencing homelessness near PARD amenities or structures. A security guard previously posted at a PARD facility reported that some individuals would 'claim' these spaces as their own and exhibit hostility toward others attempting to use them. These types of behavior discourage people from utilizing PARD facilities and restrict access to infrastructure intended for public use.

Specific examples of public access impacts observed during the site visits are described in this section. Most observations were made at parks and facilities closer to the city center, where public transportation and resources are more accessible. During nighttime site visits, individuals experiencing homelessness were mainly seen near park facilities with power outlets and restrooms, as well as in secluded areas.

At Big Stacy Pool, the restroom and shower facilities are frequently used by individuals experiencing homelessness. Sleeping individuals are regularly found behind or in the restrooms in the morning and throughout the day. Drug users also frequently use the facility and leave behind needles and other drug paraphernalia. The high level of illicit activities at the restroom and shower regularly prevents pool users from using them.

At Givens Recreation Center, staff reported that they only use the area in front of the building for outdoor recreation programs and activities, because they do not feel safe using the neighborhood park behind the building. This is because the park is regularly used for illicit activities, such as alcohol / drug sale and use. At the time of the site visit, an encampment was observed in the forested areas adjacent to the neighborhood park. Staff reported that individuals from nearby encampments use the park restrooms, pavilions, picnic tables, seating, power outlets, and water.

At the Asian American Resource Center, staff reports individuals from nearby encampments often misuses the restroom and shower facility inside the building and prevent others from them. During the site visit, the shower room was locked and closed to the public. Additionally, an individual was observed laying down and blocking an emergency exit door outside the building, because they were using the power outlet to charge their electronics.

Individuals experiencing homelessness are also often observed in areas of the park where they are less likely to be seen. These areas typically have heavy vegetation, are at the perimeter of the site, and are dark. These areas have decreased perceptions of safety due to low visibility and low facial recognition. At nighttime, it is hard to identify these individuals from afar.



Picture 1. Individuals experiencing homelessness are often observed at the park perimeter where there is heavy vegetation, and they are less likely to be seen

3.3.3 Staff Training and Resources

PARD staff do not have adequate resources or training to interface with the unsheltered homeless population at the level of frequency some are currently experiencing—especially those presenting mental crises and unstable or violent behaviors. In some cases, individuals attend the site while under the influence of drugs or alcohol, or they use disrespectful and threatening language against staff who try to enforce posted rules.

While PARD offers behavior-based training developed by Austin Travis County EMS, many frontline or public-facing staff have not completed this training, because it is only offered to specific staff and upon request. The training provides instruction on human behavior pattern recognition and analysis, pre-contact cues, violent vs. non-violent posturing, de-escalation strategies, and empathy and options for action. PARD also offers Integral Care Mental Health First Aid training to Park Rangers and Satori Alternatives to Managing Aggression (SAMA) training to programming staff.

Generally, disruptive individuals are asked to leave the premises for the remainder of the day, and APD is called if they refuse. However, this course of action is largely ineffective, because the individual can return daily and continue to violate facility rules.

In addition to cleaning up biohazard, sharp/dangerous items, and destruction of property, regular misuse of PARD facilities has significant impacts on staff resources and bandwidth, because a great amount of effort is required to monitor, document, and complete procedural tasks for each individual who violates posted rules. This becomes unsustainable and difficult to manage when the facility experiences frequent rule violations carried out by many unique individuals.

3.4 Natural Surveillance and Lighting

Natural surveillance, visibility, and lighting are an issue throughout most of the parks and facilities included in the site visits. Natural surveillance is a concept used in CPTED to enhance security by increasing the visibility of people and activities within a space. The idea is to design environments in such a way which increases pedestrian use so that park users do not feel isolated and potential offenders feel they are being watched, which can deter criminal behavior.

Many parks, trails, and facilities are surrounded by heavily forested areas and have poor lighting at night. Trees with thick trunk or low hanging canopies, along with tall and dense grass, shrubs, bushes, and undergrowth, often limit natural surveillance from other areas of the park or from adjacent properties. Because there is no

PARD landscaping and tree maintenance guidelines from a public safety and security perspective, visibility in areas which experience high levels of security or crime incidents often remain unaddressed.

The width of trails or walking paths also contributes to the level of visibility at the park. For example, the trail leading through the West Bouldin Creek Greenbelt is narrow and curves frequently around large, tall bushes and trees with low hanging canopies. In contrast, the wide, straight trails at Pease Park provided higher levels of visibility even while dense trees line both sides of the trail.



Picture 2. Narrow, winding trail at West Bouldin Creek Greenbelt (top) and wide trail at Pease Park (bottom)

3.4.1 Park Activation

Natural surveillance is encouraged by effective park activation and supported by passive recreational facilities. These facilities, which include well-maintained picnic tables, seating, play structures, pavilions, and outdoor workout gyms, attract people and encourage legitimate use of the area.



Picture 3. Play structures and trails behind the South Austin Recreation Center activate the area behind the building which is largely out of view from street traffic and houses on adjacent properties



Picture 4. Vandalized park bench, nearby empty alcohol container and trash, and poor visibility due to dense vegetation all negatively impacts perception of safety

There is an abundance of passive recreational facilities at each of the sites visited. Often, they are located along tree lines, because shade is provided by the tree canopies or tall grass. However, in areas where there are issues with encampments, trash, or public drug and alcohol use, park users are discouraged from remaining in the area and using these amenities, because they are unable to see whether individuals are just on the other side of dense vegetation (see Picture 4). In some areas, tall and dense vegetation along trails and walking paths isolate users at various areas of the park. New amenities like trails, playgrounds, and sports fields are beneficial but can remain unused in areas where people feel unsafe.

Activation of trails and forested areas helps with natural surveillance and perception of safety. For example, a forested area of Roy G. Guerrero Colorado River Metro Park previously had a large encampment of approximately 250 people before it was cleared two years ago. Now, APD and PARD staff regularly patrol the area, and they are aided by disc golf course users who report violations more frequently compared to areas with less activation.

Similarly, at Bartholomew District Park, active use of both the disc golf course located throughout the forested area and passive recreation structures in open green areas improve natural surveillance for both types of terrain. Despite observations of individuals experiencing homelessness in the park and an abundance of household trash found along the tree lines, active and legitimate use by other community members help to alleviate the perception that the park is unsafe to be in.



Picture 5. Ineffective placement of activity generator to encourage increased natural surveillance; the picnic table is isolated from other areas of the park, and the dense vegetation obstructs sightlines of the surrounding area

Lighting plays a critical role in park activation and increasing natural surveillance at PARD parks and facilities at nighttime. Passive recreation areas with good lighting activation tend to be areas that are more frequented at night in comparison to those with minimal lighting infrastructure.

From nighttime site visit observations, park and recreation areas with a lighting system with quality activation were seen to be more frequented at night, as they provide a sense of safety and security. Properly lit areas make it easier for people to see their surroundings, reducing the fear of potential threats. This increased visibility encourages more people to visit these spaces after dark, whether for exercise, socializing, or simply enjoying the outdoors. Additionally, good lighting can enhance the aesthetic appeal of a park, highlighting features such as pathways, trees, and water bodies, making the area more inviting and enjoyable for nighttime visitors.

In contrast, parks and recreation areas with minimal lighting infrastructure experienced significantly less foot traffic. The reduced number of visitors in these areas indicates that decreased perception of safety and poor visibility can lead to lower usage. Poorly lit areas can create shadows and dark spots where potential dangers may exist, and this lack of visibility can also result in accidents, such as tripping over unseen obstacles.

Reduced lighting could be employed as a strategy to discourage use in certain areas. For instance, to minimize disturbances to wildlife, it is recommended to avoid installing lighting in areas where ecological concerns are a priority. Additionally, these areas should be preserved from nighttime users to further protect the fauna.



Picture 6: Alliance Children's Garden featuring pathway lighting and bench lighting

An example of an area with lighting infrastructure that encourages nighttime activity is Alliance Children's Garden. It is one of the few parks with passive recreation structures that are highly utilized and lit up. There were lights for the play areas, pathways, and benches that fostered nighttime activity of families. In addition, the park has a splashpad illuminated with different colors that people can interact with.

3.4.2 Shipping Containers

PARD parks and facilities rely heavily on rented shipping containers for long-term storage. However, shipping containers obstruct visibility at sites, negatively impact natural surveillance, and create blind spots at the facility or site perimeter.



Picture 7. Shipping containers at George Morales Recreation Center

At nearly every location included in the site visit, one to as many as seven shipping containers were observed at each park or facility. The shipping containers are physically located at various locations within the park or property boundary, but they are often clustered together a few yards from the side or back of a facility. This creates several blind spots in and around the containers against the building, as well as small spaces for individuals to hide or seek shelter. Furthermore, they can block windows which obstruct natural surveillance from people inside the building to activities occurring outside.

Shipping containers have become a long-term solution for storage needs, as some facilities have used the containers for several years. Not only are all the containers rented, which costs about \$200-300 a month per container, they are also obvious targets for burglary and theft and do not require a high skill level to break into.

At Turner-Roberts Recreation Center, multiple surveillance cameras installed at the same building corner are aimed between and around two shipping containers because of the blind spots they create. This creates the need for an increased number of cameras and additional cost to PARD.



Picture 8. Multiple surveillance cameras are installed at the same building corner and are pointed between and around two shipping containers because of the blind spots they create

3.4.3 Lighting Infrastructure

In existing parks, there is a need for updated lighting direction. To optimize the nighttime environment and improve the perception of safety across the parks, lighting should comply with the IES lighting handbook and Austin Building Criteria Manual subchapter 5.210 with appropriate scheduling and maintenance. Lights should be placed where necessary and with a proper output that is not overly bright or too dim.

In respect to maintenance, there are many instances at PARD parks and facilities where lights are not maintained or scheduled effectively to promote optimal perceptions of safety at night. At the Austin Recreation Center, the lights around the facility, including the light poles, wall packs, step lights, and downlights, turned on one hour after dark due to the lighting time clock set incorrectly with daylight savings. After the lights switched on, the perception of safety around the recreation center increased, as the lighting increased visibility.

Multiple parks had lights that were not properly maintained which made navigation a challenge. For example, at George Washington Carver Museum, the ramp on the side of the facility had a fixture outage. This part of the ramp was also nestled into the trees, making it darker and harder to see. The Bartholomew Pool parking lot had no lighting. It was difficult to see where to turn into the parking lot after dark. This pool has staff and occasional visitors at night, and they need to use the parking lot to access the pool and disc golf area. At some parks and facilities, it was evident that there was no consistent adherence to designated lighting standards. Areas that people tend to traverse at night, such as parking lots, pathways, bathrooms, public transit stops, and playgrounds, did not have any lighting. The absence of lighting makes it difficult for visitors to navigate spaces safely and can significantly reduce the perception of safety. Without proper illumination, people are deterred from using them after dark.

Participants of evening programs at Danny G. McBeth Recreation Center have indicated that the pathways leading to the bus stop are inadequately lit. As a result, PARD staff assistance is often requested to escort them to the bus stop. At Festival Beach Food Forest, the bus stop outside the garden had low levels of light making it difficult to see people and the bus stop. During the time that the survey was conducted, the bus driver informed us that they parked further down the road where a light pole was located to have more visibility. Some bus stops, especially those without physical stations, are only lit by neighboring streetlights and don't have any designated lights.

Most of the playgrounds observed during the site visits, including Roy G Guerrero and Bartholomew District Park, had no designated lighting at night. At Roy G. Guerrero, gunshots were heard from the playground area. Although gunshots were heard coming from approximately a 50 ft radius of the playground, it was unclear where the threat actor was due to low visibility. Similarly, at Bartholomew District Park, the playground area had no lighting and was even darker due to the trees and vegetation blocking surrounding light. From the children's play area, a dark pavilion can be seen housing an individual. There was no facial recognition due to the darkness.

Based on these nighttime site visit observations, it is clear there are several areas dealing with a lack of lighting. However, it is also possible for there to be too much lighting in a certain space, as there is contrast around lights that are overly lit. The quality of lighting, rather than the sheer amount, significantly enhances the perception of safety in public spaces. Overly bright areas can create stark contrasts, making the surrounding areas appear even darker. This imbalance can provide hiding spots for individuals with malicious intent, who can exploit the dark areas to target those in the well-lit zones. To improve safety, it is preferable to have an even distribution of light, achieved through multiple layers of low-level lighting with a good color rendering index (CRI) and correlated color temperature (CCT). This approach minimizes harsh contrasts and makes the space feel safer and more welcoming.

It is important to note that it is not realistic to add lights everywhere to create an even, uniform level of light. Therefore, fixtures with a low to medium brightness are encouraged when applicable since they will not create shadows as stark as extremely bright fixtures.

At the South Austin Recreation Center, the side entry of the facility has a wall pack above the door with a high output. Although the entryway was bright, the surrounding areas have stark shadows. In this location, a figure could be seen standing around the corner of the building in the dark. It was hard to identify the person due to the darkness.

At Bartholomew District Park, a group of individuals were observed at the restroom and pavilion area after park curfew. At this site, restrooms and pavilion areas have the brightest light, creating a spotlight in that area.



Picture 9. Secondary entry for the South Austin Recreation Center featuring a bright wall-pack and dark corners (taken with phone, no flash)



Picture 10. A gathering of individuals at the restrooms in Bartholomew District Park after park curfew (taken with phone camera, no flash)

3.5 Park and Facilities Rules Enforcement

The loss of connection to APD and public safety authorities significantly reduced crucial support to Park Rangers and PARD staff who interact regularly with the public, including those presenting mental health crisis or violent behaviors. In January 2021, APD re-allocated its Park Police Unit to general patrol, and the transition from Parks Police to Park Ranger model was completed. Following the transition, Park Rangers and APD are no longer connected via radio channel or shared office space, and Park Rangers are to call 911 for needed assistance. Park Rangers continue to provide a presence in parks and request compliance with applicable laws, ordinances, and regulations. And safety focused or illegal activities remain under the responsibility of APD.

Existing park rules are comprehensive and codified in municipal code. It includes ordinances prohibiting camping and overnight use, camping in public areas, and ejection from facilities due to disruptive behavior, among others. Each section of this report indicates a poor enforcement of adopted and publicized park rules by the City of Austin. In practice, there is limited action that Park Rangers or PARD staff can take when an individual repeatedly violates park or facility rules, and APD response times have varied from a few minutes to hours, depending on the severity of the incident.

There are legal options for PARD to ban persons beyond the remainder of the day if an individual is asked to leave the premises three times within a six-month period; the PARD Director, Site Supervisor, and Park Rangers have the authority to issue Criminal Trespass Notice (CTNs) if staff provide appropriate documentation and information. Even so, issuing CTNs in response to noncompliant and nonviolent behavior requires staff to obtain legal identification from the individual, which only APD have the authority to enforce [6]. Consequently, PARD seldom employs CTNs to ban individuals who consistently violate park or facility rules. As a result, issues with individuals known to be problematic often persist.

Park signs currently lack contact information or unique identifiers, such as a number or code, for reporting issues such as illegal dumping, household trash, encampments, or other security-related concerns. Additionally, there is no comprehensive trail or location marker system used in PARD parks, trails, and green belts to enable the public to provide precise location identification when making reports. Just 21 Park Rangers cover 355 parks, which includes 17,000 acres across 271.8 square miles. It is essential to engage the public to help with monitoring and reporting to achieve safe and clean parks at the city level.

4. Recommendation Development

To minimize potential risks, a comprehensive set of recommendations has been developed through a rigorous process that draws from a variety of sources and expertise. Primarily, they are rooted in a thorough examination of mitigation strategies implemented in similar recreational areas and parks. By studying the approaches and measures that have proven effective in comparable settings, we gain valuable insights into what strategies are likely to succeed.

Furthermore, our recommendations are grounded in what is widely recognized as good industry practice. This entails studying best practices and standards to ensure that our recommendations align with established benchmarks.

4.1 Core Security Principles

The core principles of security, as depicted in Figure 10, are deter, detect, delay and deny. These elements, which are often referred to as the "4 Ds" of security, are essential in establishing effective security measures and strategies.

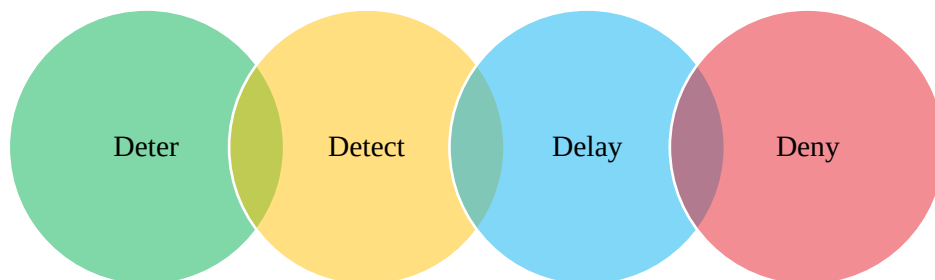


Figure 10: Core security principles

The 4 Ds of security are defined as follows.

Deterrence: The principle of discouraging potential threats or adversaries from taking harmful actions. The idea is to create an environment or implement measures that make it clear to would-be attackers that the risks and consequences of their actions outweigh any potential gains. Deterrence can be achieved through visible security measures, such as surveillance cameras, security personnel, warning signs, and access control systems. The goal is to emphasize that any attempt to breach security will likely result in failure or apprehension.

Detection: Involves the ability to identify and recognize security threats or breaches as they occur or before they escalate. Detection mechanisms can include alarm systems, motion sensors, intrusion detection software, and security personnel trained to spot unusual behavior or incidents. Early detection is crucial because it allows for a rapid response to mitigate the threat and minimize potential damage or harm.

Delay: Measures are designed to slow down or impede the progress of an attacker or threat, providing additional time for detection and response. Examples of delay tactics include physical barriers like fences, locked doors, reinforced windows, and security protocols that require multiple steps for access. Delaying tactics aim to buy time for security personnel or law enforcement to arrive and address the threat.

Denial: The principle of preventing unauthorized access or entry into secure areas. This involves implementing strict access controls, authentication procedures, stationed security guards or local law enforcement, and physical barriers that limit or deny entry to unauthorized individuals. Denial measures ensure that only authorized personnel or entities can access sensitive or protected areas, reducing the likelihood of security breaches.

These four principles work in conjunction to create a comprehensive security strategy. Deterrence sets the tone by discouraging potential threats, detection identifies them early, delay tactics provide time for a response, and denial ensures that unauthorized access is minimized or prevented altogether. Effective security often relies on a combination of these principles tailored to specific security needs and environments to create a robust and layered defense against potential threats.

4.2 Safety and Security by Design

Safety and security by design utilizes a multidisciplinary approach to reducing crime or unwanted behaviors through the use of the built environment. Its principles are based on the idea that through proper planning and design, we can influence human behavior and either encourage or deter criminal activity. Figure 11 depicts the basic principles of safety and security by design.

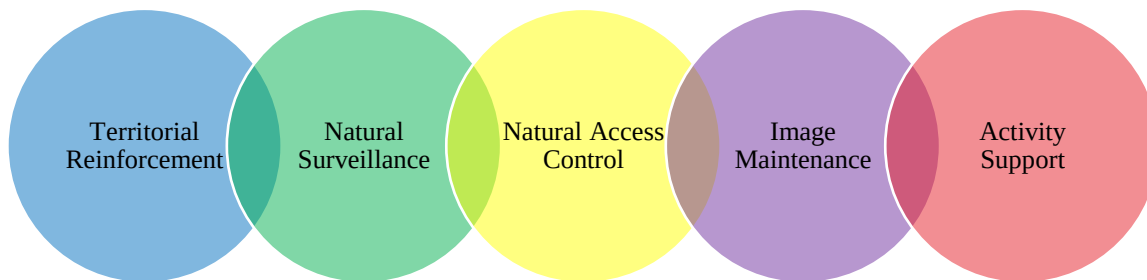


Figure 11: Basic principles of safety and security by design

The basic principles of safety and security are defined as follows.

- **Territorial Reinforcement:** Establishing clear boundaries to increase a sense of ownership and responsibility.
- **Natural Surveillance:** Designing spaces to maximize visibility, making it easier for people to observe and report suspicious activities.
- **Natural Access Control:** Develop well-marked entrances, exits, and landscaping to improve or limit access to certain areas, allowing for the naturally funneling of people through designated points.
- **Image Maintenance:** Ensuring that spaces are well-maintained and managed to discourage criminal activities and promote a positive atmosphere.
- **Activity Support:** Creating spaces intended for gatherings and activities, making it a less hospitable environment for a bad actor since their actions will be seen.

4.3 Phase of Implementation

To mitigate the issues derived from the security audit detailed in Section 3, Arup has established a phasing for which security recommendations should be implemented in accordance with PARD asset groups. These recommendations are categorized based on priority (high, medium, and low) in consideration of implementation levels, projected timelines, demand, and relative costs. Determination of priority level by recommendation is dependent on the following criteria.

- **High Priority:** Recommendations that require immediate action are defined as high priority. For instance, recommendations that center on overarching leadership and security management roles and responsibilities are considered high priority. This includes administrative reorganization of security objectives and PARD-wide implementations in collaboration with adjacent agencies to establish uniformity across PARD assets. Asset specific recommendations with low costs and immediate turn arounds to existing security concerns are also categorized as high priority items. Recommendations with greater costs and longer timelines are considered to be high priority if they offer wide-ranging solutions to various security concerns for a given PARD asset.
- **Medium Priority:** Recommendations that allow for a prolonged response while high priority recommendations are being implemented are defined as medium priority. These recommendations require a more advanced or otherwise longer-term implementation timeline with mitigation solutions to specific security issues. This includes mitigations with operationally dependent and site-specific recommendations that should only be considered on an individual site demand basis.
- **Low Priority:** Recommendations that are good industry practice but are not necessary to uphold baselevel asset security are defined as low priority. These recommendations are associated with large costs and/or convoluted implementation requirements with limited or localized mitigation objectives. While ultimately beneficial to the site, these mitigations detail more rigorous security planning and a

higher level of site protection than is demanded by the current asset conditions. These recommendations should only be considered in addition to higher priority solutions in the event of excess funding.

A unique identification number is provided for each recommendation to serve as an internal tracking number for collaboration while also providing an order of operation for sequential recommendations. Further groupings are formulated in accordance with the following subjects to provide additional context into the specific recommendations. These additional categories are intended to aid in the ultimate selection of recommendations for PARD Leadership as well as asset specific mitigations.

4.3.1 Implementation Level

Implementation level, or projected timeline, is divided into the following four categories.

- **Immediate:** Recommendations that can be instantly applied with little planning or collaboration needed for implementation. These include securing facility points of entry and providing single item purchases.
- **Shorter-Term:** Recommendations that require limited coordination to establish within the year. These include additions to existing operational procedures and generic design considerations.
- **Longer-Term:** Recommendations that require intensive planning and coordination for implementation. These include new construction projects and redesign of existing amenities.
- **Advanced:** Recommendations that require cross-functional collaboration either internally or with adjacent agencies. These include establishing universal guidelines and operational redesigns.

4.3.2 Recommendation Type

Recommendations are further grouped by the overarching type of mitigation addressed by the recommendation. This denomination is reflected by the initial letter of the corresponding identification number for internal tracking purposes. An additional recommendation sub-type is also provided for supplementary context.

5. Security Audit Key Recommendations

Recommendations to security and lighting concerns are developed in accordance with the key findings derived from the conducted security audit captured in Section 3. These recommendations are based on established industry practices and guidelines relative to observed site conditions and communicated concerns from PARD stakeholders and adjacent agencies. All security and lighting recommendations are compiled into a corresponding Recommendations Matrix detailing the specific recommendation along with its application, implementation phasing, and cost type. This comprehensive matrix is captured in its entirety in Appendix D.

As detailed in Section 4.3, recommendations are categorized into three separate levels based on implementation prioritization (high, medium, and low). Recommendations are further defined based on their applicability to specific asset groups as defined in Table 1. This is intended to allow for ease of implementation across PARD assets with some recommendations being specifically tailored towards particular asset groups while others encompass PARD-wide implementations.

Note that selection and application of these recommendations must be conducted in accordance with the restrictions of city budgeting relative to expected costs.

5.1 Security Recommendations

Security recommendations are intended to address both overarching leadership concerns as well as site specific issues. These recommendations are defined herein based on their operational and capital investment disposition. The complete list of security recommendations is captured in the *PARD Security Audit Recommendations* matrix included in Appendix D.1.

The associative costs of all priceable security measures outlined in the Recommendations Matrix are captured in a corresponding cost matrix titled *PARD Security Costing*. The Cost Matrix should be read in conjunction with the Recommendation Matrix to determine the feasibility of security implementation relative to budgetary constraints. The complete Cost Matrix is captured in Appendix D.

5.1.1 Operational Recommendations

Operational security recommendations are intended to be broad, overarching mitigations intended on establishing uniformity across all PARD assets. It is highly recommended that PARD hires and maintains a Security Director to assume the responsibility of establishing PARD-wide security guidelines in collaboration with PARD stakeholders, APD, Austin Fire Department (AFD), Austin Transportation and Public Works (ATPW), HSO, PARD leadership, Park Rangers, and any other key adjacent entities or agencies. The primary role of the Security Director is to develop city-wide security objectives, procedures, strategies, and trainings across all PARD assets. Preferably, the Security Director is an individual who is already established within the Austin political landscape and is familiar with current institutional knowledge. Although indicated within current City of Austin security job titles as Physical Security Systems Administrator, Security Coordinator, Security Manager, Security Operations Supervisor, and/or Security Supervisor, it is highly recommended that the individual be hired at director level and manage the above listed positions. Recommended qualifications for the Security Director role can be found in Appendix D.2 in this report.

To help administer the approved upon security guidelines to individual assets, it is also recommended that a Physical Security Systems Administrator, Security Coordinator, Security Manager, Security Operations Supervisor, or Security Supervisor be hired. The primary role of this individual will be to facilitate the developed and approved guidelines, procedures, and trainings under the direction of the Security Director to all Division Managers. This person is also intended to conduct annual security audits to evaluate implementation across all PARD assets. Ideally, this person would be an internal hire who is already familiarized with the existing PARD layout.

Security measures shall be managed by PARD Division Managers and site supervisors with Park Rangers assisting as needed for enforcement as a line in the chain of escalation for behavioral conduct of a site. Park Rangers shall serve as a link to law enforcement to assist site supervisors and/or in lieu of site supervision when it is unavailable.

Note that both the Security Director and security administrative person will require an undefined amount of additional staffing to support and administer the approved upon security guidelines across all PARD assets. Although large in scope, these operational recommendations to PARD leadership are intended to establish a more uniform and constructive application of security measures on a city-wide basis. The costs associated with these recommendations include both the direct hire of the Security Director and security administrative person as well as any necessary staffing to aid in the implementation of their assigned roles and responsibilities.

5.1.1.1 Roles and Responsibilities

It is intended for the Security Director and SOM roles to work directly with PARD stakeholders and Division Managers to ensure uniform communication and implementation of security objectives, procedures and trainings across all PARD assets. It is their responsibility to head direct collaboration with all adjacent agencies including APD, AFD, ATPW, HSO, HOST and any other relevant entities. Recommended roles and responsibilities within PARD are outlined in the organization chart depicted in Figure 12.

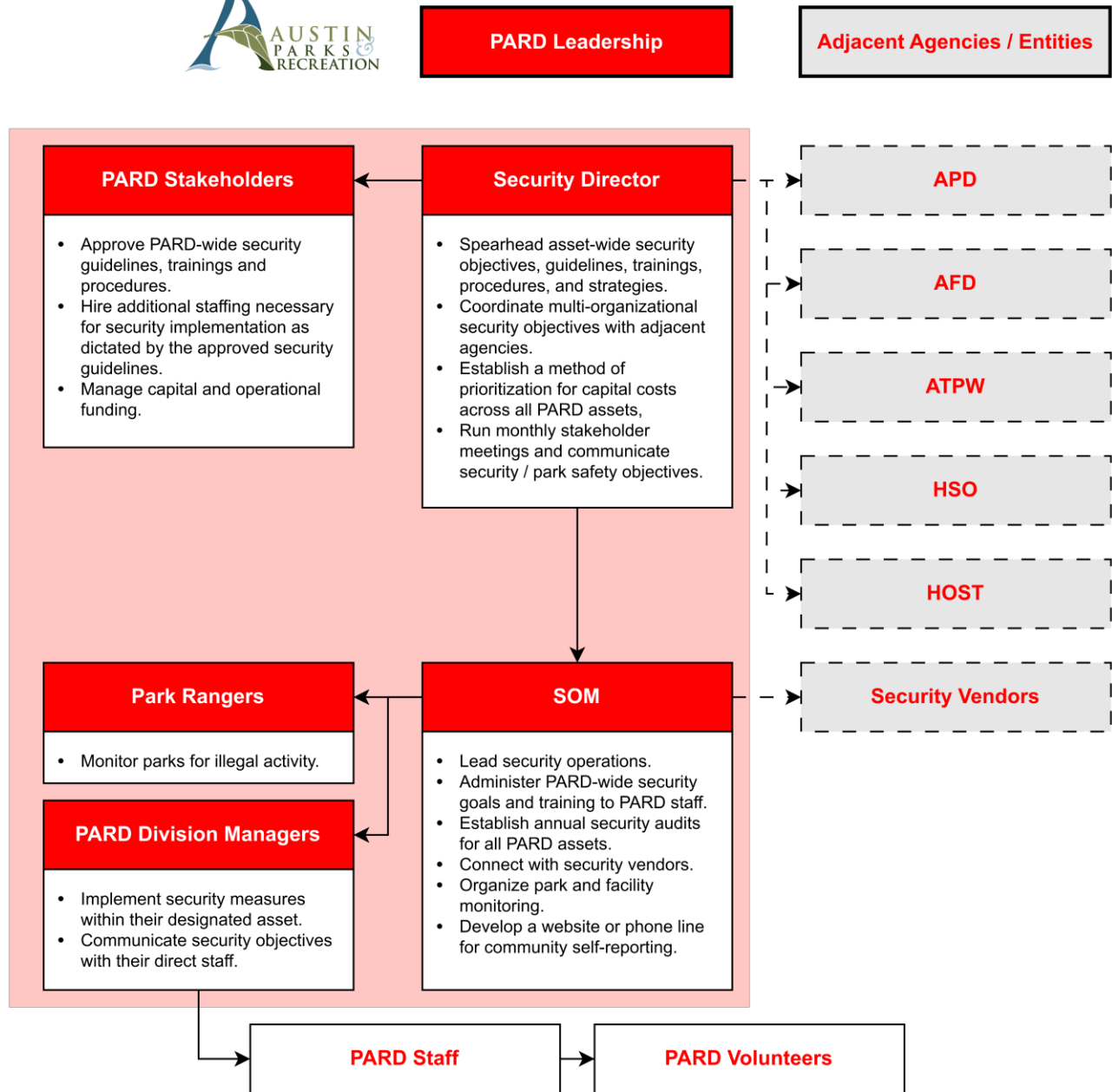


Figure 12. PARD organization chart based on security recommendations

As listed in Figure 12 above, the Security Director is recommended to lead monthly meetings with public safety partners and PARD stakeholders, including APD representatives, HSO representatives, Park Rangers, and PARD Leadership to coordinate on public safety strategies, plans of action, and general security information sharing. Each meeting shall have the following format (or equivalent) to ensure productivity.

- Security Director to present monthly and annual security and park safety objectives.
- SOM to provide updates and review existing security implementations and efficiency across PARD assets. Assets that are performing above expectations shall be highlighted for example. Assets that are experiencing security difficulties shall be reviewed for potential solutions.

- APD, HSO, Park Rangers, and operational units of PARD to express critical concerns and difficulties in security implementation and communicate any questions or concerns over defined objectives.
- Security Director to establish actionable goals to be achieved by next meeting.
- SOM to ensure security objectives are administered to every PARD asset in an efficient and uniform manner. All PARD assets shall receive an equal level of communication on critical goals and takeaways from security operations meetings.

Collaboration with APD is crucial to the success of PARD in meeting their safety and security goals. The loss of direct communication with APD in 2021 has deprived Park Rangers and PARD staff of critical support from public safety authorities, resulting in significant delays in response times, including incidents involving life safety. Considerable effort and dialogue are required to develop a new framework for collaboration between PARD and APD. Meanwhile, it is recommended that mutually agreed-upon protocols are established.

- Establish a clear and efficient protocol for PARD staff to report observed infractions and for APD to respond in a timely manner.
- Reinstate or formalize APD patrol presence in parks.
- Establish joint training programs and scenario planning to better enable Park Rangers to handle an escalating situation.
- Collaborate on data sharing and incident tracking so that both parties can utilize the latest available data in identifying trends and evaluate the effectiveness of interventions.
- Engage with community collaboratively and with transparency. Public trust is essential for both departments, and community members will need to see that safety concerns are being addressed collaboratively.

5.1.1.2 Image and Management / Maintenance

In addition to operational recommendations within PARD Leadership, it is also advised that the Security Director develop PARD-wide management and maintenance procedures to create a uniform approach towards upholding park and facility image. Proper maintenance helps deter criminal activity and ensures that the physical environment remains in good condition. When a space is not properly maintained, it gives the appearance that nobody is overseeing the space and that there is a lack of ownership.

A space that is maintained through trash removal, trimming or pruning overgrown vegetation, and repairing or replacing physical elements that are weathered or vandalized, provides a clear and visual message that the space is being monitored and unwanted acts will not be tolerated. This will also serve to better activate the space by attracting park and facility patrons to utilize the space.

5.1.2 Capital Recommendations

Capital security recommendations are intended to be site specific, with implementation directly tied to the demands and security concerns of individual PARD assets. Broadly, capital recommendations for security mitigations can be summarized by the following products.

5.1.2.1 Fencing

Perimeter fencing around a PARD asset or designated subspace is a key aspect of establishing territoriality, access control, and wayfinding within a given area. Fencing is a feasible recommendation for smaller areas with limited points of entry. Unless used to prevent access into a secured area (e.g., maintenance facility, storage area, etc.), fencing does not require force entry protection or additional security measures. Rather, fencing can be used around public access spaces as a visual deterrent for crime such as vandalism or loitering. Examples on non-rated fencing to establish territoriality and wayfinding are captured in Figure 13.



Figure 13. Examples of park fencing

5.1.2.2 Access Control Gates

Access control is designed to keep unauthorized persons out of an established area through the use of fencing, natural barriers, gates, and landscaping. Pedestrian and vehicular gates help to establish access control into a designated space by establishing a clear boundary of entrance. Gates are intended to be closed and locked outside of hours of operation in order to secure the area and dissuade trespassing. Locks should be designed to be weather resistant and resist physical tampering. Pedestrian gates are to be of equivalent height to adjacent fencing. Vehicular gates are to be non-impact rated, and essentially serve as visual deterrents for overnight vehicle entry. Standard chain-link or aluminum pipe gates or heavy-duty steel chains secured by pad locks are acceptable methods for vehicle access control. An example of a non-rated vehicle access control gate is provided in Figure 14.

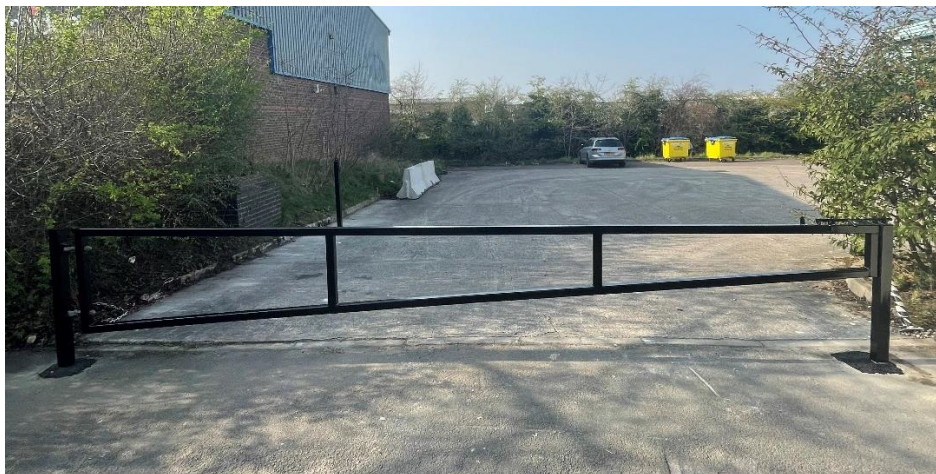


Figure 14. Example of non-rated vehicle access control gate

5.1.2.3 Signage

Extensive signage with PARD rules should be provided at all park and facility entrances, parking lots, recreation spaces, amenities, and trail heads. Signage is used to establish ownership of a designated space while enhancing access control and territoriality. Signage should be composed of robust, vandal resistant materials (e.g., stone, concrete, wood, etc.) to prevent damage or graffiti. Note that signage is only as effective as the enforcement emplaced to support it.

Examples of existing clear and robust signage within PARD assets are captured in Figure 15. As shown, West Bouldin Creek Greenbelt displays a comprehensive trail map with rigid wooden materials to better resist vandalism. Similarly, the 125 Large Welcome Sign design included as part of PARD's 2023 *Signage and*

Wayfinding Guidelines provides a suitable template for future park entrances. Other smaller signage design templates (such as the 165 Single Rule Panel and 170 Small Regulatory designs), while comprehensive and aesthetically pleasing, may give way to vandalism given their slender dimensions. It is recommended that robust, vandal resistant materials be used for *all* signage to deter futural vandalism and other damage.



Figure 15. Examples of existing park entry signage in West Bouldin Creek Greenbelt (left) and 125 Large Welcome Sign design template from the PARD 2023 Signage and Wayfinding Guidelines (right)

5.1.2.4 Video Surveillance

Video surveillance cameras serve as an efficient deterrent to illegal activities, such as vandalism, theft, break-ins, and/or assault. Individuals are less likely to commit crimes if they believe that they are being watched or that their activities are being recorded. Recorded video can provide critical information during an investigation of incidents, accidents, or criminal activities.

Live video surveillance can allow for PARD to observe an area remotely and respond quickly to any suspicious or emergency situations. In the event of an emergency, such as a medical incident or criminal activity, surveillance cameras can help responders locate the incident quickly and assess the situation before arriving on the scene. Utilization of analytics and artificial intelligence (AI) to assist with video surveillance can also provide for unmanned live surveillance with automated reporting of alarms to responders and division managers. Figure 16 showcases examples of wall mounted cameras on exterior facility walls and light pole mounted cameras for parking lots.



Figure 16. Examples of wall mounted (left) and light pole mounted (right) video surveillance cameras.

5.1.2.5 *Clear Lines of Sight*

Providing clear lines of sight will promote a sense of safety for the public by having unobstructed and well-defined sightlines. This enables individuals to see and be seen clearly across different areas, enhancing visibility and natural surveillance. The goal is to minimize hiding spots, blind spots, and shadowed areas to eliminate locations where potential perpetrators can lay in wait and/or where illegal and unwanted acts can take place. Individuals are less likely to engage in illegal actions when they know they can be easily observed by others.

In addition to deterring criminals, clear lines of sight also enhance the perceived safety of an area. When people can see clearly from one point to another, they feel more comfortable and secure. This sense of safety encourages individuals to use and occupy public spaces more freely, promoting community engagement and social interaction. An example of a park pathway with clear lines of sight are depicted in Figure 17.

While these vegetation standards are recommended to safeguard *all* spaces from potential security risks brought about by over vegetation (i.e., creating blind spots for loitering, drug use, and/or other crimes), it is understood that budgeting constraints and/or a desire for preserving natural areas may limit the feasibility of its intended scope. Thus, it is recommended that vegetation maintenance be recommended everywhere but prioritized in areas of expected foot traffic such as along trails, around facilities and amenities, and surrounding active and passive recreation spaces.



Figure 17. Example of a park pathway with clear lines of sight

5.1.2.6 *Natural Surveillance*

Natural surveillance provides a sense of passive monitoring in a space by increasing the amount of foot traffic in an area, thus making users of the space gain an additional sense of safety. Potential perpetrators are less likely to

conduct illegal activity if they believe someone within the space will observe or notice their actions and take action (either by direct interference or contacting the police).

Positioning seating, recreation spaces, and amenities along travel paths helps to promote natural surveillance throughout a space by increasing the frequency of use. Figure 18 provides examples of natural surveillance generation along a park path through the use of seating and recreation spaces. Note that given the excessive heat in Austin, it is recommended to provide shading over seating to make the space more inviting and therefore a better agent of natural surveillance. Shade provided by trees is acceptable so long as it is properly maintained to the requirements set by the vegetation standards.



Figure 18. Examples of seating (left) and recreation spaces (right) along park paths to promote natural surveillance

5.1.2.7 Anti-Vandalism Materials

Anti-vandalism materials are recommended to benefit the integrity and aesthetics of facilities and exterior amenities. The use of anti-vandalism materials can help protect physical property from defacement and damage, preserving its aesthetics while reinforcing a sense of continuous observation and maintenance. A well-maintained space, aided with the use of anti-vandalism materials, will convey a sense of care and vigilance by PARD. This positively influence how people perceive the security of the area and that unwanted behavior such as vandalism will not be tolerated.

Clear anti-graffiti epoxies and polymer coatings can be applied to surfaces for ease of graffiti removal. These coatings create a clear, non-stick layer on exterior walls to prevent paint or markers from permanently bonding to the surface material. This allows graffiti to be washed off with simple pressure washing or hand scrubbing rather than requiring re-painting or abrasive cleaning methods. Vandal resistant coatings can also help protect surfaces from weathering or accidental damage. Figure 19 depicts an example of removing graffiti from an exterior brick façade with an anti-graffiti coating using a standard power washer. Note that continual maintenance is still required to both remove existing graffiti and re-apply the anti-graffiti coating for future ease of removal. While this will require an additional operational cost to complete, it is intended to deter future vandalism from occurring in this location by establishing a clear message to potential vandals that graffiti will be promptly and continuously removed from the premises.



Figure 19. Example of graffiti removal from an exterior surface coated with an anti-graffiti epoxy

Alternative recommendations to combat graffiti include replacing flush exterior walls with textured facades or live green walls (e.g., vines, ferns, moss) to dissuade vandals from painting on a flat canvas. An additional setback can also be established using thorny plants around the base of the exterior wall to prevent ease of access for vandals. Refer to the *PARC Security Audit Recommendations* matrix outlined in Appendix D for a comprehensive list of anti-vandalism recommendations.

5.1.2.8 Commissioned Art

Utilizing commissioned art (e.g., murals, sculptures, wall-art) in public spaces on exterior surfaces and PARC owned storage containers offers numerous benefits that can enhance aesthetic, cultural, and social aspects of a community. Commissioned art also serves to deter vandalism and other illegal activity such as theft or drug use by creating a sense of ownership and care for the space. Benefits of providing commissioned art are as follows.

Graffiti Deterrence: Commissioned art can act as a powerful deterrent to graffiti vandals. When walls are adorned with visually appealing, high-quality artwork, vandals are less likely to deface them with graffiti, as there is often a respect among artists.

Community Pride: Public art can instill a sense of pride and ownership among community members, while also providing an opportunity for cultural expression and storytelling. Artists can incorporate elements of the local culture, history, and heritage into their work, fostering a sense of identity and belonging. When local artists are involved in creating the art, the community often feels a deeper connection to the area and are more likely to take pride in its appearance and not tolerate vandalism.

Crime Reduction: By reducing graffiti or otherwise unattractive designs, commissioned art can contribute to a decrease in overall crime rates. Graffiti-covered or weathered walls can create a sense of neglect and disorder, which can attract additional criminal activities such as theft or drug use. When these spaces are transformed with art, it sends a message that the community cares about the space and establishes a sense of ownership and maintenance.

Cultural Attraction: Public art can serve as a cultural attraction, drawing tourists and visitors to the area. Cities and neighborhoods known for their vibrant street art scenes often become destinations for art enthusiasts.

Education and Inspiration: Public art can serve as an educational tool, inspiring creativity and sparking interest in the arts among children and young people. It can also introduce residents to new artistic styles and perspectives.

Figure 20 showcases the use of commissioned art in the Leak Street Tunnel in London. As shown, the project employed local artists to transform an otherwise unattractive space susceptible to crime into a cultural landmark.

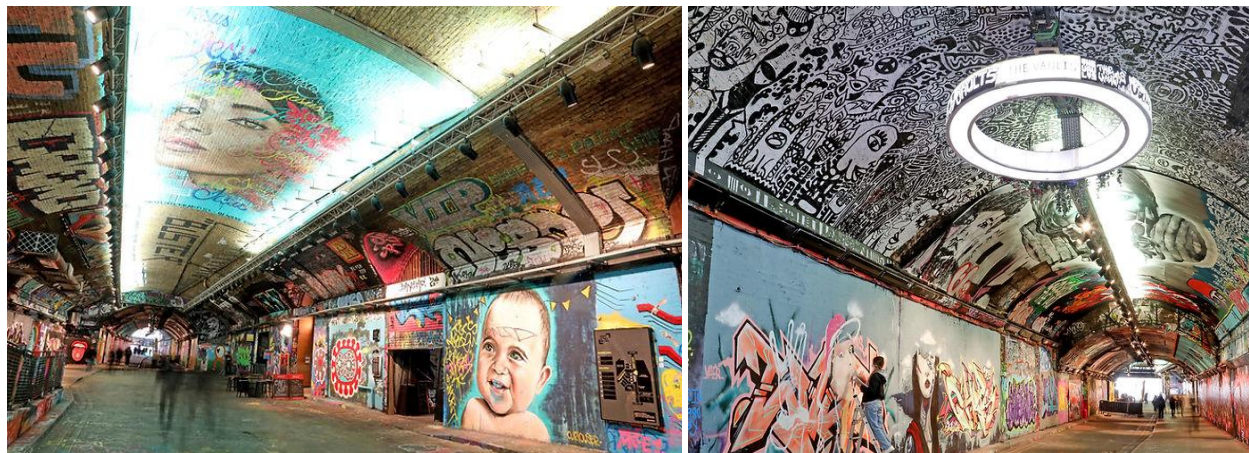


Figure 20. Leake Street Tunnel (London, England)

5.1.2.9 Location Markers

Location markers should be placed along paths and trails, at access points and trail heads, and around large recreation areas to provide the public with a unique position identifier, such as a mile marker. A location marker proves an individual a specific reference point to identify where they are when they call emergency services for help. This in-turn helps emergency services identify and dispatch to the correct location for a timely response.

Examples of existing proactive location markers within PARD assets are showcased in Figure 21. As shown, both Mayfield Park and Pease Park Conservancy exhibit robust signage that serve as effective location indicators for public reference. These location markers also serve to deter vandalism when compared to traditional signage given their rigid materials and robust design. For additional reference, PARD's 2023 *Signage and Wayfinding Guidelines* provides legible and aesthetically pleasing mile marker templates in their 155 Trail Marker Post and 160 Trail Marker with Flag designs.



Figure 21. Examples of existing location indicators in Mayfield Park (left) and Pease Park Conservancy (right)

In addition to a legible and robust design, some variation of a numerical identification system is also recommended for public reporting of crimes or security concerns. A park patron should not only be able to pinpoint their position from a wayfinding standpoint but also identify the exact location indicator to which they are referencing. Figure 22 provides examples of location indicators with sign-specific identification numbers within park systems.



Figure 22. Examples of location indicators with unique identification numbers along trails

5.2 Lighting Recommendations

These recommendations are intended to act as a guide for those implementing or replacing lights at PARD Parks and Facilities. Recommendations for lighting parks and facilities were determined using the assessment types as guidelines.

- All chosen luminaires are to be dark sky friendly. Dark sky friendly luminaires are designed to minimize light pollution by reducing glare and preventing light from spilling into unwanted areas. They typically feature full cut-off fixtures that direct light downward, ensuring it doesn't scatter into the sky. These luminaires also use warmer color temperatures to reduce the impact on nocturnal wildlife and improve visibility of the night sky.
- In areas that require ecological preservation the priority is not implement any lighting. However, if required for safety reasons, lighting should be limited to minimum (quantity and specially regarding lighting levels) and amber lighting shall be implemented. Amber LED lights are less disruptive to wildlife, especially nocturnal animals like sea turtles, bats, and insects. These animals are sensitive to blue and white light, which can interfere with their natural behaviors. Amber lighting helps minimize this disruption, supporting healthier ecosystems, amber light should be provided at lower level, such as bollards and path light to reduce the disturbance. Birds, however, are attracted and disoriented by lighting close to red spectrum, selecting the correct color on the spectrum is key for environmental discussion. Furthermore, as stated above, if lighting is not required for safety reason at those location, the best approach is not illuminated the park.
- The color temperature of fixtures is to be between 2700K and 3000K. Lighting with CCT below 2700K (amber light) is not recommended as standard products cannot offer a CRI above 80 and can compromised the human perception of safety. LED lighting products that offer CCT lower than 2700K are usually custom and carry an additional cost.
- The color rendering index (CRI) shall be at least 80.
- Receive input from a lighting designer at the onset of a new project. To assess where new lighting installation is required and the proper lighting level, considering the surroundings and other light sources that spill into the site.
- If lights are on a time clock, ensure that they are programmed to turn on around sunset every time there is daylight savings.
- Provide lighting for publicly accessible amenities such as charging stations. Keep private amenities that are not wanted to be used by the public in more discrete and darker areas. If existing lighting is over bright, install occupancy sensor to trigger the lights on only when necessary.

Table 3. Lighting recommendations and requirements by space type

Space Type	General Approach	Lighting Level Recommended
Pedestrian Park Access	10'-15' pedestrian light pole that can be solar or electric. - If gated, face outward with an occupancy sensor	Avg. Horizontal Illuminance: 0.5fc-1fc*
Park Center / Circulation	10'-15' pedestrian light poles at intersections, and congregation points. - Trim bushes and trees to maintain visual transparency. - Trim trees over pathways to allow for moonlight and existing lights. - Use light colored pathway materials. - Pedestrian pole lights can be trigger on/off based on timeclock or photocell, is important to keep minimum lighting from dusk to dawn or follow the park operation hours, if not sensitive area for safety the curfew hours can follow Austin Building Criteria Manual (from 11pm to 5am).	Avg. Horizontal Illuminance: 0.1fc-0.2fc** Max. Horizontal Illuminance: 5fc**
Parking Lot	20'-30' single/double headed light poles. - Parking lot should have illumination at least during the open hours for the park, after dusk and be able to accommodate special events. The lighting control system can be based on timeclock or photocells.	Avg. Horizontal Illuminance: 0.1fc-0.5fc** Avg:Min Uniformity: 10:1**
Facility Entry	- Main Entrance: One wall sconce on either side of the door. - Secondary Entry: Wall-pack on top of the door. - Canopy: Downlights under the canopy.	Min. Horizontal Illuminance: 0.1fc*** Avg. Horizontal Illuminance: 1fc*** Max:Min Uniformity: 40:1***
Arts and Culture	Uplighting aimed at statue/art during operating hours.	N/A
Signage	Illuminated signage.	N/A
Active Recreation (in use)	- Most of the field have sport lighting dedicated. The system can be manually triggered or timeclock based. - We recommend keeping at least one pole in a separate control to allow it to be on after hours (see below)	Sport lighting target varies between 50 to 100fc depending on the sport

Space Type	General Approach	Lighting Level Recommended
Active Recreation (when not in use)	Sports flood lights to keep pedestrian level lights on after hours OR keep one floodlight in the corner on at night.	Avg. Horizontal Illuminance: 0.1fc-1fc Max Horizontal Illuminance: 5fc
Passive Recreation	- Pavilions: Downlighting under the canopy - Dog Parks: Refer to Pedestrian Park Access and Park Center/Circulation - Benches: Not Required - Playgrounds: Not Required	Avg. Horizontal Illuminance: 2fc-4fc* Maximum Horizontal Illuminance: 10fc Avg:Min Uniformity: 5:1*
Park Facilities	Wall pack on top of the entryways on occupancy sensor	Min. Horizontal Illuminance: 0.1fc*** Avg. Horizontal Illuminance: 1fc*** Max:Min Uniformity: 40:1***

* IES RP-43-22 Lighting Exterior Applications.

** City of Austin Parks and Recreation Lighting Handbook and Standards.

*** 2000 International Building Code. [5]

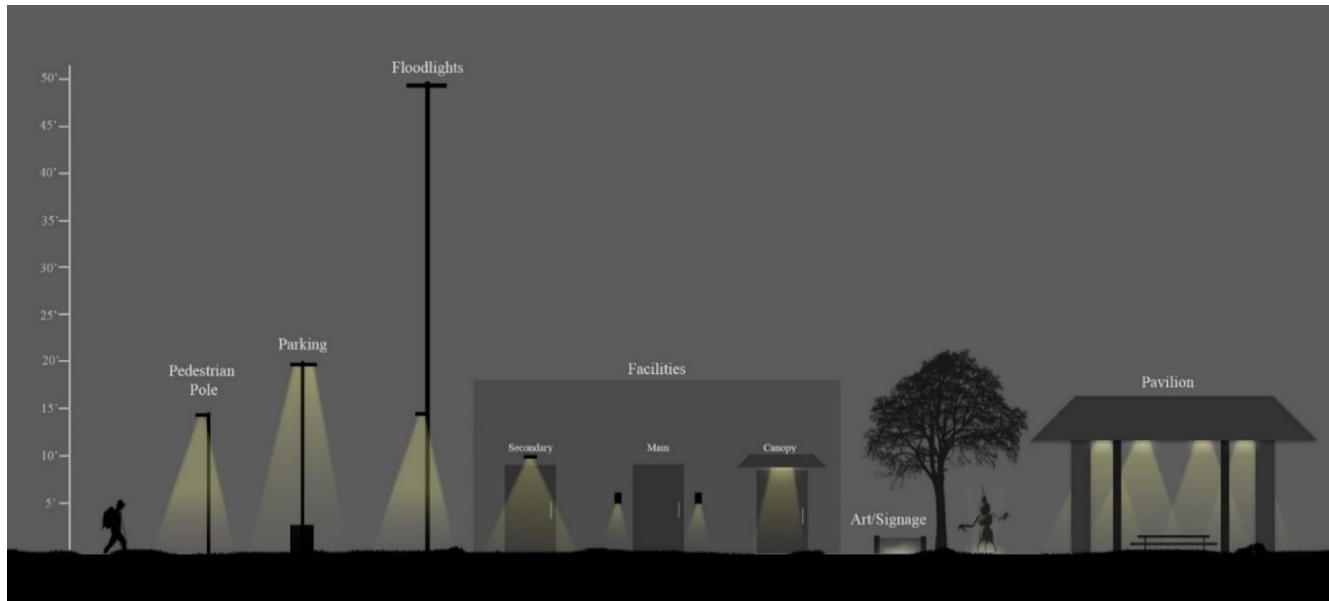


Figure 23. Lighting hierarchy for different location types in PARD parks and facilities

The recommendations above are based on available materials from the City of Austin Parks, best practices, and site observations. While the recommendations aim to address typical conditions, the most valuable outcome would be to develop a comprehensive Lighting Masterplan. This plan should include a thorough audit of all parks, detailing all conditions, not just typical ones. The Masterplan should guide Austin Parks in designing each park for the near- and long-term future, setting priorities for future upgrades and capital projects, rather than merely reacting to present demands.

6. References

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Appendix A: Desktop Studies

The purpose of this section is to establish a baseline understanding of the PARD park system, existing security countermeasures, and local threat context. Results from the baseline study were used to develop site visit objectives and a collections plan, such as identifying which physical elements need to be evaluated and documented, and determining the type of information and pictures required.

Refer to the following documents for site visit planning and schedule details, which were presented to the PARD PM Team after the completion of the desktop studies:

- 24-0829 Monthly Progress Update_Issue.pdf
- 24-0904 CofA PARD Security Audit Site Visit Planning and Schedule.pdf
- 10.17.24 Night Time Lighting Assessment.pdf

A.1 Asset Information

The PARD park system includes 355 parks, 20,041 acres of parkland, 25 recreation and senior centers, 34 pools, 11 splash pads, 3 museums, 6 cultural centers, 6 golf courses, 5 cemeteries, and 269 miles of trail. The following were referenced as part of the desktop baseline study with the goal of selecting 30 representative sites for in-person security and lighting assessments.

- CofA PARD Parks, Data Updated: August 26, 2024
- CofA PARD Facility Points, Data Updated: April 25, 2019
- CofA PARD Trail Access, Data Updated: July 5, 2022

Audit Groups by Asset Status

ASSET_STATUS (Blank) Closed Open Open Fee Open Restricted

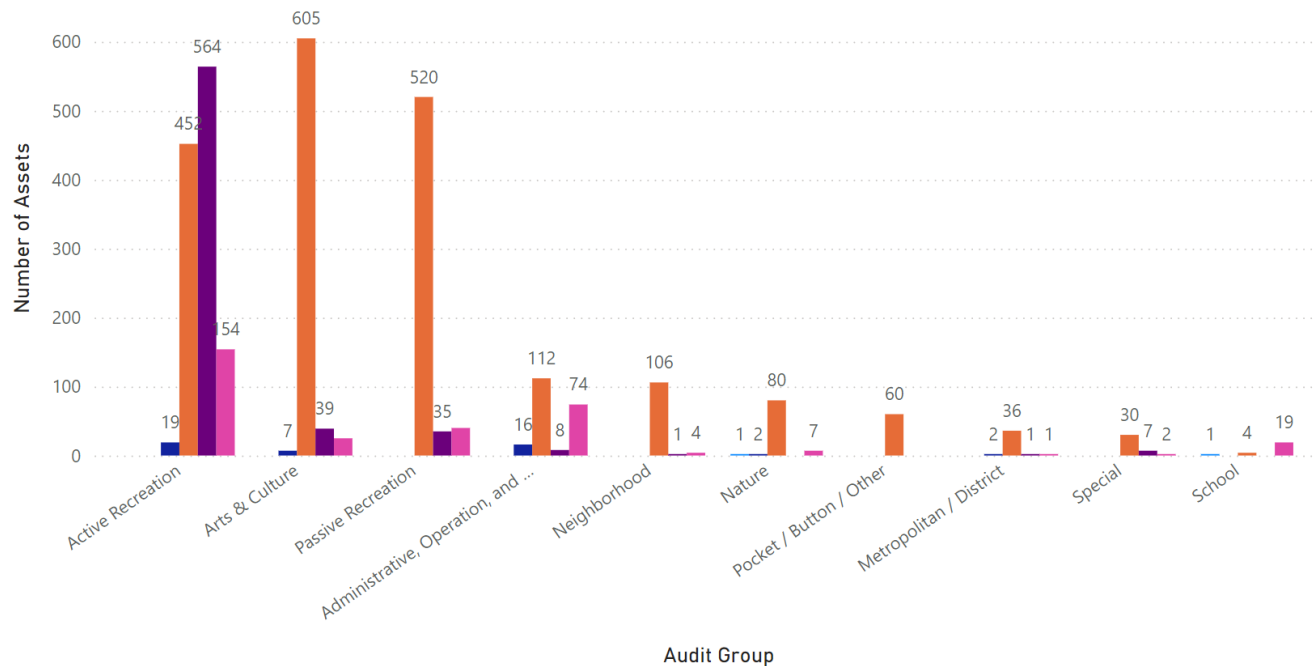


Figure A-1. Audit groups by asset status

A.2 Existing Security Measures

A.2.1 Security Policy and Procedures, Staffing, and Planning

The following are a selection of security policies and procedures documents that were reviewed to assist with the development of this report:

- Austin Recreation Center Operating Procedure, 2021
- Danny G. McBeth Recreation Center Operating Procedure, 2021
- Parks and Recreation National Resources Division (NRD) Austin Park Ranger Unit Operating Procedures, 2021
- Aquatic Division Operating Procedure, 2024
- Aquatic Division – Barton Springs Operating Procedure, 2024.

Key findings are summarized below:

- The security operations policy and procedure documents reviewed were concise, instructional, and meet general requirements for spaces providing activities to the public. However, some documents appear incomplete and lack coverage of certain emergency events that have been increasingly occurring in public areas, such as active shooter incidents.
- The NRD Park Ranger Unit operational procedures document appears to be more of an employee manual with some procedures included.
- The security operations policy and procedure documents appear to all use the same standard template, with each location policy and procedures revised as needed. This is a good approach to maintain consistency operationally.
- Many of the security operations policy and procedure documents have website links embedded. This is helpful if read from an electronic device, but in the event of an incident and hardcopies are distributed, the links are not useful. This may also present confusion for the person referring to it for information.
- No information regarding automated external defibrillator (AED) devices were provided.

A.2.2 Lighting Handbook and Standards

The PARD Exterior Lighting Handbook and Standards is the guiding document referenced for installing lights in new or existing PARD facilities and parks. Upon reviewing the standards and current usage, the following observations were noted.

- Few facility and park operators and staff know that the standard exists. Because the handbook is not an easily accessible resource, the process of adding lights throughout all the sites is not uniform and lack official direction.
- The handbook is typically only used as a reference for new builds. However, the contents of the handbook suggest intent to be used for maintenance and improvements to lighting at existing sites.
- The lighting policy lacks clear guidelines on what type of light fixtures need to be used in certain applications. Most of the maintenance for light fixtures is reactionary, so having a guideline with clear instructions on what to do for certain applications would be beneficial.
- From site observations, there are some instances where the lighting did not comply with the standards in the handbook. Some light levels either exceed or do not reach recommended levels of light.

- There are recommended brands for security lighting, but there are not recommended products associated with each brand. It would be useful to provide a list of products at different price points to choose from, so anyone with limited lighting knowledge is able to pick an appropriate product.
- PARD Lighting Handbook specifies an ongoing annual funding of \$115,000 to address lighting for security reasons.

A.3 Safety and Security Threat Environment

Crime analysis using both APD and Park Ranger Operations data was conducted to understand the local threat context and their impacts to the park system.

A.3.1.1 Austin Police Department Citywide Crime Data

Crimes against property tend to occur at a higher frequency in high density, heavily travelled urban areas within Austin, such as Downtown Austin and the eastern side of Interstate 35, as shown in Figure A-2. Larceny accounts for roughly 50% of all citywide crimes against property, followed by fraud, vandalism, and motor vehicle thefts. Austin experienced 745 arson incidents from 2019 to 2023 (19.1 per 100 thousand people), higher than the national average of 13.9 per 100 thousand people [7].

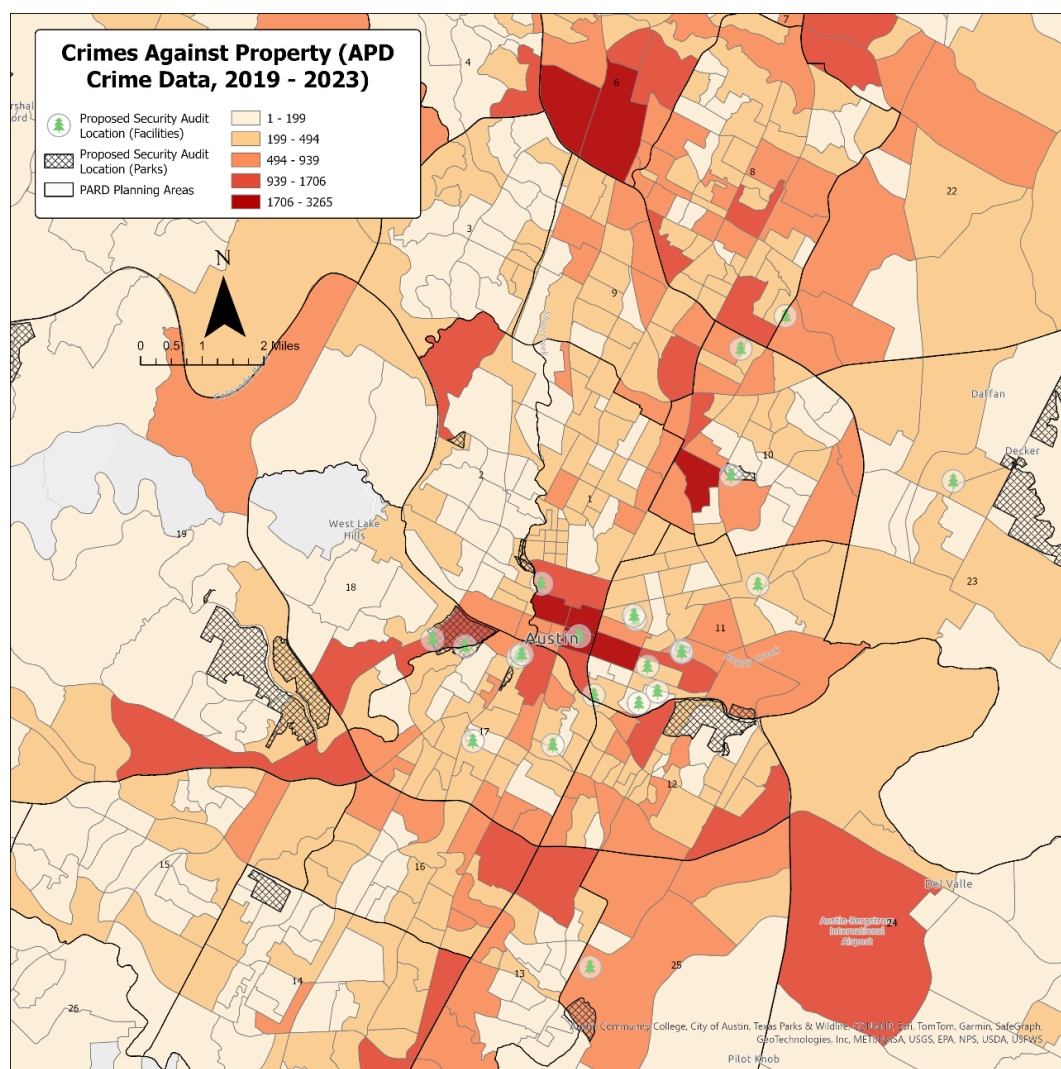


Figure A-2. Crimes against property, APD crime data by census blocks, 2019 – 2023

APD crime data classifies crimes against property as the incident types listed in Table A-1 [7].

Table A-1. Crimes Against Property Type and Counts, APD Crime Data (2019 – 2023)

Crimes Against Property Type	Count
Arson	745
Bribery	8
Burglary/Breaking & Entering	20,605
Counterfeiting/Forgery	4,184
Destruction/Damage/Vandalism of Property	29,726
Embezzlement	65
Extortion/Blackmail	137
Fraud Offenses	28,869
Larceny/Theft Offenses	110,791
Motor Vehicle Theft	23,799
Robbery	4,387
Stolen Property Offenses	46

Similar to crimes against property, crimes against persons occur at higher rates in Central Austin, such as the areas between Interstate 35 and Congress Ave and Cesar Chavez Ave and 6th Street. Assault (aggregated and simple) and sex offenses are the highest occurring crimes against persons, accounting for over 90% of crimes against persons. Austin’s homicide rate of 8.85 per 100 thousand people is slightly higher than statewide rates (6.7 per 100 thousand people) and the United States overall (6.3 per 100 thousand people); however, this rate is expected to be slightly higher due to the urban setting and higher population density [7].

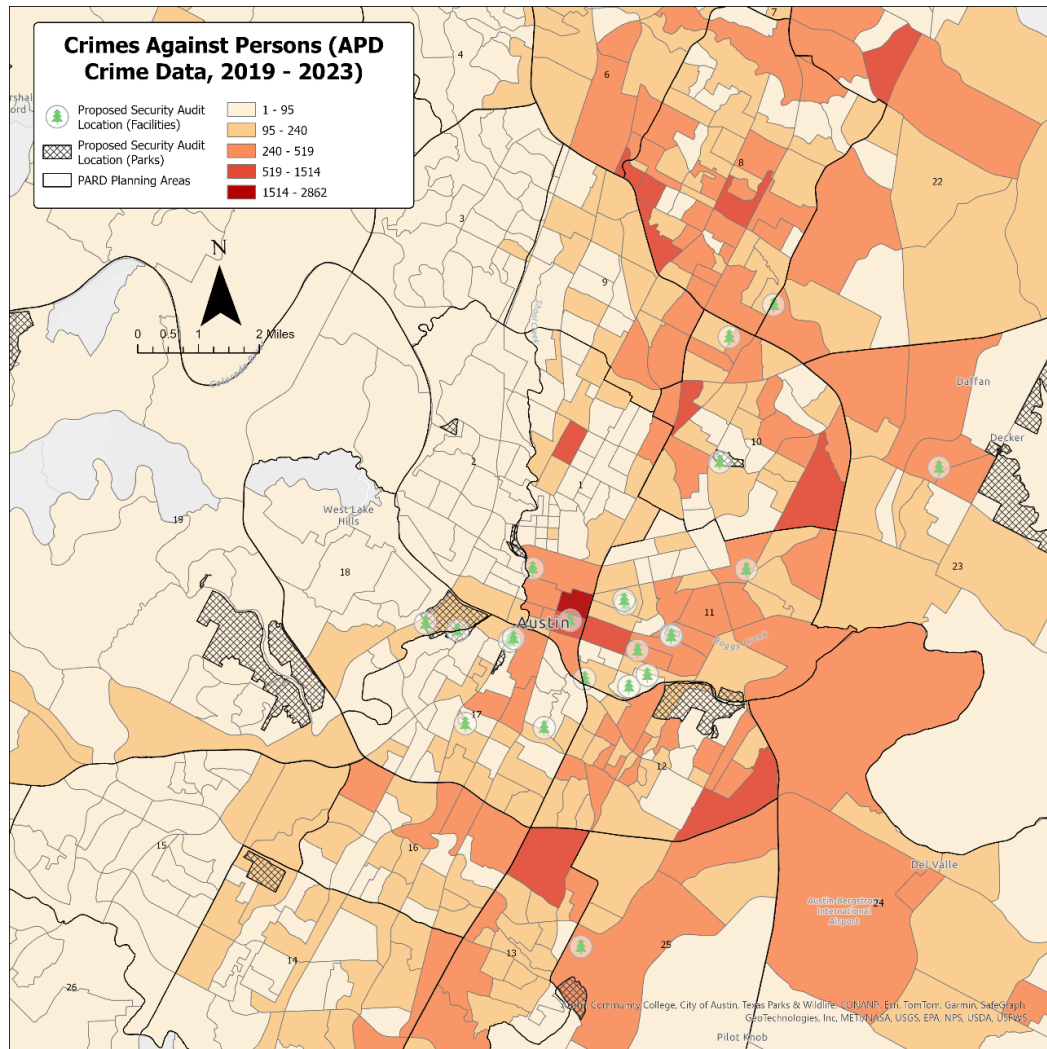


Figure A-3. Crimes against persons, APD crime data by census blocks, 2019 – 2023

APD crime data classifies crimes against persons as the incident types listed in Table A-2.

Table A-2. Crimes against persons type and counts, APD crime data (2019 – 2023)

Crimes Against Persons Type	Count
Assault Offenses	83,609
Homicide Offenses	345
Human Trafficking	30
Kidnapping/Abduction	1,009
Sex Offenses	4,016

A.3.2 Austin Police Department – Crime Data within 50 feet of Parks

This section presents an analysis focused on APD crimes reported within 50 feet of Austin parks. Crimes reported in metropolitan parks account for the most incidents as shown in Figure A-4. Pocket/button/other parks account for the second most reported incidents. Crimes against property account for approximately 70% of incidents reported in metropolitan and pocket/button/other parks, with burglary and theft alone accounting for 2,155 of these 3,868 incidents (56%) [4].

Crime Within 50 feet of Parks by Park Type (APD Crime Data, 2019 - 2023)

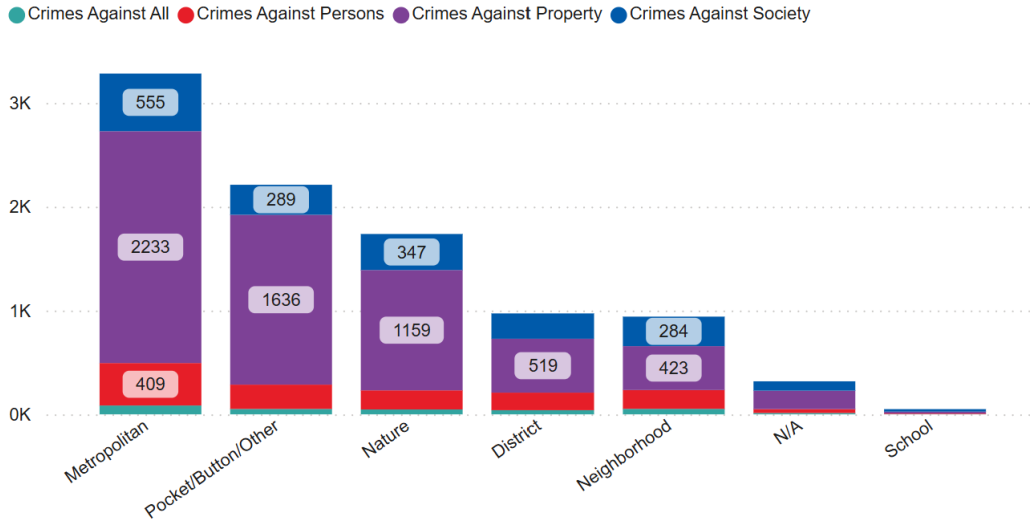


Figure A-4. Crime within 50 feet of parks by park type, 2019 – 2023

As shown in Figure A-5, crimes against property account for the most reported incidents within 50 feet of parks, increasing since 2020 through 2023. Roughly 80% of reported crimes against property are either larceny or motor vehicle theft. Crimes against society account for the second most reported incidents, steadily decreasing until 2022, when these incidents saw an increase to 400. Disorderly conduct account for almost 50% of these incidents, followed by drug offenses at 30%. Crimes against persons maintained a consistent rate over this time, with assault accounting for over 75% of these offenses. There were 10 total homicides reported, with 2 occurring during the daytime [4].

Crime Within 50 feet of Parks (APD Crime Data, 2019 - 2023)



Figure A-5. Crime within 50 feet of parks by year, 2019 – 2023

A.3.3 Park Ranger Operations Data

This section presents Park Ranger Operations data from 2019 – 2023. Because not all Park Ranger Operations entries are relevant for the purposes of this project, irrelevant contact types were filtered out of the dataset before the analysis was conducted.

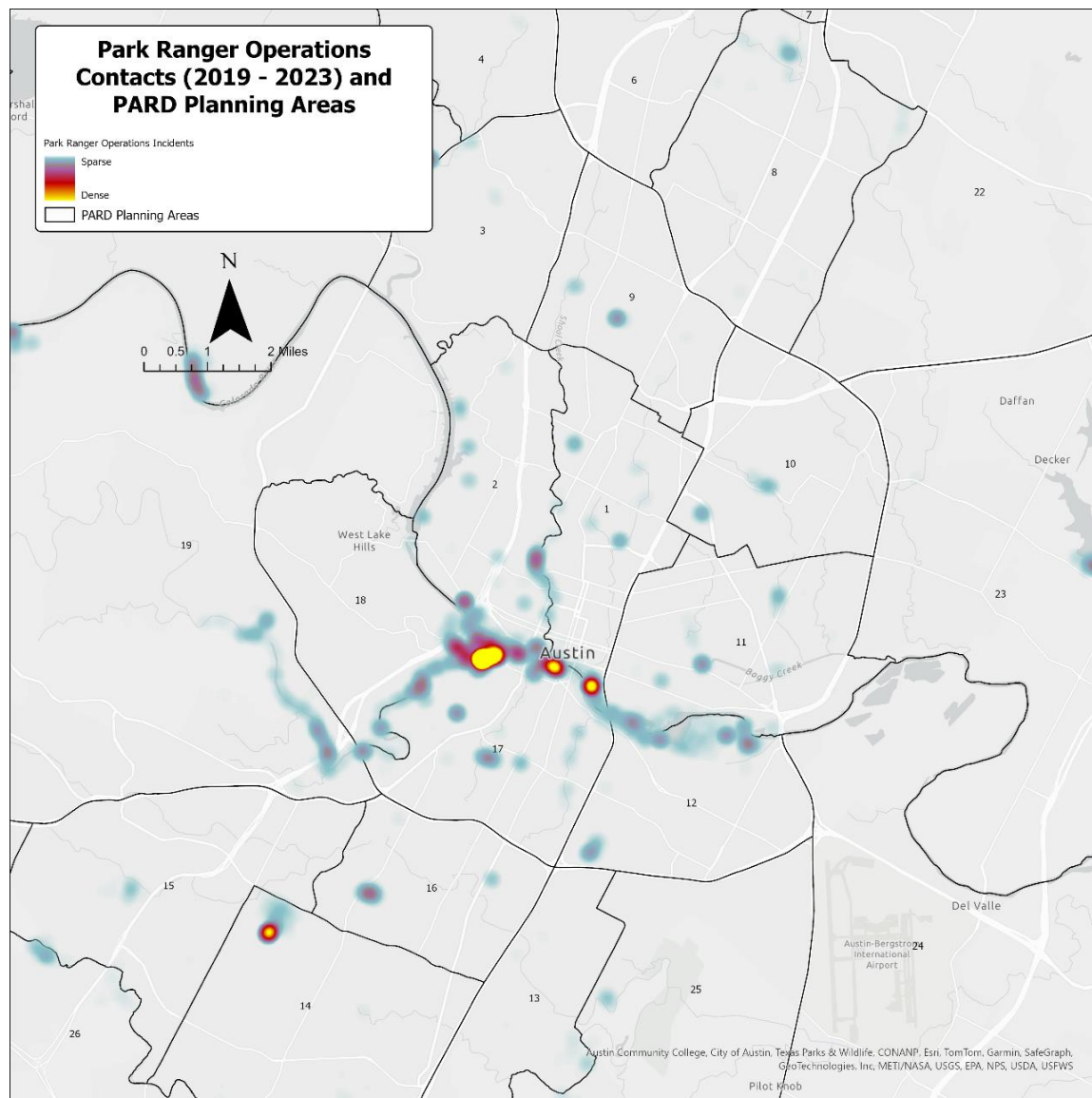


Figure A-6. Park Ranger operations contacts heatmap, 2019 – 2023

Park Ranger contact types [8] determined to be relevant to the project are grouped into broader categories. They are organized into the following:

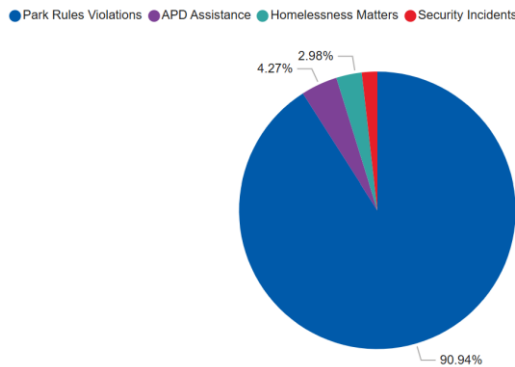
- **APD Assistance:** APD Assist, Assist Other Agency / Dept / Unit, Motor Vehicle Accident
- **Security Incidents:** Assault, Drug / Suspicious Activity, Encroachment, Graffiti, Littering, Property Damage, Trespass
- **Homelessness Matters:** Camping, Camping / Encroachment, Homelessness Matters
- **Park Rules Violations:** Alcohol Consumption, Bike in Preserve, Boating Incident, Bridge Jumping, Citation Written, Dog in Preserve, Dog Off Leash, Fire / Burn Ban / Smoking, Glass Container, Intoxicated Pedestrian, Metal Detector Use Violation, Motorized Vehicle on Trail, Park Closure

Compliance, Park Closure Noncompliance, Sound Equipment, Swimming in Unauthorized Area, Unauthorized Vending, Unsafe Cycling on Trail

Between 2019 and 2023, there were 13,377 Park Ranger contacts; this number excludes contact types that were considered irrelevant to the study. Relevant contacts were primarily concentrated around parks near the city center and Colorado River. Zilker Metropolitan Park, Barton Creek Greenbelt, and Town Lake Metropolitan Park accounted for approximately 40% of the total contacts, as shown in Figure A-6 [8].

Violations of park rules accounted for 91% of all safety and security-related contacts handled by Park Rangers, as shown in Figure A-7. The most common violations included pet-related infractions, noncompliance with park closure, and alcohol-related offenses as shown in Figure A-8. Incidents increased significantly in 2020, with all park closure non-compliance contacts occurring that year, likely due to Covid-19 pandemic-related orders [8].

Park Ranger Operations Contacts (2019 - 2023) by Contact Type



Park Ranger Operations Contacts (2019 - 2023) by Year and Contact Type

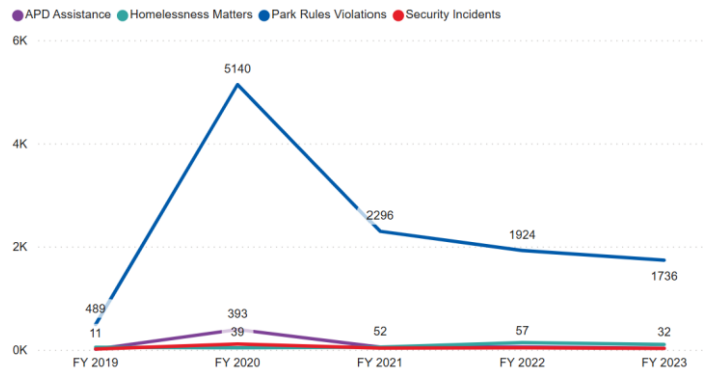


Figure A-7. Park Ranger operations contacts by type (left) and year (right), 2019 – 2023

Park Rules Violations (2019 - 2023) by Contact Type

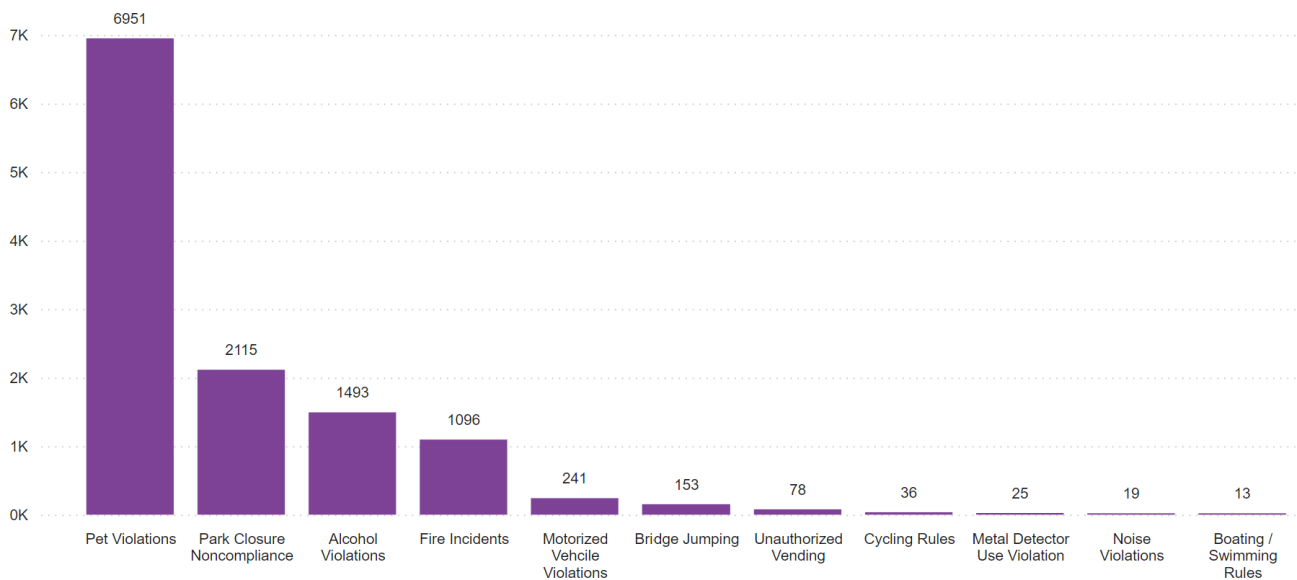


Figure A-8. Park Ranger operations park rules violations by contact type, 2019 – 2023

A.3.4 PARD Homeless Activity Reporter Data

According to the PARD Homeless Activity Reporter, there were 2,371 investigations of activity related to individuals experiencing homelessness from 2020 to 2024. Zilker Park alone accounts for roughly 200 of these reported incidents, followed by West Boudin Greenbelt with 103 reports. These incidents are generally reported in and around greenbelts and trails and along bodies of water, such as the Colorado River and Barton Creek, as shown in Figure A-9 [9].

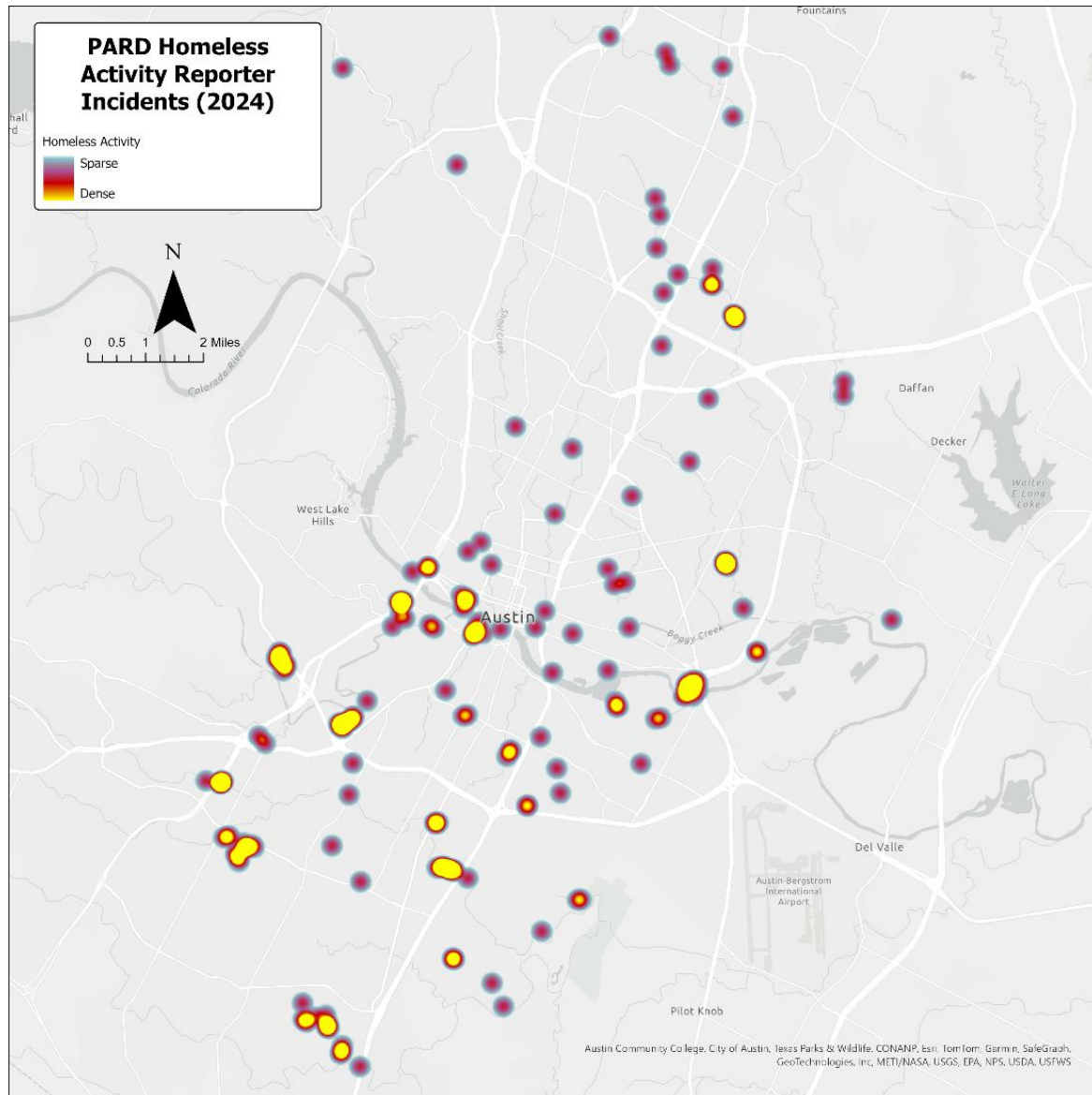


Figure A-9. PARD homeless activity reporter incidents, 2024

A.4 Safety and Security Partners

A.4.1 Austin Police Department

In January 2021, APD re-allocated its Park Police Unit to general patrol, and the transition from Parks Police to Park Ranger model was completed. The concerns expressed regarding the transition is outlined in *CofA Memo on Budget Rider 14 Park Rangers Update*. They include:

- **Loss of Connection to Public Safety Authorities:** The transition involved reallocating the Park Police Unit to general patrol, which meant that Park Rangers and the Police Department would no longer be connected via radio channel or shared office space. This raised concerns about the loss of direct connection to public safety authorities.
- **Safety Concerns:** There was safety concerns related to providing Park Rangers with ticketing authority. The memo highlighted that any safety-focused illegal activity would need to stay with the Police Department, and Park Rangers would need to call 911 for assistance.
- **Citation Authority:** The memo discussed the potential risks and considerations of granting citation authority to Park Rangers. It was noted that Park Rangers could be put in dangerous situations when asking park visitors to provide identification, as required for citation issuance. Examples of dangerous situations included physical attacks, threats of assault with a weapon, verbal abuse, and general disorderly conduct.
- **Racial Justice and Equity:** The memo emphasized the importance of considering racial justice and equity in any ticketing authority granted to Park Rangers. It was noted that ticketing is a punitive approach and can be an intimidation tactic, which contrasts with efforts to make parks welcoming to all.

A.4.2 Homeless Strategy Office

The Homeless Strategy Office (HSO) aims to provide a holistic system of care and support that efficiently and effectively addresses both homelessness and its causes. In their 2018 Action Plan to End Homelessness, the HSO and City of Austin developed a five-system approach to end homelessness: outreach and shelter, housing and support services, community commitment, addressing disparities, and effective system response [10]. Outreach and shelter aims to meet homeless individual's short-term needs while connecting them with resources for long-term housing plans. Housing and support services help to find those long-term housing solutions. Addressing disparities focuses on understanding the root causes of homelessness. Effective systems response works to ensure the total plan is working as efficiently and successfully as possible. Community commitment calls for appropriate and intentional investment in ending homelessness. Each component consists of specific objectives. While not every objective or component is applicable to PARD, there are certain areas where PARD's collaboration is useful, specifically within the outreach and shelter, system effectiveness, and community commitment components.

Outreach and shelter objective 1.1 includes outreach programs to engage all persons experiencing homelessness and connect them to crisis services and stable housing. There are several mobile outreach programs, such as the Homeless Outreach Street Team (HOST), a collaborative street outreach initiative involving behavioral specialists, paramedics, police officers, and social workers that identifies and engages with individuals experiencing homelessness. Currently, there is a lack of formal and systemic coordination among the outreach teams, and a shortage of personnel and programs to sufficiently meet City outreach needs. PARD staff can assist with outreach efforts when individuals experiencing homelessness are using City parks and facilities. They can do this by providing these individuals with HSO resources and information or by reporting data back to HSO, enabling a more targeted approach to HSO outreach initiatives.

Objective 1.4 of the outreach and shelter component is ensuring that persons in unsheltered situations have access to daily survival needs, such as showers, restrooms, and a warm place to spend time. Because shelters may only operate during certain hours and can have barriers that prevent people from using them, other organizations such as drop-in centers provide these services on a case-by-case basis. PARD has recreation

facilities that are currently being used by individuals experiencing homelessness for these daily needs. There is potential for PARD to work with the HSO to offer these buildings in a more coordinated capacity. Working closely with the HSO and the outreach teams can also help identify ways to ensure PARD's facilities are used as intended and posted rules are not being violated.

From the system effectiveness component, Objective 4.1 aims to have all programs and agencies work efficiently together. This objective goes hand-in-hand with the previously stated actions that PARD and the HSO can take together. Even something as simple as reporting the presence of an encampment or use of a recreation facility by persons experiencing homelessness can go towards the data-collection portion of this objective. This is similar to Objective 5.2 from the community commitment component, which looks to ensure members of the community are aware of how they can best contribute to the Action Plan and are involved through their work.

Another initiative not discussed specifically in the Action Plan includes the Clean City Strategy, which describes a multi-departmental effort to maintain city cleanliness [11]. The Office works with individuals experiencing homelessness by offering programs designed to support them. This initiative likely involves communicating with PARD regarding areas requiring the Office's attention, reporting individuals in need of resources, aiding those residing in encampments, and managing the cleanup of abandoned encampments.

PARD may also consider providing outreach training to their staff members on how to approach, interact with, and best help individuals beyond just calling HOST. Staff members already interface with the homeless population on occasion when they need to uphold PARD park and facilities rules. Being equipped to also initiate contact and begin the outreach process can go hand in hand with this type of training, especially while HOST is understaffed as it currently is.

Overall, increasing information sharing between departments is one of the biggest steps PARD and the HSO can take. Not only will this lead to more efficiency for both organizations, but it could lead to an increased role for PARD in the city's plan to end homelessness. Learning sessions between the two organizations about the Plan's programs, roles each team can play and how to best work together can further their cooperation.

Appendix B: Stakeholder Interviews & Survey

Stakeholder interviews and surveys were conducted to understand safety and security experiences unique to different teams. Additionally, the interviews provided stakeholders with the opportunity to provide feedback on the effectiveness of existing security measures, as well as strategies or projects which has improved the safety and security condition of PARD parks and facilities.

Data gathered from the surveys are used to inform the development of security recommendations. Survey responses are summarized in Section B.2.

B.1 Stakeholder Interviews

Refer to the following document for stakeholder interview notes:

- 24-1219 Monthly Progress Update.pdf

B.2 Stakeholder Surveys Responses

Key takeaways from the stakeholder survey responses are provided below, along with a summary of responses for each survey question.

- **Homelessness Impact on PARD Facilities:** The unsheltered homeless population uses PARD parks and facilities beyond the maintenance and resources currently allocated to keep them functioning and clean. This includes public camping, extended use of restrooms and shower facilities, and misuse of utilities.
- **Staff Challenges and Safety Concerns:** PARD staff face significant challenges in managing the unsheltered homeless population, including dealing with individuals in mental crises, under the influence of drugs or alcohol, or exhibiting violent behaviors. Staff are provided de-escalation training, but the current measures are largely ineffective.
- **Resource and Security Disparities:** There are significant disparities in the level of security across PARD facilities, primarily due to the reliance on site operating budgets for security measures. Older facilities, especially those in central areas or historically disadvantaged neighborhoods, experience higher levels of security incidents but lack adequate resources for necessary upgrades.

Are there any trends, strategies, or measures which has helped or hurt issues relating to public safety and security in PARD parks and facilities?

- Recreation centers and parks in Austin face significant challenges due to the increasing presence of individuals experiencing homelessness. Issues include drugs, violence, mental health concerns, and security threats, exacerbated by the lack of paid security guards and slow police response times.
- Homelessness and lack of access to clean water affect parks and facilities, leading to issues such as water collection for bathing purposes in PARD operated spaces. These problems are consistent throughout the parks system, causing friction between park users and PARD staff.
- Remote parks suffer from a lack of on-site staff, resulting in abuse and vandalism of park spaces. The removal of Park Police has led to park staff calling emergency services when there is an incident, often leading to slow response times, as APD might be addressing more critical incidents. Suggestions to address these issues include increased lighting and cameras in parks, as well as the introduction of area or site volunteer coordinators to enhance security and activate spaces without significantly increasing staff numbers.

Are there any examples of a park retrofit or improvement projects which imparted significant safety and security changes? Provide a description of the project, along with specific details about the improvements. What were the noticeable changes?

- Some facilities have implemented automatic door locks for lockdowns or emergency buttons for silent police calls. Security cameras are also mentioned as a measure to improve safety. Requested park-specific projects include improving sight lines through lighting and vegetation trimming, adding shade structures and outdoor water fountains to provide potable water, and renovating parks with art installations and artistic lighting to reduce graffiti and discourage abuse.
- At Austin Nature & Science Center, access gates have reduced speeding vehicles, and increased staff in wildlife exhibits has improved visitor safety. However, the use of interns was less effective for animal safety, highlighting the need for full-time, experienced animal keepers.

Does PARD have any sustainability goals we should be aware of? These could include energy efficiency, reducing embodied carbon, or reduce/reuse/recycle.

- The majority of responses indicate uncertainty or limited knowledge about sustainability goals and standards. Only one respondent was aware of a draft owner project requirement manual and a PARD amenities standards document that outline various sustainability requirements. While these may not be applicable to all departments and responders, further dissemination should be encouraged.
- One respondent noted that community gardens contribute to local food pantries, support pollinators, manage rainwater, and aim for zero-waste through on-site composting. Encouraged environmental initiatives include converting to efficient LED lights to reduce light pollution.

For less-used parks and trails, are there initiatives or programs intended to increase use by the immediate neighborhood and community? What are the types of equipment, structures, or amenities which would encourage more use? What are the issues which have prevented access or discouraged legitimate use by community members?

- New amenities like trails, playgrounds, sports fields, and outdoor workout equipment are beneficial but can remain unused in unsafe areas due to issues like homelessness and drug activity, which deter public use. Additionally, rental or partner-led use of parks and the presence of fences around areas like multi-use fields (e.g., Onion Creek Soccer Complex), can create the impression that these areas are not accessible to the public, potentially discouraging public use.
- Well-maintained trails, viewsheds, shaded areas, outdoor water fountains with bottle fillers, and waste receptacles for sharps are noted as critical for enhancing visitor experience and encouraging park use. Other strategies such as digital media and providing less dedicated parking in heavily used parks encourage people to explore less frequented parks.

What have been effective solutions with connecting individuals experiencing homelessness to the most appropriate City resources? What hasn't been effective at preventing park or facility misuse?

- There is a need for additional policies and resources to assist PARD staff in connecting individuals experiencing homelessness with essential services when they enter parks, recreation centers, and public libraries in search of resources such as shelter, water, food, and electricity. Suggestions include staff resources such as paper handouts and mental health employees to provide services, a central database for resources such as shower hours, food pantries, and shelters, and trained employees (similar to Park Police), who are better trained in enforcement, customer service, de-escalation, and mental health first aid.

Do you think that existing security features work well? For example, are barriers, access control, or security cameras appropriate and in the right place?

- Suggested physical security measures include lockdown gates similar to those in public schools, mandatory locked gates in gardens and open spaces, and activation of space through policing and increases in staffing. Fencing and cameras are seen as enhancements acting as a barrier to thefts and other issues; however, even locations with fences have experienced security breaches, indicating that additional operational measures may be necessary.
- Responses on the effectiveness of security cameras are mixed. While some believe the current cameras are adequate but could use more, others feel that cameras alone are not enough to deter bad behavior and thefts, suggesting that additional measures are needed.
- Recreation center staff are concerned about safety and seek protocols similar to those in schools. More human presence, including PARD staff, security guards, and Park Police, is suggested to deter misconduct. Other proposed measures include weapon restrictions, visitor tracking, trespass notices, faster police response, and a membership system for monitoring visitors.

If one aspect of security and/or lighting could be improved, what would that be?

- Suggestions include implementing robust indoor and outdoor cameras, security guards, and controlled access at recreation and senior centers to improve safety. One respondent suggested for more public restrooms in parks to help all users and reduce conflicts over water.
- Four respondents provided recommendations for more lights within parks, especially in large parks with vegetation, and lighted trails for safe use during Fall and Winter months. Two of these respondents emphasized the need to balance lighting with wildlife and night sky considerations, including motion-activated dark sky amber lighting to minimize disruption to insects and wildlife while ensuring safety.

Does your team use the PARD Exterior Lighting Handbook & Standard? If so, how are the guidelines applied in practice? For example, how and who determines where and what type of lighting is used in PARD parks and facilities?

- Most respondents expressed a lack of familiarity with lighting standards and training.

Any additional information that you would like to share?

- There is a call to model rec center security measures after those implemented in schools to help improve staff safety.
- One respondent suggested that PARD's Safety Team is currently focused on occupational safety but needs to address public safety as well. The team should collaborate with various departments to develop and implement safety and security standards and be responsible for training staff.
- As Austin's population grows, safety issues are expected to increase, impacting parks and necessitating a more robust safety approach.

Appendix C: Site Visits

Physical security and CPTED assessments were conducted during both the day and nighttime. The goal of the onsite audit is to document existing physical and operational security measures for each location, conduct a CPTED and lighting technical assessment, and collect observations of operational or physical vulnerabilities.

A summary of the daytime and nighttime assessment ratings is provided in Figure C-1. Site visit findings are used to develop security and lighting recommendations.

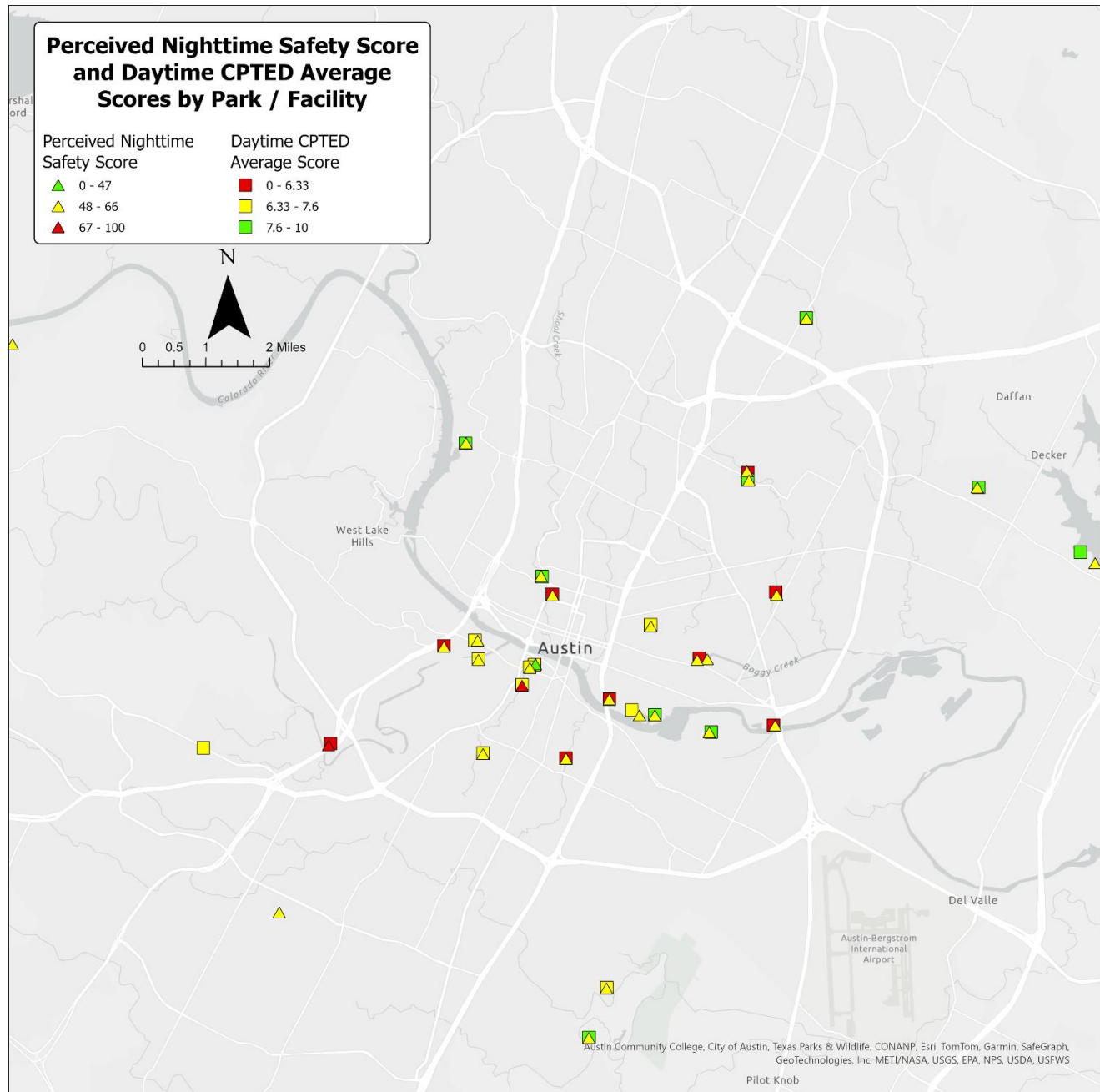


Figure C-1. Perceived nighttime safety score and daytime CPTED average scores by park and facility

C.1 Daytime Survey Methodology

Arup and PARD staff conducted an exercise plotting survey points around each of the 30 park or facility audit locations. The survey point type and descriptions are provided in Table C-1.

Table C-1. Assessment types and descriptions

Assessment Type	Description
Park Access	Designated access point to a park. Includes vehicle, pedestrian, and trail access points as noted in PARD data.
Park Center	Congregation point within a park. Includes locations such as viewing areas and other activated spaces within parks.
Park Facility	PARD maintenance facility / area located within a park.
Parking Lot	Designated or expedient parking that is specific to or adjacent to a park. All parking lots surveyed are under PARD management.
Arts & Culture	Facilities which include cultural, arts, and community centers, performance venues, historic sites, classrooms, and art installations.
Active Recreation	Facilities or areas developed for active recreation including athletic fields, ranges, courses, gyms, campgrounds, aquatic activities, and associated amenities (RV dump station, bathhouses...etc.).
Passive Recreation	Passive recreation facilities include off-leash dog areas, playgrounds, picnic areas, pavilions, benches, scenic overlooks, and other structures or amenities which encourage passive use of the area.

The survey points are shown in Figure C-2, where daytime and nighttime CPTED assessments were conducted.

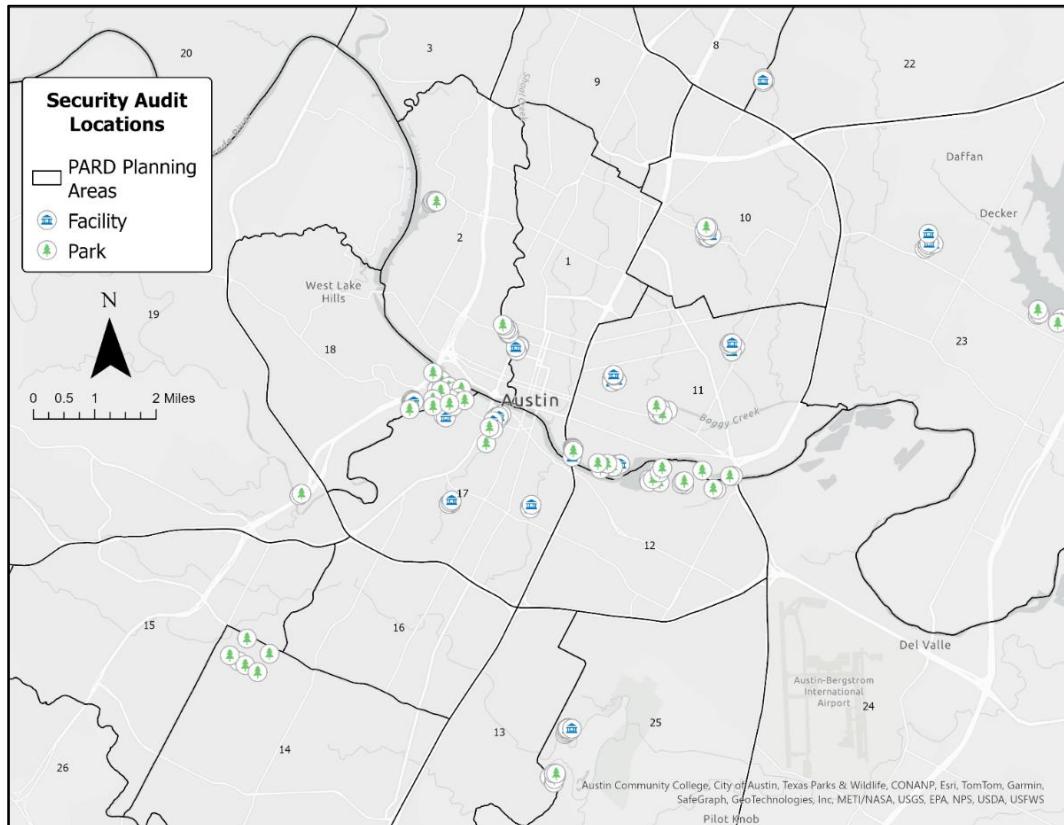


Figure C-2. PARD security audit survey points

C.1.1 CPTED Strategy Categories

Surveyors documented specific conditions and features for each location, and they are organized into the six physical CPTED categories detailed below. Each strategy and category are defined as per ISO 22341:2021 CPTED Guidelines [12].

C.1.1.1 Natural Surveillance

Natural surveillance is defined as a form of capable guardianship that can reduce crime due to the perception for potential offenders to be observed by pedestrian or patrolling traffic. Other forms of organized surveillance such as the presence of lighting, security staffing, and security cameras was considered when assessing a site's natural surveillance rating. Natural surveillance CPTED strategies and in-field observations are shown in Table C-2.

Table C-2. Natural surveillance CPTED strategies and in-field observations

CPTED Strategy	In-Field Observation
Avoiding Blind / Entrapment Spots	- Good natural surveillance: passive surveillance from residences, streets, etc. Sightlines should be maintained across the park. Active frontages on the street. - Examples include sharp corners and curved walkways, fences or other barricades that block views of the path, tall vegetation wide and dense enough to conceal a person, vegetation overgrowth on the path.
Lighting	Identify poles or structures where lighting is mounted.
Visibility	"Good" window placement includes large glass windows on ground floors not obscured by signage or plants and facing towards public spaces. "Good" landscaping can include plants and trees which follow the 2 ft / 6 ft rule, narrow tree trucks, well-maintained vegetation which are not overgrowing into walking paths or covering windows. - Poor window placement or obscured sight lines from windows. - Overgrown vegetation / path not maintained.
Surveillance	- Police / security guards / staff presence or patrol. - Presence of cameras mounted at a height not easily accessible from the ground.

C.1.1.2 Natural Access Control

Natural access control is defined as the concept of using spatial definition to create a heightened perception of risk for potential threat actors and denying or restricting access to potential targets. It considers physical characteristics such as urban design features, landscaping, physical barriers, and wayfinding signage. Natural access control CPTED strategies and in-field observations are shown in Table C-3.

Table C-3. Natural access control CPTED strategies and in-field observations

CPTED Strategy	In-Field Observation
Anti-terrorist Planning	Temporary or permanent site or building that is sensitive to terrorism, such as a crowded public space or highly symbolic or culturally important site.
Access Control	- Integrated urban design that supports visual continuity with furniture, planters, water features, art, etc. - Urban design does not support visual continuity with furniture, planters, water features, art, etc. - Consider forms of access control utilizing soft landscaping, like thorny bushes. - Access control not clearly defined by landscaping or physical barriers.

- Signage and wayfinding that guides a user through the space and/or states information such as hours or emergency phone numbers.
- No wayfinding signage.

C.1.1.3 Territorial Reinforcement

Territorial reinforcement involves using physical features to give users a sense of ownership of a space. It includes demarcating areas and creating buffer zones with paving changes, barriers, landscaping, and visible access points like lighting, surrounding features, and architecture. Territorial Reinforcement CPTED strategies and in-field observations are shown in Table C-4.

Table C-4. Territoriality CPTED strategies and in-field observations

CPTED Strategy	In-Field Observation
Territoriality	• Clear demarcation of space through paving changes, fences, landscaping, signage, etc. • No clear demarcation of space. • Sense of ownership through art, fences or other barriers, landscaping, signage, etc. • A buffer zone of physical setback or other forms such as landscaping barriers, fences, planters, or paving changes. • No clear vehicle or pedestrian access or pathways i.e., landscaping barriers, fences, planters, or paving changes. • Entryways or access points should be highlighted and easy to find. Ex. using lighting, architecture. • Entryways or access points difficult to find.

C.1.1.4 Image and Management / Maintenance

Image and management / maintenance involves promoting a positive image through proper maintenance. It may include attractive design through lighting and positive imagery, signage stating rules of the space, and proper maintenance such as well-maintained vegetation and cleared pathways. Image and management / maintenance CPTED strategies and in-field observations are shown in Table C-5.

Table C-5. Image and management / maintenance CPTED strategies and in-field observations

CPTED Strategy	In-Field Observation
Attractive Design	• Positive area image; attractive lighting and public art. • Poor area image.
Maintenance	• Maintenance ex. clean streets and alleys, emptied garbage bins, greenery and vegetation that is well-maintained and not overgrown or obscuring sightlines, with dead vegetation cleared away. • Poorly maintained area. • Observable vandal-resistant finishes.
Public Rules Enforcement	• Signage that states public rules of the park. • No signage stating park rules.

C.1.1.5 Activity Support

Activity support involves using design and physical features to promote specific behaviors in public spaces. This approach aims to attract legitimate users and deter inappropriate use of the space. Examples include connecting the space with streets that have mixed uses, providing direct access to parks or facilities, and incorporating activity generators such as picnic tables, playgrounds, and interactive areas. Activity support CPTED strategies and in-field observations are shown in Table C-6.

Table C-6. Activity support CPTED strategies and in-field observations

CPTED Strategy	In-Field Observation
Well Connected / Integration Plan	- Connected streets; proper mixed uses; good street pattern. - Streets or pathways not well connected to park, area setback from primary streets. - Activity generators like picnic tables, benches, playgrounds, interactive water features, amphitheaters, courts, etc.

C.1.1.6 Site / Target Hardening

Site or target hardening involves incorporating design elements that increase the effort and risk associated with committing offenses, thereby reducing the motivation to perpetrate crimes in a given space. This strategy may include the deployment of security equipment such as vehicle barriers, implementation of access control measures such as locks, and other target hardening methods utilizing non-rated barriers like strategically placed trees or boulders intended to deter unauthorized access. Site / target hardening CPTED strategies and in-field observations are shown in Table C-7.

Table C-7. Site / target hardening CPTED strategies and in-field observations

CPTED Strategy	In-Field Observation
Site / Target Hardening	- Target hardening through security equipment (e.g. vehicle security barriers, windows and doors, locks, mesh and grilles) certified by relevant security performance standards. - Other hardening methods such as trees, boulders, and nonrated barriers - specifically placed as a deterrent.

C.1.2 CPTED Strategy Ratings

Each survey point was assessed good, fair, or poor for each CPTED category. Each rating was then assigned a score of 10 for good, 6 for fair, and 1 for poor. These scores were then averaged for each CPTED category, then averaged for each individual location according to the proposed audit locations. The overall ranking of each category and site are shown in Section C.2.

CPTED categories have been abbreviated as shown in Table C-8.

Table C-8. CPTED category abbreviations

Abbreviation	Description
NS Avg.	Average of Natural Surveillance Value
NAC Avg.	Average of Natural Access Control Value
TR Avg.	Average of Territorial Reinforcement Value
IMM Avg.	Average of Image Management / Maintenance Value
AS Avg.	Average of Activity Support Value
STH Avg.	Average of Site Target Hardening Value

C.2 Daytime Overall Ranking

The rating criteria is based on the percentile rank of each park or facility's average CPTED score, compared to the overall average CPTED score of all parks and facilities surveyed. Average scores with equal percentile values were raised to the higher category (e.g., an average rating in the 66th percentile, (0.666) is categorized as "Good"). The rating criteria for each category is outlined in Table C-9.

Table C-9. Rating criteria

Rating	Criteria
Good	Scoring criteria ranks above the 66 th percentile (top 33%) compared to all other average CPTED Ratings. Sites which rank in this category follow CPTED principles, and surveyors had a high perception of safety while onsite.
Fair	Scoring criteria ranks between the 40 th and 66 th percentile compared to all other average CPTED Ratings. Sites which rank in this category generally follow CPTED principles, but they have areas for improvement. Surveyors were ambivalent about their perception of safety while onsite.
Poor	Scoring criteria ranks below the 40 th percentile (bottom 40%) compared to all other average CPTED Ratings. Sites which rank in this category generally did not follow CPTED principles, and surveyors had a low perception of safety while onsite.

Overall CPTED average scores, percentile, and ranking for each park and facility audit location are shown in Table C-10.

Table C-10. CPTED ratings and percentiles by site

Park / Facility Name	Security Audit Category	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Percentile	Average
Asian American Resource Center	Active Recreation	10.00	8.67	10.00	10.00	10.00	7.33	0.967	9.33
Turner-Roberts Recreation Center	Active Recreation	10.00	10.00	8.00	8.00	10.00	10.00	0.967	9.33
Pease Park Conservancy	District Park	10.00	10.00	10.00	10.00	8.00	7.00	0.933	9.17
Barton Springs Municipal Pool	Active Recreation	7.33	8.67	10.00	8.67	8.67	10.00	0.900	8.89
Mayfield Park	Neighborhood Park	7.00	10.00	10.00	10.00	6.00	9.00	0.867	8.67
Roy G. Guerrero Metropolitan Park	Metropolitan Park	7.14	7.71	8.86	9.43	8.86	8.29	0.833	8.38
Onion Creek Soccer Complex	Active Recreation	6.00	10.00	10.00	10.00	6.00	6.00	0.800	8.00

Park / Facility Name	Security Audit Category	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Percentile	Average
Bartholomew Pool	Active Recreation	8.00	5.50	8.00	8.00	10.00	8.00	0.767	7.92
Lorraine "Grandma" Camacho Activity Center	Active Recreation	6.00	10.00	10.00	10.00	10.00	1.00	0.733	7.83
Alliance Children's Garden	Passive Recreation	5.67	-	8.67	8.67	10.00	6.00	0.700	7.80
Walter E. Long Metro Park	Metropolitan Park	5.67	8.67	8.67	8.67	6.00	8.67	0.667	7.72
Stephenson Nature Preserve	Nature	9.20	6.80	7.60	8.40	6.00	-	0.633	7.60
George Morales Dove Springs Recreation Center	Active Recreation	3.50	8.00	10.00	10.00	8.00	6.00	0.600	7.58
West Bouldin Creek Greenbelt	Nature	5.50	10.00	8.00	8.00	6.00	-	0.567	7.50
South Austin Recreation Center	Active Recreation	8.00	-	6.00	7.00	7.00	8.00	0.533	7.20
George Washington Carver Museum and Cultural Center	Arts & Culture	4.75	8.00	-	8.00	7.00	-	0.500	6.94
Commons Ford Ranch Metro Park	Metropolitan Park	1.00	10.00	10.00	10.00	1.00	8.00	0.467	6.67
Zilker Metro Park	Metropolitan Park	5.38	7.15	7.38	8.38	6.08	5.31	0.433	6.62
Dougherty Arts Center	Arts & Culture	6.75	4.75	-	8.00	6.00	-	0.400	6.38
Festival Beach	Metropolitan Park	7.33	7.33	7.33	7.33	6.00	2.67	0.367	6.33

Park / Facility Name	Security Audit Category	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Percentile	Average
Austin Recreation Center and Skate Park	Active Recreation	6.00	-	5.50	5.50	5.50	8.00	0.333	6.10
Danny G. McBeth Recreation Center	Active Recreation	4.33	-	7.33	4.00	7.33	7.33	0.300	6.07
Big Stacy Pool	Active Recreation	2.67	-	6.00	10.00	1.00	10.00	0.267	5.93
Bartholomew District Park	District Park	4.75	4.75	4.50	3.50	6.75	5.75	0.233	5.00
Festival Beach Food Forest	Passive Recreation	3.50	-	8.00	6.00	6.00	1.00	0.200	4.90
Parque Zaragoza Recreation Center	Active Recreation	6.00	-	6.00	10.00	1.00	1.00	0.167	4.80
Givens Recreation Center	Active Recreation	2.67	-	6.00	4.33	4.33	6.00	0.133	4.67
Barton Creek Wilderness Park	Nature	1.00	1.00	6.00	6.00	6.00	-	0.100	4.00
Parque Zaragoza Neighborhood Park	Neighborhood Park	1.00	3.50	4.75	3.25	3.50	2.25	0.067	3.04
Colorado River Wildlife Sanctuary	Nature	1.00	4.33	-	2.67	1.00	-	0.033	2.25

CPTED average score by security audit asset category is listed in Table C-11.

Table C-11. CPTED ratings and percentiles by security audit asset group

Security Audit Category	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Average
Metropolitan Parks	5.88	7.72	8.06	8.59	6.34	6.66	7.21

Security Audit Category	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Average
Active Recreation	6.03	7.47	8.12	7.24	8.21	6.15	7.20
District Parks	7.38	7.38	7.25	6.75	7.38	6.38	7.08
Arts & Culture	5.75	6.38	-	8.00	-	6.50	6.66
Passive Recreation	4.80	-	8.40	7.60	8.40	4.00	6.64
Neighborhood Parks	4.00	6.75	7.38	6.63	4.75	5.63	5.85
Nature Parks	5.55	6.18	6.18	6.09	5.09	-	5.82

C.2.1 Parks

C.2.1.1 Metropolitan Parks

CPTED ratings and averages for metropolitan parks are shown in Table C-12.

Table C-12. CPTED ratings of metropolitan parks

Park / Facility Name	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Percentile	Average
Roy G. Guerrero Metropolitan Park	7.14	7.71	8.86	9.43	8.86	8.29	0.833	8.38
Walter E. Long Metro Park	5.67	8.67	8.67	8.67	6.00	8.67	0.667	7.72
Metropolitan Average	5.88	7.72	8.06	8.59	6.34	6.66	-	7.21
Commons Ford Ranch Metro Park	1.00	10.00	10.00	10.00	1.00	8.00	0.446	6.67
Zilker Metro Park	5.38	7.15	7.38	8.38	6.08	5.31	0.433	6.62
Festival Beach	7.33	7.33	7.33	7.33	6.00	2.67	0.367	6.33

Metropolitan Parks – Good Rating

Roy G. Gurrero Metro Park

Roy G. Gurrero Metropolitan Park scored highly across all CPTED categories, most notably in image management / maintenance, activity support, and territorial reinforcement. The eastern side of the park had little observable trash, monitoring from PARD facility workers, extensive signage, and activity generators such as playgrounds and a disc golf course. The disc golf course was the site of a cleared encampment of over 200 individuals; therefore, it received more consistent monitoring and maintenance from APD and PARD staff. Vehicle barriers and fencing were present throughout the playground area and disc golf course as shown in Picture C-1.



Picture C-1. Roy G. Gurrero Metropolitan Park - Site / Target Hardening

The western side of Roy G. Gurrero Metropolitan Park contains recreation fields and administrative offices. The fields and parking lots are well lit, locked and fenced, have extensive signage, and are monitored by PARD maintenance staff and by the neighboring fire station as shown in Picture C-2.



Picture C-2. Roy G. Gurrero Metropolitan Park - Western Side

Walter E. Long Metropolitan Park

Walter E. Long Metropolitan Park scored highly among the natural access control, territorial reinforcement, image management / maintenance, and site / target hardening categories. Signage, wayfinding, fencing, and vehicle barriers were present throughout publicly accessible areas of the park. The main point of entry is fenced as shown in Picture C-3, and a staffed ticketing booth manages entry into the park. The park is enclosed with fencing enhancements (barbed wire), locked vehicle gates designated for PARD staff, and fencing with signage designating private areas on the eastern side of the vehicle path. There is extensive park rules signage, maintained landscaping and vegetation, and activity generators such as picnic tables and pavilions throughout as shown in Picture C-4.

Because Walter E. Long Metropolitan Park is situated away from busy roads and surrounded by largely vacant areas, it has less natural surveillance than parks located in urban areas and neighborhoods. This results in lower natural surveillance ratings compared to more centrally located metropolitan parks.



Picture C-3. Walter E. Long Metropolitan Park – Natural Access Control, Territorial Reinforcement, and Site / Target Hardening



Picture C-4. Walter E. Long Metropolitan Park – Image Management / Maintenance, Activity Support

Metropolitan Parks – Fair Rating

Commons Ford Ranch Metropolitan Park

Commons Ford Ranch Metropolitan Park falls in the middle percentile (Fair rating) due to its detached location from the city center and lack of activity generators, making the park more comparable with a greenbelt or nature preserve than a metropolitan park. Due to this, the park scores highly across all CPTED categories except for natural surveillance and activity support. Extensive fencing and barriers surround the park, with a clear delineation between private and PARD operated property as shown in Picture C-5 and Picture C-6.



The Spillway of Zilker Park (public facing side of Barton Springs) scored poorly across the natural access control, image management / maintenance, and territorial reinforcement CPTED categories. The public side of Barton Springs had extensive trash and graffiti as shown in Picture C-7. Additionally, traffic cones with yellow barricade tape used to restrict public access to the area were disregarded and torn down.



Picture C-7. Zilker Metropolitan Park (Spillway) - Natural Access Control, Image Management / Maintenance

At the time of the site visit, the public side of Barton Springs was closed for repairs. However, park users still accessed the location despite the temporary barriers, as shown in Picture C-7. While security signage was present, park users ignored these warnings and accessed the area via the southern side of Barton Creek and through the greenway on the northern side.



Picture C-8. Zilker Metropolitan Park (Spillway) - Natural Access Control

Zilker’s “park center” south of Barton Springs Road scored well across all CPTED categories. While this area had less usage than other parts of the park, the area was well maintained, had activity generators such as volleyball courts and park benches, and PARD staff traversing the area, as shown in Picture C-9. The parking lot along Andrew Zilker Road had a security camera trailer, with no evidence of vandalism or vehicle break ins at the time of the site visit.



Picture C-9. Zilker Metropolitan Park (Park Center, South) - Activity Support

Zilker’s “park center” north of Barton Springs Road scored fairly across all CPTED categories. This grouping of site observations included the Zilker Botanical Garden, and the park area surrounded by Barton Creek to the west, the Colorado River to the north, and the MoPac Expressway underpass to the northwest.

The Zilker Botanical Garden was well-secured, ticketed, and actively monitored by staff. The garden had activity generators such as a museum, benches, and food/beverage trucks as shown in Picture C-10.



Picture C-10. Zilker Metropolitan Park (Park Center, North) - Natural Access Control, Activity Support

The eastern area of Zilker Park was being actively used at the time of the site visit by Austin City Limits workers for event storage and setup. This area was well maintained, had clear demarcation of space, and had activity generators such as volleyball courts and picnic benches, as shown in Picture C-11.



Picture C-11. Zilker Metropolitan Park (Park Center, North) - Activity Support

PARD staff had reported multiple incidents of bridge jumping on the eastern side of the park into Barton Creek. At the time of the site visit, this area was frequently travelled with extensive signage indicating the illegality of swimming and jumping, as shown in Picture C-12.



Picture C-12. Zilker Metropolitan Park (Park Center, North) - Image Management / Maintenance

The northwest area of Zilker Park was surveyed at the MoPac Expressway underpass parking lot. The area adjacent to this site was not accessible due to Austin City Limits setup activities. This area was accessible by Strafford Drive by car, and the greenway running adjacent by foot. This area lacked clear demarcation and signage, access control features such as bollards or vehicle gates, and was poorly maintained (unpaved, gravel parking lot). PARD staff had reported multiple vehicle break-ins at this site, with signage throughout to warn park users, as shown in Picture C-13. There were no security camera trailers or other deterrents to vehicle break ins at the time of the site visit.



Picture C-13. Zilker Metropolitan Park (Park Center, North) - Image Management / Maintenance

Metropolitan Parks – Poor Rating

Festival Beach

Festival Beach was the only metropolitan park to score on the lowest end of the rating scale, due to lower average ratings across all CPTED categories—most notably in site / target hardening. The boat access point on Nash Hernandez Sr. Road had extensive trash, blind spots due to shipping containers, and overgrown vegetation as shown in Picture C-14. Additionally, fencing and vehicle barriers were not observed at the vehicle access points and parking lots surveyed.



Picture C-14. Festival Beach – Natural Surveillance, Image Management / Maintenance

The PARD maintenance facility on Jessie E. Segovia Street was included in the assessment grouping for Festival Beach. This facility had elevated access control measures, target hardening methods such as vehicle gates and fencing, constant monitoring during the daytime from PARD employees, and security cameras as a deterrent, as shown in Picture C-15 and Picture C-16. Facility staff noted that storage containers and loose maintenance equipment are targets for burglaries, and they have implemented measures such as extra locks and blocking shipping containers (where equipment is stored) with vehicles during non-operational hours.



Picture C-15. Festival Beach – Natural Surveillance



Picture C-16. Festival Beach – Site / Target Hardening

C.2.1.2 *District Parks*

CPTED ratings and averages for district parks are shown in Table C-13. CPTED ratings of district parks

Table C-13. CPTED ratings of district parks

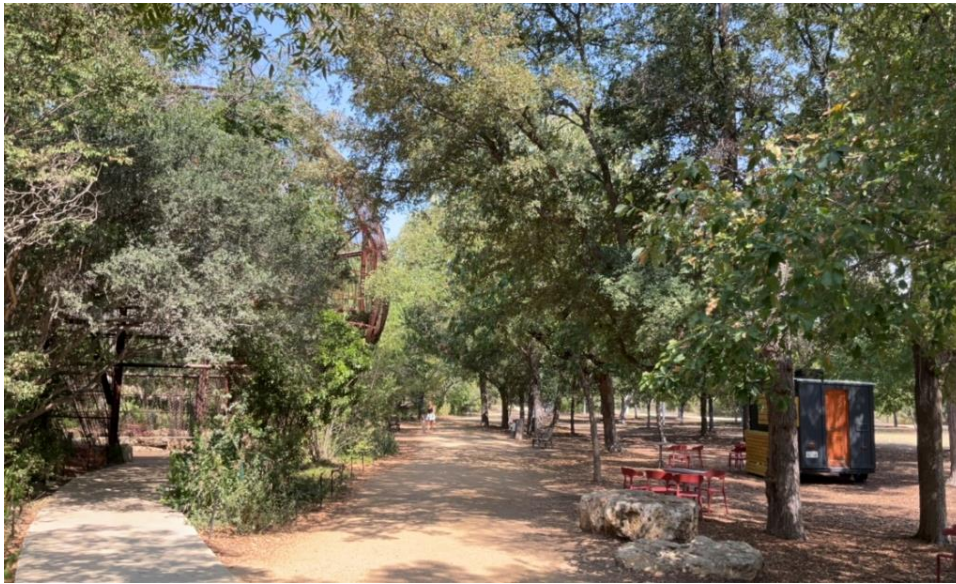
Park / Facility Name	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Percentile	Average
Pease Park Conservancy	10.00	10.00	10.00	10.00	8.00	7.00	0.933	9.17
District Parks Average	7.38	7.38	7.25	6.75	7.38	6.38	-	7.08

Park / Facility Name	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Percentile	Average
Bartholomew District Park	4.75	4.75	4.50	3.50	6.75	5.75	0.233	5.00

District Parks – Good Rating

Pease Park Conservancy

Pease Park Conservancy scores highly across all categories, with clear sightlines, maintained landscaping and pathways, extensive wayfinding and rules signage, and activity generators. Sightlines were supported by clearly defined pathways free of trash, a lack of shipping containers and blind spots, and maintained vegetation and trees along pathways as shown Picture C-17. Activity generators such as interactive art installation, seating and tables, and beverage / food trucks lead to a high activity support category rating (see Picture C-17).



Picture C-17. Pease Park Conservancy – Natural Surveillance, Image Management / Maintenance, Activity Support

District Parks – Poor Rating

Bartholomew District Park

Bartholomew District Park had extensive amounts of trash and poorly maintained vegetation throughout the southern side of the park along Tannehill Creek. Overgrown vegetation, blind spots, and trash were observed, causing low ratings for natural surveillance and image management / maintenance as shown in Picture C-18.



Picture C-18. Bartholomew District Park – Natural Surveillance, Image Management / Maintenance

Similar observations continued into Tannehill Creek, as shown in Picture C-19.



Picture C-19. Bartholomew District Park – Image Management / Maintenance

The western side of the park along Berman Drive is adjacent to a shopping center, with no delineation of PARD property, and overgrown vegetation, contributing to a lower territorial reinforcement rating as shown in Picture C-20.



Picture C-20. Bartholomew District Park - Territorial Reinforcement

During the time of the site visit, there appeared to be individuals experiencing homelessness who were using park power outlets under the pavilion and public restroom.

C.2.1.3 *Neighborhood Parks*

CPTED ratings and averages for neighborhood parks are shown in Table C-14.

Table C-14. CPTED ratings of neighborhood parks

Park / Facility Name	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Percentile	Average
Mayfield Park	7.00	10.00	10.00	10.00	6.00	9.00	0.867	8.67
Neighborhood Park Average	4.00	6.75	7.38	6.63	4.75	5.63		5.85
Parque Zaragoza Neighborhood Park	1.00	3.50	4.75	3.25	3.50	2.25	0.067	3.04

Neighborhood Parks – Good

Mayfield Park

Mayfield Park scored highly across the natural access control, territorial reinforcement, and image management / maintenance categories. Access control measures such as vehicle gates and barriers, pedestrian gates with designated access areas, and wayfinding signage were present at the entryway of the park as shown in Picture C-21.



Picture C-21. Mayfield Park – Natural Access Control, Site / Target Hardening

The parking lot and trails are detached from the view of nearby streets and adjacencies, contributing to a lower natural surveillance rating. PARD staff noted that Mayfield previously used camera trailers as a deterrent for car break ins, however these cameras have been removed at the time of the site visit. Evidence of motor vehicle break-in's was present in the parking lot, as shown in Picture C-22.



Picture C-22 Mayfield Park – Security Observation: Evidence of Motor Vehicle Theft

Mayfield Park offers a facility for event rentals, located next to the parking lot on the eastern side of the park. This area is surrounded by stone walls and can be accessed through multiple pedestrian gates and one vehicle access point as shown in Picture C-23. This area is well fenced, has clear wayfinding signs and park rules, free of vegetation and trash, and maintains clear sightlines from the parking lot and from the windows of the facility, as shown in Picture C-24.



Picture C-23. Mayfield Park – Natural Access Control / Image Management / Maintenance



Picture C-24. Mayfield Park – Natural Surveillance / Site / Target Hardening

Neighborhood Parks – Poor

Parque Zaragoza Neighborhood Park

Parque Zaragoza Neighborhood Park was noted by PARD staff as a location with nearby encampments and a hotspot for open drug use, assault, or vandalism. The park had undergone a cleanup effort in collaboration with the HEAL Initiative and APD, with regular monitoring and patrols at the location. At the time of the site visit (which was a weekday morning), a used needle was found discarded on the ground, an individual near the park stage appeared to be experiencing a mental health crisis, and APD arrived due to an altercation at the empty lot next to the recreation center. These observations altogether contributed to a very low perception of safety.

Parque Zaragoza Neighborhood Park scored low across the natural surveillance, site / target hardening, and image management / maintenance CPTED categories. The recreation center at the southernmost entrance of the park, has an asymmetrical design with extruding exterior building features, which leads to an extensive amount of blind spots around the facility, as shown in Picture C-25. While there are several cameras installed all around the recreation center, PARD staff says there are still several blind spots which are not within camera views.



Picture C-25. Parque Zaragoza Neighborhood Park - Natural Surveillance



Picture C-26. Parque Zaragoza Neighborhood Park - Natural Surveillance

The westernmost entry point of Parque Zaragoza is concealed from passive surveillance from nearby traffic and has extensive overgrown vegetation in and around the fencing of the baseball field and creek as shown in Picture C-26. This area had blind spots from the vegetation and curved pathway and is detached from any potential passive surveillance from pedestrians or the roadway.

The easternmost entry point of Parque Zaragoza leading to Pleasant Valley Road had an improved image and site / target hardening due to the presence of maintained trash cans and fencing. While this area is less detached from passing pedestrians and the road and has less overgrown vegetation compared to the access point to the west, it does not maintain sightlines from the residential area to the north and pedestrian walkway from the street, as shown in Picture C-27.



Picture C-27. Parque Zaragoza Neighborhood Park - Natural Access Control

One security camera was installed recently at the stage area in the park; PARD staff noted that this has helped to deter individuals from carrying out illegal activities, as shown in Picture C-28.



Picture C-28. Parque Zaragoza Neighborhood Park - Image Management / Maintenance

C.2.1.4 Pocket / Button / Other Parks

No site classified as Pocket / Button / Other Parks were included in the site survey.

C.2.1.5 Nature Parks

CPTED Ratings and averages for Nature Parks are shown in Table C-15.

Table C-15. CPTED ratings of nature parks

Park / Facility Name	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Percentile	Average
Stephenson Nature Preserve	9.20	6.80	7.60	8.40	6.00	-	0.633	7.33

Park / Facility Name	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Percentile	Average
West Bouldin Creek Greenbelt	5.50	10.00	8.00	8.00	6.00	-	0.567	6.83
Average of Nature	5.55	6.18	6.18	6.09	5.09	-		5.70
Barton Creek Wilderness Park	1.00	1.00	6.00	6.00	6.00	-	0.100	4.33
Colorado River Wildlife Sanctuary	1.00	4.33	2.67	1.00	2.67	-	0.033	2.33

Nature Parks – Fair

Stephenson Nature Preserve

Stephenson Nature Preserve was previously the site of encampments and had issues with unauthorized motor vehicles accessing the park. Despite this, Stephenson scored highly across the image management / maintenance and natural surveillance CPTED categories, as it was a well-maintained park with adjacencies to neighborhoods and passive surveillance from pedestrian and vehicle traffic. The trails were well maintained with little trash observed and extensive signage stating park rules, as shown in Picture C-29.



Picture C-29. Stephenson Nature Preserve - Natural Access Control

The three access points on the eastern side of the park border the front yard of houses, have signage designating park property, and have some access control feature such as a vehicle barrier, fencing, and/or a designated pedestrian entryway, as shown in Picture C-30.



Picture C-30. Stephenson Nature Preserve - Natural Access Control

At the time of the site visit, workers were in the process of installing fencing at the northernmost entry point of the park. This fence type specifically deters motorized bikes, as shown in Picture C-31.



Picture C-31. Stephenson Nature Preserve - Site / Target Hardening

West Bouldin Creek Greenbelt

West Bouldin Creek Greenbelt scored highly among the natural access control, territorial reinforcement, and image management / maintenance CPTED categories. The southernmost access point on South 6th Street was partly concealed from pedestrian and vehicle pathways and has some overgrown vegetation concealing the access point and greenway as shown in Picture C-32. The lack of vehicle barriers and signage contribute to lower CPTED ratings along the southern access point.



Picture C-32. West Bouldin Creek Greenbelt - Natural Surveillance, Natural Access Control

Nature Parks – Poor

Barton Creek Wilderness Park

Barton Creek Wilderness Park scored poorly in the natural surveillance and natural access control CPTED categories. The main access points for the park were adjacent to a freeway off ramp, with little to no surveillance and wayfinding signage present at the creek access point as shown in Picture C-33.



Picture C-33. Barton Creek Wilderness Park - Natural Access Control

The main access point is located significantly away from the parking lot and has no signage directing visitors to the intended access point. Expedient access points or “desire paths” are shown in Picture C-34; they are undesigned, shortcuts into the park created by foot traffic overtime. Extensive trash was present all along the tree line in the parking area.



Picture C-34. Barton Creek Wilderness Park - Natural Access Control

This park experiences a high level of vehicle break-in's. Because of this, there is a security camera trailer present in the middle of the parking lot. This trailer was vandalized at the time of the site visit (smashed solar panels) as shown in Picture C-35.



Picture C-35. Barton Creek Wilderness Park - security camera trailer monitoring the creek parking area

Colorado River Wildlife Sanctuary

The Colorado River Wildlife Sanctuary scored poorly across all CPTED categories, most notably in natural surveillance and image management / maintenance. Similar to the Barton Creek Wilderness Park, this area is accessible through a highway off ramp; however, the main parking area is located under the highway and is surrounded by dense vegetation. This leads to little surveillance from passing vehicles and foot traffic. The only natural surveillance would come from individuals working (maintenance crew was present during the survey) or walking along the adjacent pedestrian bridge, as shown in Picture C-36.



Picture C-36. Colorado River Wildlife Sanctuary - pedestrian bridge adjacent to the greenbelt parking lot which is underneath a major highway

This area has had known issues with overnight parking, dirt bike activity on the trails, and individuals experiencing homelessness. Motorized vehicle access has been mitigated by metal barriers, as shown in Picture C-37.



Picture C-37. Colorado River Wildlife Sanctuary - metal barriers along the trail

There is evidence of alcohol consumption in the parking lot and hiking trail; there were alcohol packaging and containers all throughout. While there were waste baskets at the parking lot, there were a lot of trash throughout the parking lot, picnic area, and hiking trail as shown in Picture C-38. There were also extensive graffiti observed on multiple pillars as shown in Picture C-39.



Picture C-38. Colorado River Wildlife Sanctuary - trash littered throughout the parking lot, including extensive graffiti on the pedestrian bridge pillar



Picture C-39. Colorado River Wildlife Sanctuary - extensive graffiti covers the pedestrian bridge pillars

C.2.2 Facilities

C.2.2.1 Administrative / Operational / Other Facilities

The survey completed at Festival Beach included a maintenance facility. See Section C.2.1.1.

C.2.2.2 Arts & Culture Facilities

CPTED Ratings and averages for Nature Parks are shown in Table C-16.

Table C-16. CPTED ratings of arts and culture facilities

Park / Facility Name	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Percentile	Average
George Washington Carver Museum and Cultural Center	4.75	8.00	6.75	8.00	6.75	7.00	0.500	6.88
Arts & Culture Average	5.75	6.38	7.38	8.00	5.63	6.50		6.60
Dougherty Arts Center	6.75	4.75	8.00	8.00	4.50	6.00	0.400	6.33

Arts & Culture Facilities – Fair

George Washington Carver Museum and Cultural Center

George Washington Carver Museum and Cultural Center scored well in the natural access control, image management / maintenance, and site / target hardening CPTED categories, and scored poorly in natural surveillance. The museum is adjacent to a middle school, public library, and church, a mixed retail and residential neighborhood. While thick bushes and trees obstruct views from the street towards the museum, there are large windows at the museum main entrance and several benches to help with natural surveillance from staff and museum visitors inside the building as shown in Picture C-40.



Picture C-40. George Washington Carver Museum and Cultural Center - Natural Surveillance

There was an individual sleeping outside of the facility next to the main entrance doors at the time of the site visit. Staff stated that another individual was present at one time but had an altercation with a museum visitor. Staff called APD and the individual was removed from the site. For the current individual, staff lets them stay as long as they are not disruptive.



Picture C-41. George Washington Carver Museum and Cultural Center - Image Management / Maintenance

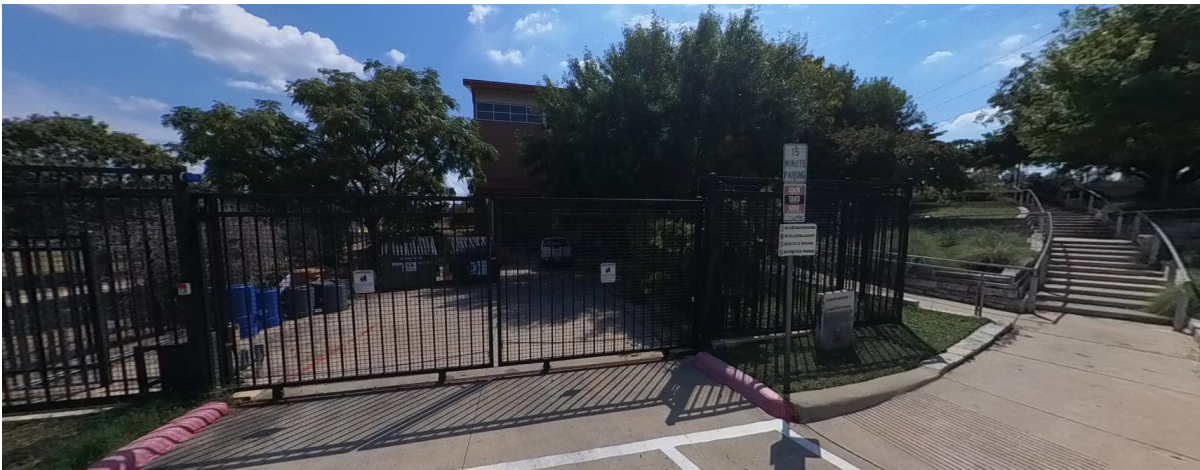
Extensive trash was observed on the ramp and stairs leading to the back of the museum, as shown in Picture C-41.

Behind the museum, there are several sheltering opportunities underneath the stairs or underneath the elevated walkway as shown in Picture C-42. However, there were no trash or indications of encampments in the back of the museum. This may be because the school play structure is also nearby within sight, so there may be a lower tolerance for unknown individuals to remain in the area over an extended period of time.



Picture C-42. George Washington Carver Museum and Cultural Center - Natural Surveillance - Back area of the museum with stairs leading up to the main level of the museum

Two loading docks on the north side were gated with keypad for entry, with security cameras facing the entry point to the facility, as shown in Picture C-43.

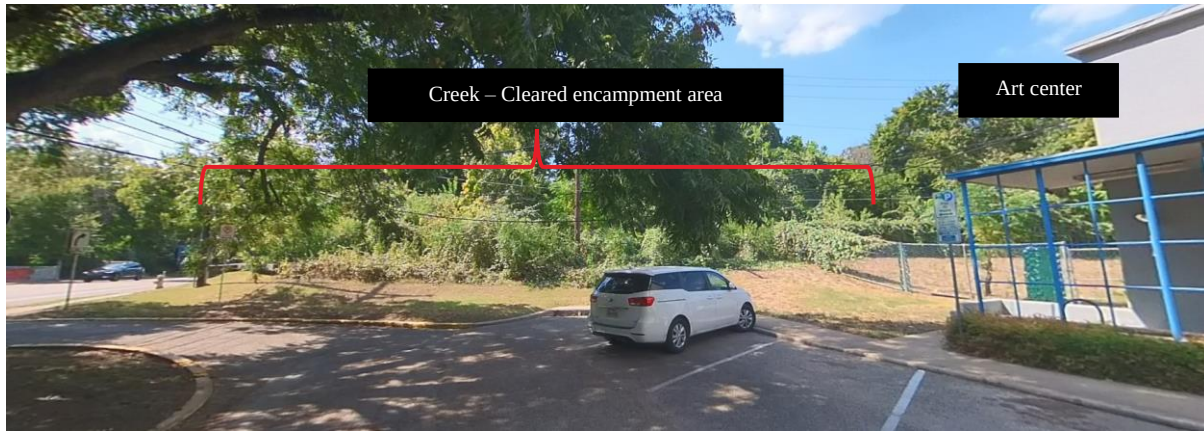


Picture C-43. George Washington Carver Museum and Cultural Center - Loading dock at the back of the museum

Dougherty Arts Center

The Dougherty Arts center scored fairly across all categories with some lower ratings across the natural access control and activity support categories, specifically on the western side of the arts center. The arts center main entrance faces a busy street with a modern apartment and row of restaurants across the street.

An individual was present in the creek while walking over the bridge at the time of surveying. The western side of the arts center is facing a former HEAL site that was regularly monitored by APD, as shown in Picture C-44. The adjacent creek was abundant with trash and graffiti.



Picture C-44. Dougherty Arts Center - Creek directly adjacent to the arts center. This was the location of a large encampment which has since been cleared. It is regularly patrolled by APD to keep it cleared

The western side of the arts center is accessible through a path with signage delineating employee access. Staff noted that the storage garages on the north side had been broken into before. This is shared storage between the arts center and park maintenance. Overgrown vegetation along the creek, where encampments have been cleared previously, forms the western perimeter of the facility. There are several blind spots, as the road leading to the back of the arts center forms a “U,” and the creek blocks visibility from the street or adjacent properties. Security cameras are present along this corridor, as shown in Picture C-45.



Picture C-45. Dougherty Arts Center - Western side of facility

C.2.2.3 Active Recreation Facilities

CPTED Ratings and averages for Active Recreation Facilities are shown in Table C-17.

Table C-17. CPTED ratings of active recreation facilities

Park / Facility Name	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Percentile	Average
Asian American Resource Center	10.00	8.67	10.00	10.00	10.00	7.33	0.967	9.33
Turner-Roberts Recreation Center	10.00	10.00	8.00	8.00	10.00	10.00	0.967	9.33

Park / Facility Name	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Percentile	Average
Barton Springs Municipal Pool	7.33	8.67	10.00	8.67	8.67	10.00	0.900	8.89
Onion Creek Soccer Complex	6.00	10.00	10.00	10.00	6.00	6.00	0.800	8.00
Bartholomew Pool	8.00	5.50	8.00	8.00	10.00	8.00	0.767	7.92
Lorraine "Grandma" Camacho Activity Center	6.00	10.00	10.00	10.00	10.00	1.00	0.733	7.83
George Morales Dove Springs Recreation Center	3.50	8.00	10.00	10.00	8.00	6.00	0.600	7.58
South Austin Recreation Center	8.00	6.00	7.00	7.00	8.00	5.75	0.533	6.96
Austin Recreation Center and Skate Park	6.00	5.50	5.50	5.50	8.00	5.50	0.300	6.00
Danny G. McBeth Recreation Center	4.33	7.33	4.00	7.33	7.33	4.33	0.267	5.78
Big Stacy Pool	2.67	6.00	10.00	1.00	10.00	7.33	0.333	6.17
Parque Zaragoza Recreation Center	6.00	6.00	10.00	1.00	1.00	6.00	0.200	5.00
Givens Recreation Center	2.67	6.00	4.33	4.33	6.00	2.67	0.133	4.33

Active Recreation Facilities – Good

Asian American Resource Center

The Asian American Resource Center scored highly among all CPTED categories, scoring highly in natural surveillance, natural access control, territorial reinforcement, image management / maintenance, and activity support. The back of the facility has large windows with proper placement, well maintained vegetation, and activity generators such as programming for the community and exercise equipment, as shown in Picture C-46. Additionally, the recreation center has a duress button at reception and multiple security cameras around the perimeter of the building.



Picture C-46. Asian American Resource Center - Natural Surveillance, Activity Support

The facility is roughly one mile away from Highway 183 interchange. Individuals experiencing homelessness often walk from the interchange into the facility for resources such as electricity, water, and restrooms. Staff reported multiple individuals experiencing homelessness residing on the public road-facing side of the facility. At the time of the site visit, an individual was observed laying down outside of the recreation center and blocking the emergency exit; they were using an outdoor electrical outlet to charge their electronic device.

While enclosures keep the dumpsters out of sight and is more aesthetically pleasing, it provides a potential hiding spot, as shown in Picture C-47. PARD staff shared that there have been multiple instances of individuals defecating in the dumpster enclosure. An outdoor automatic light was installed near the enclosure to discourage the behavior.



Picture C-47. Asian American Resource Center - Maintenance Area

Turner Roberts Recreation Center

Turner Roberts Recreation Center scored highly among all CPTED categories, scoring highly in natural surveillance, natural access control, activity support, and site / target hardening. The facility is detached from the city center and is connected to the Overton Elementary school. The main facility and satellite gymnasium had an extensive amount of security cameras. Cameras were placed at blind spots, corners of buildings, maintenance areas, and park centers, such as the basketball court in the back of the facility, as shown in Picture C-48.



Picture C-48. Turner Roberts Recreation Center - Natural Surveillance

Some trash was present throughout the park area on the back side of the facility adjacent to the baseball fields and playgrounds, as shown in Picture C-49.



Picture C-49. Turner Roberts Recreation Center - Image Management / Maintenance

Barton Springs Municipal Pool

Barton Spring Municipal Pool scored highly in the territorial reinforcement and site / target hardening CPTED categories. The site was well maintained, enclosed by fencing, and access was controlled through ticketing for entry into the facility, as shown in Picture C-50.



Picture C-50. Barton Springs Municipal Pool - Natural Access Control

The southernmost dedicated parking lot was well maintained, had active sightlines, and extensive signage for wayfinding and displaying park rules.

Onion Creek Soccer Complex

Onion Creek Soccer Complex scored highly among the natural access control, territorial reinforcement, and image management / maintenance CPTED categories. The complex had clear sight lines throughout, was well maintained, and was mostly free of trash. There are multiple vehicle access points to the park, all except one were closed, chained, and secured with a pad lock, as shown in Picture C-51. Boulders and vehicle barriers were placed throughout the complex, extending into the center of the facility as shown in Picture C-52. One gate was open at the time of the site visit, as individuals and small groups can freely access the fields without reservations.



Picture C-51. Onion Creek Soccer Complex - Site / Target Hardening



Picture C-52. Onion Creek Soccer Complex - Site / Target Hardening

Bartholomew Pool

Bartholomew Pool scored highly in the natural surveillance, activity support, and site / target hardening CPTED categories. The front side of the pool faces dedicated parking for the facility, a road well-travelled by cars and pedestrians, and a shopping center, as shown in Picture C-53. The back side of the facility connects to the Bartholomew District Park across Tannehill Creek.



Picture C-53. Bartholomew Pool - Natural Surveillance

The pool facility's main access point is fenced, has an operable gate, and bollards to prevent vehicle access, as shown in Picture C-54.



Picture C-54. Bartholomew Pool - Site / Target Hardening

The pool storage area was secured by locked gates and anti-cut fencing, as shown in Picture C-55. Some trash was observed around the perimeter of the pool facility, including clothes, a shopping cart, and plastic wrappers, as shown in Picture C-55.



Picture C-55. Bartholomew Pool - Image Management / Maintenance

Lorraine “Grandma” Camacho Recreation Center

Lorraine “Grandma” Camacho Recreation Center scored highly across the natural access control, territorial reinforcement, image management / maintenance, and activity support CPTED categories. The recreation center is located in a neighborhood along Festival Beach, with the main entrance facing these residences and a shared parking lot. The parking lot is shared between PARD storage trailers, parking for the facility, and maintenance equipment from the residences, as shown in Picture C-56. Staff reported a recent break-in in this location, with items from a trailer being stolen the week prior to the site visit.



Picture C-56. Lorraine “Grandma” Camacho Recreation Center - Natural Surveillance

Within the facility, there were at least 100 bikes in hallways, offices, etc. as they need to be accessed throughout day while the facility is open. There is not enough space in the facility to store everything, leading to a need to store excess equipment in shipping containers, as shown in Picture C-57.



Picture C-57. Lorraine “Grandma” Camacho Recreation Center - External Storage in Shipping Containers

PARD Staff noted that 25 bicycles were stolen from inside the facility in August 2024. Burglars entered by removing the sealant on the window and pushing the plexiglass window in. The individuals accessed the facility through the back side, which is poorly lit and has no security cameras, as shown in Picture C-58. Staff noted that this is a common area for encampments and vandalism.



Picture C-58. Lorraine “Grandma” Camacho Recreation Center - Break-in Location

The western side of the facility contains a fenced kayak launch point which is used for programming, as shown in Picture C-59. Staff shared that there are approved plans to build a new facility on the dock which will provide public access to the kayak launch system, while keeping one side reserved for recreation center programs. Nearby the dock within the fence enclosure are six storage containers, which contain water sport and other equipment. Staff shared that they’ve had the containers for at least a decade or more.



Picture C-59. Lorraine “Grandma” Camacho Recreation Center - Fenced facility area

Active Recreation Facilities – Fair

George Morales Dove Springs Recreation Center

George Morales Dove Springs Recreation Center scored highly among the territorial reinforcement and image management / maintenance CPTED categories. The facility is adjacent to an elementary school, and often hosts after school programming for the student population. There is an extensive amount of security cameras throughout the facility, especially along the front school-facing side, as shown in Picture C-60.



Picture C-60. George Morales Dove Springs Recreation Center - Natural Surveillance

The back side of the facility has five shipping containers placed adjacent to the facility, as shown in Picture C-61. PARD staff noted some instances of encounters with individuals experiencing homelessness in this area – it is poorly lit, has multiple blind spots, and has only one security camera.



Picture C-61. George Morales Dove Springs Recreation Center - Natural Surveillance

PARD staff noted previous incidents of drug use on the back side of the park that connects to the facility, as it is easily accessible through the greenway that runs adjacent to the property. This area has an abundance of passive recreation structures, including benches, outdoor calisthenics equipment, play structures, and picnic tables, as shown in Picture C-62.



Picture C-62. George Morales Dove Springs Recreation Center - Activity Support

South Austin Recreation Center

The South Austin Recreation Center scored consistently across all CPTED categories. It is located next to a neighborhood leading to a slightly higher natural surveillance rating. The facility is located within a neighborhood with passive surveillance from adjacent houses and pedestrian activity, as shown in Picture C-63. During the site visit, several activities were observed in and around the facility: people driving to walk their dogs, adults with strollers, children using the play structure, and individuals playing tennis.



Picture C-63. South Austin Recreation Center - Natural Surveillance

The back side of the facility contained play structures, picnic tables, and tennis courts, as shown in Picture C-64. This area had extensive park rules signage, and PARD staff was observed emptying trash containers at the time of the site visit, also shown in Picture C-64. There were two security cameras facing this area mounted on the back side of the facility, which are actively monitored by PARD staff inside the facility.



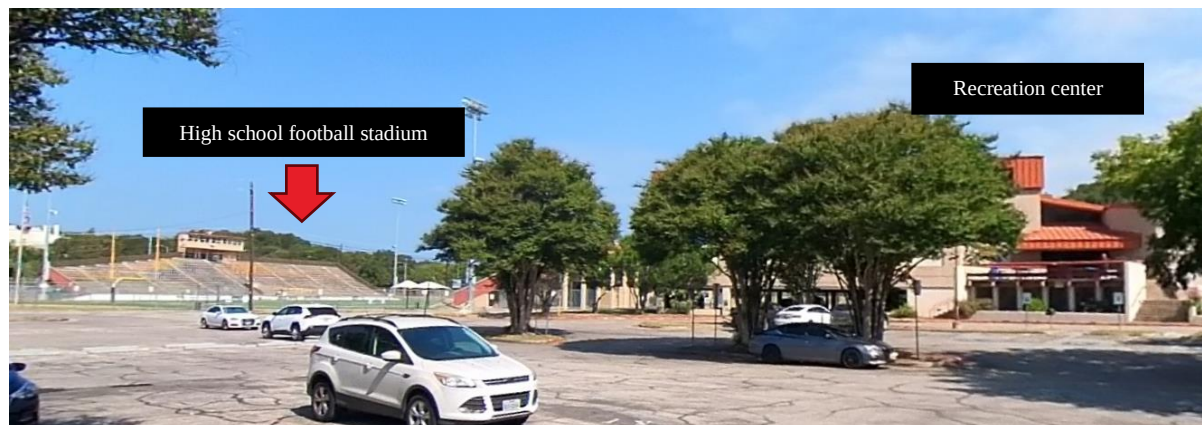
Picture C-64. South Austin Recreation Center - Image Management / Maintenance

Active Recreation Facilities – Poor

Austin Recreation Center and Skate Park

Austin Recreation Center and Skate Park scored consistently lower across all CPTED categories, with lower ratings across the natural access control and image management / maintenance categories. The recreation center

parking lot shares property with the skate park and a high school football stadium operated by the Austin Independent School District (ISD), as shown in Picture C-65.



Picture C-65. Austin Recreation Center and Skate Park - Natural Surveillance

The design of the recreation center creates multiple blind spots in the front entrance. It has little natural surveillance over the parking lot from the facility due to the lack of windows at the front entrance, as shown in Picture C-66.



Picture C-66. Austin Recreation Center and Skate Park - Natural Access Control

PARD staff reported individuals experiencing homelessness staying nearby the recreation center, overnight camping in the parking lot leading to after-hours use, and curfew non-compliance at the skate park. Individuals experiencing homelessness are often found in the parking garage under the recreation center. At the time of the site visit, this area had been recently cleaned up; however, extensive trash was observed.

The skate park is easily accessible from the public sidewalk with little delineation of space between PARD property and the road, as shown in Picture C-67. The skate park has extensive graffiti throughout and was poorly maintained, with overflowing trash cans and other trash throughout the property including empty alcohol containers. There are no fencing or vehicle barriers preventing access to the skate park from the road.

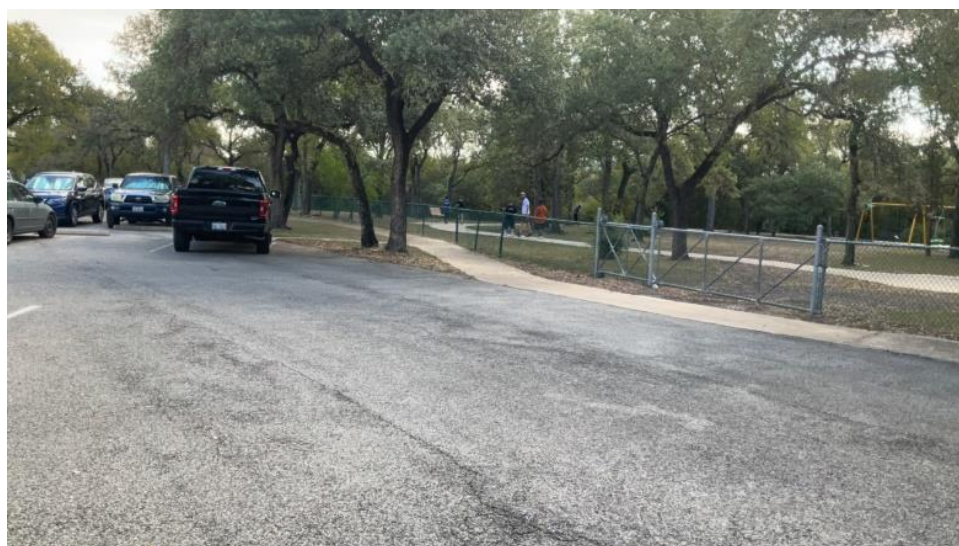


Picture C-67. Austin Recreation Center and Skate Park - Site / Target Hardening

Danny G. McBeth Recreation Center

Danny G. McBeth Recreation Center contains two separate buildings; a recreation center and playground on the southern end of KC Drive, and an annex building used for programming on the northern end. Both facilities scored poorly across the natural surveillance, territorial reinforcement, and site / target hardening CPTED categories. Both facilities reside in Zilker Park and are accessed through an isolated driveway, hidden behind vegetation and not viewable from more frequently travelled roads and pedestrian paths.

The southernmost recreation center was actively used by children and staff during the time of the site visit. Although the playground and back area of the facility were hidden and surrounded by bushes, vegetation, and trees, there was extensive fencing around the facility which is designed to keep children on facility property, as shown in Picture C-68.



Picture C-68. Danny G. McBeth Recreation Center - Site / Target Hardening

The northernmost annex building hosts programs after school for children, including programs for the special needs population. Staff mentioned that afternoon/evening programming at this location was impacted by the lack of lighting around the back of the facility. A paved pathway leads from the facility through a heavily forested area to the bus stop along a major roadway, as shown in Picture C-69.



Picture C-69. Danny G. McBeth Recreation Center - Natural Surveillance

Program participants have expressed safety concerns with walking to the bus stop after dark because of the lack of visibility, and staff have had to escort them to the bus stop. The area is poorly lit and have multiple blind spots and areas that unknown individuals can / have occupied. Specifically, sheltered areas around the building with outdoor access to power outlets are often occupied by unknown individuals. These outdoor power outlets have since been covered up.



Picture C-70. Danny G. McBeth Recreation Center - The back of the annex building experiences a high number of unknown individuals seeking shelter, using the outdoor power outlet, or consuming alcohol or using drugs

Big Stacy Pool

Big Stacy Pool scored very poorly across the natural surveillance and image management / maintenance CPTED categories. The pool is detached from neighboring roads and blocked from view by the adjacent elementary school, as shown in Picture C-71.



Picture C-71. Big Stacy Pool - Natural Surveillance

PARD staff noted that individuals experiencing homelessness access the pool restrooms on a regular basis. Drug users also frequently use and stay in the restrooms for an extended period of time, leaving behind needles and other drug paraphernalia. Staff had previously hired a contracted security guard who was stationed at the pool entrance, which was effective at lowering restroom misuse incidents. However, this has stopped due to budgetary constraints and performance issues with the security guard.



Picture C-72. Big Stacy Pool - Natural Access Control - At the front are the public restroom and shower facility frequently misused by the unhouse population or drug users

Multiple fence gates at each corner of the restroom and shower facility are installed to reinforce it against unauthorized access during non-operating hours. Safety convex mirrors are also installed to provide staff and pool users the ability to see around the building corner, as shown in Picture C-73.



Picture C-73. Big Stacy Pool - Site / Target Hardening

There is 6-10 ft chain link fencing around the entire pool facility. Some sections of the fencing also have a three-strand barbed wire topper and green privacy screens. Fencing on the western side of the pool has been bypassed by individuals swimming overnight, although it has been reinforced on the eastern side with the addition of barbed wire and an additional, taller fence, as shown in Picture C-74.



Picture C-74. Big Stacy Pool - Site / Target Hardening

Parque Zaragoza Recreation Center

Parque Zaragoza Recreation Center scored very poorly across the natural surveillance, image management / maintenance, and activity support CPTED categories. The design of the building includes sharp corners, obtrusive walls, and hidden pockets of space, creating blind spots around the building, especially on the back side of the facility that faces dense vegetation, as shown in Picture C-75.



Picture C-75. Parque Zaragoza Recreation Center - Natural Surveillance

Tree canopies and vegetation surround the east and back side of the facility; although there are security cameras surrounding the facility, PARD staff noted their desire for more cameras.

The recreation center is adjacent to a parking lot and recently fenced-off, unoccupied building which experiences high levels of drug sales, drug use, alcohol consumption, and assaults. The adjacent parking lot has been subject to regular patrols from APD, who were called and arrived to investigate an altercation during the site visit. This area is blocked off by a vehicle gate but is still accessible around the gate, as there is no supporting fencing or barriers, as shown to the right of Picture C-76.



Picture C-76. Parque Zaragoza Recreation Center - Site / Target Hardening

The neighborhood park behind the rec center had issues with high levels of incidents involving drug sales, drug use, alcohol consumption, assaults, and misuse. The situation has since improved with more frequent APD patrols, but they continue to experience issues.

PARD staff reported that they would have youth programs in the park. Before they bring the groups out, staff would need to do a sweep of the park to make sure it is safe. Trash and evidence of drug use (needle) was observed during the site visit on the back end of the facility, as shown in Picture C-77.



Picture C-77. Parque Zaragoza Recreation Center - Image Management / Maintenance

Givens Recreation Center

Givens Recreation Center scored poorly across all CPTED categories, specifically natural surveillance and site / target hardening, scoring the lowest among all active recreation facilities. PARD staff noted ongoing issues of overnight parking, drug use and sales, and after-hours use of the neighborhood park behind the rec center.

The area in front of the rec center main entrance was well maintained at the time of the site visit. Staff shared that most outdoor program activities occur in the areas in front of the building. The front door is the main access point to the facility – Givens is the only facility from all site visits that has locked down doors (doors that stay locked and require manual input from employees to allow access into the facility).

Staff stated that the procedure is to make a judgement on approaching individuals (i.e., are they presenting mental or physical crisis, wearing shirts or shoes, etc.) then unlock the door as needed. Staff shared that due to the heightened level of activities occurring nearby this was a measure they needed to implement for staff and program participant safety.

Staff stated that they previously contracted APD off-duty officers to station at the recreation center but could not afford to continue the service (costs were approximately \$100k a year). They hired contracted security personnel (3rd party), but this will stop soon as the facility's operating budget is spent. No security personnel were observed at the recreation center at the time of the survey. APD response time varies from 10 minutes to up to an hour, based on time of day, busyness – but criticality is the main factor. Staff stated that if they report someone with a firearm, or other life-threatening scenario, the response time is significantly faster than, for example, reporting an individual experiencing homelessness staying outside the facility.



Picture C-78. Givens Recreation Center - Natural Surveillance / Activity Support

Trash and blind spots were observed throughout the back side of the building due to sharp corners, the lack of ground windows facing outwards, and multiple shipping containers, as shown in Picture C-79.



Picture C-79. Givens Recreation Center - Natural Surveillance

Multiple encampments have existed on the site and in the surrounding area, mainly to the east side of the facility and on the western side in the forested area, as shown in Picture C-80. Staff reported that APD has cleared out nearby encampments in the past but is unsure if they monitor and keep the area clear of encampments.



Picture C-80. Givens Recreation Center Western side – previous site of encampment

Behind the facility, there were activity generators including a pavilion, basketball and tennis courts, benches, and restrooms, as shown in Picture C-81.



Picture C-81. Givens Recreation Center - Activity Support

PARD staff shared that illegal activity happens at night in the park such as drug use, drug sales, alcohol sales, overnight use, and overnight parking. Restrooms in this area are gated, but staff has found evidence of overnight sleeping and drug use in this facility. The restrooms have experienced multiple arson or intentional fire incidents throughout the past year. There are some measures to mitigate this type of activity (vehicle barriers and towing service), but they have not been effective or actively enforced. Vehicle gates showed no signs of use during the site visit, as there is vegetation growing over one side of the vehicle gates.



Picture C-82. Givens Recreation Center - Vehicle gates at one side of the district park; the gate on the right has vegetation growing over it, indicating it has not been used in a long time

C.2.2.4 *Passive Recreation Facilities*

CPTED Ratings and averages for Passive Recreation Facilities are shown in Table C-18.

Table C-18. CPTED ratings of passive recreation facilities

Park / Facility Name	NS Avg.	NAC Avg.	TR Avg.	IMM Avg.	AS Avg.	STH Avg.	Percentile	Average
Alliance Children's Garden	5.67	-	8.67	8.67	10.00	6.00	0.700	7.80
Passive Recreation Average	4.58	-	8.33	7.33	8.00	3.50		6.35
Festival Beach Food Forest	3.50	-	8.00	6.00	6.00	1.00	0.167	4.90

Passive Recreation Facilities - Good

Alliance Children's Garden

The Alliance Children's Garden scored highly in the activity support CPTED category, and consistently across all others. The facility is located directly east of the Dougherty Arts Center and within Butler Metropolitan Park, sharing parking and access with both facilities.

There are two large play areas in the garden, one is closer to the entrance at grade, and one is below grade. These areas are detached from the parking lot and hidden behind vegetation surrounding the entire location.

Dense vegetation surrounds the entrance of the park, which impacts visibility when accessing the facility, as shown in Picture C-83. This type of vegetation is present throughout the entire park, surrounding the main playground area.



Picture C-83. Alliance Children's Garden entrance – Thick, tall bushes and vegetation forms the garden perimeter, obstructing views from outside and throughout the garden

The below grade play area requires users to climb down to the play area, as shown in Picture C-84. This is ideal if the adult supervision remains above, because they have increased visibility from the higher vantage point;

however, it would be difficult to observe approaching individuals if the adult supervision is down in play area where there also are picnic tables and shade structures.



Picture C-84. Alliance Children's Garden - Natural Surveillance

There were two individuals experiencing homelessness at the adjacent park at the time of the site visit, along with scattered trash and discarded clothes in and around the below grade play structure, as shown in Picture C-85.



Picture C-85. Alliance Children's Garden - Evidence of Vagrancy

Passive Recreation Facilities - Poor

Festival Beach Food Forest

Festival Beach Food Forest scored poorly in the natural surveillance and site / target hardening CPTED categories. Notable adjacencies include residences to the west, along with an access point to Interstate 35. There is a bus stop on the western side of the facility.

The food forest is open to the public with no perimeter fence or barriers, while the community garden has a perimeter fence, and access is controlled. Community garden pedestrian gates have push padlock, and vehicle gates are secured with chains and padlock, as shown in Picture C-86.



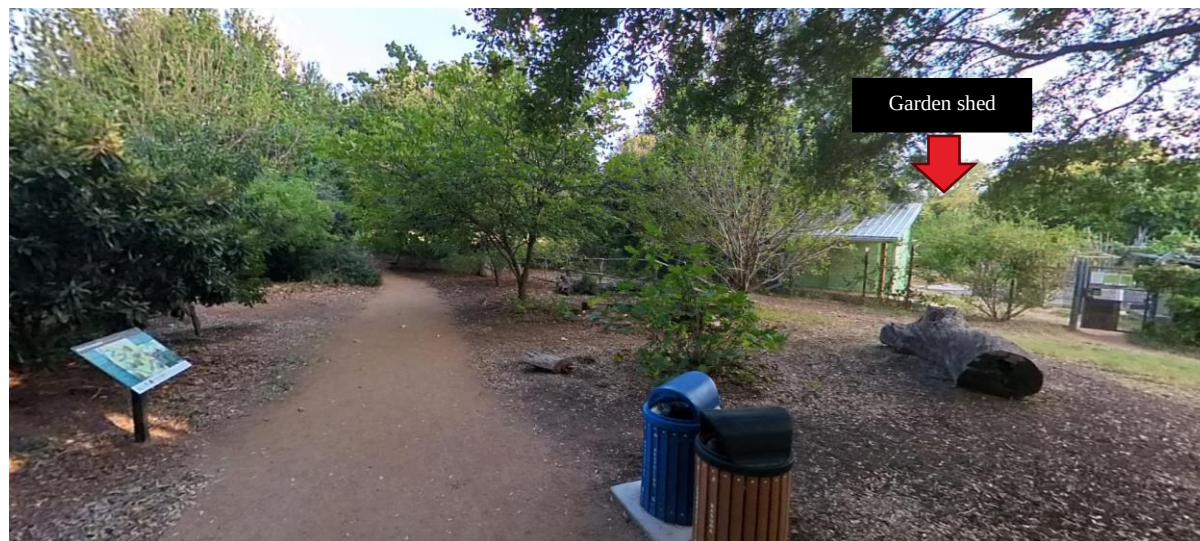
Picture C-86. Festival Beach Food Forest – The community garden is to the left, while the dirt pathway leads through the food forest which is openly accessible to the public

Volunteers were present throughout both the food forest and community garden. The food forest mission is to use regenerative practices in order to “provide food, shade, and ecosystem services to its neighbors.” As a result, there is poor natural surveillance throughout, as visibility is limited by the abundance of trees, plants, and bushes.



Picture C-87. Festival Beach Food Forest – Information booth which contains site and program information, along with a painted bench, at a food forest access point

Staff noted that a garden shed, which sits within the community garden perimeter, had recently been broken into, and gardening tools and other equipment were stolen. There was an abundance of trash throughout (specifically alcohol containers) and vandalism (spray paint on wooden benches) throughout the food forest.



Picture C-97. Festival Beach Food Forest – The dirt pathway leads through the food forest; pictured right is a pedestrian gate leading into the community garden where the garden shed is located

C.3 Nighttime Survey Methodology

The approach taken for the nighttime analysis gives insight into a person's perception of safety at night by weaving the technical component of lighting design with human experience. The goal is to provide owners and operators of a site with the necessary information that allows them to engage with concepts of pedestrian safety and equal access after dark, reflect on ways to improve lighting, assess the risks involved, and act to mitigate and reduce the risk to the public. The data collected has been analyzed to inform design interventions for the improvement of the area's perception of safety to realize the full potential of the facilities and bring the greatest value to the community.

As background for how our methodology came to be, a preliminary study was conducted to identify and quantify how the experience of elements of light contribute to the perception of safety. From the outcomes of this study, different characteristics were determined to be drivers that influence the perception of safety at night including visual transparency, surface reflectance, CRI, CCT, etc. These characteristics were either qualitative or quantitative. During this study, an ideal value for each characteristic was determined.

In October 2024, a survey team went out and evaluated 30 different PARD parks and recreation facilities. During the survey, data was taken at multiple points of interest as described in C3.3. At these points, quantitative data was collected using equipment that records key characteristics of the light. Additionally, images and notes regarding perception of safety were taken to understand the qualitative components. The data collected during the survey was analyzed against the ideal values determined in the preliminary study to find out what characteristics could be improved upon.

An expansion on the qualitative and quantitative characteristics observed at each site are below:

Physical Site Characteristic Assessment (Qualitative)

Surface Reflectance

Specularity

Visual Transparency

Physical Transparency

Scale

Technical Lighting Assessment (Quantitative)

Color Temperature

Color Rendering

Vertical Illuminance

Horizontal Illuminance

Uniformity

C.3.1 Physical Site Characteristic

The physical site characteristics in different planes of view help come up with a Perceived Nighttime Safety Score. Each site is given a score for each characteristic listed for all different planes of view. A weighting formula was devised to balance the contribution of all the characteristic elements, based on research findings and community workshop feedback. The formula considers the importance and contribution of each plane of view and the physical characteristics.

C.3.1.1 Surface Reflectance

Surface reflectance refers to how bright the surfaces appear within the site, being assessed regardless of additional lighting. For example, is a fence painted white or black?

In this assessment, most surroundings were either dark or neutral in surface brightness. Darker surfaces are correlated with areas that are heavily vegetated, and more neutral surfaces include building facades and pavement.

The light reflectance of a surface greatly influences the way in which light reflects and therefore the way it is perceived by site users. Generally, the more reflective the surface, the better a light will illuminate an area.

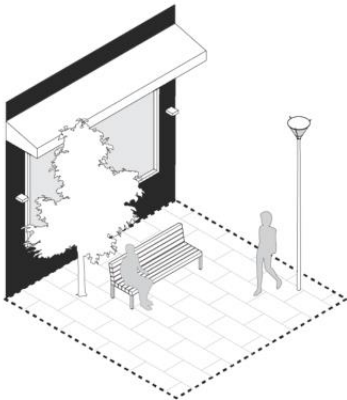


Figure C-3. Surface reflectance example graphic

C.3.1.2 *Specularity*

Specularity refers to the visual appearance of reflections. The higher the level of specularity the greater the level of mirror-like reflection. For example, a polished surface could have a high level of specularity in comparison with a matte surface.

In this assessment, most surroundings were either matte or neutral in specularity. Matte surfaces such as vegetation reflect little light, and neutral surfaces like pavement and buildings reflect more. Some surfaces were more reflective, such as those located near water.

The distribution of illumination can be significantly distorted by specular reflections in surfaces. Matte surfaces aid in providing more uniformly distributed illumination which was identified as creating a greater perception of safety.

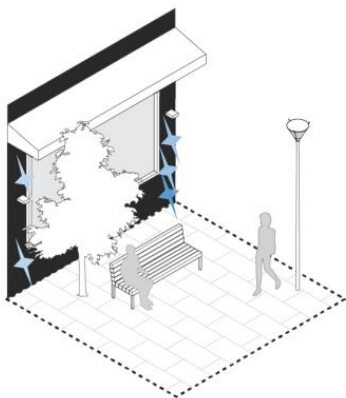


Figure C-4. Specularity example graphic

C.3.1.3 *Visual Transparency*

Visual transparency refers to the ability to see through the object plane. For example, the object plane will be very transparent if it is made of glass in comparison to a solid wall.

Visual transparency correlated with a sense of ‘not being alone’ and a sense of community in an area. Visual transparency allows for light to glow from within windows and behind walls, indicating that there is a human presence in the area. This intangible sense of ‘not being alone’/ passive surveillance works in collaboration with brightness (luminance levels).

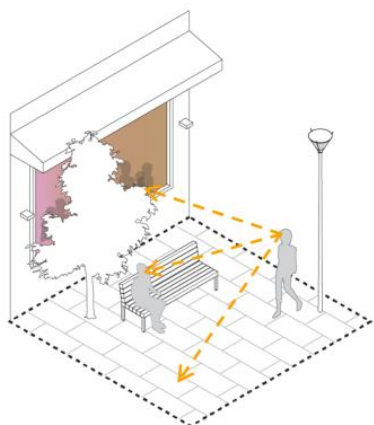


Figure C-5. Visual transparency example graphic

C.3.1.4 *Physical Transparency*

Physical transparency refers to the openness of a site or the ease at which you can pass through the site without being diverted by existing physical elements.

For example, a site with a great number of trees and furniture is far more difficult to pass through than a site without any furniture, vegetation or physical elements.

The results from the study demonstrated that the perceived level of safety reduced when a site had a greater number of physical measures that prevented ease of movement.

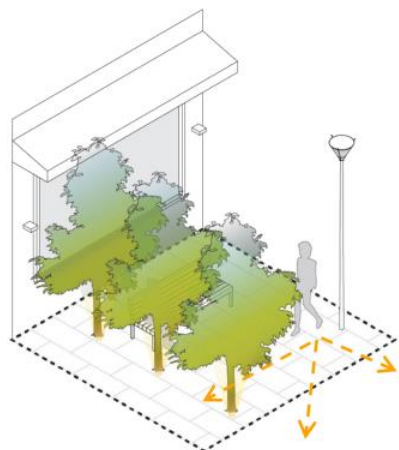


Figure C-6. Physical transparency example graphic

C.3.1.5 *Scale*

Scale considers the human scale of the site elements in the immediate foreground. Objects that are in a clear line of sight increase perceived safety, accessibility and sense of openness as opposed to objects that are too high above the visual line of sight.

These elements contributed to the overall perception of safety and the way in which lighting should be implemented to enable a familiar, human scale of engagement with the surrounding environment by providing functional as well as considered layering of lighting with focal points for natural wayfinding.

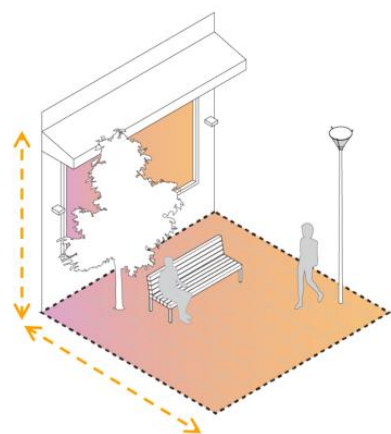


Figure C-7. Scale example graphic

C.3.2 Technical Lighting Assessment

The Technical Lighting Assessment looks at the quantitative data taken from the survey. It collates all the data into a spider diagram. The data can be compared to an existing baseline character of the variables that are considered ideal for a site.

In the analysis, the yellow diagrams show the ideal values the measurements should be at. The purple diagrams show what was measured on field.

C.3.2.1 Color Temperature

The color appearance of a light source is defined in terms of its correlated color temperature (CCT) and expressed in kelvin (K). When CCT is higher, e.g. 5000K, the light source appears cooler (white). When CCT is lower e.g. 3000K, the light will appear more warm and yellow in color.

The research conducted suggests that humans prefer warmer colour temperatures at night and the data collected demonstrated that an unsafe site correlated with lighting that had much cooler (higher) CCT.

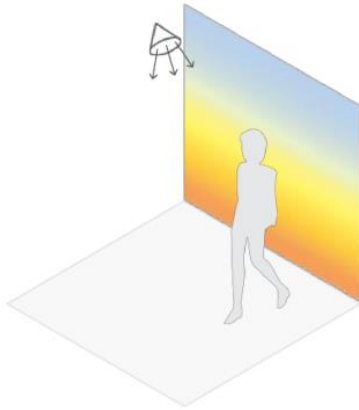


Figure C-8. Color temperature example graphic

C.3.2.2 Color Rendering

This category considers how accurate the color of site surrounds is rendered by the light source, in comparison to natural light sources (daylight). This is based on the color rendering index (CRI) on a scale of up to 100, whereby 100 is the most accurate color rendering available to the human eye.

A capacity to accurately perceive colour at night and distinguish shapes increases perceptions of safety. Therefore, in this category, a site that renders colours very accurately (i.e. appears the same as it would during the daytime) will align closely with the baseline score. Comparatively, lighting that renders object colours in a vast discrepancy to their normal daylight appearance will likely deviate from the baseline.

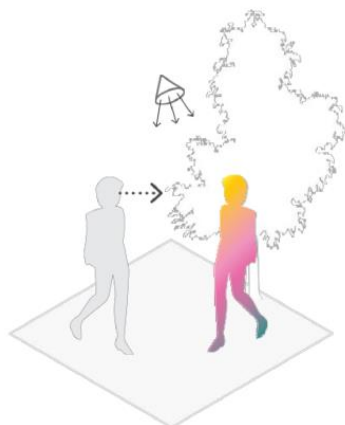


Figure C-9. Color rendering example graphic

C.3.2.3 Vertical Illuminance

Illuminance is used to describe the measurement of the amount of light falling onto a given surface or area, measured in lux. This, when interacting alongside surface finishes and physical context of the space, illuminance has the potential to correlate with how a person perceives the brightness of an area being illuminated.

The vertical measurement of illuminance is the amount of light that lands on a plane oriented vertically.

Sites with higher vertical illuminance are more commonly perceived as unsafe sites. This may be due to a number of factors including the glare it creates in the eyes of site occupants which can create a distorted or shadowed view of the environment around them.

Therefore, in this category, a site with a high number of floodlights or similarly bright illumination from an overhead light will likely deviate at a higher rate from the baseline than lighting that presents a lower level of glare from a vertical angle (i.e. coming from above head height of the site users).

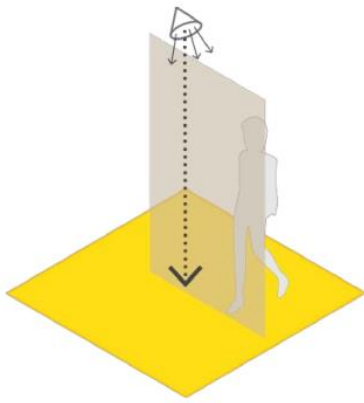


Figure C-10. Vertical illuminance example graphic

C.3.2.4 *Horizontal Illuminance*

As described above, illuminance is used to describe the measurement of the amount of light falling onto a given surface or area, measured in lux. Horizontal illuminance is the amount of light that lands on a horizontal surface or plane such as a tabletop.

Similarly to vertical illuminance, a high level of horizontal illuminance correlates to perceptions of unsafety. This is likely due to an increased glare from a horizontal perspective which creates shadows and contrasts in the surrounding environment.

Therefore, a site with extremely bright light illuminating horizontally will likely deviate at a higher level from the baseline, whilst a light that doesn't create any glare will fall within the baseline measurement.

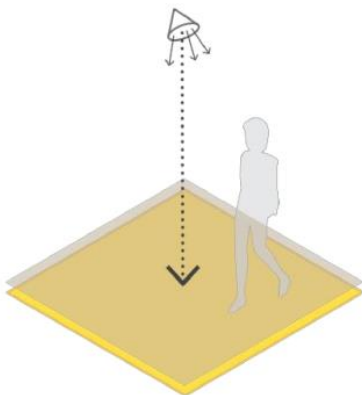


Figure C-11. Horizontal illuminance example graphic

C.3.3 Lighting Assessment Types

Similar to the security audit categories, the Nighttime Assessment points were categorized into the following assessment types detailed in Table C-19.

Table C-19. Nighttime assessment types

Assessment Type	Description
Park Access	Designated access point to a park asset. Includes vehicle, pedestrian, and trail access points as noted in PARD data.
Park Center	Congregation point within a park asset. Includes locations such as viewing areas of recreational fields and other activated spaces within parks.
Park Facility	PARD operated facility that is within a park asset. Includes locations such as maintenance facilities and visitors centers. These facilities were not specifically noted as a proposed audit location from PARD.
Parking Lot	Designated or expedient parking that is specific to or adjacent to a park. All parking lots surveyed were under PARD jurisdiction.
Arts & Culture	Facilities which include cultural, arts, and community centers, performance venues, historic sites, classrooms, and art installations.
Active Recreation	Facilities or areas developed for active recreation including athletic fields, ranges, courses, gyms, campgrounds, aquatic activities, and associated amenities (RV dump station, bathhouses...etc.).
Passive Recreation	Passive recreation facilities includes off-leash dog areas, playgrounds, picnic areas, pavilions, benches, scenic overlooks, and other structures or amenities which encourage passive use of the area.
Facility Entry	Entryways/doors for the facility buildings, including those located in parks. These doors can be primary or secondary entrances.
Facility Back Entry	Entryways/doors and loading docks at the back of the facility, including those located in parks.

C.4 Nighttime Overall Ranking

The perceived nighttime safety at all the points were made through an analysis of the data collected during the nighttime site survey. These values were taken in November 2024. Conditions may have changed since then. Conditions can also vary throughout the night and may differ on different days.

Table C-20. Perceived nighttime safety scoring system and criteria

Rating	Criteria
High	Scoring falls between 0 and 47. It is perceived that there is a high level of safety. One can relax, but still must being aware of surroundings.
Medium	Scoring falls between 48 and 66. It is perceived that there is an average level of safety. One can exercise normal caution and stay wary of surroundings.
Low	Scoring falls between 67 and 100. It is perceived that there is a low level of safety. One must be vigilant and cautious when entering this area.

C.4.1 Nighttime Conditions and Schedule

Table C-21 and Table C-22 detail the conditions and scheduling of nighttime lighting survey audits, respectively.

Table C-21. Nighttime Lighting Survey Conditions

Date	Moon Condition	Weather Conditions
November 4 th , 2024	Waxing Crescent	Cloudy with some Rain
November 5 th , 2024	Waxing Crescent	Clear Skies
November 6 th , 2024	Waxing Crescent	Cloudy
November 7 th , 2024	Waxing Crescent	Cloudy
November 11 th , 2024	Waxing Gibbous	Clear Skies
November 12 th , 2024	Waxing Gibbous	Clear Skies
November 13 th , 2024	Waxing Gibbous	Clear Skies
November 14 th , 2024	Waxing Gibbous	Clear Skies

Table C-22. Nighttime Lighting Survey Schedule

Date	Location	Time
November 4 th , 2024	South Austin Recreation Center	6:30pm-8:00pm
	West Bouldin Creek Greenbelt	8:00pm-9:00pm
	Alliance Children's Garden	9:00pm-10:00pm
	Dougherty Arts Center	10:00pm-11:00pm
November 5 th , 2024	Big Stacy Pool	6:30pm-7:30pm
	Festival Beach Food Forest	7:30pm-8:30pm
	Festival Beach Fiesta Garden	8:30pm-9:30pm
	Zilker Metro Park	9:30pm-11:30pm
November 6 th , 2024	Stephenson Nature Preserve	6:00pm-7:30pm
	Barton Creek Wilderness Park	7:30pm-8:30pm
	Danny G. McBeth Recreation Center	8:30pm-9:30pm
	Barton Springs (South Entrance, public access)	9:30pm-11:00pm
November 7 th , 2024	Lorraine "Grandma" Camacho Activity Center	6:00pm-7:00pm
	Colorado River Wildlife Sanctuary	7:00pm-7:30pm
	Roy G. Guerrero Colorado River Metro Park	7:30pm-9:30pm
	George Morales Dove Springs Recreation Center	9:30pm-10:30pm
	Onion Creek Soccer Complex	10:30pm-12:00am
November 11 th , 2024	Givens Recreation Center	6:30pm-7:30pm
	Parque Zaragoza Recreation Center	7:30pm-9:00pm
	Parque Zaragoza Neighborhood Park	9:00pm-10:00pm

Date	Location	Time
November 12 th , 2024	George Washington Carver Museum and Cultural Center	6:00pm-7:30pm
	Austin Recreation Center and Skate Park	7:30pm-8:30pm
	Pease Park Conservancy	8:30pm-10pm
November 13 th , 2024	Asian American Resource Center	6pm-7:30pm
	Bartholomew Pool	7:30pm-8:30pm
	Bartholomew District Park	8:30pm-9:30pm
	Turner-Roberts Recreation Center	9:30pm-11:00pm
November 14 th , 2024	Commons Ford Ranch Metro Park	6:30pm-8:00pm
	Mayfield Park	8:00pm-9:30pm
	Walter E. Long Metro Park	9:30pm-11:00pm

C.4.2 Parks

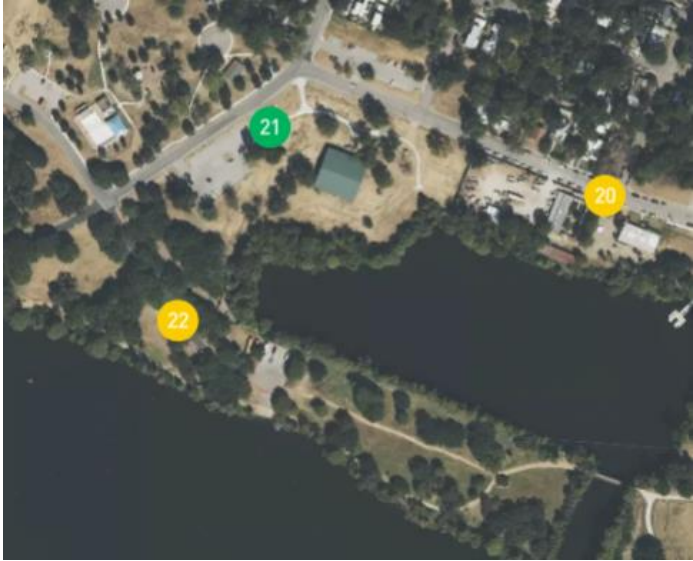
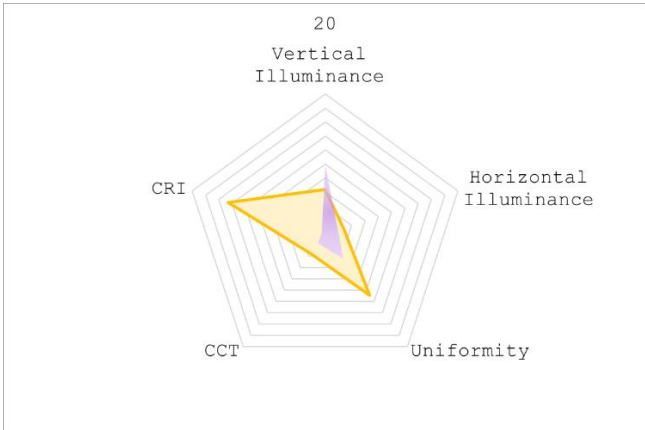
C.4.2.1 Metropolitan Parks

Table C-23. Nighttime safety ratings of metropolitan parks

ID Number	Park/Facility Name	Assessment Type	Security Audit Category	Perceived Nighttime Safety Score
20	Festival Beach Fiesta Garden	Park Facility	Metropolitan	57
21	Festival Beach Fiesta Garden	Park Access	Metropolitan	44
22	Festival Beach Fiesta Garden	Park Center	Metropolitan	64
23	Zilker Metro Park	Parking Lot	Metropolitan	70
24	Zilker Metro Park	Park Center	Metropolitan	55
25	Zilker Metro Park	Parking Lot	Metropolitan	70
26	Zilker Metro Park	Park Facility	Metropolitan	52
27	Zilker Metro Park	Park Access	Metropolitan	72
28	Zilker Metro Park	Park Center	Metropolitan	69
29	Zilker Metro Park	Parking Lot	Metropolitan	51
30	Zilker Metro Park	Parking Lot	Metropolitan	57
52	Roy G. Guerrero Colorado River Metro Park	Parking Lot	Metropolitan	57
53	Roy G. Guerrero Colorado River Metro Park	Parking Lot	Metropolitan	57

ID Number	Park/Facility Name	Assessment Type	Security Audit Category	Perceived Nighttime Safety Score
54	Roy G. Guerrero Colorado River Metro Park	Active Recreation	Metropolitan	53
55	Roy G. Guerrero Colorado River Metro Park	Active Recreation	Metropolitan	56
56	Roy G. Guerrero Colorado River Metro Park	Parking Lot	Metropolitan	58
57	Roy G. Guerrero Colorado River Metro Park	Parking Lot	Metropolitan	52
102	Walter E. Long Metro Park	Park Access	Metropolitan	49
103	Walter E. Long Metro Park	Parking Lot	Metropolitan	45
104	Walter E. Long Metro Park	Passive Recreation	Metropolitan	57
105	Walter E. Long Metro Park	Active Recreation	Metropolitan	58
106	Walter E. Long Metro Park	Park Access	Metropolitan	59
111	Commons Ford Ranch Metro Park	Parking Lot	Metropolitan	62
112	Commons Ford Ranch Metro Park	Park Access	Metropolitan	55
113	Commons Ford Ranch Metro Park	Park Access	Metropolitan	64
114	Commons Ford Ranch Metro Park	Park Access	Metropolitan	64

Table C-24. Festival Beach Fiesta Garden nighttime assessment

Festival Beach Fiesta Garden Festival Beach Fiesta Garden hosts large annual festivals and offers scenic views along Lady Bird Lake. Along the lake, where there is the most activity, there is no designated lighting making it hard for people to see. The facility uses bollard lighting as a form of low-level illumination. Overall, most of the lighting comes from external sources such as street light poles, building lights, and sports field lights.	
<u>20- Park Facility (Safety Score 57)</u> The parking area next to the entrance of the facility is lit by warm, streetlights. Bright white lights can be seen from the fields at Lorraine Camacho Activity Center. Lights can also be seen spilling from the residential buildings across the street. There was one white pole mounted light coming from inside the facility. <i>Safety Score Rationale:</i> Perception of safety: Average Reflectance: Neutral Specularity: Neutral Visual Transparency: Average Physical Transparency: Average Scale: Average <i>Spider Diagram Analysis:</i> Vertical Illuminance: High Horizontal Illuminance: Low Uniformity: Low CRI: Low CCT: Low	 Picture C-88. 360 image of parking area 57 /100 

21- Park Access (Safety Score 44)

The path to get to the pavilion from the parking lot has bollards that create pockets of light. On the street, there are light poles with varying color temperatures. Across the pavilion, bright lights can be seen coming from the baseball fields at Lorraine Camacho Activity Center. There were no lights provided at the parking lot.

Safety Score Rationale:

Perception of safety: High

Reflectance: Dark

Specularity: Neutral

Visual Transparency: Average

Physical Transparency: High

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High

Horizontal Illuminance: Low

Uniformity: Low

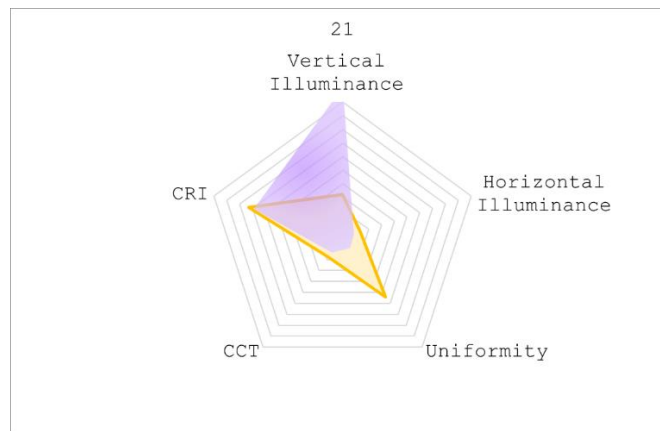
CRI: Standard

CCT: Standard



Picture C-89. 360 image of pathway to park

44/100



22- Park Center (Safety
Score 64)

The path is very dark with no lighting, except for lights visible from across the lake. Occasionally, people can be seen biking on the Ann and Roy Butler Hike and Bike Trail with headband lights. The boat dock area, where a few cars were camped out, is lit by a warm pole-mounted light fixture. According to PARD, a lighting plan is in place for the Lady Bird Lake Trail.

Safety Score Rationale:

Perception of safety:

Average/Low

Reflectance: Dark

Specularity: Matte

Visual Transparency: Low

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

CRI: N/A

CCT: N/A



Picture C-90. 360 Image of park pathway to lake

64/100

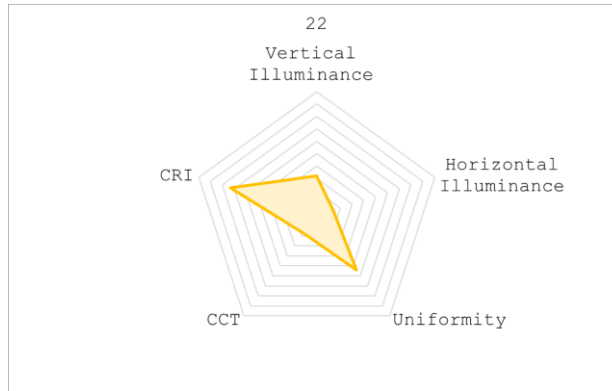


Table C-25. Zilker Metro Park nighttime assessment

Zilker Metro Park

Zilker Park is Austin's most iconic park, attracting many visitors who come to enjoy nature or attend events like Austin City Limits and the Trail of Lights. The park, however, has limited lighting, making navigation challenging and reducing the sense of safety. The primary light source is the moonlight tower, visible throughout most of the park as well as light from the city skyline. Although most of the park is unlit, some pleasant examples of illumination in the park include the lighting of the entry signs to different subsections of the park and the bollards next to the sidewalk along Stratford Dr.



23- Parking Lot (Safety Score 70)

The small parking lots along the park paths lacked lighting, and the only lights came from adjacent streets and the city skyline. During the survey, there were no cars or pedestrians since the park was closed for the Trail of Lights. Typically, there would be occasional visitors and cars. This parking lot had blue lights on the security camera structures, but despite this deterrent, car break-ins still occur at night.

Safety Score Rationale:

Perception of safety: Low

Reflectance: Dark

Specularity: Neutral

Visual Transparency: Low

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

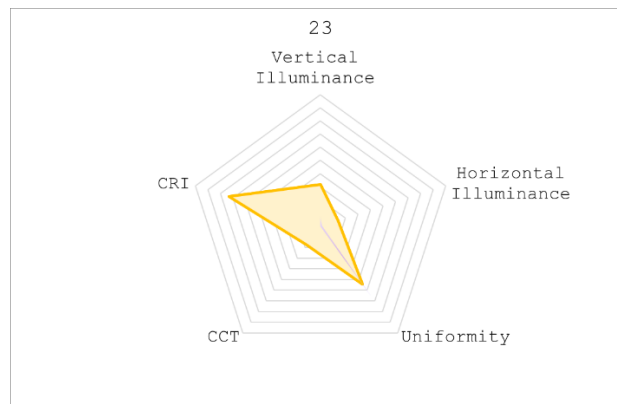
CRI: N/A

CCT: N/A



Picture C-91. 360 image of secondary parking lot

70/100



24- Park Center (Safety Score 55)

The moonlight tower illuminates a wide area around it. Close to the tower, visibility is high due to the open field with scattered trees. Besides the tower's light, warm lights from the nearby parking lot and the city skyline are also visible. During the visit, preparations were underway for the Trail of Lights, an annual light show in December.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Dark
Specularity: Matte
Visual Transparency: Average
Physical Transparency: High
Scale: Large

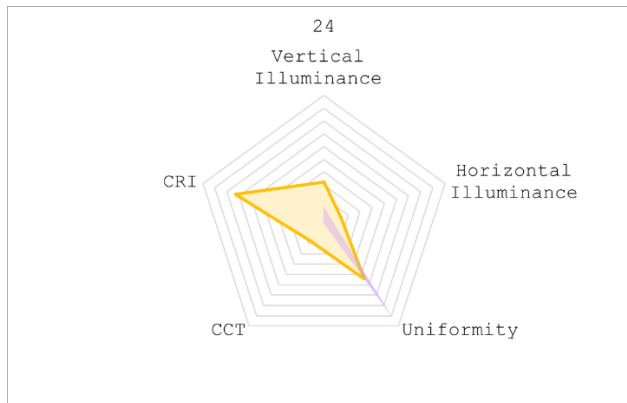
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: High
CRI: N/A
CCT: N/A



Picture C-92. 360 image of central park area next to moonlight tower

55/100



25- Parking Lot (Safety Score 70)

The small parking lots along the park paths lacked lighting, and the only lights came from adjacent streets and the city skyline. During the survey, there were no cars or pedestrians since the park was closed for the Trail of Lights. Typically, there would be occasional visitors and cars.

Safety Score Rationale:

Perception of safety: Low
Reflectance: Dark
Specularity: Neutral
Visual Transparency: Low
Physical Transparency: Average
Scale: Average

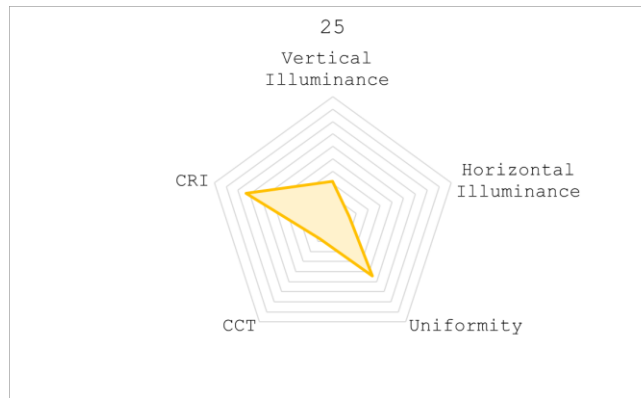
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: N/A
CCT: N/A



Picture C-93. Phone Image with flash of parking lot around the main lawn

70/100



26- Park Facility (Safety Score 52)

The maintenance complex is lit by light poles and wall packs on the building, all with a white color temperature except for one warm light pole inside the gate. The surrounding area remains dark due to the lack of additional lighting.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

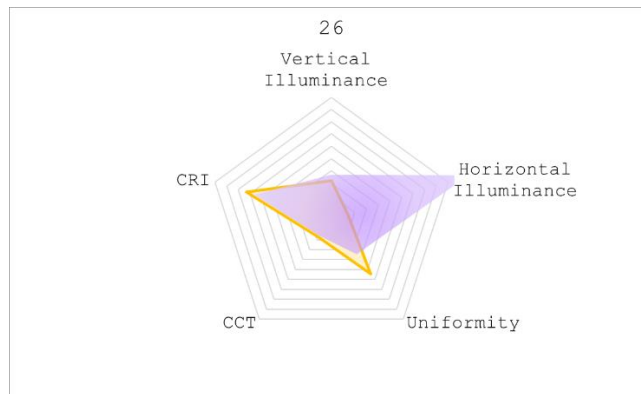
Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: Low
CRI: Standard
CCT: Standard



Picture C-94. 360 Image near the maintenance complex

52/100



27- Park Access (Safety Score 72)

This path connects to the Ann and Roy Butler Hike and Bike Trail along Lady Bird Lake. The area had almost no lighting, making the survey team feel unsafe beyond the entryway. During the survey, the security guard noticed someone possibly walking or biking on the trail through the trees, but it was hard to tell if there was someone there due to the low physical and visual transparency.



Picture C-95. Phone image of pathway to Ladybird Lake with flash on

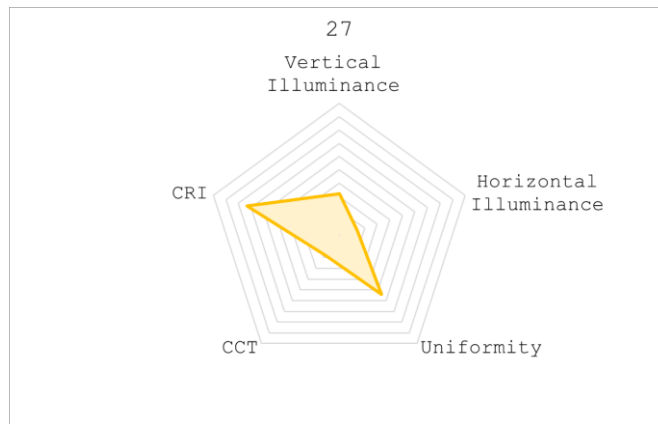
72/100

Safety Score Rationale:

Perception of safety: Low
Reflectance: Dark
Specularity: Matte
Visual Transparency: Low
Physical Transparency: Low
Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: N/A
CCT: N/A



28- Park Center (Safety Score 69)

There is no lighting provided for the Great Lawn. Although the field is open, it is so dark that object recognition is hard for objects further away. The only light is coming from the moonlight tower and warm streetlamps further away.

Safety Score Rationale:

Perception of safety: Low

Reflectance: Dark

Specularity: Matte

Visual Transparency: Low

Physical Transparency: High

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

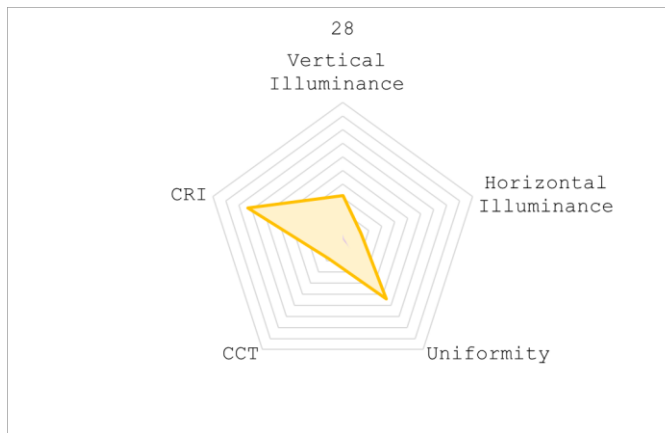
CRI: N/A

CCT: N/A



Picture C-96. 360 Image of a pathway in the middle of the park

69/100



29- Parking Lot (Safety Score 51)

The main parking lot tows cars after closing hours. During the visit, a couple of cars were camping out. The parking lot is very dark due to the lack of lighting. Bright light comes from the Botanical Gates of Paradise, and the city skyline and light poles on Mopac Expressway are also visible. Bollards are present across the street to illuminate the pathway and make pedestrians visible to oncoming vehicles.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Low
Physical Transparency: High
Scale: Average

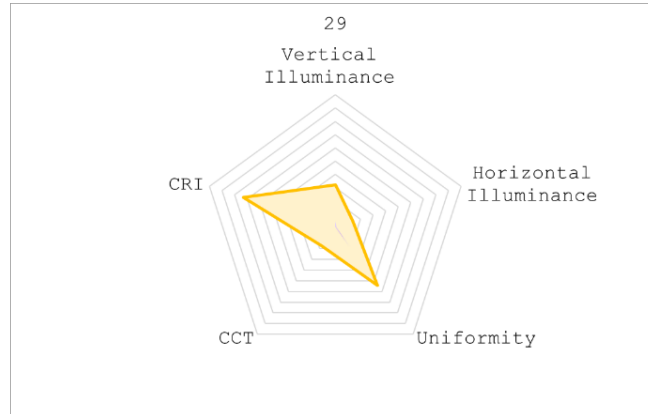
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: N/A
CCT: N/A



Picture C-97. 360 Image of large gravel parking lot

51/100



30- Parking Lot (Safety Score 57)

The sign at the entrance of the Botanical Gardens is lit by ground-staked flood lights, providing an even illumination that makes the sign easy to read. A password is required for after-hours entry. In the parking area, only one light pole was on, as the others are never used due to the facility's hours.

Safety Score Rationale:

Perception of safety:

Average/Low

Reflectance: Neutral

Specularity: Neutral

Visual Transparency: Low

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

CRI: Low

CCT: Low



Picture C-98. 360 Image of Zilker Botanical Gardens parking lot

57 /100

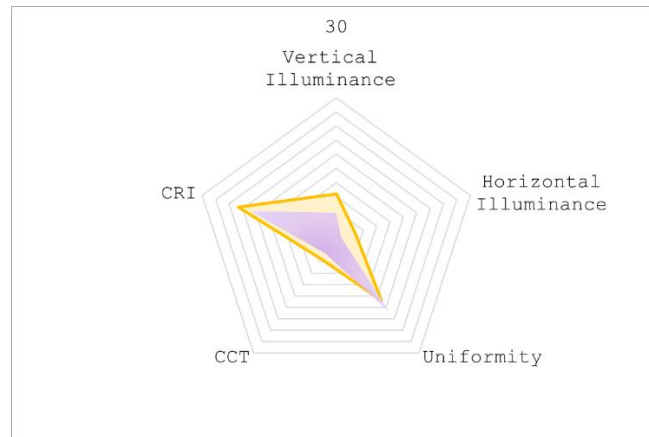


Table C-26. Roy G. Guerrero Colorado River Metro Park

Roy G. Guerrero Colorado River Metro Park

Roy G. Guerrero Colorado River Metro Park is a large park with sports fields, trails, and access to the Colorado River for various recreational activities. At night there seems to be athletic leagues that play on these facilities. When there are people on the fields, the flood lights on the fields provide ample lighting, but when there is no one, the area gets dark. The main form of supplementary lighting comes from the light poles for the road and parking lots. Unhoused individuals can be seen lingering near some of the unlit fields at night.



52- Parking Lot (Safety Score 57)

There was nearby construction. The fields had no lights. The restroom facility had a bright wall pack. Unhoused individuals were seen hanging under the tree and the bleachers. A bright light pole was nearby, with light spilling from the streetlights. The baseball area was roped off, and bollards blocked the road.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency:

Average

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Low

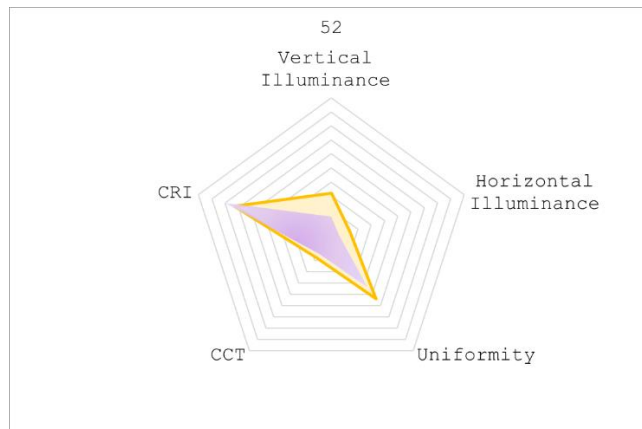
CRI: Standard

CCT: Standard



Picture C-99. 360 Image of parking lot

57 /100



**53- Parking Lot (Safety
Score 57)**

The light poles in the parking lot had different color temperatures. The neighboring baseball field lights were off. A police car was parked in the lot, and two cars, likely drifters, pulled up. There was also a large fire tower, blocking visibility, standing in the parking lot.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency:

Average

Physical Transparency: High

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High

Horizontal Illuminance:

Standard

Uniformity: Low

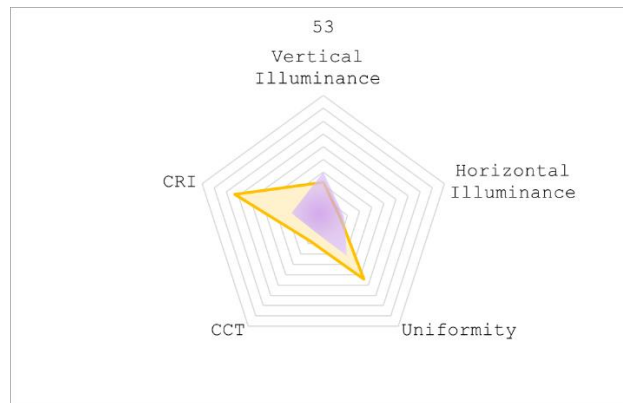
CRI: Low

CCT: Low



Picture C-100. 360 Image of parking lot next to fire tower

57 /100



54- Active Recreation
(Safety Score 53)

The only form of lighting comes from the warm, light poles for the parking lots and light spill from the facility nearby. The lights for the field were not lit. A person could be seen further away, but their face was not recognizable. The pavilion next to the lot was very dark, and it was surrounded by a lot of vegetation.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency:

Average

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

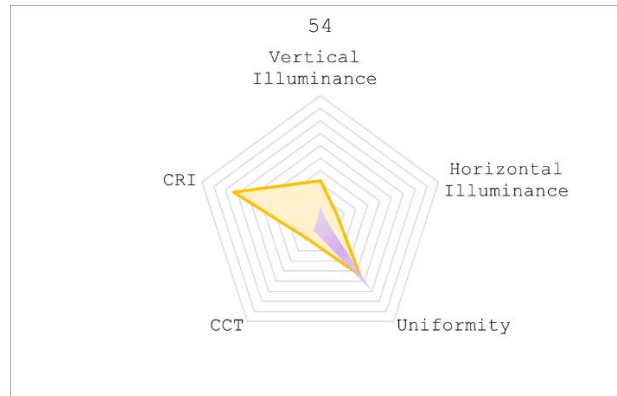
CRI: Low

CCT: Low



Picture C-101. 360 Image next to baseball field

53/100



55- Active Recreation
(Safety Score 56)

People were hanging out in the bleachers of the baseball field, but they could not be identified due to the baseball field area being extremely dark. There was a lot of trash around the floor despite the presence of trash bins. Only warm streetlights provided some illumination, but visibility was limited beyond the light pole due to limited reach.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Matte

Visual Transparency:

Average

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High

Horizontal Illuminance: High

Uniformity: High

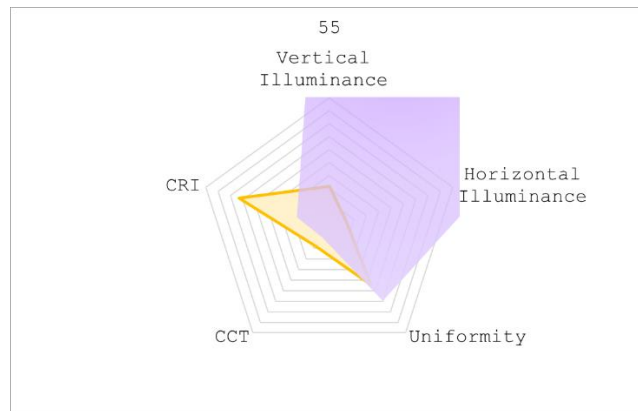
CRI: Low

CCT: Low



Picture C-102. 360 Image next to baseball field

56/100



56- Parking Lot (Safety Score 58)

The trailhead was quite dark with no designated lights. Light from the parking lot spilled light onto the pathway. A soccer match was happening, and the field lights turned off immediately after the game, manually. Many cars and parents were waiting in the parking lot to pick up kids, but they quickly vacated at the game end.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Matte
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

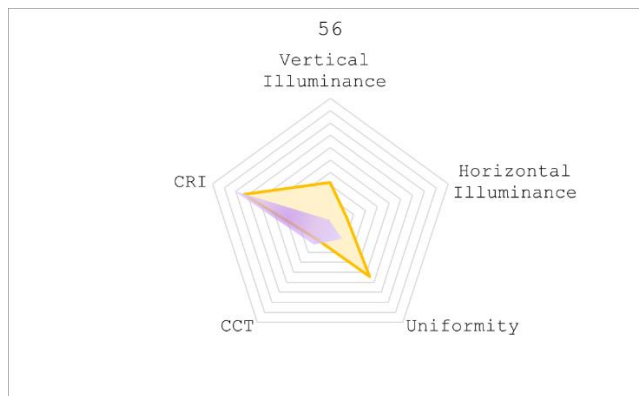
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Low
CRI: Standard
CCT: Standard



Picture C-103. 360 Image next to parking lot and trail access

58/100



57- Parking Lot (Safety Score 52)

Gunshots were heard at this site coming approximately 50ft into the park. The park was very dark, making it difficult to see anything. The pavilion nearby was bright and inviting with tables, and the bathroom wall packs lit the area well. The light poles in the parking were varying color temperatures.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: High
CRI: Standard
CCT: Standard



Picture C-104. 360 Image in parking lot

52/100

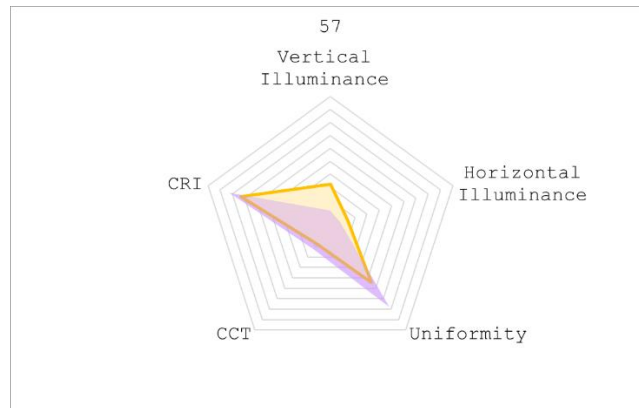


Table C-27. Walter E. Long Metro Park nighttime assessment

Walter E. Long Metro Park Walter E. Long Metro Park is a large park with a lake, offering boating, fishing, and other outdoor activities. This park at night has low activity and low levels of light outside of the admission area and parking areas. Along the water, light can be seen coming from the city as well as the dam. There are varying types of light poles in the area, and the solar powered light poles along the supplementary parking areas were on while the electrically powered ones were not. There are also a lot of varying color temperatures, shown in the main parking lot and the admission booth.	 An aerial photograph of Walter E. Long Metro Park at night. The image shows a large body of water (Lake Walter E. Long) on the right side. Several numbered markers are overlaid on the image: a green circle with '103' near the top center, and four yellow circles with '102', '104', '105', and '106' along the shoreline and in the parking areas. The park is surrounded by trees and some buildings are visible in the distance.
--	--

102- Park Access (Safety
Score 49)

A bright white light pole is at the entry sign and there are warm light poles at the parking areas. Some building facilities across the road have wall packs. The admission booth has bright white linear fixtures on the exit side of the booth.

Safety Score Rationale:

Perception of safety:

Average/High

Reflectance: Neutral

Specularity: Neutral

Visual Transparency:

Average

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance:

Standard

Horizontal Illuminance:

Standard

Uniformity: Low

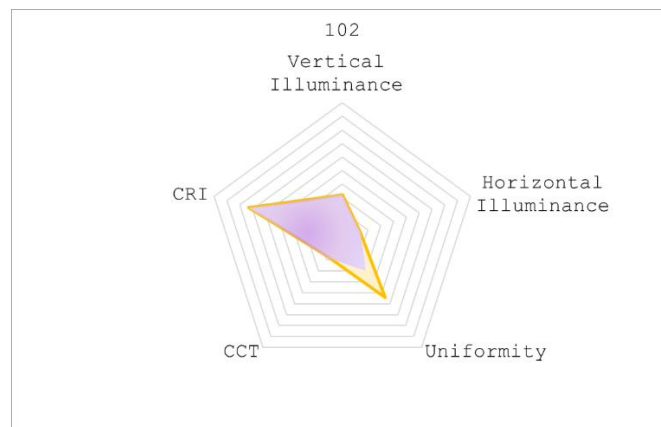
CRI: Standard

CCT: Standard



Picture C-105. 360 Image of park vehicle access

49/100



103- Parking Lot (Safety
Score 45)

There is one warm light near the dock, and the parking area has white pole lighting. The lights at the entry are solar, while those aligned with the side are not.

Safety Score Rationale:

Perception of safety: Low
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: High
Scale: Average

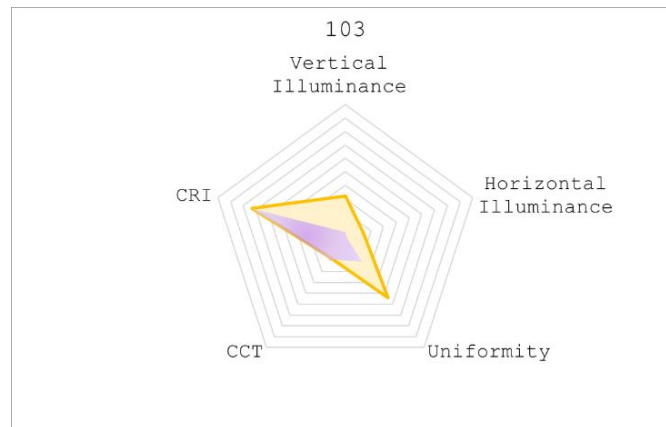
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Low
CRI: Standard
CCT: Standard



Picture C-106. 360 Image of parking lot next to pier

45/100



104- Passive Recreation
(Safety Score 57)

There is no light at the pavilion, and the only light you can see is from the street/parking light pole and moonlight. There was minimal trash in the area.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Matte

Visual Transparency: Low

Physical Transparency: High

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

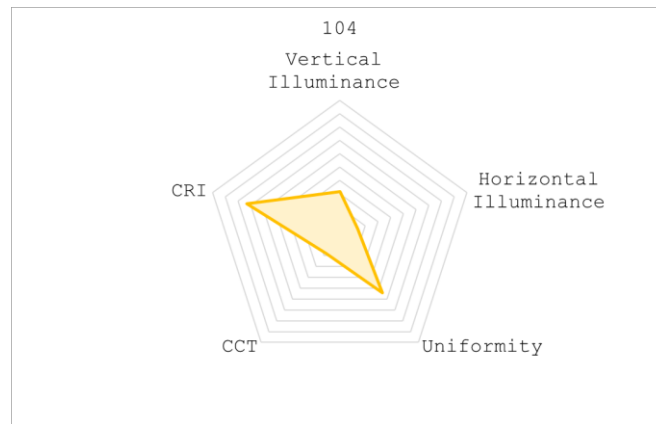
CRI: N/A

CCT: N/A



Picture C-107. 360 Image of pavilion

57 /100



105- Active Recreation
(Safety Score 58)

The light pole for this area was off, but lights across the water from a dam and the city can be seen. There is no other lighting, and no people are seen here. There was a mix of light poles being on and off. The solar powered fixtures seemed to be the ones being on.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Matte

Visual Transparency: Low

Physical Transparency: High

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

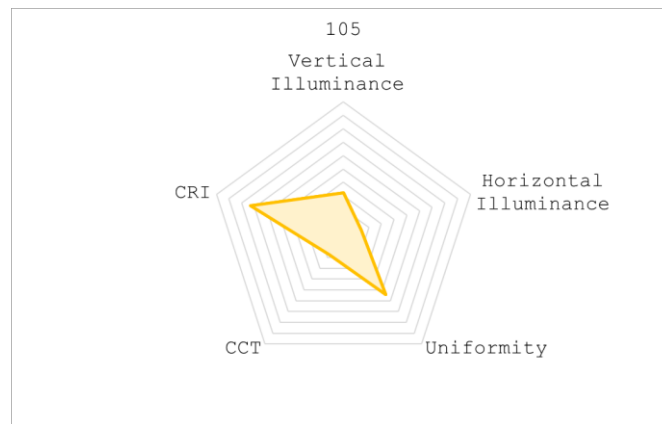
CRI: N/A

CCT: N/A



Picture C-108. 360 Image of benches along the lake

58/100



106- Park Access (Safety
Score 59)

There are no lights except for those coming from the dam across the water. The pavilion nearby is very dark, with no additional lighting.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency:

Average

Physical Transparency: High

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

CRI: N/A

CCT: N/A



Picture C-109. 360 Image of roadway access from the park to the dam

59/100

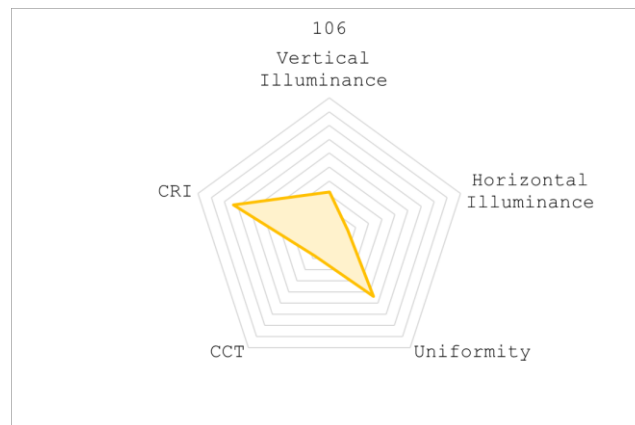


Table C-28. Commons Ford Ranch Metro Park nighttime assessment

Commons Ford Ranch Metro Park Commons Ford Ranch Metro Park is a natural area with trails, picnic areas, and opportunities for bird watching and nature exploration. This park is situated on an offshoot road in an area further from the city. Due to its relative remoteness, there are low light levels throughout, with most of the light coming from the moon. There are not many people that frequent this park at night, however, some cars were seen parked in some of roadside lots. Safety is a concern due to tripping hazards and the inability to see other animals or people.	 An aerial photograph of Commons Ford Ranch Metro Park. The image shows a mix of green trees and brownish, cleared land. Three yellow circular markers with black numbers are overlaid on the image: marker 111 is in the lower-left quadrant, marker 113 is in the center, and marker 112 is in the upper-right quadrant. The markers are placed on or near what appear to be trails or roads within the park.
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111- Parking Lot (Safety
Score 62)

There is one light pole for the parking area. The neighboring storage unit is not maintained and rundown. You can't see much past the porta potties, and you need a flashlight to see the trail if you walk further. There are no cars, and while lights are coming from the Bee Cave area, you can't see into the field or spot any animals or people in the vegetation.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency:

Average

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

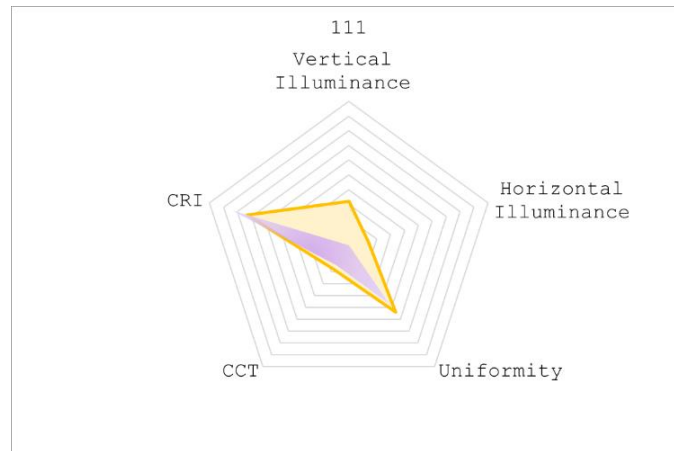
CRI: Standard

CCT: Standard



Picture C-110. 360 Image of parking lot next to the main entry

62/100



112- Park Access (Safety
Score 55)

This entry is near a road with large residences. Lights can be seen coming from the houses, but there is no light coming from the park itself.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency:

Average

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

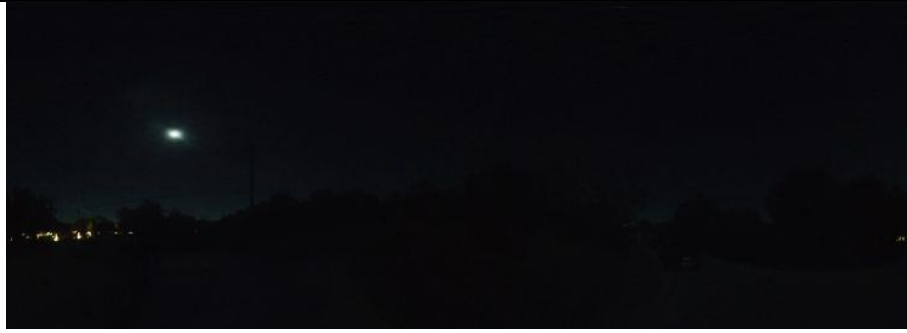
Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

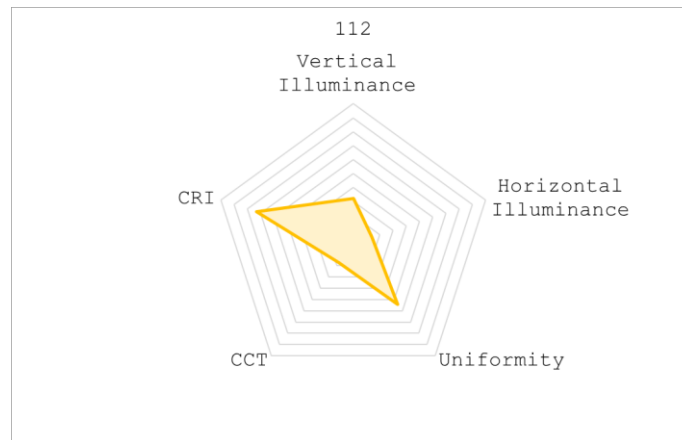
CRI: N/A

CCT: N/A



Picture C-111. 360 Image of vehicle park entry

55/100



113- Park Access (Safety
Score 64)

Lights can be seen from the neighboring area, and the moon is very bright, but there is no other light here.

Safety Score Rationale:

Perception of safety:

Average/Low

Reflectance: Dark

Specularity: Matte

Visual Transparency: Low

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

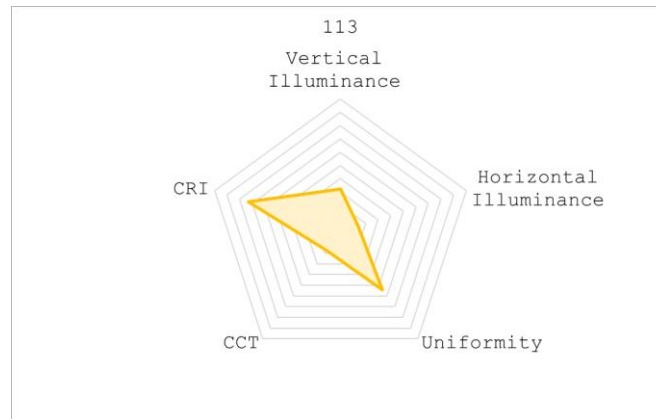
CRI: N/A

CCT: N/A



Picture C-112. 360 Image next to a secondary park entry

64/100



114- Park Access (Safety
Score 64)

There were two cars are parked out here, suggesting there are people who hike here at night. There is no lighting in this area. At the time of survey, movement could be heard in the vegetation, but nothing could be seen.

Safety Score Rationale:

Perception of safety:

Average/Low

Reflectance: Dark

Specularity: Neutral

Visual Transparency: Low

Physical Transparency: Low

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

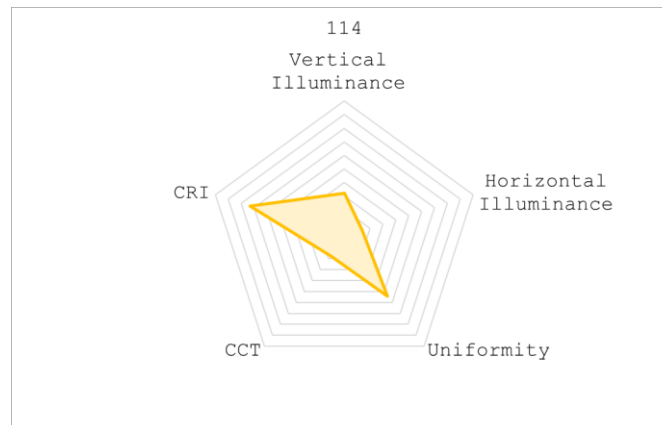
CRI: N/A

CCT: N/A



Picture C-113. 360 Image next to a secondary park entry

64/100



C.4.2.2 District Parks

Table C-29. Nighttime safety ratings of district parks

ID Number	Park/Facility Name	Assessment Type	Security Audit Category	Perceived Nighttime Safety Score
99	Bartholomew District Park	Park Access	District	56
101	Bartholomew District Park	Parking Lot	District	51
100	Bartholomew District Park	Passive Recreation	District	67
87	Pease Park	Park Center	District	63
88	Pease Park	Arts and Culture	District	72
85	Pease Park	Park Facility	District	51
84	Pease Park	Passive Recreation	District	48
86	Pease Park	Arts and Culture	District	52

Table C-30. Bartholomew District Park nighttime assessment

Bartholomew District Park Bartholomew District Park features sports fields, playgrounds, and picnic areas for community use. This site has individuals experiencing homelessness camping out around the brightly lit restroom facilities and pavilion. The park area, where kids play, is dark in comparison to the bright lights from the bathroom facility, making it extremely hard to see people. The lighting for this area is dependent on whether the lights for the neighboring field lights are on. The field lights can provide a lot of light for the neighboring areas when on.	 An aerial photograph of Bartholomew District Park. Three numbered markers are overlaid on the image: a red circle with the number 100 is located near a blue-roofed building (restroom/pavilion); a yellow circle with the number 101 is located in a parking lot area; and a yellow circle with the number 99 is located near a road on the left side of the park. The park features various trees, grassy areas, and some structures.
--	--

99- Park Access (Safety Score 56)

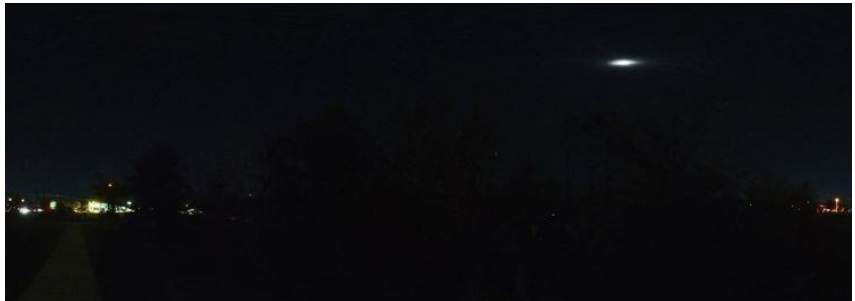
The area is very dark, with the only light coming from across the street from the gas station and the streetlights.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Dark
Specularity: Matte
Visual Transparency: Low
Physical Transparency: Average
Scale: Average

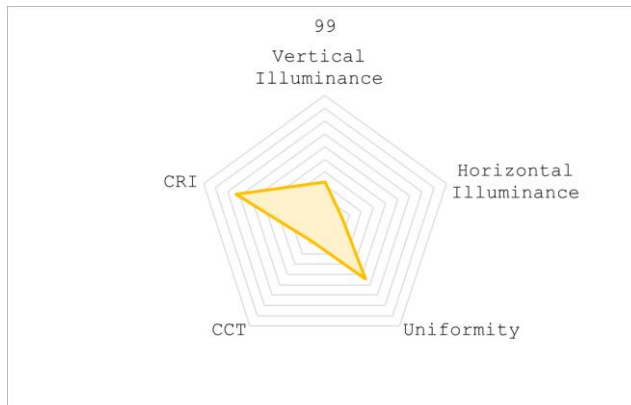
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: N/A
CCT: N/A



Picture C-114. 360 Image of park access bridge

56/100



101- Parking Lot (Safety Score 51)

There light poles for the parking area with motion sensors. There are a lot of lights coming from the neighboring fields when they are on, but when they are off, it gets dark.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Low
Physical Transparency: Average
Scale: Average

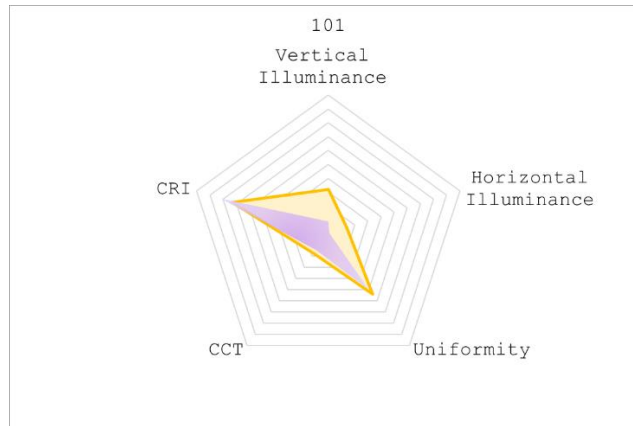
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: Standard
CCT: Standard



Picture C-115. 360 Image of parking lot

51 /100



100- Passive Recreation (Safety
Score 67)

Many individuals experiencing homelessness are camped out at the restroom and the dark pavilion near the play area. The kids' area has no lighting except for what comes from the neighboring houses and the restroom.

Safety Score Rationale:

Perception of safety: Low

Reflectance: Dark

Specularity: Matte

Visual Transparency: Low

Physical Transparency: Low

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

CRI: N/A

CCT: N/A



Picture C-116. 360 Image of children's play area

67 /100

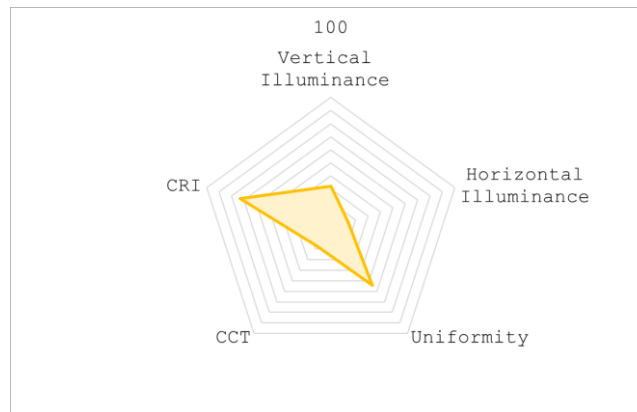
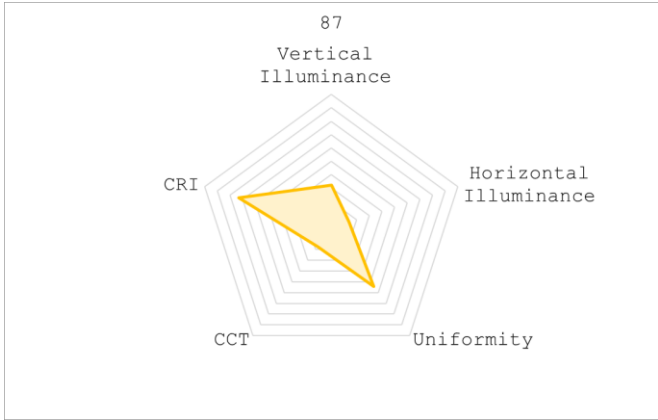


Table C-31. Pease Park nighttime assessment

Pease Park Pease Park is a public green space celebrated for its diverse ecology, rich history, and recreational opportunities along Shoal Creek. Pease Park is characterized by its statement art pieces in the park including Malin the Troll and the Pease Park Treehouse. The Treehouse is well lit and has a pleasant ambiance, attributed to the pendant lights that look like stars. The pathways up to the treehouse also provide adequate light levels to see with handrail lighting and pendant lighting. Malin the Troll on the other hand is completely dark making it hard to see at night. Other notable forms of lighting include the warm catenary lights above the seating area, and the layered lighting in the bathroom area.	
<u>87- Park Center (Safety Score 63)</u> There is a low level of light coming from the moon. There are trees on the side, but they are not hovering over the pathway which allows the light from the moon to hit the path. <i>Safety Score Rationale:</i> Perception of safety: Average/Low Reflectance: Dark Specularity: Matte Visual Transparency: Low Physical Transparency: Average Scale: Average <i>Spider Diagram Analysis:</i> Vertical Illuminance: Low Horizontal Illuminance: Low Uniformity: Standard CRI: N/A CCT: N/A	 Picture C-117. 360 Image of Pathway 63 /100 

88- Art and Culture (Safety Score 72)

The area leading up to Malin the troll is very dark and lacks any lighting, making it easy to trip on surroundings. The abundance of trees adds to the darkness because it blocks the moonlight. To see the structure, a flashlight is needed.

Safety Score Rationale:

Perception of safety: Low

Reflectance: Dark

Specularity: Matte

Visual Transparency: Low

Physical Transparency: Low

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

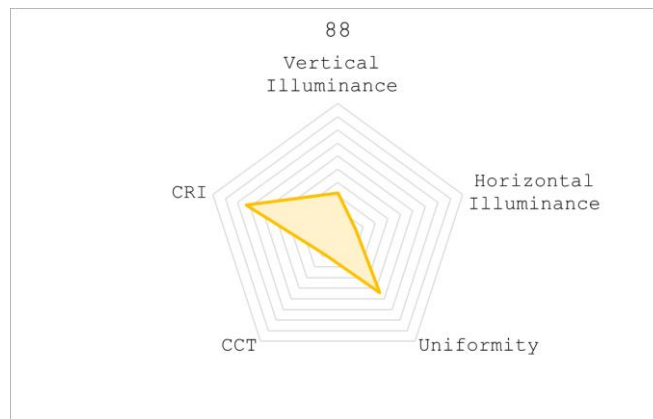
CRI: N/A

CCT: N/A



Picture C-118. 360 Image of Troll Malin

72/100



85- Park Facility (Safety Score 51)

The bathroom is equipped with track lights and step lights, creating an even level of light. The bathroom implements different layers of light that make it visible and not too glary. Some people are walking around the area and sitting at the tables, although there are no lights above the tables, making it hard to see.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

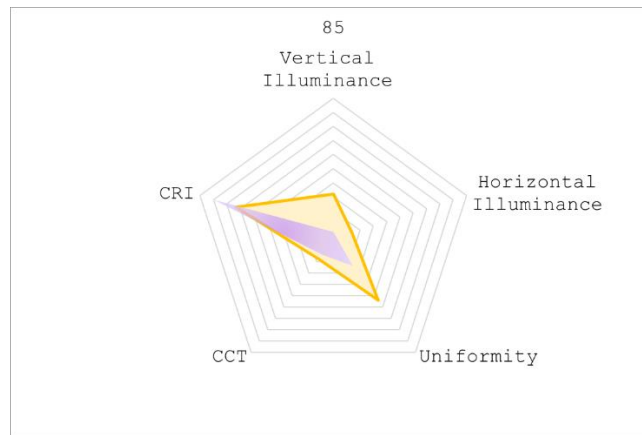
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Low
CRI: High
CCT: Low



Picture C-119. 360 Image of restroom

51 /100



84- Passive Recreation (Safety Score 48)

Warm catenary lights provide a pleasant glow without being too bright or glaring due to the fixture's conical shape. Two people are camping out here, with one using a power outlet. The field next to the park is very dark, but light poles in the parking lot offer some illumination.

Safety Score Rationale:

Perception of safety: Average/High

Reflectance: Neutral

Specularity: Neutral

Visual Transparency: Average

Physical Transparency: Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Low

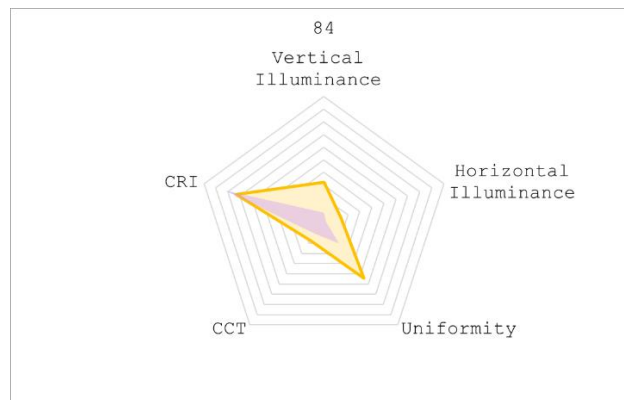
CRI: Standard

CCT: Low



Picture C-120. 360 Image of benches

48/100



86- Art and Culture (Safety Score 52)

The area features intentional lighting, with pendant lights that resemble stars in the treehouse, and handrail lighting and lights hanging from trees to illuminate the paths. Couples could be seen hanging out on the trampoline structure, enjoying the ambiance.

Safety Score Rationale:

Perception of safety: Average/High
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: High
Physical Transparency: Low
Scale: Average

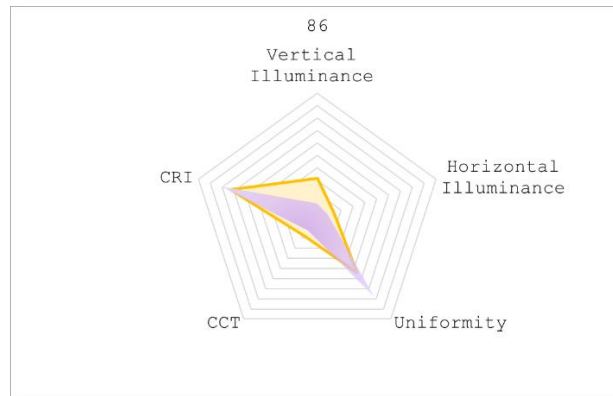
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: High
CRI: Standard
CCT: Low



Picture C-121. 360 Image of Tree House

52/100

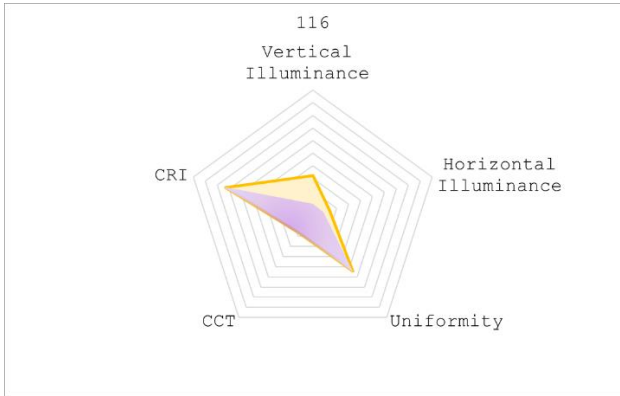


C.4.2.3 Neighborhood Parks

Table C-32. Nighttime safety ratings of neighborhood parks

ID Number	Park/Facility Name	Assessment Type	Security Audit Category	Perceived Nighttime Safety Score
116	Mayfield Park and Nature Preserve	Park Access	Neighborhood	48
117	Mayfield Park and Nature Preserve	Park Center	Neighborhood	68
115	Mayfield Park and Nature Preserve	Parking Lot	Neighborhood	53
73	Parque Zaragoza Neighborhood Park	Park Access	Neighborhood	49
118	Parque Zaragoza Neighborhood Park	Park Access	Neighborhood	57
74	Parque Zaragoza Neighborhood Park	Park Center	Neighborhood	72
72	Parque Zaragoza Neighborhood Park	Parking Lot	Neighborhood	52
75	Parque Zaragoza Neighborhood Park	Passive Recreation	Neighborhood	42

Table C-33. Mayfield Park and Nature Preserve nighttime assessment

Mayfield Park and Nature Preserve Mayfield Park is a historic park featuring gardens, walking trails, and free-roaming peacocks. At night the actual park area is dark with low visibility due to the lack of lighting infrastructure. The parking area has some light from light poles with varying color temperatures and gets light from the neighboring tennis court as well. Neighboring areas outside the park feel safer to be in than the actual park at night.	
<u>116- Park Access (Safety Score 48)</u> Street lights make the area feel well-lit, and flood lights from the tennis court across the street add to the brightness. The pathway closest to the entryway is fairly dark, but there is some light spill from the road and lots of lights from passing cars. <i>Safety Score Rationale:</i> Perception of safety: Average/High Reflectance: Neutral Specularity: Neutral Visual Transparency: High Physical Transparency: Average Scale: Average <i>Spider Diagram Analysis:</i> Vertical Illuminance: Low Horizontal Illuminance: Standard Uniformity: Standard CRI: Standard CCT: Standard	 Picture C-122. 360 Image of park entryway 48/100 

117- Park Center (Safety Score 68)

The area is very dark, with only the moon and one street light peering through the trees providing illumination. Inside the building, someone left their decorative crystal figure on. It felt very scary walking into the garden area due to the dark pathway needed to get there.

Safety Score Rationale:

Perception of safety: Low

Reflectance: Dark

Specularity: Matte

Visual Transparency: Low

Physical Transparency: Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

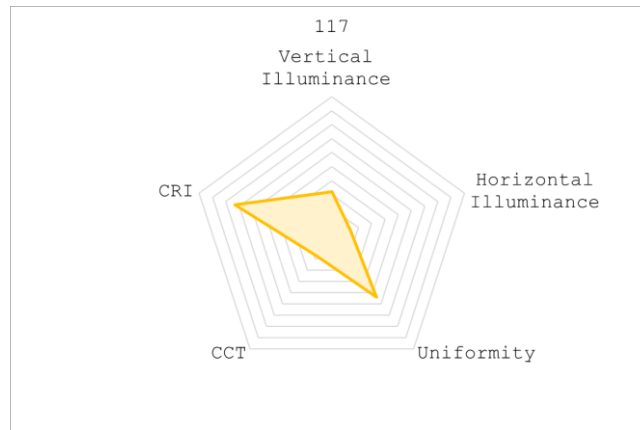
CRI: N/A

CCT: N/A



Picture C-123. 360 Image inside the park

68/100



115- Parking Lot (Safety Score 53)

There is an inconsistent color temperature with one warm light for the parking and one white light at the entry of the park. There is no one in the parking lot, but cars are coming through on the neighboring streets. Across the street, one can see lights from the tennis court.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Low
CRI: Low
CCT: Low



Picture C-124. 360 Image in the parking lot

53/100

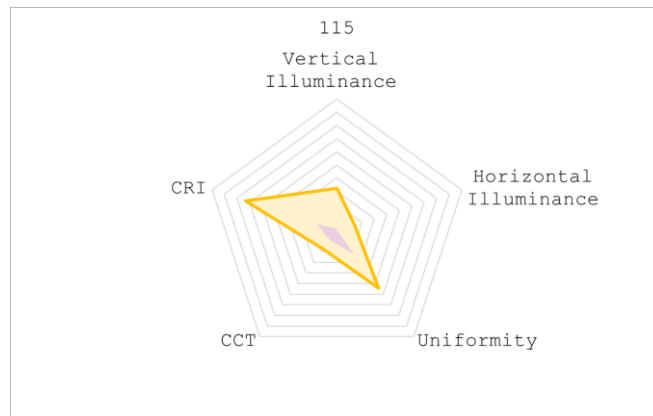
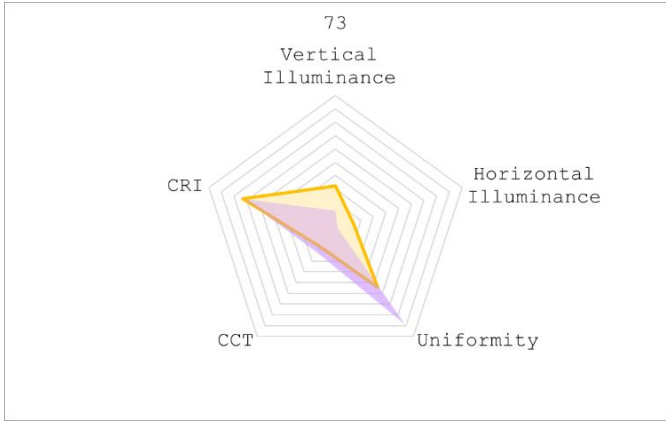


Table C-34. Parque Zaragoza Neighborhood Park nighttime assessment

Parque Zaragoza Neighborhood Park Parque Zaragoza Neighborhood Park is a community park with playgrounds, sports fields, and picnic areas. In the park, some notable sources of light include the tall floodlight that lights a large area, and the motion sensor light poles near the playground. The area near the playground and basketball court is well lit, but the pathways towards the back of the park and near the rundown pool facility are very dark and hard to see. A individual experiencing homelessness was seen sleeping in the playground at night.	
<u>73- Park Access (Safety Score 49)</u> Tall flood lights are seen illuminating the area on the opposite side of the bridge. Some parts on the path remains dark due to trees and vegetation. Wall packs are installed along the back of the facility. The entire park is surrounded by houses. <i>Safety Score Rationale:</i> Perception of safety: Average/High Reflectance: Neutral Specularity: Neutral Visual Transparency: Average Physical Transparency: Average Scale: Average <i>Spider Diagram Analysis:</i> Vertical Illuminance: Low Horizontal Illuminance: Low Uniformity: High CRI: Standard CCT: Standard	 Picture C-125. 360 Image bridge to the park 49 /100 

118- Park Access (Safety Score 57)

A warm light from a pole provides some illumination, but the area is still quite dark. Walking to this point from inside the park required a flashlight. Light is seen from nearby houses, and streetlights with different color temperatures line the road.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Low
Physical Transparency: Average
Scale: Average

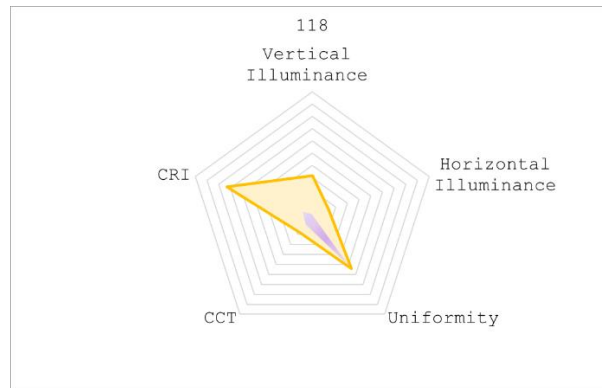
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: Low
CCT: Low



Picture C-126. 360 Image of entry to the park

57/100



74- Park Center (Safety Score 72)

The area behind the sketchy, gated-off pool facility is quite dark. Some barriers were present to protect vegetation during construction. The playground from afar is well-lit, and the main building with wall packs is visible from here. This path is situated behind people's backyards, and their voices can be heard from their yards.

Safety Score Rationale:

Perception of safety: Average

Reflectance: Dark

Specularity: Matte

Visual Transparency: Low

Physical Transparency: Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

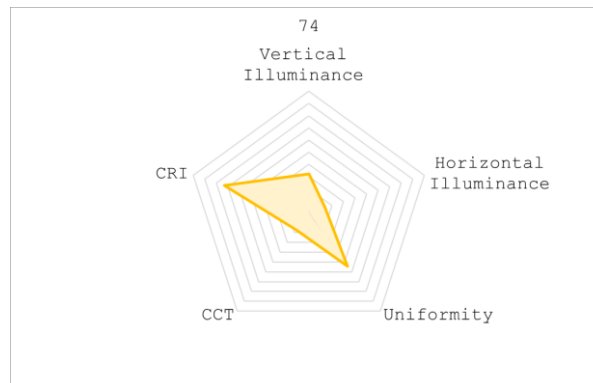
CRI: N/A

CCT: N/A



Picture C-127. 360 Image of park center

72/100



72- Parking Lot (Safety Score 52)

It is very dark across the bridge and path, due to dense vegetation. Warm streetlights provide some illumination across the street. There is one white light poles that illuminates the area. In the parking lot a tree creates a dark hiding place, and a few cars are parked.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

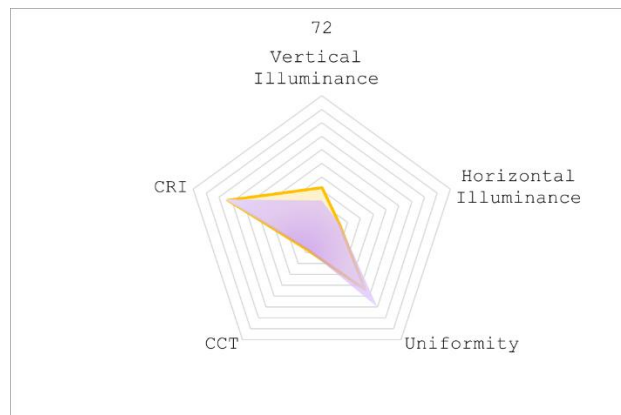
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Standard
Uniformity: High
CRI: Standard
CCT: Standard



Picture C-128. 360 Image of parking lot

52/100



75- Passive Recreation (Safety Score 42)

At the time of survey, someone was sleeping in the playground facility. Along the path motion-sensor lights are installed. The area next to the basketball court is quite bright, thanks to tall flood lights.

Safety Score Rationale:

Perception of safety: High
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: High
Physical Transparency: Average
Scale: Average

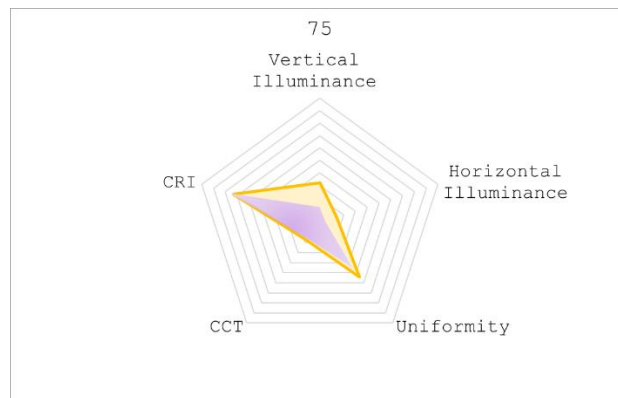
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Low
CRI: Standard
CCT: Standard



Picture C-129. 360 Image of playground

42/100



C.4.2.4 Pocket / Button / Other Parks

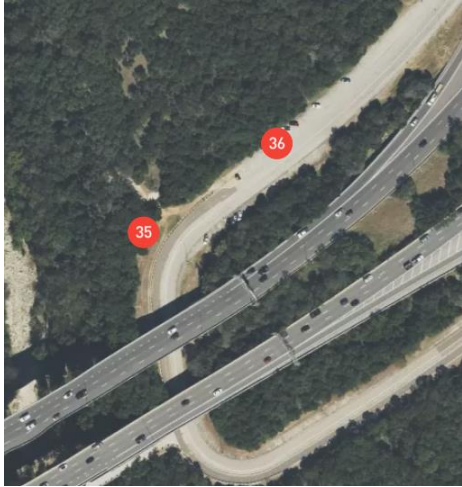
No site classified as Pocket / Button / Other Parks were included in the site survey.

C.4.2.5 Nature Parks

Table C-35. Nighttime safety ratings of nature parks

ID Number	Park/Facility Name	Assessment Type	Security Audit Category	Perceived Nighttime Safety Score
35	Barton Creek Wilderness Park	Park Access	Nature	67
36	Barton Creek Wilderness Park	Parking Lot	Nature	71
50	Colorado River Wildlife Sanctuary	Passive Recreation	Nature	59
51	Colorado River Wildlife Sanctuary	Park Access	Nature	73
32	Stephenson Nature Preserve	Park Access	Nature	59
33	Stephenson Nature Preserve	Park Access	Nature	60
34	Stephenson Nature Preserve	Park Access	Nature	60
31	Stephenson Nature Preserve	Park Access	Nature	70
5	West Bouldin Creek Greenbelt	Park Access	Nature	75
6	West Bouldin Creek Greenbelt	Park Access	Nature	63

Table C-36. Barton Creek Wilderness Park nighttime assessment

Barton Creek Wilderness Park Barton Creek Wilderness Park is a natural oasis with scenic hiking trails, lush greenery, and waterfalls, perfect for outdoor enthusiasts. There is no lighting for the made specifically for the trailhead of the park. The main source of lighting for the trailhead comes from the light poles on the adjacent road. Another notable source of light is the from the solar powered security structure to deter crime. The Barton Creek mobility bridge near this trailhead is a lot more visible due to the presence of its surface mounted fixtures.	
--	--

35- Park Access (Safety Score 67)

A blue security lamp monitors the area, and there is a large dumpster next to the road. Visibility under the bridge adjacent to the site is poor. Streetlights from the highway illuminate the area, but the designated streetlight for this spot is broken/off. There are very few cars in the area, and the shrubbery is quite dark. Near the trailhead, after driving around the curve of the road, Barton Creek Mopac Mobility Bridge can be seen.

Safety Score Rationale:

Perception of safety: Low

Reflectance: Dark

Specularity: Matte

Visual Transparency: Low

Physical Transparency: Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

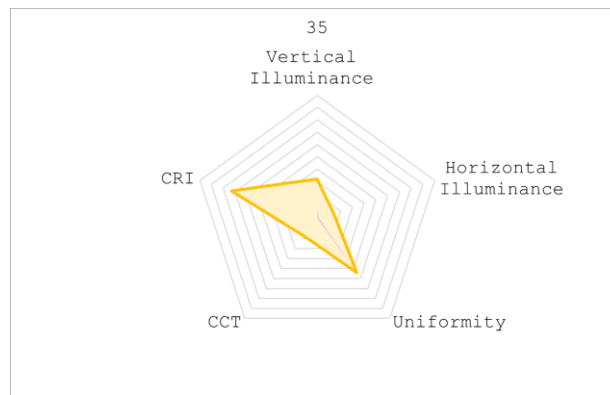
CRI: N/A

CCT: N/A



Picture C-130. 360 Image of park access

67/100



36- Parking Lot (Safety Score 71)

There is a street lamp right in front of the parking lot, which is an offshoot of the main road. Streetlight spillage from the highway provides additional light. Some cars are parked at night, but there is little activity. A security blue light is located at the end of the road near the trailhead.

Safety Score Rationale:

Perception of safety: Low
Reflectance: Dark
Specularity: Matte
Visual Transparency: Low
Physical Transparency: Low
Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: N/A
CCT: N/A



Picture C-131. 360 Image of parking lot

71 /100

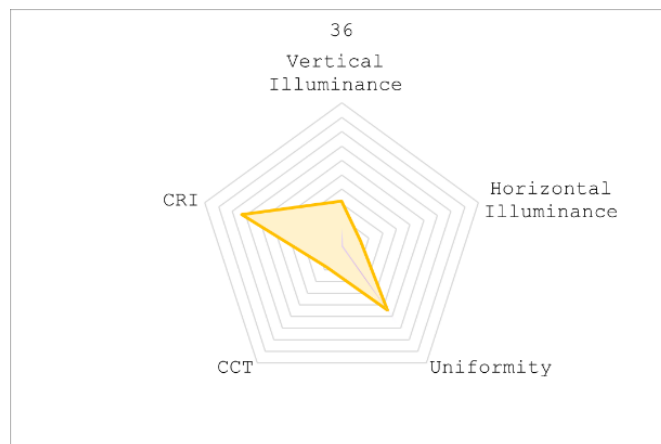
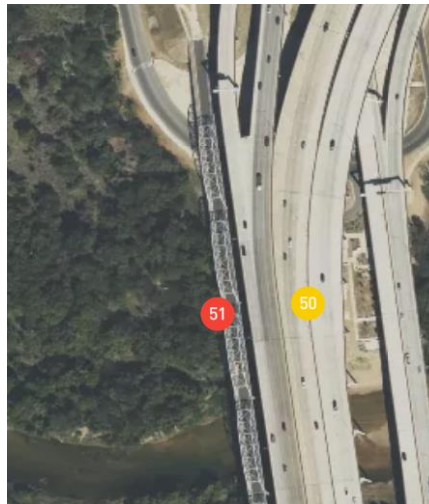


Table C-37. Colorado River Wildlife Sanctuary nighttime assessment

Colorado River Wildlife Sanctuary

Colorado River Wildlife Sanctuary is a natural area along the Colorado River, providing habitat for local wildlife and opportunities for bird watching and nature walks. This access point is located under a bridge and has benches and trashcans for people to use. Unhoused people were seen roaming this area, mainly in the dark patches. The bench area is brightly lit by light poles, but the surrounding areas, including the entry to the trail head, are very dark with low facial recognition.



50- Passive Recreation (Safety Score 59)

The bench area was well-lit with very bright light poles along the paths; however, the surrounding areas were very dark. One person was seen camping out at the benches. At the time of survey, the security guard was confronted by a person who had stolen from them in the past. There was a light pole that was out near the parking lot, and people were seen talking under that light pole. There was very low facial recognition in the dark patches. More people were seen walking in the dark patches than the brightly lit area.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Large

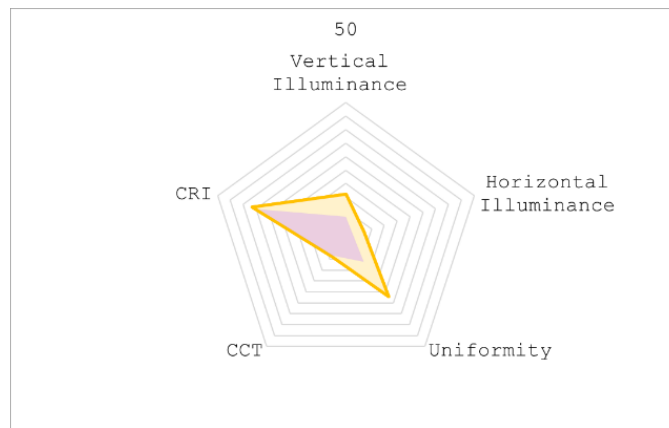
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Low
CRI: Standard
CCT: Standard



Picture C-132. 360 Image of bench area

59/100



51- Park Access (Safety Score 73)

At the time of survey, a couple ventured onto the trail flashlight. Inside the trail, lights were seen indicating the presence of people possibly camping out in the trail at night. Another man could be heard yelling on the bridge. At first, the survey team did not know where the yelling was coming from until they looked up. At this underpass, there was a lot of graffiti on the columns. There were many cars parked at night, and a lot of the vehicles had strong headlights which are very bright to those walking through the area.

Safety Score Rationale:

Perception of safety: Low

Reflectance: Dark

Specularity: Matte

Visual Transparency: Low

Physical Transparency: Low

Scale: Large

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

CRI: N/A

CCT: N/A



Picture C-133. 360 Image at trail entry

73/100

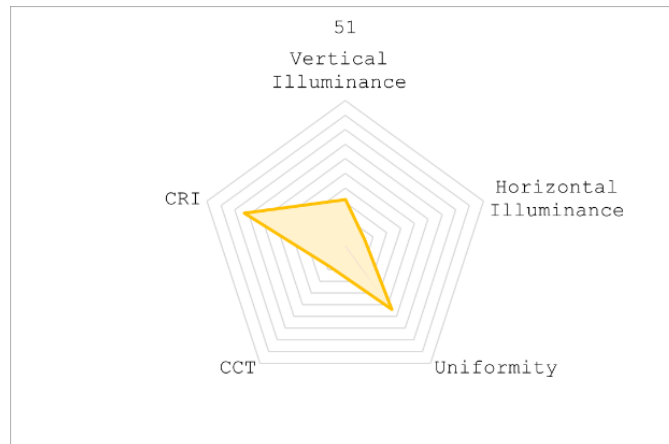
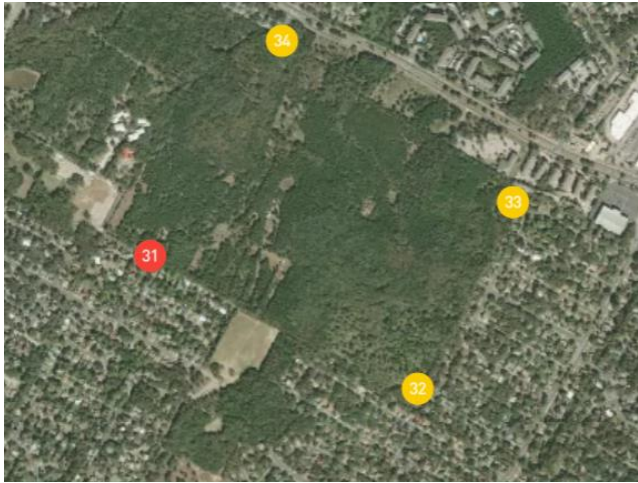
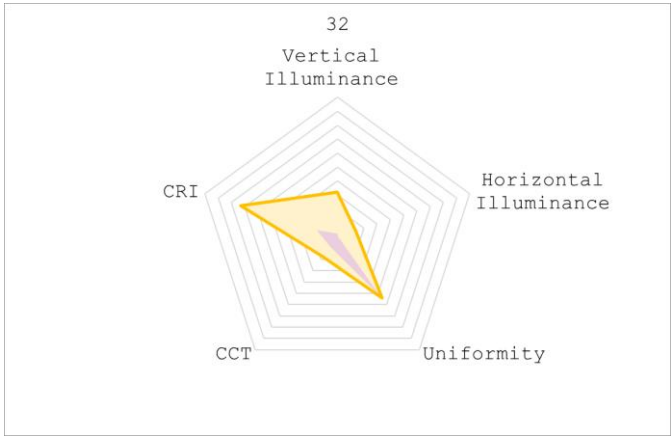


Table C-38. Stephenson Nature Preserve nighttime assessment

Stephenson Nature Preserve Stephenson Nature Preserve is a natural area with trails, open meadows, and wooded sections, ideal for hiking and nature exploration. The access points are located within neighborhoods, and some people have been seen entering at night. The primary lighting comes from warm streetlights along the road, but the trails themselves are unlit.	
<u>32- Park Access (Safety Score 59)</u> The park is adjacent to a neighborhood, with the only light coming from a streetlight. Someone entered the park by carrying their bike above their head. The neighboring houses are heavily decorated due to the survey being around Halloween. The entrance was obscured by parked cars, so we initially could not see that it is connected to the sidewalk path. Occasionally, cars pass through the area. <i>Safety Score Rationale:</i> Perception of safety: Average Reflectance: Dark Specularity: Matte Visual Transparency: Average Physical Transparency: Low Scale: Average <i>Spider Diagram Analysis:</i> Vertical Illuminance: Low Horizontal Illuminance: Low Uniformity: Standard CRI: Low CCT: Low	 Picture C-134. 360 Image of park access point 59/100 

33- Park Access (Safety Score 60)

This access point is nestled within a neighborhood. Next door, a large trash bin sits outside a house undergoing renovations. A single warm light pole illuminates the entrance. Inside the park, two people were riding bikes equipped with headlamps. The sidewalk extends all the way to the entrance.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Dark
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Low
Scale: Average

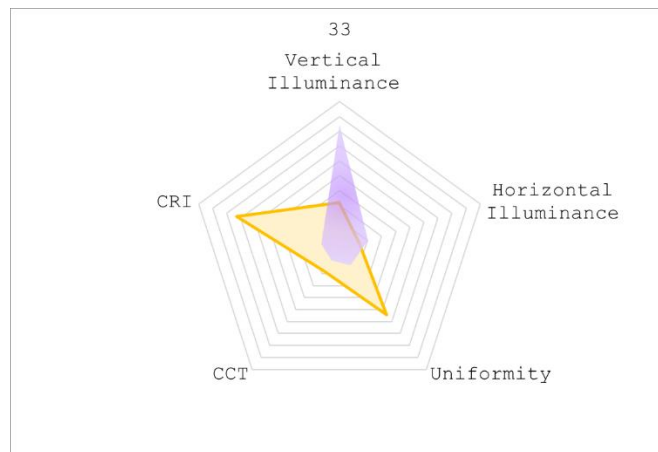
Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: Low
CRI: Low
CCT: Low



Picture C-135. 360 Image of park entry

60/100



34- Park Access (Safety Score 60)

The main access point to the park is in a neighborhood. To enter, visitors must navigate rocky steps. Clear signage indicates the presence of the park to people. A single warm streetlamp illuminates the entryway, but beyond its light, visibility is limited, making it difficult to see others.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Dark
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Low
Scale: Average

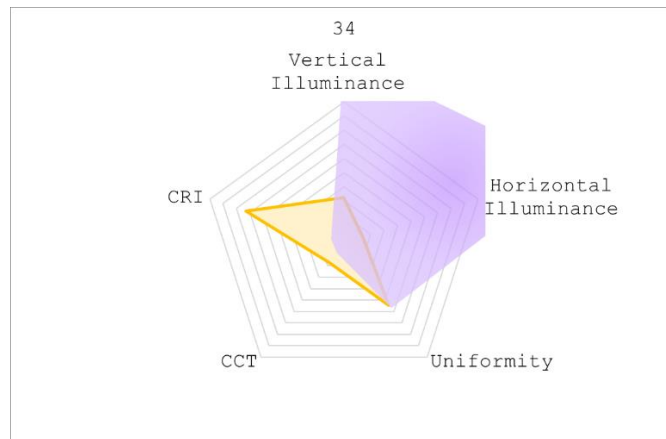
Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: Standard
CRI: Low
CCT: Low



Picture C-136. 360 Image of park access

60/100



31- Park Access (Safety Score 62)

This access point is situated right next to a street. The entryway lacks dedicated lighting, relying instead on the light from nearby houses and streetlights. The streetlights have varying color temperatures, and one nearby is broken. There is no sidewalk leading to the entrance, making it difficult for pedestrians to be seen by vehicles due to poor visibility.

Safety Score Rationale:

Perception of safety: Low

Reflectance: Dark

Specularity: Matte

Visual Transparency: Low

Physical Transparency: Low

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

CRI: N/A

CCT: N/A



Picture C-137. 360 Image of park access

70/100

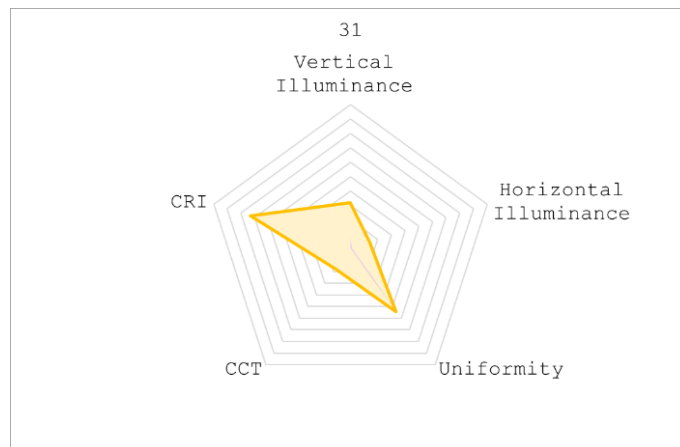
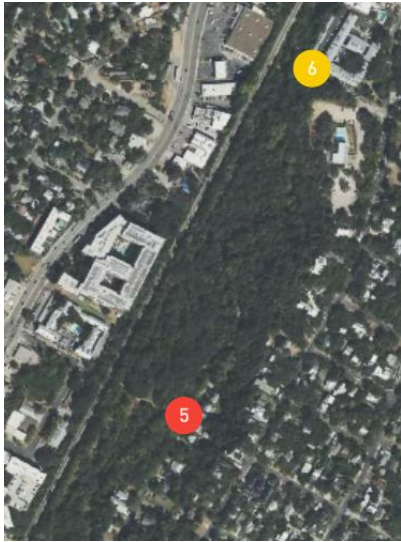
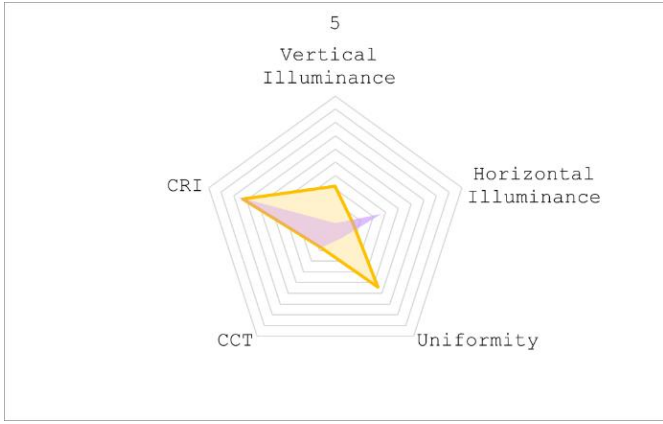


Table C-39. West Boudin Creek Greenbelt nighttime assessment

West Bouldin Creek Greenbelt The West Bouldin Creek Greenbelt trail heads have little to no foot traffic at night. The trail’s main access point lacks dedicated lighting, relying only on wall packs from the neighboring apartment and a parking lot light pole, making it difficult to see into the trail due to the darkness. Similarly, the access point in a residential neighborhood is poorly lit and depends on a nearby streetlight and light spilling from houses facing the trail. The main access point is more inviting and accessible than the neighborhood access point.	
<u>5- Park Access (Safety Score 75)</u> The trail access point lacks dedicated lighting and is lit by the streetlight nearby and spillage from the inside of the houses facing it. Prior to data collection, the survey team drove by the access point due to low visibility and low light levels. <i>Safety Score Rationale:</i> Perception of safety: Low Reflectance: Dark Specularity: Matte Visual Transparency: Low Physical Transparency: Low Scale: Average <i>Spider Diagram Analysis:</i> Vertical Illuminance: Low Horizontal Illuminance: High Uniformity: Low CRI: Standard CCT: Standard	 Picture C-138. 360 Image of neighborhood access point 75/100 

6- Park Access (Safety Score 63)

The trail main access point lacks dedicated lighting, relying only on the lights from the wall packs on the neighboring apartment and the light pole for the parking lot. Looking into the trail, nothing can be seen due to the darkness.

Safety Score Rationale:

Perception of safety: Average
Reflectance: High
Specularity: Neutral
Visual Transparency: High
Physical Transparency: Average
Scale: Average

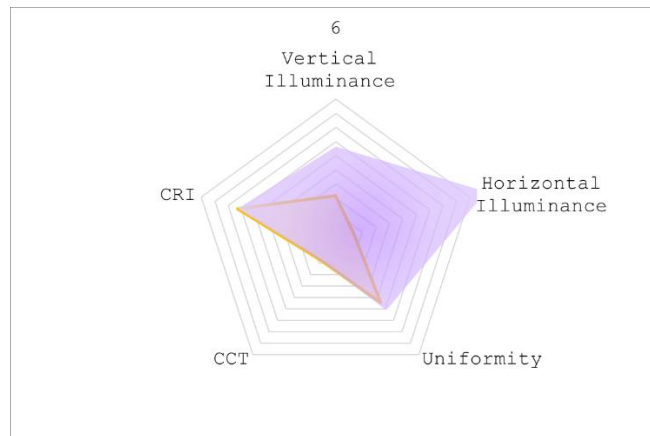
Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: High
CRI: Standard
CCT: Standard



Picture C-139. 360 Image of main access point

63/100



C.4.3 Facilities

C.4.3.1 Administrative / Operational / Other Facilities

No site classified as Administrative / Operational / Other Facilities were included in the site survey.

C.4.3.2 Arts & Culture Facilities

Table C-40. Nighttime safety ratings of arts and culture facilities

ID Number	Park/Facility Name	Assessment Type	Security Audit Category	Perceived Nighttime Safety Score
10	Dougherty Arts Center	Facility Back Entry	Arts and Culture	51
9	Dougherty Arts Center	Facility Back Entry	Arts and Culture	61
8	Dougherty Arts Center	Facility Entry	Arts and Culture	41
7	Dougherty Arts Center	Facility Entry	Arts and Culture	50

ID Number	Park/Facility Name	Assessment Type	Security Audit Category	Perceived Nighttime Safety Score
79	George Washington Carver Museum and Cultural Center	Arts and Culture	Arts and Culture	53
80	George Washington Carver Museum and Cultural Center	Facility Back Entry	Arts and Culture	50
77	George Washington Carver Museum and Cultural Center	Facility Entry	Arts and Culture	47
78	George Washington Carver Museum and Cultural Center	Parking Lot	Arts and Culture	47
76	George Washington Carver Museum and Cultural Center	Parking Lot	Arts and Culture	52

Dougherty Arts Center

The Dougherty Arts Center hosts numerous programs at night for both kids and adults. The facility's exterior lighting includes wall packs, linear fixtures at entryways, and light spilling from the interior. Notably, the facility signage at the south entrance is poorly lit, making it difficult to see. The back of the facility has experienced issues with encampments, as there are bright lights on the building but low levels of light near the creek edge where encampments have occurred.



7- Facility Entry (Safety Score 50)

The facility entrance has downlights lighting the entryway path, and there is significant light spilling through the interior of the building through the windows. Across the street, there are neon lights from the restaurants and establishments nearby. The facility sign has motion sensor lights that do not have enough light to make the sign visible. The letterboard beneath the sign has bright wall mounted lights. The mural adjacent to the entry is lit by a wall mounted fixtures on the upper corner of the building.

Safety Score Rationale:

Perception of safety: Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency: Average

Physical Transparency: Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High

Horizontal Illuminance: High

Uniformity: Low

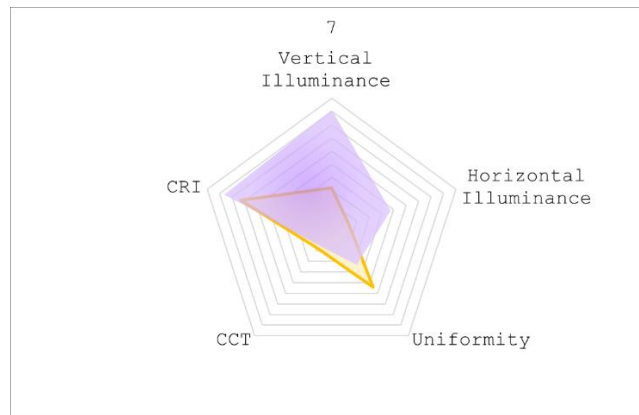
CRI: High

CCT: Low



Picture C-140. 360 Image of main access point

50/100



8- Facility Entry (Safety Score 41)

The entryway features a bright, overhead linear fixture that illuminates both the door and the path. Light spills from the windows, revealing children inside the building. The garden remains dimly lit due to the absence of designated lighting.

Safety Score Rationale:

Perception of safety: High

Reflectance: Neutral

Specularity: Neutral

Visual Transparency: High

Physical Transparency: Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High

Horizontal Illuminance: High

Uniformity: Standard

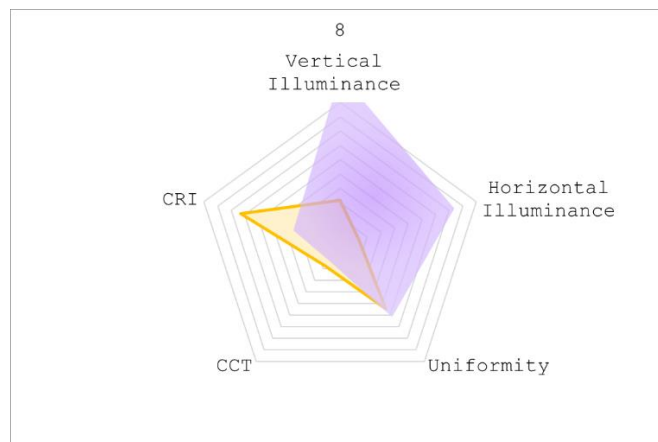
CRI: Low

CCT: Low



Picture C-141. 360 Image of east entry

41 /100



9- Facility Back Entry (Safety Score 61)

The loading dock has bright wall packs, in which some were not operational. There were some areas of low visibility around the corners of the building and through the vegetation near the creek side.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Low
Scale: Average

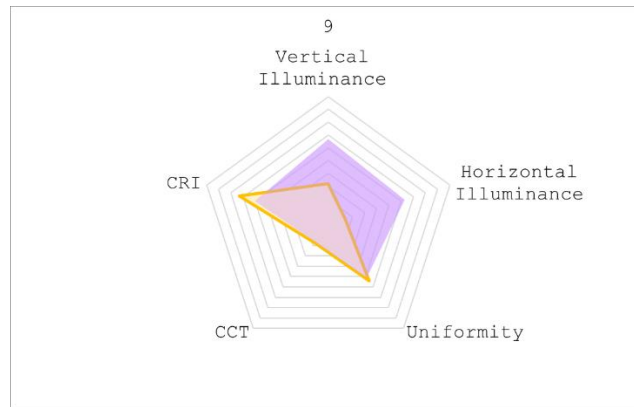
Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: Standard
CRI: Low
CCT: Standard



Picture C-142. 360 Image of loading dock

61/100



10- Facility Back Entry (Safety Score 51)

The back of the facility is equipped with wall packs on the walls and linear fixtures at the entrances. There are play features for kids, like four square and hopscotch, but they are faded, unlit, and no one was seen using them.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Low
Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: Low
CRI: Standard
CCT: Low



Picture C-143. 360 Image of the back of the facility

51 /100

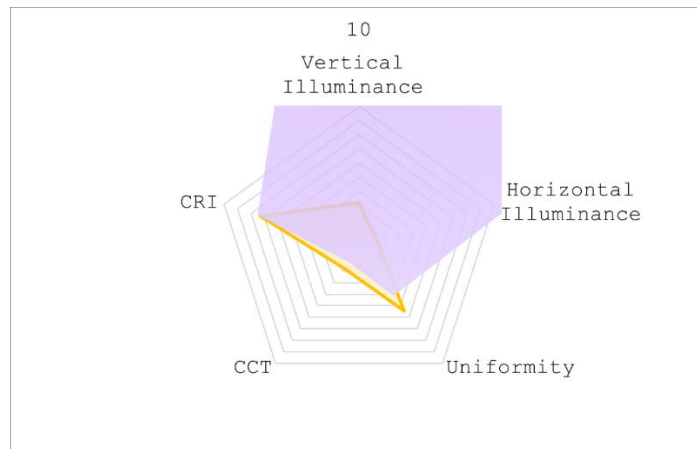
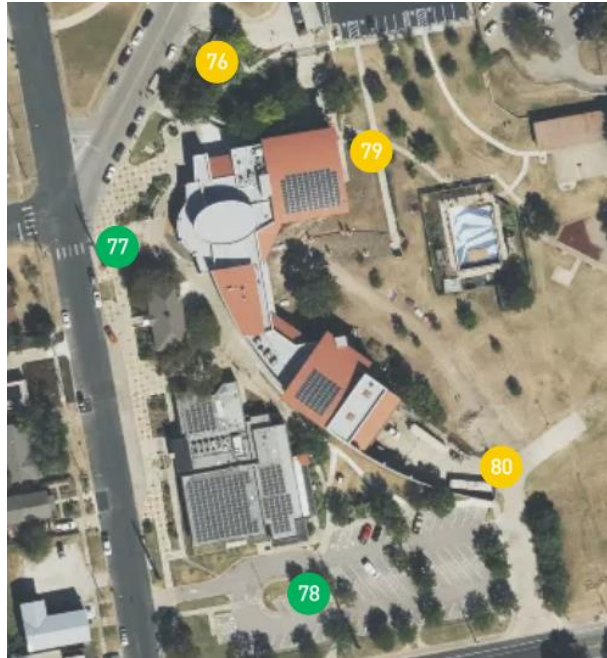


Table C-41. George Washington Carver Meseum and Cultural Center nighttime assessment

**George Washington Carver
Museum and Cultural Center**

George Washington Carver Museum and Cultural Center focuses on African American history and culture, offering exhibits, programs, and events. The exterior lighting of the museum is characterized by bright wall packs that illuminate the surroundings, mainly at the front and back of the facility. Many of the light poles running along the perimeter of the building were different color temperatures. The exhibitions in the back patio area did not have any lighting designated for them and were only lit by the wall packs on the building.



76- Parking Lot (Safety Score 52)

In the parking lot, light poles provide illumination, and a moonlight tower is visible. Short, indirect light poles line the stairway, though one is broken in a dark corner. Some people walk through this path, but vegetation blocks some of the light from the poles. Wall packs are present on the loading dock side.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

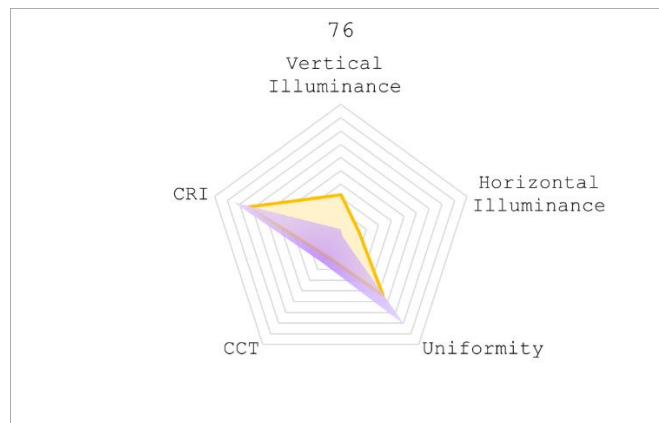
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
CRI: High
CCT: High
Contrast Ratio: High
Facial Luminance: Low
Uniformity: High



Picture C-144. 360 Image of parking lot

52/100



77- Facility Entry (Safety Score 47)

The entry is illuminated by down lights and wall-mounted fixtures on the columns. A person is staying in a single tent outside the building. The light poles all around this museum have different color temperatures. Nonetheless, the entry walkway is well-lit by these poles, and the lights are not glaring.

Safety Score Rationale:

Perception of safety: High
Reflectance: Light
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

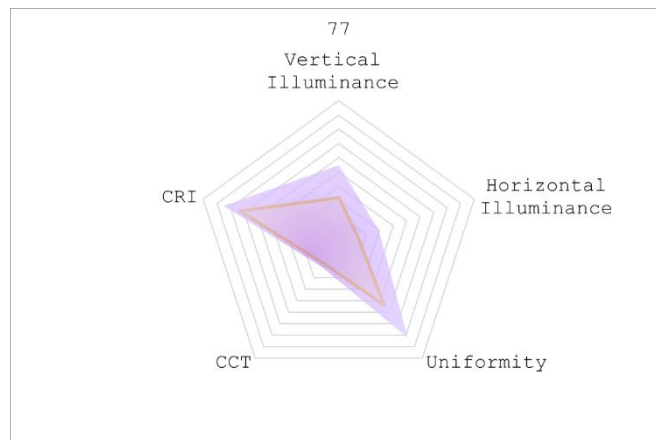
Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: high
Uniformity: High
CRI: High
CCT: Standard



Picture C-145. 360 Image of facility entry

47 /100



78- Parking Lot (Safety Score 47)

There are white LED light poles in the parking lot and shorter light poles near the building have different color temperatures. The area is next to some restaurants and houses. The mural on the library has no lighting. The wall packs on the library were not on.

Safety Score Rationale:

Perception of safety: High
Reflectance: Average
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

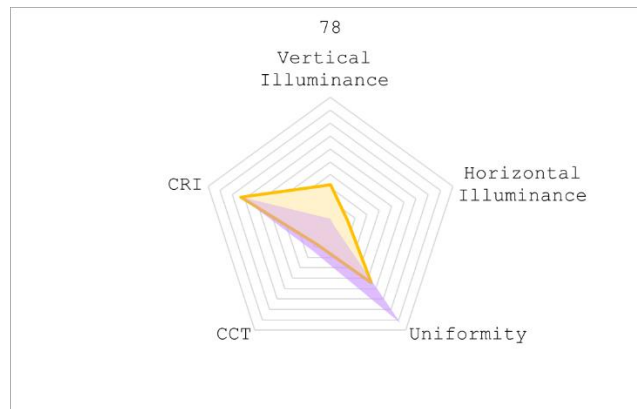
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: High
CRI: Standard
CCT: Standard



Picture C-146. 360 Image of parking lot

47 /100



79- Arts and Culture (Safety Score 53)

Wall packs on the wall illuminate the space quite well. Higher output wall packs are above the stairs and another above the exit doors. Statues and historical information signs are not lit with their own lighting. There is major light spill coming from inside the building.

Safety Score Rationale:

Perception of safety: Average

Reflectance: Matte

Specularity: Neutral

Visual Transparency: Average

Physical Transparency: Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

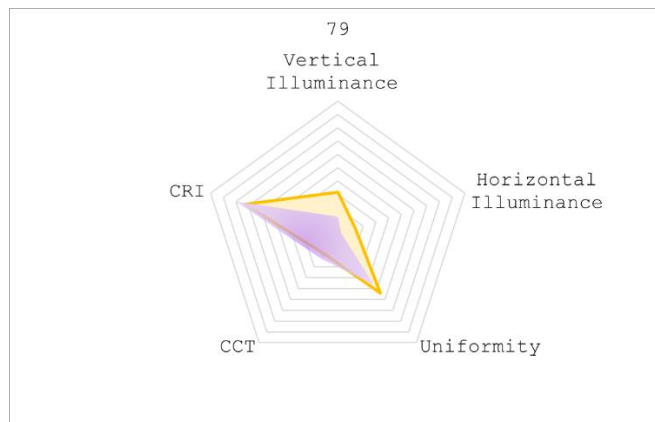
CRI: Standard

CCT: Standard



Picture C-147. 360 Image of facility back entry and exhibit

53/100



80- Facility Back Entry (Safety Score 50)

There are LED light poles lining the pathway and wall packs are installed on the building. Trash storage bins and a bus are inside the gate. The trees on the side are very dark and unlit, making it difficult to see anything at all.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: High
Scale: Average

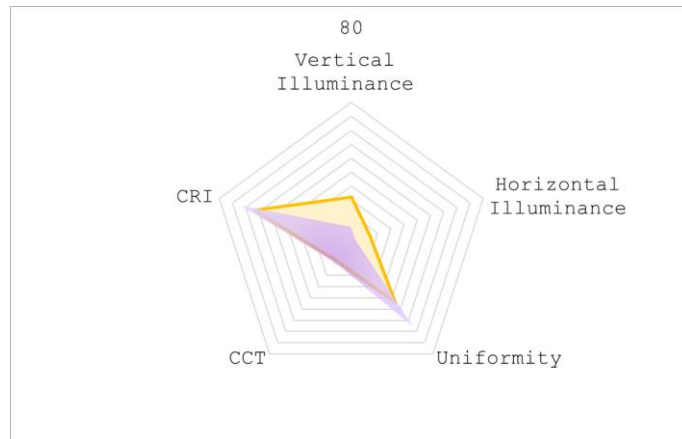
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: High
CRI: High
CCT: Standard



Picture C-148. 360 Image at the loading dock

50/100



C.4.3.3 Active Recreation Facilities

Table C-42. Nighttime safety ratings of active recreation facilities

ID Number	Park/Facility Name	Assessment Type	Security Audit Category	Perceived Nighttime Safety Score
1	South Austin Recreation Center	Parking Lot	Active Recreation	42
2	South Austin Recreation Center	Facility Entry	Active Recreation	42
3	South Austin Recreation Center	Park Center	Active Recreation	55
4	South Austin Recreation Center	Active Recreation	Active Recreation	57
14	Big Stacy Pool	Facility Entry	Active Recreation	50
15	Big Stacy Pool	Active Recreation	Active Recreation	48
16	Big Stacy Pool	Facility Entry	Active Recreation	53
37	Danny G. McBeth Recreation Center	Facility Back Entry	Active Recreation	56
38	Danny G. McBeth Recreation Center	Facility Entry	Active Recreation	54
39	Danny G. McBeth Recreation Center	Facility Entry	Active Recreation	48
40	Barton Springs Municipal Pool	Park Center	Active Recreation	64
41	Barton Springs Municipal Pool	Park Center	Active Recreation	72

42	Barton Springs Municipal Pool	Active Recreation	Active Recreation	53
43	Barton Springs Municipal Pool	Park Access	Active Recreation	51
44	Barton Springs Municipal Pool	Parking Lot	Active Recreation	59
45	Barton Springs Municipal Pool	Parking Lot	Active Recreation	49
46	Lorraine "Grandma" Camacho Activity Center	Parking Lot	Active Recreation	63
47	Lorraine "Grandma" Camacho Activity Center	Facility Entry	Active Recreation	52
48	Lorraine "Grandma" Camacho Activity Center	Active Recreation	Active Recreation	41
49	Lorraine "Grandma" Camacho Activity Center	Active Recreation	Active Recreation	36
58	George Morales Dove Springs Recreation Center	Facility Entry	Active Recreation	48
59	George Morales Dove Springs Recreation Center	Passive Recreation	Active Recreation	55
60	George Morales Dove Springs Recreation Center	Passive Recreation	Active Recreation	62
61	Onion Creek Soccer Complex	Parking Lot	Active Recreation	56
62	Onion Creek Soccer Complex	Parking Lot	Active Recreation	51
63	Onion Creek Soccer Complex	Park Access	Active Recreation	52
64	Givens Recreation Center	Facility Entry	Active Recreation	49
65	Givens Recreation Center	Active Recreation	Active Recreation	50
66	Givens Recreation Center	Facility Back Entry	Active Recreation	54
67	Givens Recreation Center	Active Recreation	Active Recreation	51
68	Parque Zaragoza Recreation Center	Facility Back Entry	Active Recreation	59
69	Parque Zaragoza Recreation Center	Park Access	Active Recreation	57
70	Parque Zaragoza Recreation Center	Parking Lot	Active Recreation	47
71	Parque Zaragoza Recreation Center	Facility Entry	Active Recreation	54
81	Austin Recreation Center and Skate Park	Facility Entry	Active Recreation	49
82	Austin Recreation Center and Skate Park	Parking Lot	Active Recreation	52
83	Austin Recreation Center and Skate Park	Active Recreation	Active Recreation	44
92	Asian American Resource Center	Facility Entry	Active Recreation	51
93	Asian American Resource Center	Facility Entry	Active Recreation	56
94	Asian American Resource Center	Facility Back Entry	Active Recreation	54
95	Asian American Resource Center	Active Recreation	Active Recreation	54
96	Bartholomew Pool	Parking Lot	Active Recreation	53
97	Bartholomew Pool	Active Recreation	Active Recreation	48
98	Bartholomew Pool	Passive Recreation	Active Recreation	55
107	Turner/Roberts Recreation Center	Active Recreation	Active Recreation	50
108	Turner/Roberts Recreation Center	Active Recreation	Active Recreation	50
109	Turner/Roberts Recreation Center	Facility Entry	Active Recreation	46

110	Turner/Roberts Recreation Center	Facility Entry	Active Recreation	43
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Table C-43. South Austin Recreation Center nighttime assessment

South Austin Recreation Center The South Austin Recreation Center is a lively hub at night with numerous people enjoying sports on the well-lit field. The main entrance, warmly illuminated by a ceiling-mounted fixture, sees a steady stream of visitors. However, the side entry is poorly lit, with a glaring wall pack creating a stark contrast and a dark area where a figure was seen hiding. The pathways, shaded by trees, are mostly empty and dimly lit, causing some pedestrians to use flashlights. The playground for kids lacks dedicated lighting, is sparsely used, and illuminated only by spillover light from the courts.	
--	--

1 - Parking Lot (Safety
Score 42)

The recreation center parking entrance leads to a fully utilized parking lot when there are games. The entry way is lit by a warm street light pole, and there is light spill from bright, neighboring flood lights on the field.

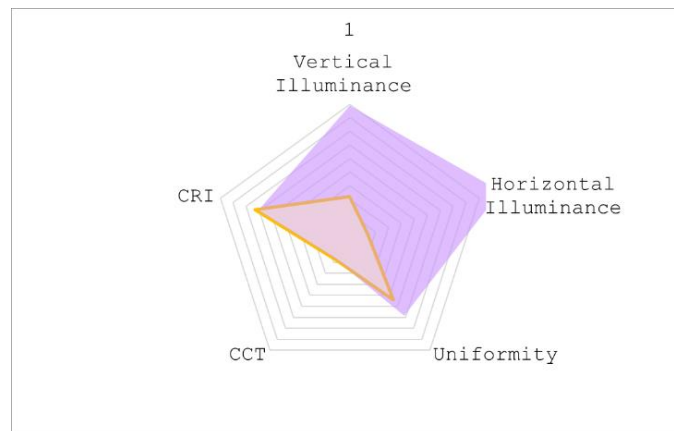
Safety Score Rationale:
Perception of safety: High
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: High
Physical Transparency:
Average
Scale: Average

Spider Diagram Analysis:
Vertical Illuminance: High
Horizontal Illuminance:
High
Uniformity: High
CRI: Standard
CCT: Standard



Picture C-149. 360 Image of parking lot entry

42/100



2 - Facility Entry (Safety Score 42)

The entrance of the facility is lit by a warm, bright ceiling mounted fixture. Light spills from the interior of the building through the glass doors. There are people frequently walking in and out to use the facility.

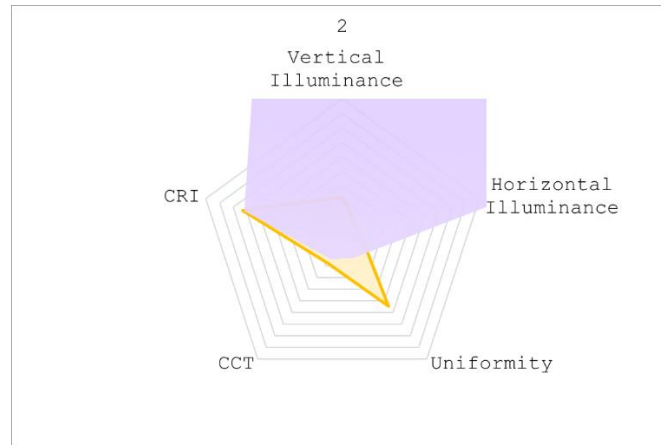
Safety Score Rationale:
Perception of safety: High
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: High
Physical Transparency: Average
Scale: Average

Spider Diagram Analysis:
Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: Low
CRI: Low
CCT: Standard



Picture C-150. 360 Image of facility entryway

42/100



3 – Park Center (Safety Score 55)

The side entry of the building had a bright, glary wall pack above the door which causes a spotlight effect at the door. The side of the facility was very dark in comparison to the entry way, and a figure was seen hiding in the dark patch. The pathway had little foot traffic.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency:

Average

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High

Horizontal Illuminance:

High

Uniformity: High

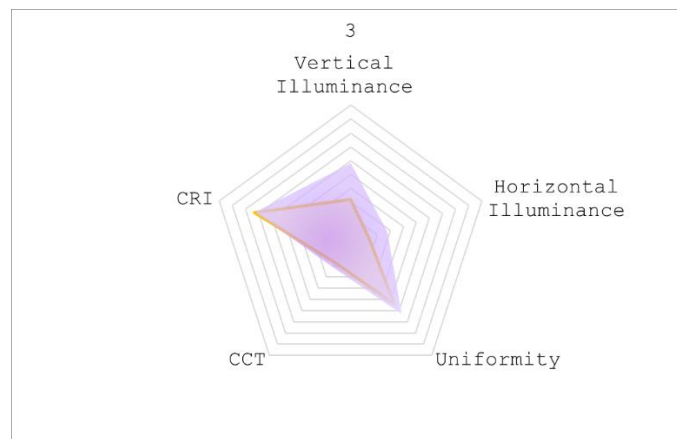
CRI: Standard

CCT: Standard



Picture C-151. 360 Image of park pathway

55/100



4 - Active Recreation
(Safety Score 57)

The pathway has many trees, and while the courts are crowded, the pathways are not. The only light on the pathway comes from the floodlights on the field, causing some pedestrians to carry flashlights to see. The playground has no dedicated lighting, but it was in use by families.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Dark

Specularity: Neutral

Visual Transparency: Low

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance:

Low

Uniformity: Low

CRI: Standard

CCT: High



Picture C-152. 360 Image between courts and playground

57 /100

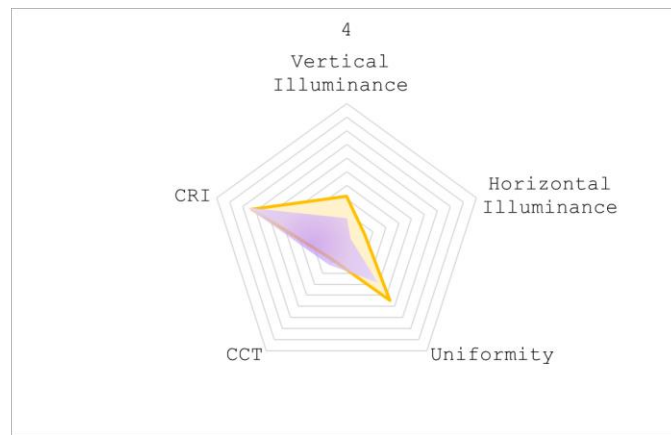


Table C-44. Big Stacy Pool nighttime assessment

Big Stacy Pool

Big Stacy Pool is a popular, naturally heated public swimming facility. The pool is brightly lit with pole mounted lights, wall packs on the buildings, and the moonlight tower on Leland & Eastside Drive. The south entry parking lot has warm pole mounted light fixtures which juxtaposes the white lights from the pool. The north entry was closed during the survey and lacked pedestrian activity. Travis Heights Elementary School nearby provides bright light to the entryway with wall packs, but the school park neighboring lacks designated lighting.



14 - Facility Entry (Safety Score 50)

The parking lot at this entry is illuminated by warm lights from a light pole, contrasting with the bright light spilling from inside the facility. The path from the parking lot to the pool is adequately lit, but the path beyond the parking lot into Blunn Greenbelt Trail has low visibility due to a lack of lighting.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency:

Average

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High

Horizontal Illuminance:

Low

Uniformity: Low

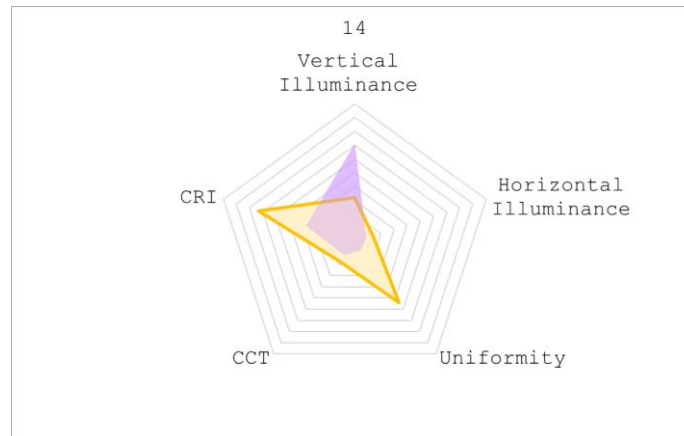
CRI: Low

CCT: Low



Picture C-153. 360 Image of pool entry

50/100



15 - Active Recreation
(Safety Score 48)

During the visit, several people were using the pool facility, which is brightly lit by pool lights that flood the entire area. Additional lighting comes from wall packs on the buildings and the moonlight tower on Leland & Eastside Drive.

Safety Score Rationale:

Perception of safety: Average/High
Reflectance: Neutral
Specularity: Reflective
Visual Transparency: High
Physical Transparency: Average
Scale: Average

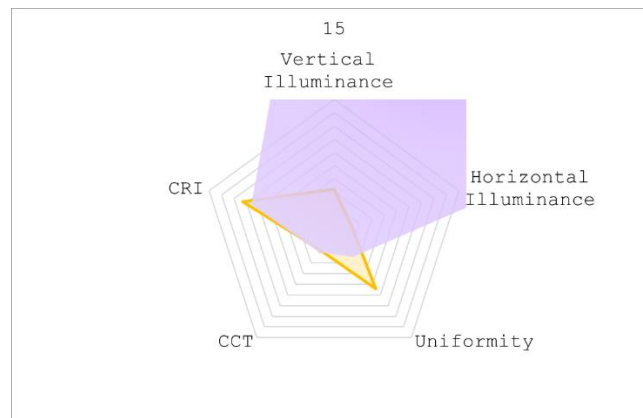
Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: Low
CRI: Low
CCT: Standard



Picture C-154. 360 Image inside the pool

48/100



16 - Facility Entry (Safety Score 53)

This entry was closed at the time of survey and there were no cars in parking lot. Around this entrance, one can see Travis Heights Elementary School and its playground facility. Although the school itself is brightly lit by wall packs, the park itself does not have any designated lighting. There is light flooding from the inside of the pool facility itself and the moonlight tower on Leland & Eastside Drive as well.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: Low
Uniformity: Low
CRI: Low
CCT: Low



Picture C-155. Phone image towards the back entryway

53/100

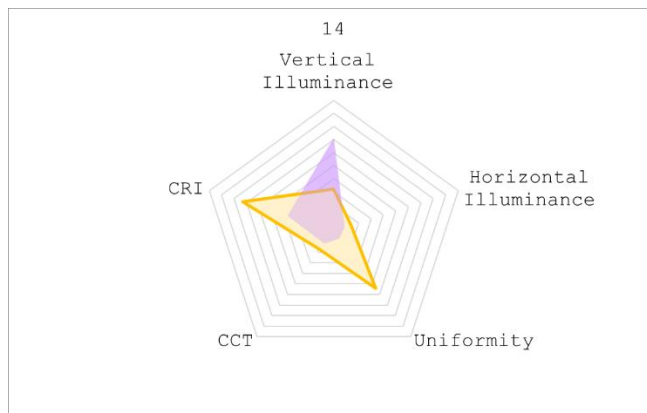
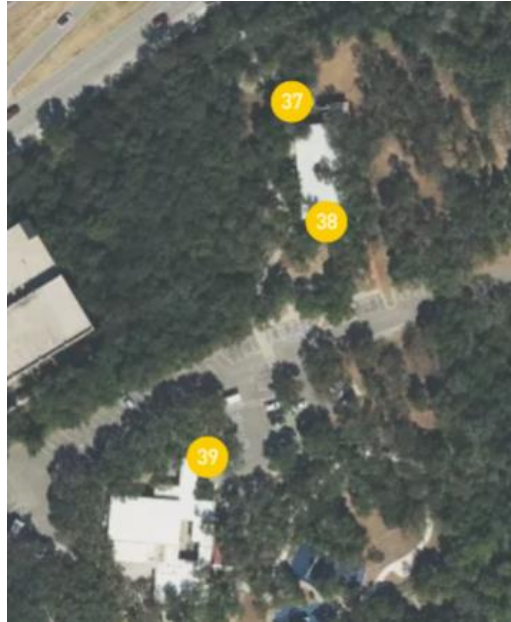


Table C-45. Danny G. Macbeth Recreation Center nighttime assessment

Danny G. Macbeth Recreation Center

Danny G Mcbeth Recreation Center provides adaptive and inclusive recreational programs for individuals with disabilities. Overall the buildings that make up the rec center have an abundance of light at the entryways and stairs/ramps, but there is a lack of light on the pathways that lead up to the building. There is a greater sense of safety closer to the building because of the lack of lighting further away.



37 - Facility Back Entry (Safety Score 56)

The exterior of the building is equipped with wall packs and troffers, which are very bright. There is a spotlight effect from the lights on the building making it difficult to see past the woods, affecting the perception of safety. The pathway next to the building is well illuminated, but there is no pedestrian pathway lighting for the pathway as it goes further away.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

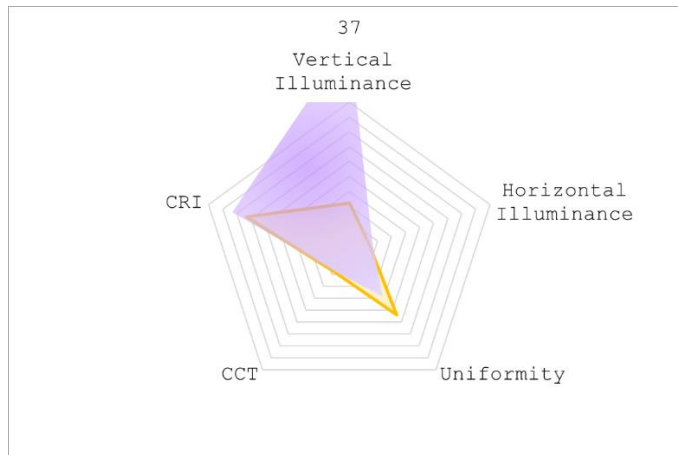
Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: Standard
Uniformity: Low
CRI: High
CCT: Standard



Picture C-156. 360 Image of the annex facility back entryway

56/100



38 - Facility Entry (Safety Score 54)

The ceiling features large 2x2 troffers, creating a spotlight effect from the building's bright lights. This makes it difficult to see people on the pathway and road leading to the building. While the area next to the building feels safe, walking up to it does not.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

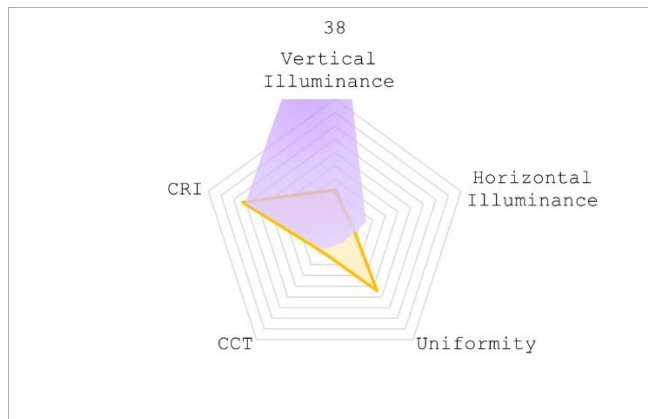
Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: Low
CRI: Standard
CCT: Standard



Picture C-157. 360 Image of annex building front entryway

54/100



39 - Facility Entry (Safety Score 48)

The entryway is very bright, with light spill from inside the building. The color temperature is inconsistent, with white light coming from inside the canopy, and warm light illuminating the facility sign. The neighboring park itself is not illuminated. There is one streetlight for the parking.

Safety Score Rationale:

Perception of safety: Average/High
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: High
Physical Transparency: Average
Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: Low
CRI: High
CCT: Standard



Picture C-158. 360 Image of facility front entryway

48/100

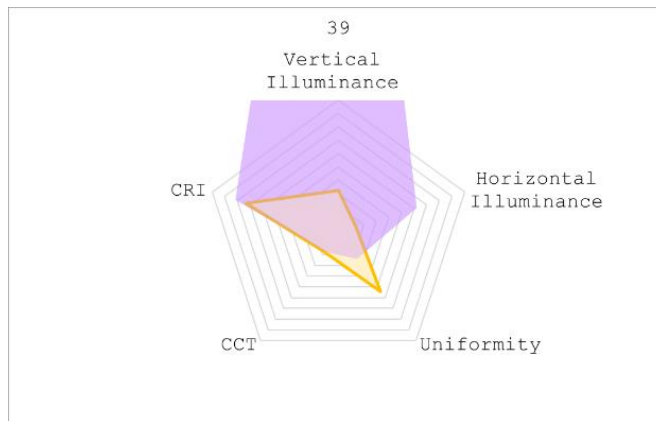


Table C-46. Barton Springs Municipal Pool nighttime assessment

Barton Springs Municipal Pool

Barton Springs is a popular spring fed pool located in Zilker Park, that gets frequented after dark. The lighting around this area is characterized by light poles, as they are found in the pool facility, at the parking lots, and adjacent to some paths. Although the main areas are lit during operational hours, some of the paths to get to the pool and waterfront ledges are extremely dark and rocky, making it easy for people to get hurt.



40 - Park Center (Safety Score 64)

Light from the pool spills onto the path, but otherwise, it is very dark with no lights at this point. The stairs leading to this area are very rocky and dark, making it easy to trip. Activity seen in this area includes fishing, drug use, and busking.

Safety Score Rationale:

Perception of safety: Average/Low
Reflectance: Dark
Specularity: Reflective
Visual Transparency: Low
Physical Transparency: Low
Scale: Average

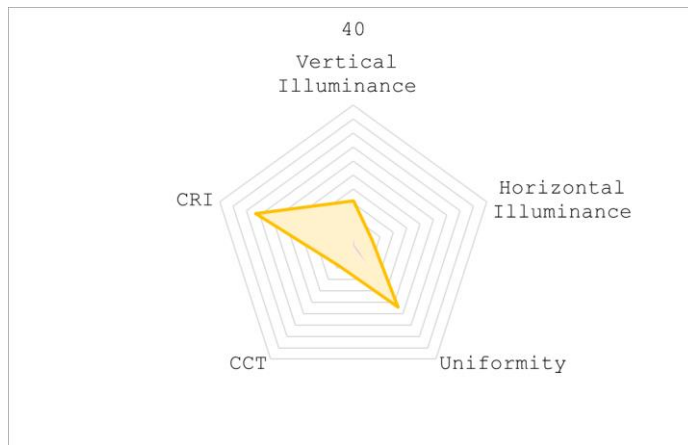
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: N/A
CCT: N/A



Picture C-159. 360 Image of waterside platform

64/100



41 - Park Center (Safety Score 72)

The light from the pool turned off at 10 PM, leaving this area dark. Someone's belongings were on the platform, and the path to the ledge was difficult to navigate due to the lack of lighting. The only sources of lights were the from the pool facility and the city skyline.

Safety Score Rationale:

Perception of safety: Low
Reflectance: Dark
Specularity: Reflective
Visual Transparency: Low
Physical Transparency: Low
Scale: Average

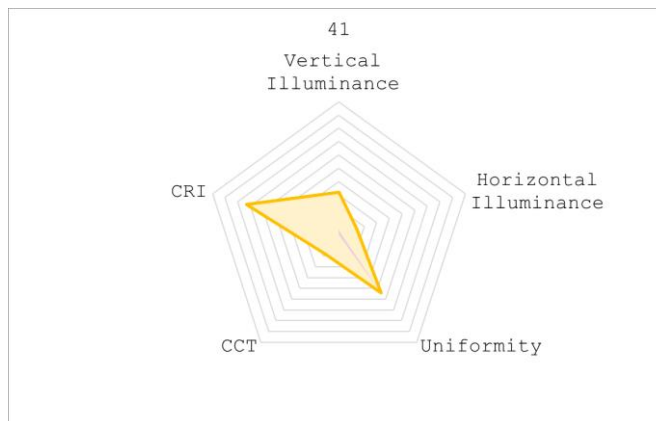
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: N/A
CCT: N/A



Picture C-160. 360 Image of waterside platform

72/100



**42 - Active Recreation (Safety
Score 53)**

There are a handful of swimmers in the pool. Flood lights on poles provide ample lighting to the pool and parkway. However, the walkway to the pool is not well illuminated and can be a tripping hazard if not careful. There is light coming from the pool facility. Trees surround the lawn and pool.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Reflective
Visual Transparency: High
Physical Transparency: Average
Scale: Average

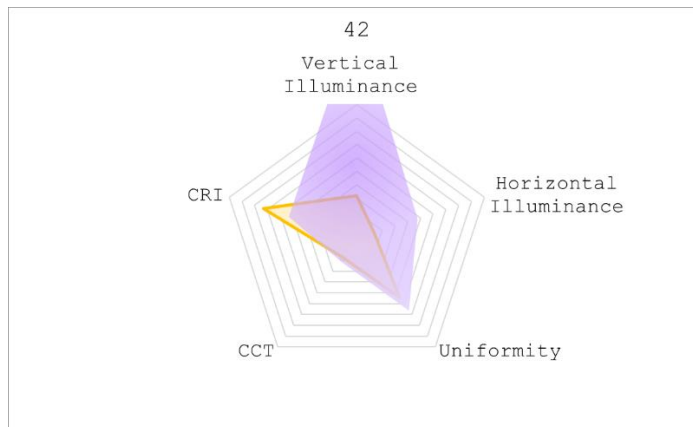
Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: High
CRI: Low
CCT: Standard



Picture C-161. 360 Image inside the pool

53/100



43 - Park Access (Safety Score 51)

There is a lot of pedestrian lighting on the path toward the entry point, with many low-level light poles. The field lights next to this area were not on. The admission booth was lit by the neighboring light poles along the pathway.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: High
Scale: Average

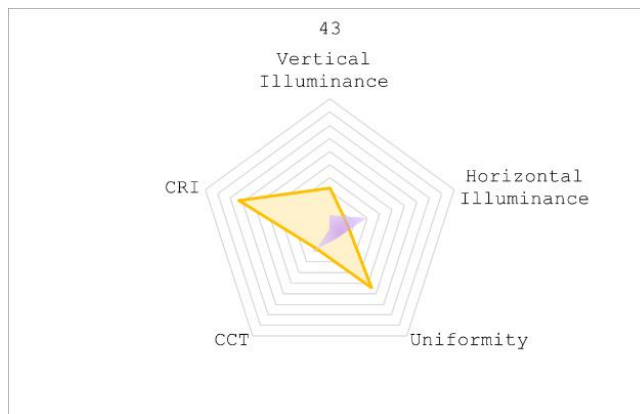
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: High
Uniformity: Low
CRI: Low
CCT: Standard



Picture C-162. 360 Image of park admission entry

51/100



44 - Parking Lot (Safety Score 59)

There are light poles for the parking lot, but it was hard to see beyond into the field and the pool due to the lack of other light sources. Although people could be heard from the field, they were not visible. A path next to the parking lot led to a dead end where an unhoused person was sleeping.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: High
Scale: Average

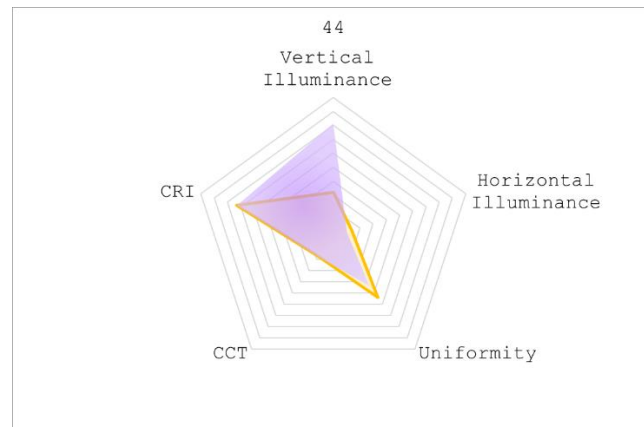
Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: Standard
Uniformity: Low
CRI: Standard
CCT: Standard



Picture C-163. 360 Image of parking lot

59/100



45 - Parking Lot (Safety Score 49)

This parking lot is illuminated by light poles that provide patches of light throughout the entirety of the lot.

Safety Score Rationale:

Perception of safety: Average/High

Reflectance: Neutral

Specularity: Neutral

Visual Transparency: Average

Physical Transparency: High

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Standard

Horizontal Illuminance: Standard

Uniformity: Low

CRI: Low

CCT: Standard



Picture C-164. 360 Image of parking lot

49/100

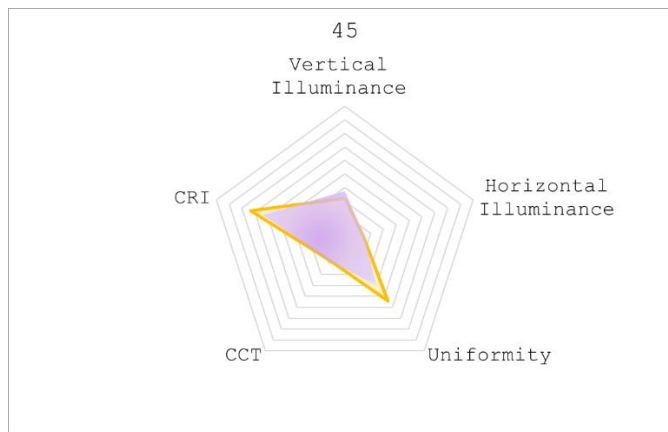
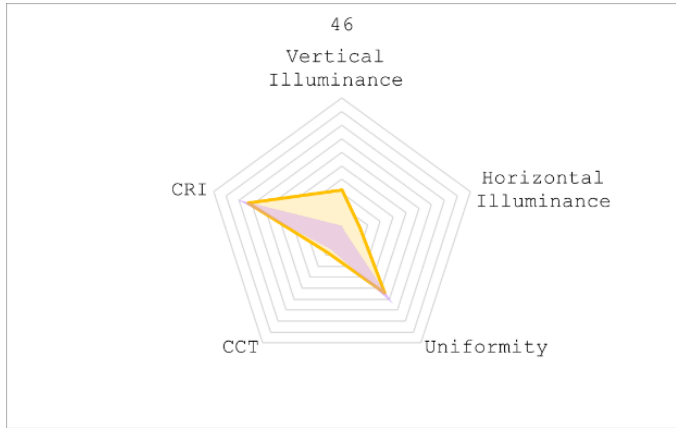


Table C-47. Lorraine “Grandma” Camacho Activity Center nighttime assessment

Lorraine “Grandma” Camacho Activity Center Lorraine Camacho Activity Center offers a variety of recreational and educational programs for youth and families in East Austin. Although the building is closed at night, there are a lot of kids playing in the fields and parents watching. The fields are well lit at night by the flood lights from the fields, providing ample light for visibility throughout the entirety of the facility.	
46 - Parking Lot (Safety Score 63) The parking lot has light poles, with additional light spilling over from nearby residential areas and field lights. COA cars and trailers are parked here. Some trees partially block the view to the neighboring residences, but not significantly. There is a large dumpster in the area. <i>Safety Score Rationale:</i> Perception of safety: Average Reflectance: Neutral Specularity: Neutral Visual Transparency: Average Physical Transparency: Average Scale: Average <i>Spider Diagram Analysis:</i> Vertical Illuminance: Low Horizontal Illuminance: Low Uniformity: Standard CRI: Standard CCT: Low	 Picture C-165. 360 Image of parking lot 63 /100 

47 - Facility Entry (Safety
Score 52)

Wall packs illuminate the entrance, with light spilling from the floodlights on the fields. The area is next to a street and adjacent to apartments, with warm street lights providing additional illumination. There was not much activity at the facility due to the building being closed, but there are a lot of people on the fields when there are recreational activities.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency:

Average

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High

Horizontal Illuminance:

Standard

Uniformity: Low

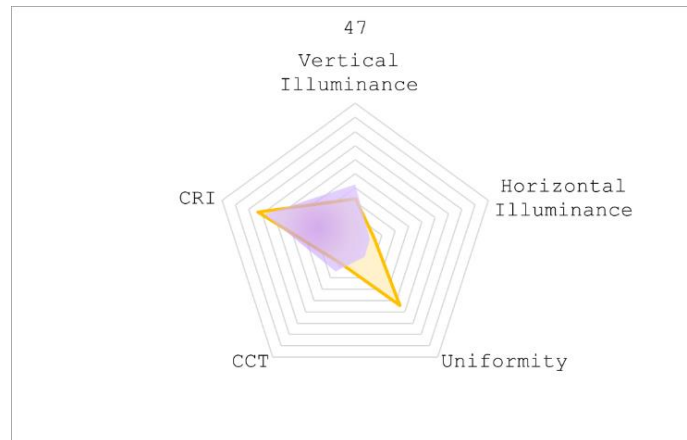
CRI: Standard

CCT: High



Picture C-166. 360 Image of facility entryway

52/100



48 - Active Recreation
(Safety Score 41)

On the paths the area is well lit by the neighboring field lights and wall pack on the facility. However, the bathroom lights on the bathroom between all the fields are broken, including the interior. The site is busy with kids, parents, and people walking their dogs. Recreational activities and leagues are common here.

Safety Score Rationale:

Perception of safety: High

Reflectance: Neutral

Specularity: Neutral

Visual Transparency: High

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High

Horizontal Illuminance:

High

Uniformity: Standard

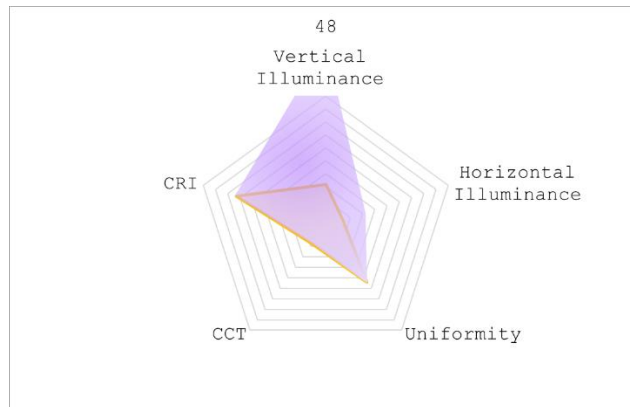
CRI: Standard

CCT: Standard



Picture C-167. 360 Image near athletic fields

41 / 100



49 - Active Recreation
(Safety Score 36)

Kids are playing in the fields and grass areas. At the time of survey, kids were running around the batting cage (where the storage container is), which is mostly see-through except for one wall which could impede visibility. Floodlights from the fields provide ample illumination, though some light poles and light on the batting cage are out.

Safety Score Rationale:

Perception of safety: High

Reflectance: Neutral

Specularity: Neutral

Visual Transparency: High

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance:

Standard

Horizontal Illuminance: Low

Uniformity: Standard

CRI: Standard

CCT: Standard



Picture C-168. 360 Image near athletic fields

36/100

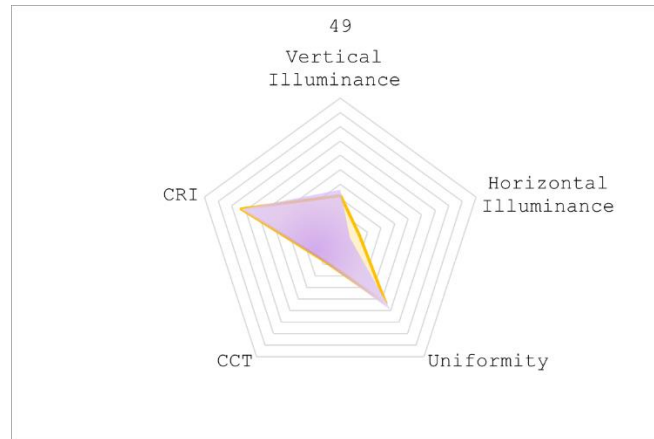


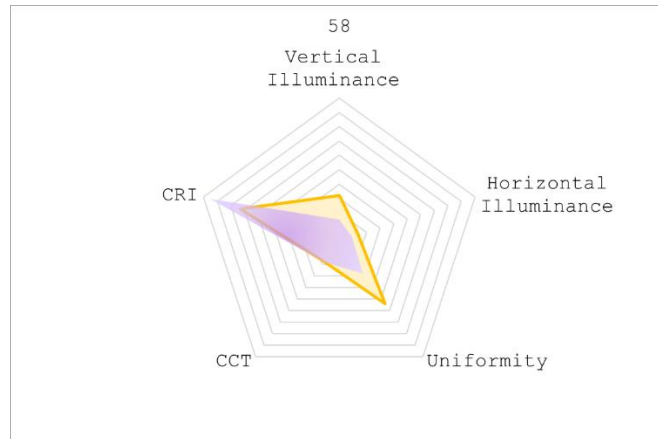
Table C-48. George Morales Dove Springs Recreation Center nighttime assessments

George Morales Dove Springs Recreation Center George Morales Dove Springs Recreation Center provides a range of recreational and educational programs for the community and is open after dark. The facility is relatively well lit, with lighting provided at the entryway and around the building. There is pathway lighting near the playground and pavilion that light those respective areas as well. However, beyond that general vicinity, where the field with the zipline is, there is no light provided. There have been some issues with individuals experiencing homelessness loitering around the facility at night.	
<u>58 - Facility Entry (Safety Score 48)</u> At the entry of the facility, there are downlights that light the sign and there is also light shining through the window from the inside of the facility. Some fixtures were broken including the wall pack above a window and a light pole in the parking lot.	 Picture C-169. 360 Image near facility entryway

Safety Score Rationale:
Perception of safety: Average/High
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

Spider Diagram Analysis:
Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Low
CRI: High
CCT: Standard

48/100



**59 - Passive Recreation
(Safety Score 55)**

The pavilion was well-lit and seemed like a good hangout spot, with one unhoused person present. The playground had some lighting from the pathway around it. There was a wall pack on the facility that shines on the storage containers around the facility.

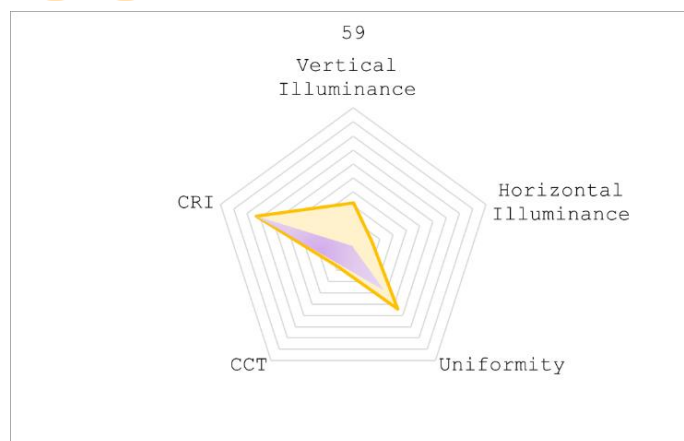
Safety Score Rationale:
Perception of safety: Average
Reflectance: Dark
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: High
Scale: Average

Spider Diagram Analysis:
Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Low
CRI: Standard
CCT: Standard



Picture C-170. 360 Image near pavilion and playground

55/100



60 - Passive Recreation
(Safety Score 62)

This area is an open field with a zipline and a neighboring trail. Some light spilled from the opposite side of the playground. It was very quiet with no one around, and the trees divided this area from other areas of the park.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Dark

Specularity: Matte

Visual Transparency: Low

Physical Transparency:

High

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance:

Low

Uniformity: Standard

CRI: N/A

CCT: N/A



Picture C-171. 360 Image near trail

62/100

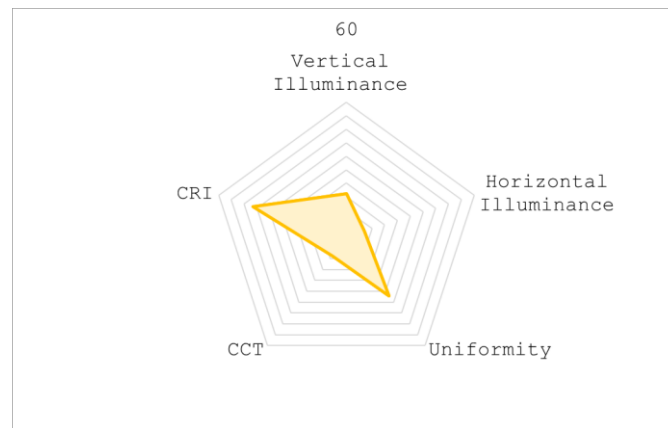
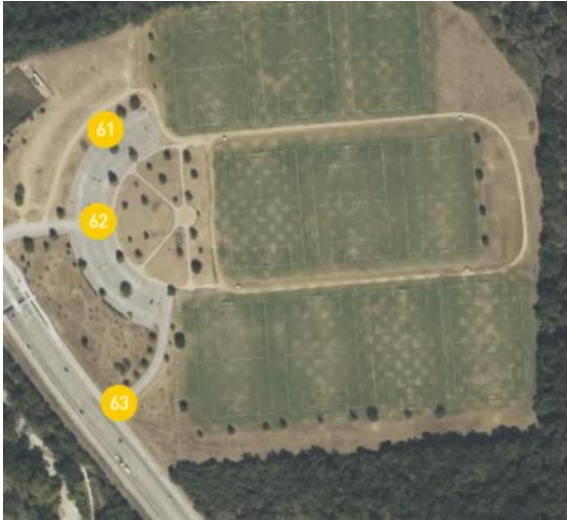


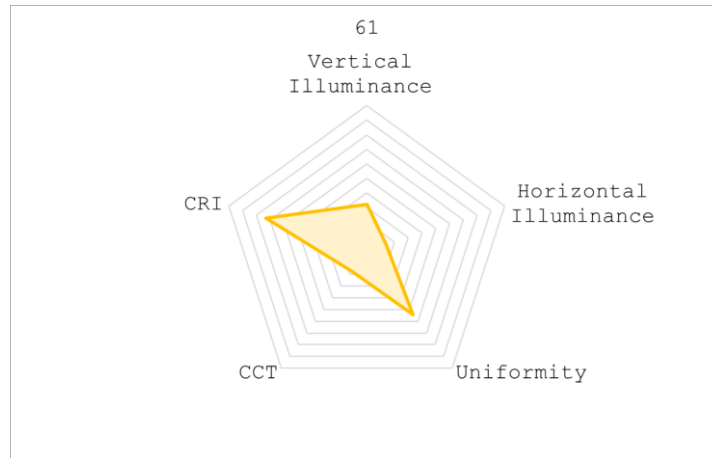
Table C-49. Onion Creek Soccer Complex nighttime assessment

Onion Creek Soccer Complex Onion Creek Soccer Complex features multiple soccer fields and facilities for local leagues and tournaments. At the time of survey, the field was closed due to reseeding of the fields. The fields had no lighting infrastructure from what could be seen and was very dark. The only source of lighting is from the LED light poles located in the parking lot that provide a low light output. Despite the low level of light, the area felt safe due to the land being clear and flat which increases the physical transparency.	
<u>61 – Parking Lot (Safety Score 56)</u> There was no light except for some light poles in the parking lot. Trees and vegetation surrounded the area. Facial recognition was not good for those further away, but overall there were few hiding spots since it was an open field and everything was flat.	 Picture C-172. 360 Image at the edge of the parking lot

Safety Score Rationale:
Perception of safety:
Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Low
Physical Transparency:
Average
Scale: Average

Spider Diagram Analysis:
Vertical Illuminance: Low
Horizontal Illuminance:
Low
Uniformity: Standard
CRI: N/A
CCT: N/A

56/100



62 - Parking Lot (Safety Score 51)

There was no lighting at the entrance of the parking lot. The light poles had a relatively low output. The gate was blocked off for cars due to reseeding the grass and maintenance. Although it was dark, it felt safe because there was no one around and it was an open space.

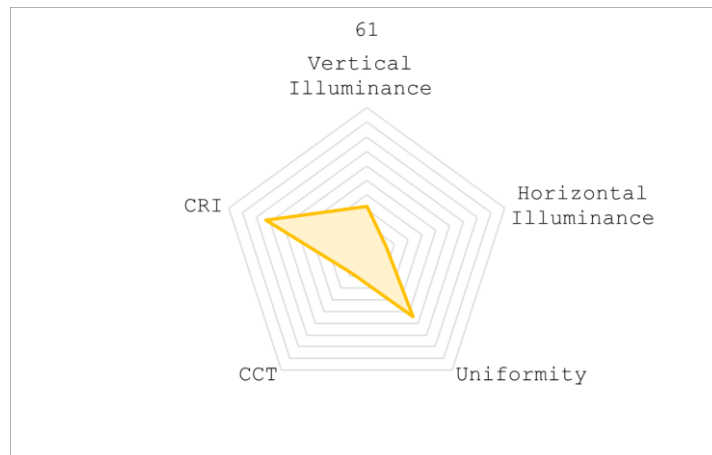
Safety Score Rationale:
Perception of safety:
Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Low
Physical Transparency:
Average
Scale: Average

Spider Diagram Analysis:
Vertical Illuminance: Low
Horizontal Illuminance:
Low
Uniformity: Standard
CRI: N/A
CCT: N/A



Picture C-173. 360 Image of the parking lot

51/100



**63 – Park Access (Safety
Score 52)**

There was no designated lighting for the entryway, and there were no light poles or structures on the field. Streetlights were the only source of light for this entryway. The gate was put up for cars.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency: Low

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance:

Low

Uniformity: Standard

CRI: N/A

CCT: N/A



Picture C-174. 360 Image of the vehicle entryway

52/100

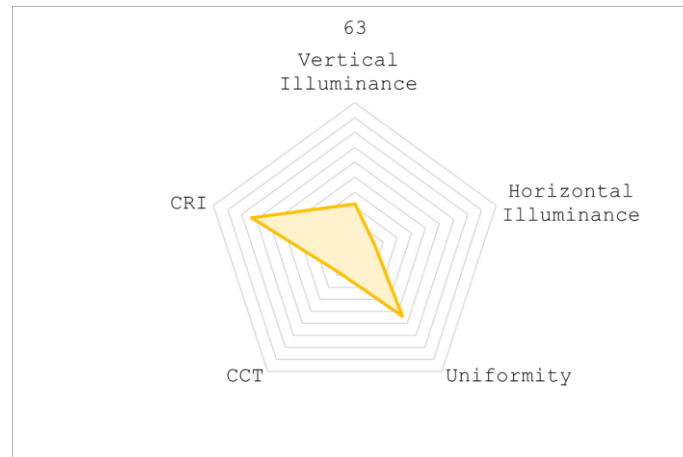


Table C-50. Givens Recreation Center nighttime assessment

Givens Recreation Center

Givens Recreation Center offers a variety of recreational programs and activities for the East Austin community. At night, there are a lot of kids that play on the fields. The bright flood lights from the field light the area. There are also light poles located in the parking lot, that are dim in comparison to the field, where people are seen loitering and doing drugs. There was little activity at the front of the facility that is primarily lit by wall packs and light poles.



64 - Facility Entry (Safety Score 49)

The entryway has wall packs and light flooding from the interior. There are light poles in the area with two different color temperatures. At the playground park, there is a warm light pole. Despite hearing people, visibility was poor. There are facility vehicles parked in the parking lot overnight. The bench area had some dark patches because of the trees, and the garden pots on the side of the building were not visible.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency:

Average

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance:

Low

Uniformity: Standard

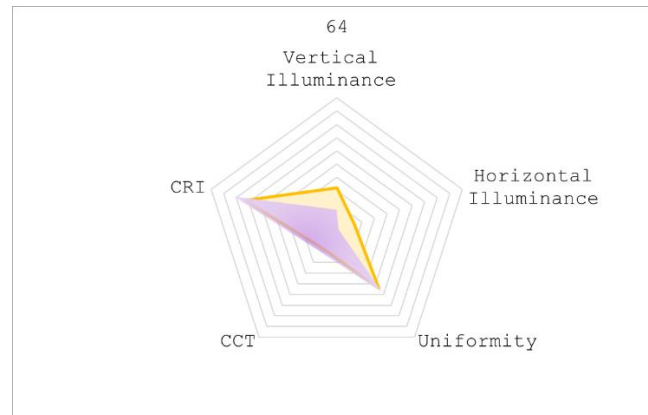
CRI: Standard

CCT: Standard



Picture C-175. 360 Image of facility front entryway

49/100



65 - Active Recreation (Safety Score 50)

There is a big juxtaposition between the lighting for the facility and the field. There is hardly any lighting for the facility, but getting closer to the field, there is a lot of light due to the field flood lights. People can be seen sitting outside and smoking weed near the parking lot.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

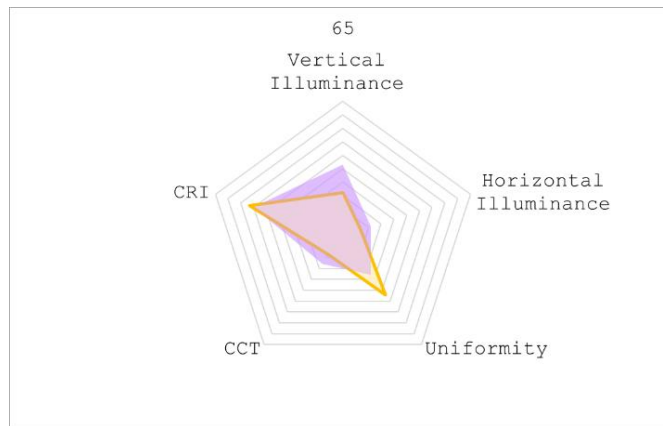
Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: Low
CRI: Standard
CCT: High



Picture C-176. 360 Image near the athletic fields

50/100



66 - Facility Back Entry (Safety
Score 54)

The field lights are quite bright, but storage containers create dark shadows and hiding spots. There is light spill coming from the windows of the facility.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Low
Physical Transparency: Low
Scale: Average

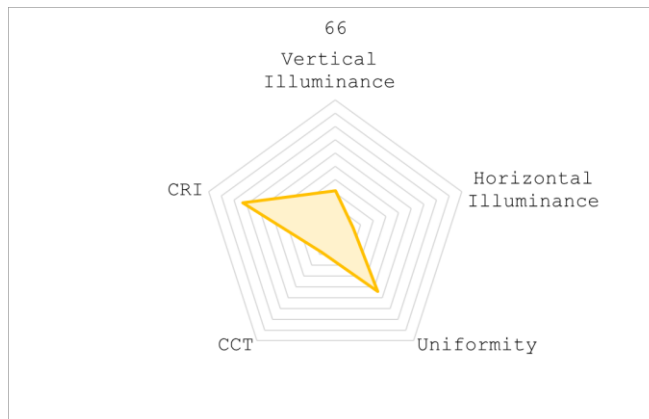
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: N/A
CCT: N/A



Picture C-177. 360 Image at the facility back entryway

54/100



67 - Active Recreation (Safety Score 51)

The field lights are very bright, where a lot of kids and parents are seen. However, people are seen loitering and on drugs in the pavilion parking lot. The parking lots are not well lit, with only a few solar powered light poles. There is some trash left in the pavilion near the field.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: High
Physical Transparency: High
Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Low
CRI: Standard
CCT: High



Picture C-178. 360 Image next to the athletic fields

51 /100

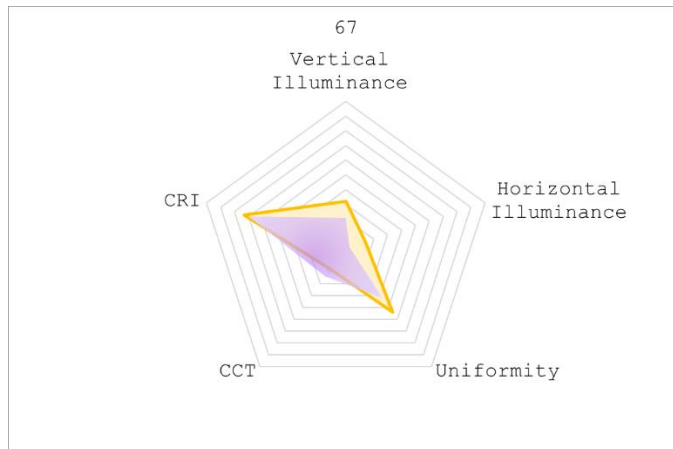
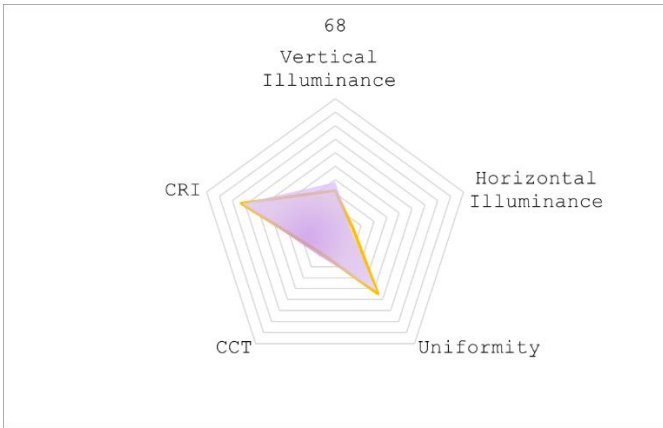


Table C-51. Parque Zaragoza Recreation Center nighttime assessment

Parque Zaragoza Recreation Center Parque Zaragoza Recreation Center provides recreational facilities and programs, including a swimming pool and sports courts. The recreation center is primarily lit by wall packs along the wall and light poles in the parking lot and pathways. Some pathways along the back and side of the facility have dark patches due to the overgrown vegetation nearby. At night, there is little activity, but there occasionally are people that use the facilities.	
<u>68 - Facility Back Entry (Safety Score 59)</u> On the side of the building, there are wall-mounted fixtures and wall packs. Light poles line the pathway, and a floodlight shines through the vegetation on the other side. This section is well illuminated, but further along the pathway where there is tree coverage, it can get dark. <i>Safety Score Rationale:</i> Perception of safety: Average Reflectance: Neutral Specularity: Neutral Visual Transparency: Average Physical Transparency: Average Scale: Average <i>Spider Diagram Analysis:</i> Vertical Illuminance: Standard Horizontal Illuminance: Standard Uniformity: Standard CRI: Standard CCT: Standard	 Picture C-179. 360 Image at the facility back entryway 59/100 

69 - Park Access (Safety Score 57)

There are wall packs on the wall providing light for the pathway. The neighboring field on the side of this building had their lights off. There are also light poles on the pathway in the back that led to the park.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Low
Scale: Average

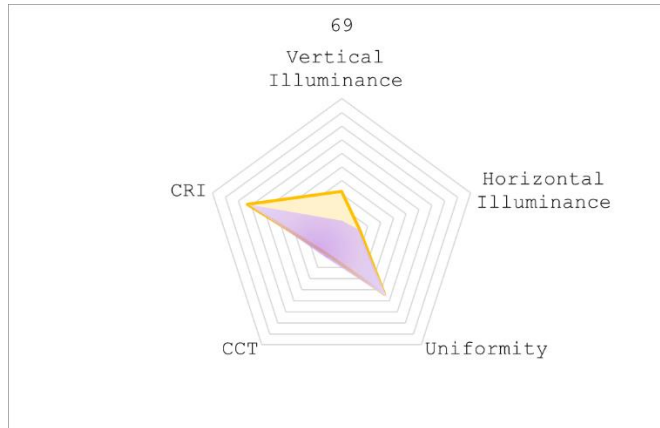
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Standard
Uniformity: Standard
CRI: Standard
CCT: Standard



Picture C-180. 360 Image on the pathway on the side of the building

57 /100



70 - Parking Lot (Safety Score 47)

The parking lot is well illuminated by light poles and wall packs on the facility. The wall packs have two different color temperatures. The back of the facilities across the street is also visible.

Safety Score Rationale:

Perception of safety: High

Reflectance: Neutral

Specularity: Neutral

Visual Transparency: Average

Physical Transparency: Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Standard

Horizontal Illuminance: Standard

Uniformity: Standard

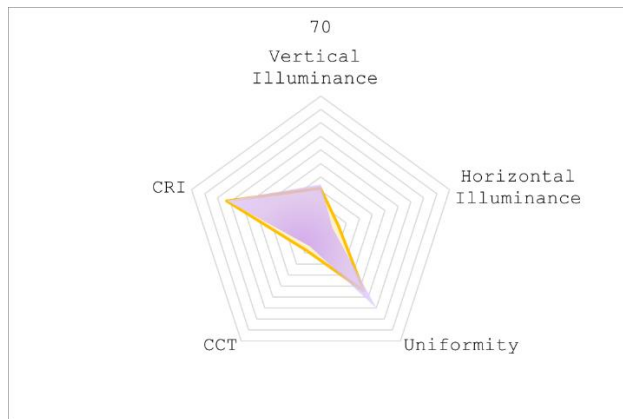
CRI: Standard

CCT: Standard



Picture C-181. 360 Image of the parking lot

47 /100



71 - Facility Entry (Safety Score 54)

At the facility door, there are two sconces on either side, and there is also colored light seeping from the inside of the building. Around the entryway, there are light poles placed around. There is also additional light coming off the buildings across the street. Some people are seen walking along the perimeter of the building.

Safety Score Rationale:

Perception of safety: Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency: Average

Physical Transparency: Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Standard

Horizontal Illuminance: Standard

Uniformity: Standard

CRI: Standard

CCT: Standard



Picture C-182. 360 Image of the facility entryway

54/100

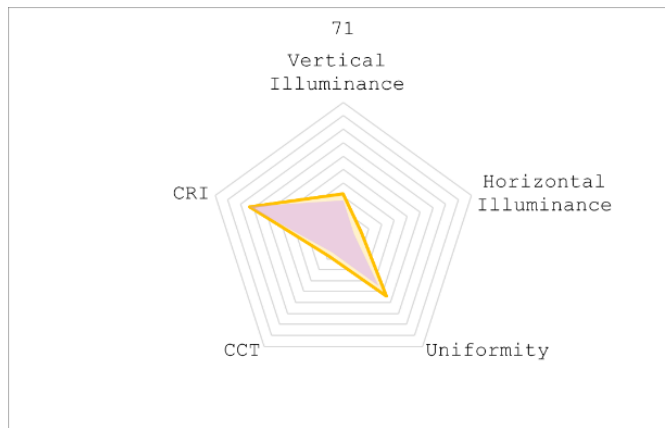


Table C-52. Austin Recreation Center and Skate Park nighttime assessment

Austin Recreation Center and Skate Park

Austin Recreation Center and Skate Park provides recreational activities and includes an adjacent skate park for skateboarding and BMX. There is a lot of activity in the area after dark. There are many people using the skating facilities, people in the recreation center taking classes, and individuals experiencing homelessness hanging out in the parking lot. At the time of visiting the recreation center, the exterior lights were not timed correctly to match daylight savings, so the fixtures were off for an extra hour past daylight. The parking lot is lit by warm light poles and the skate park is lit by extremely bright white light poles and light from a neighboring parking garage.



81 - Facility Entry (Safety Score 49)

There are some encampments in the area. The lights were not set correctly for daylight savings at the time of survey. The light poles in the parking lot, wall pack above the garage, downlights at the entry, and steps lights on the stairs turned on at 8pm, two hours after sun set.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

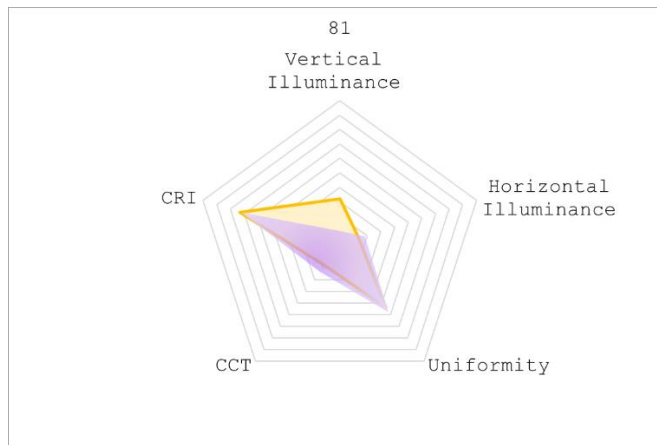
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Standard
Uniformity: Standard
CRI: Standard
CCT: Standard



Picture C-183. 360 Image of the facility entryway

49/100



82 - Parking Lot (Safety Score 52)

The lights are orange compared to the bright white lighting in the neighboring parking garage and the skate park. Some unhoused people are roaming around the side of the parking lot. The neighboring lights for the football field were turned off.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

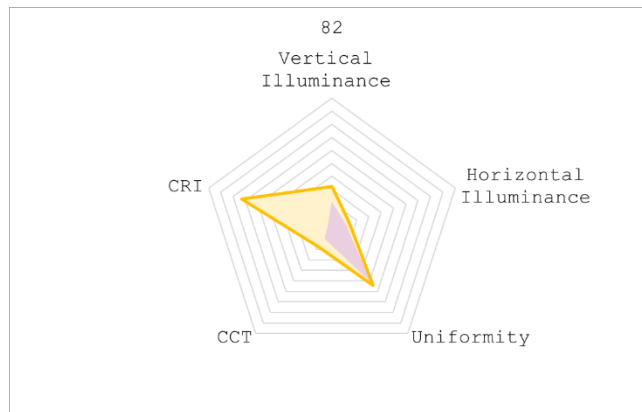
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Standard
Uniformity: Standard
CRI: Low
CCT: Low



Picture C-184. 360 Image of the parking lot

52/100



83 - Active Recreation (Safety Score 44)

The area is very bright, with some lights being brighter than others. Many people are skating, and light is coming from the parking garage next door. A moonlight tower is visible in the back. The streetlights next to the skate park are orange.

Safety Score Rationale:

Perception of safety: High
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: High
Physical Transparency: Average
Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: High
CRI: High
CCT: Standard



Picture C-185. 360 Image of the skatepark

44/100

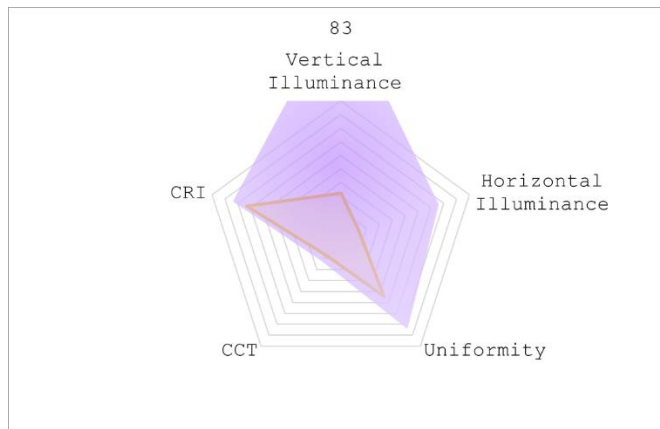


Table C-53. Asian American Resource Center nighttime assessment

Asian American Resource Center

The Asian American Resource Center offers cultural programs, exhibits, and events celebrating Asian American heritage. The facility building is characterized by its wall packs around the facility. There are also light poles placed along the parking lot. A notable source of lighting includes the steps lights that can also be seen at the Austin Recreation Center. There is not any lighting for the artwork on the walls of the building. The exercise equipment and garden area are fairly unlit due to the lack of lighting fixtures around those areas. At the time of survey, there was one unhoused person walking and throwing things around.



92 - Facility Entry (Safety Score 51)

Wall sconces are installed next to the entry. There are step lights and light poles on the ramp, although one is broken. Bright lights come from poles in the parking lot of the church across the street, as well as from light poles and wall packs on the houses across the street. The parking lot areas have white light poles. At the time of survey, there was an unhouseed man throwing items around.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

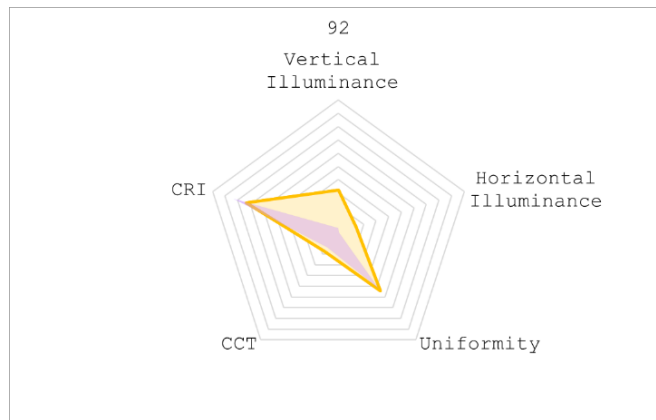
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: Standard
CCT: Low



Picture C-186. 360 Image of main facility entry

51 / 100



93 - Facility Entry (Safety Score 56)

There are bright wall packs lining the wall. The outdoor gym area behind the center is not lit at all, making it hard to see. The only other light comes from the poles in the parking lot.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: High
Physical Transparency: Average
Scale: Average

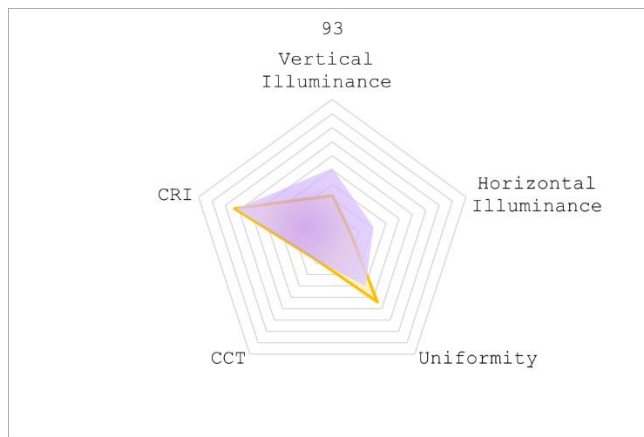
Spider Diagram Analysis:

Vertical Illuminance: High
Horizontal Illuminance: High
Uniformity: Low
CRI: Standard
CCT: Standard



Picture C-187. 360 Image of side facility entry

56/100



**94 - Facility Back Entry (Safety
Score 54)**

Wall packs are above the door leading to the back parking and trash bins. The garden is not lit at night. The parking lot in the back has light poles, and you can see the light poles in the neighboring parking lot.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

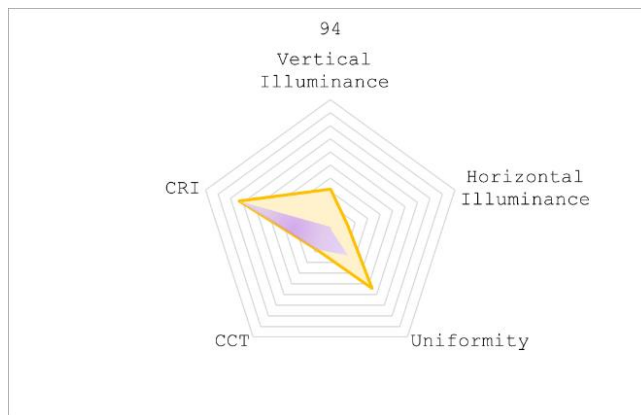
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Low
CRI: Standard
CCT: Standard



Picture C-188. 360 Image of back facility entry

54/100



95 - Active Recreation (Safety Score 54)

The outdoor gym area is quite dark with no lighting. The only light comes from the poles in the parking lot and the wall packs on the building. It is hard to see into the trees beyond the parking lot, creating a visual and physical barrier.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Low
Physical Transparency: Average
Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: Low
CCT: High



Picture C-189. 360 Image of gym area

54/100

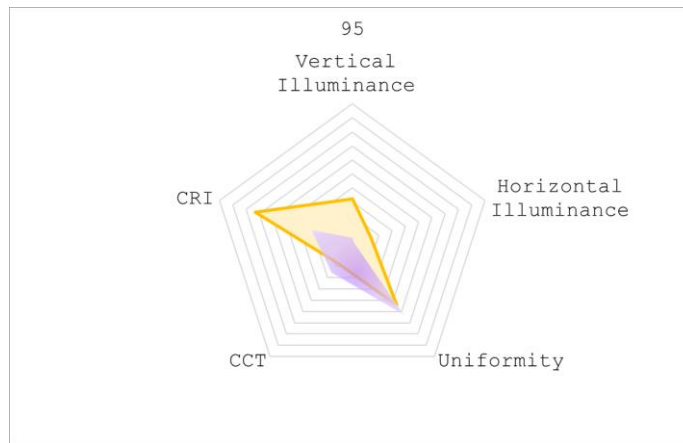
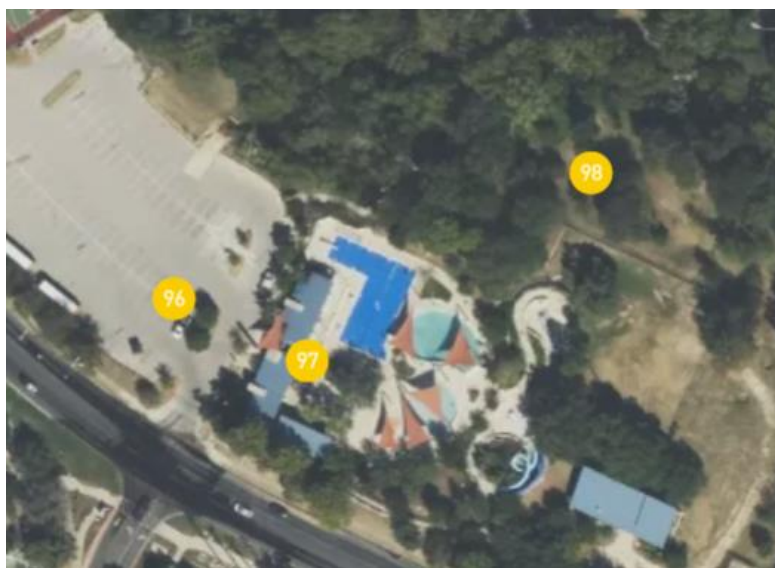


Table C-54. Bartholomew Pool nighttime assessment

Bartholomew Pool

Bartholomew Pool is a public swimming pool offering recreational swimming and aquatic programs. This pool is open for a slim period after dark, meaning that not a lot of people frequent the area at night. The pool itself has ample light provided by light poles and wall packs on the pool facilities. The parking lot and frisbee golf areas, however, have no forms of designated lighting, leaving them dark and relying on light spill from the pool and neighboring fields. Overall, the pool area itself feels safe in comparison to the neighboring outskirts.



96 - Parking Lot (Safety Score 53)

The parking lot is very dark due to the lack of any lighting infrastructure, making it difficult to see the driveway to turn into. The basketball courts next to the lot are not lit.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Low
Physical Transparency: High
Scale: Average

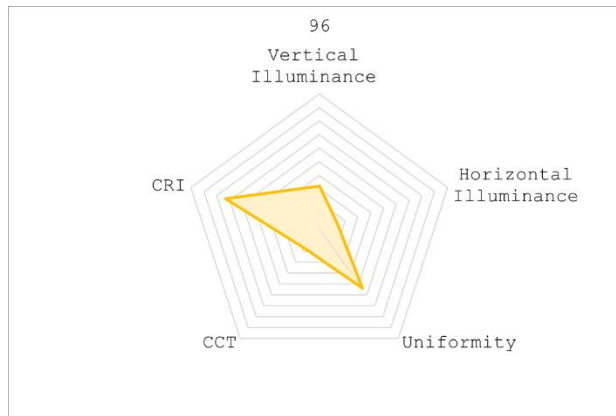
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: N/A
CCT: N/A



Picture C-190. 360 Image of the parking lot

53/100



97 - Active Recreation (Safety Score 48)

There are not many people who swim here at night due to the pool closing at 8pm and tarps being put up. In the pool, there are also lights installed, but they cannot be seen due to the tarps. Inside the pool area, there are light poles and wall packs on the facility at points of interest, making the area bright. Some light poles are broken outside the entry. People have been caught jumping over the fence at night and there are problems with people sneaking around the storage area where chemicals are kept.

Safety Score Rationale:

Perception of safety: Average/High
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: High
Physical Transparency: Average
Scale: Average

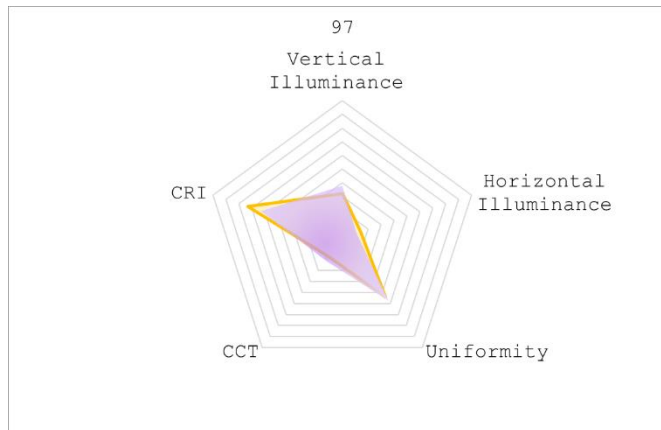
Spider Diagram Analysis:

Vertical Illuminance: Standard
Horizontal Illuminance: Standard
Uniformity: Standard
CRI: Standard
CCT: Standard



Picture C-191. 360 Image inside the pool

48/100



98 - Passive Recreation
(Safety Score 55)

Flood lights from the fields in the park and pool can be seen. The picnic tables are not very well lit and are nestled in the vegetation.

Safety Score Rationale:
Perception of safety:
Average
Reflectance: Dark
Specularity: Matte
Visual Transparency: Low
Physical Transparency:
Average
Scale: Average

Spider Diagram Analysis:
Vertical Illuminance: Low
Horizontal Illuminance:
Low
Uniformity: Standard
CRI: N/A
CCT: N/A



Picture C-192. 360 Image near the frisbee golf course

55/100

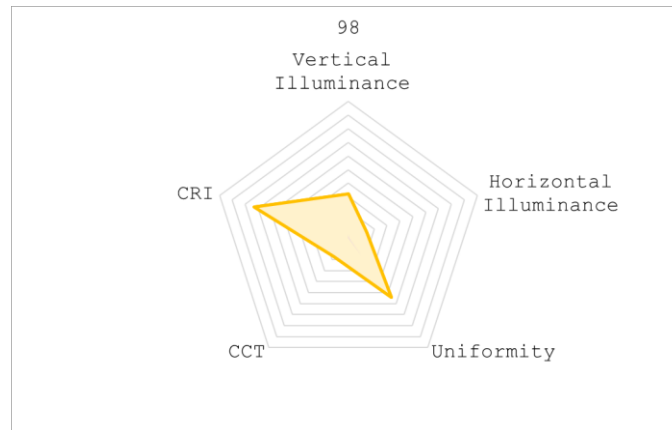


Table C-55. Turner Roberts Recreation Center nighttime assessment

**Turner Roberts
Recreation Center**

Turner-Roberts Recreation Center offers a variety of recreational and educational programs for the community. The center is situated next to a school and is brightly lit from the wall packs, light poles, and interior light spilling through the windows. Every other light fixture is on. Despite this, there is ample, ambient light throughout the entire area. The area that lacks the most lighting is the basketball area under the pavilion that only gets light from the neighboring light poles in the parking lot.



**107 - Passive Recreation
(Safety Score 50)**

The light poles in the nearby parking lot are completely off, and the wall packs for the mural are only half on. There are light poles on the pathways of the park, making the area feel well lit, although the actual playground is a bit dark.

Safety Score Rationale:

Perception of safety:

Average

Reflectance: Neutral

Specularity: Neutral

Visual Transparency:

Average

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: Low

Horizontal Illuminance:
Low

Uniformity: Low

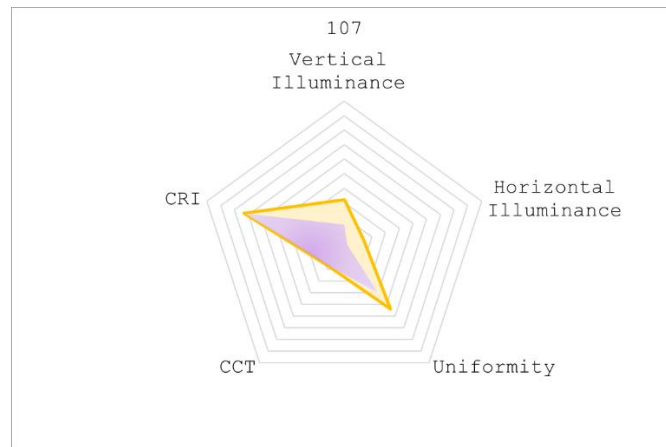
CRI: Standard

CCT: Standard



Picture C-193. 360 Image near the playground

50/100



108 - Active Recreation
(Safety Score 50)

In the basketball area, the lighting primarily comes from the light poles in the parking lot and the light streaming in from the inside of the building. The wall-packs on the building are not on, and some light poles were off.

Safety Score Rationale:

Perception of safety:
Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Low
Physical Transparency:
High
Scale: Average

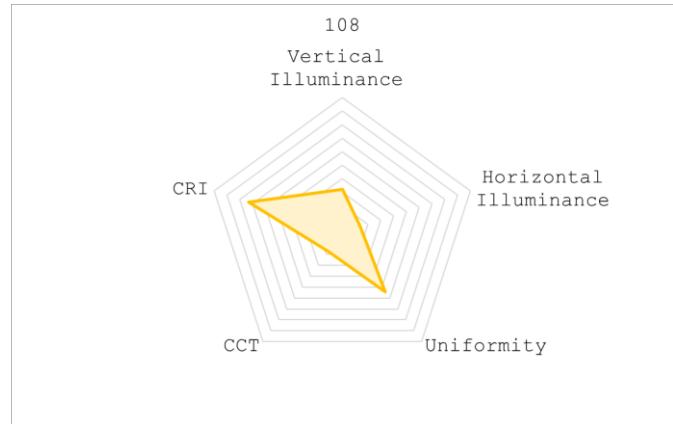
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance:
Low
Uniformity: Standard
CRI: N/A
CCT: N/A



Picture C-194. 360 Image on the basketball court

50/100



109 - Facility Entry
(Safety Score 46)

The signage lighting is very spotty and broken. The bus comes to the facility at night, and there is a light pole next to the stop that illuminates the area. At the entryway, there are down lights on the overhang that are partially on, with every other one off.

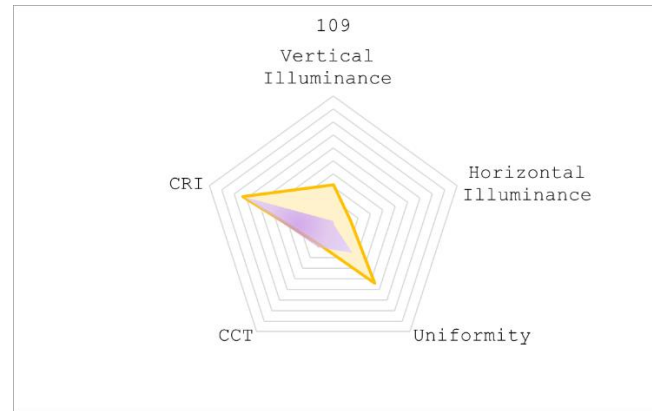
Safety Score Rationale:
Perception of safety: High
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

Spider Diagram Analysis:
Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Low
CRI: Standard
CCT: Standard



Picture C-195. 360 Image at the facility entry

46/100



110 - Facility Entry
(Safety Score 43)

The area is very well illuminated, with different layers of light. The light poles have a wide distribution, wall packs on the walls, troffers, and light shining in from the windows of the school. This facility has a lot of fixtures that are off (almost 1/3).

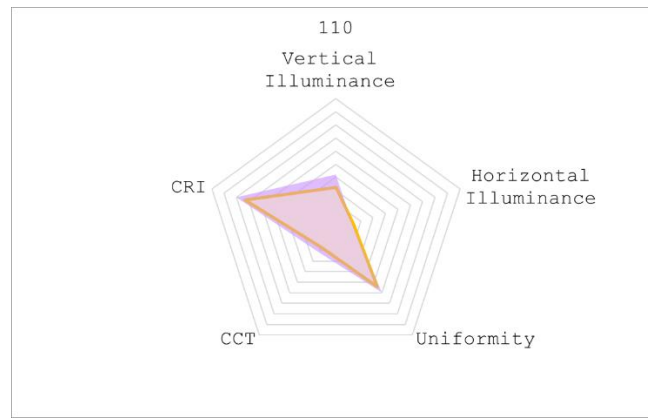
Safety Score Rationale:
Perception of safety: High
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: High
Physical Transparency: Average
Scale: Average

Spider Diagram Analysis:
Vertical Illuminance: High
Horizontal Illuminance: Standard
Uniformity: Standard
CRI: Standard
CCT: Standard



Picture C-196. 360 Image near the facility entry

43 /100



C.4.3.4 Passive Recreation Facilities

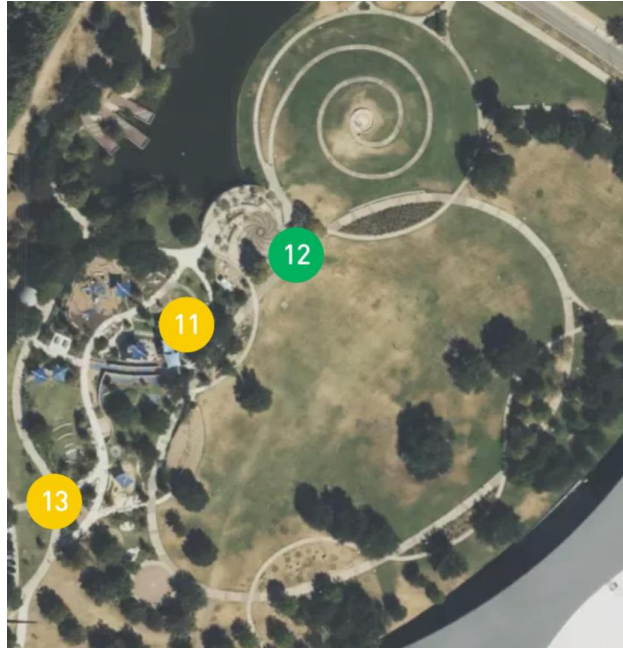
Table C-56. Nighttime safety ratings of passive recreation facilities

ID Number	Park/Facility Name	Assessment Type	Security Audit Category	Perceived Nighttime Safety Score
13	Alliance Childrens Garden	Passive Recreation	Passive Recreation	49
12	Alliance Children's Garden	Passive Recreation	Passive Recreation	40
11	Alliance Children's Garden	Passive Recreation	Passive Recreation	48
17	Festival Beach Food Forest	Park Access	Passive Recreation	57
19	Festival Beach Food Forest	Park Access	Passive Recreation	66
18	Festival Beach Food Forest	Park Facility	Passive Recreation	73

Table C-57. Alliance Children's Garden nighttime assessment

Alliance Children's Garden

The Alliance Children's Garden is a facility designed to provide families with a variety of play and educational experiences. The park is primarily lit with indirect pole mounted luminaires along the pathways. Around the area, there are also pole mounted flood lights used to light smaller park subsections. A focal point are the park benches that are illuminated by ambient downlights.



13- Passive Recreation (Safety Score 49)

The pathway in a central location of the park had multiple people enjoying the park and a family selling ice cream. The path is lit by indirect pole mounted luminaires which spills into the hilly play facility. The hilly play facility was lit, but it was dim in some areas, especially near the trees. The bench has soft downlights illuminating the structure.

Safety Score Rationale:

Perception of safety:

Average/High

Reflectance: Neutral

Specularity: Neutral

Visual Transparency: Average

Physical Transparency:

Average

Scale: Average

Spider Diagram Analysis:

Vertical Illuminance: High

Horizontal Illuminance: High

Uniformity: High

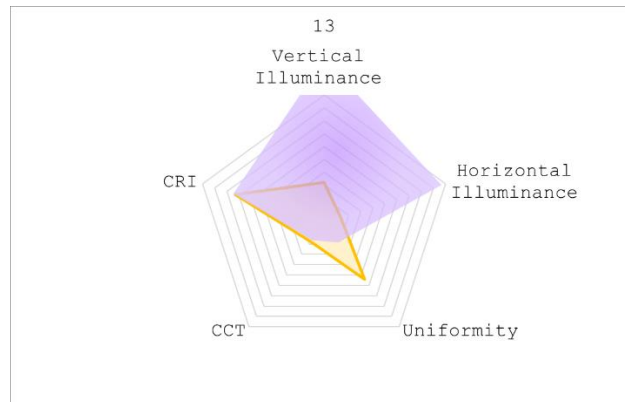
CRI: Standard

CCT: Standard



Picture C-197. 360 Image of play area

49/100



12- Passive Recreation (Safety Score 40)

The splashpad and field area is a wide, open space with high physical transparency. There are indirect pole top luminaires along the pathway. Near the splashpad that was not in operation, two light poles were broken. The city skyline provided a vertical plane of illumination.

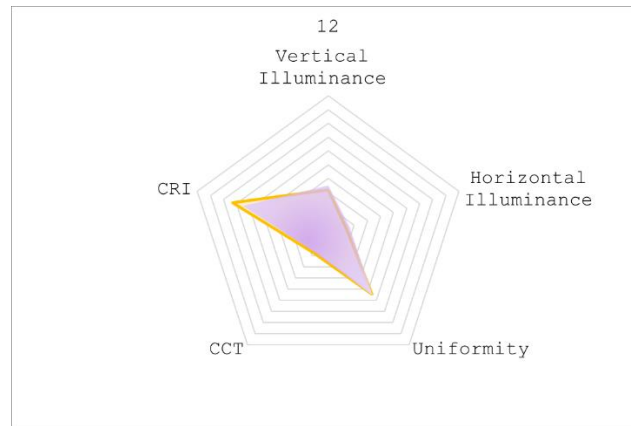
Safety Score Rationale:
Perception of safety: High
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: High
Scale: Average

Spider Diagram Analysis:
Vertical Illuminance: Standard
Horizontal Illuminance: Standard
Uniformity: High
CRI: Low
CCT: Standard



Picture C-198. 360 Image of splashpad and field

40/100



11- Passive Recreation (Safety Score 48)

The playground area is mainly illuminated by a floodlight near the pathway, creating a spotlight effect with a bright patch around the light pole and stark shadows. The areas under the canopy structures have lower light levels. Families were observed using the play area and benches.

Safety Score Rationale:
Perception of safety:
Average/High
Reflectance: Neutral
Specularity: Neutral
Visual Transparency:
Average
Physical Transparency:
Average
Scale: Average

Spider Diagram Analysis:
Vertical Illuminance: High
Horizontal Illuminance:
High
Uniformity: Low
CRI: Low
CCT: Low



Picture C-199. 360 Image of playground and bench area

48/100

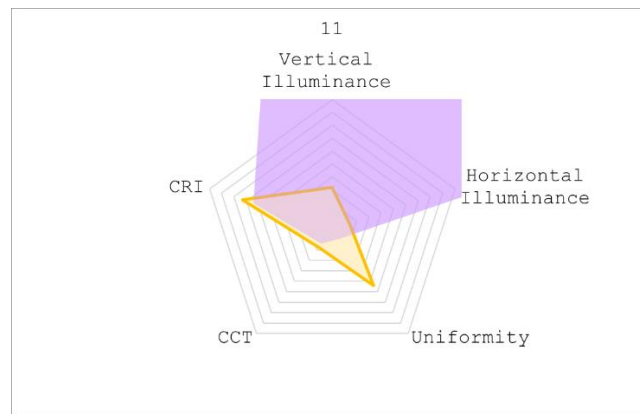


Table C-58. Festival Beach Food Forest

Festival Beach Food Forest

Festival Beach Food Forest is a community-driven garden where visitors can forage for fresh fruits, nuts, vegetables, and herbs. After hours, the garden is secured with a gate code. There is no lighting at night, and the only illumination comes from neighboring buildings, streetlights, and cars on I-35, making it difficult to see without a flashlight after dark.



17- Park Access (Safety Score 57)

There is no lighting for the garden itself. From the entrance, street lights and city lights can be seen. Since the site is close in proximity to I35, there is a lot of light and noise pollution coming from cars. At the time of visit, a Metro bus moved up closer to this entrance when its actual stop is further down the road near Waller St & Flores St because there is lighter for passengers and the bus to be seen. There is no lit or seated waiting area for the bus stop.

Safety Score Rationale:

Perception of safety: Average
Reflectance: Neutral
Specularity: Neutral
Visual Transparency: Average
Physical Transparency: Average
Scale: Average

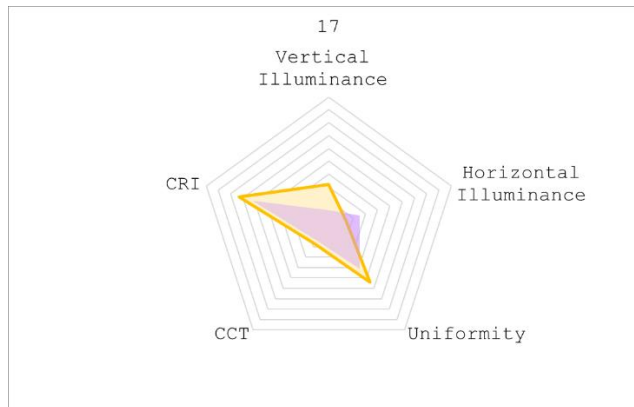
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: High
Uniformity: Low
CRI: Low
CCT: Low



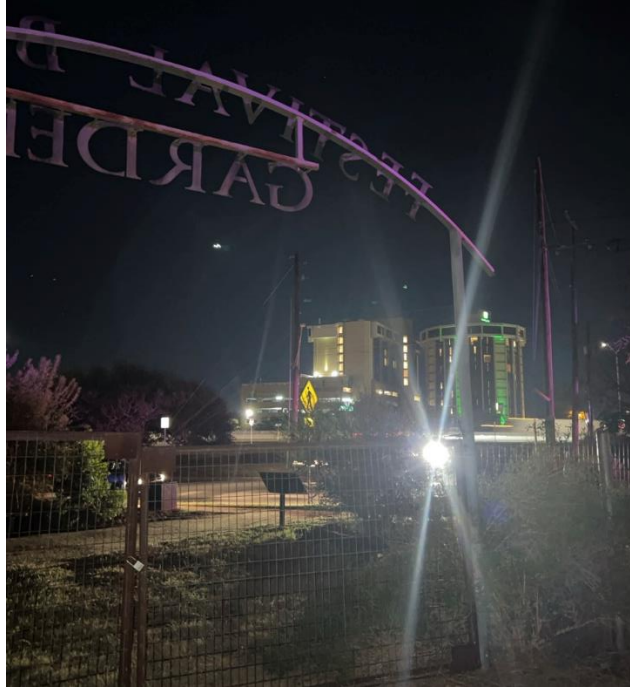
Picture C-200. 360 Image of park access

57 /100



19- Park Access (Safety Score 66)

The fenced off gate entrance was locked at the time of visit. The only source of light came from cars on neighboring roads and buildings across the highway.



Picture C-201. Gated-park access, taken with long exposure

66/100

Safety Score Rationale:

Perception of safety:

Average/Low

Reflectance: Dark

Specularity: Matte

Visual Transparency: Low

Physical Transparency: Low

Scale: Average

Spider Diagram Analysis:

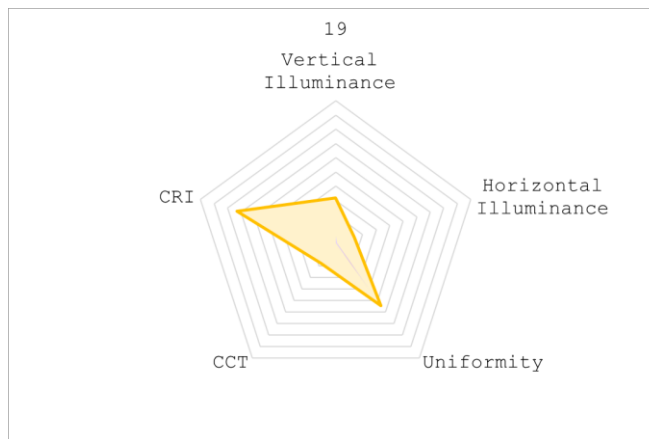
Vertical Illuminance: Low

Horizontal Illuminance: Low

Uniformity: Standard

CRI: N/A

CCT: N/A



18- Park Facility (Safety
Score 73)

The interior next to the garden shed had extremely low levels of light due to lack of lighting. The survey team had to carry flashlights to navigate around, as it is easy to get disoriented if you are unfamiliar with the area. During the visit, a volunteer came through the back gate to use the shed, and the individual had to use a flashlight.

Safety Score Rationale:

Perception of safety: Low
Reflectance: Dark
Specularity: Matte
Visual Transparency: Low
Physical Transparency: Low
Scale: Average

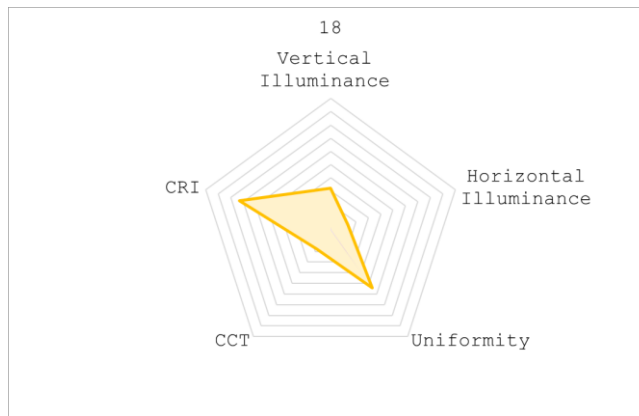
Spider Diagram Analysis:

Vertical Illuminance: Low
Horizontal Illuminance: Low
Uniformity: Standard
CRI: N/A
CCT: N/A



Picture C-202. Image of storage shed, taken with long exposure

73/100



Appendix D: Security Audit Recommendations

Security audit recommendations are developed in accordance with the methodology detailed in Section 4 of this report. It is intended that PARD considers and implements security mitigations in accordance with these recommendations as they see fit.

D.1 Recommendations Matrix & Costing

Lighting and security recommendations are compiled into a comprehensive matrix titled *PARD Security Audit Recommendations* to be issued with this report. The Recommendations Matrix contains the full list of security audit recommendations and is intended to be used as guide for administering security mitigations across PARD asset groups. Recommendations are labeled with a unique identification number that indicates the recommendation type and order of completion for sequential recommendations.

The applicability of each recommendation is outlined for all PARD asset groups as defined in Table 1 of this report. Applicable locations are indicated with an 'X' under their respective asset group. Note that administrative recommendations as they pertain to the Security Director, Security Operations Manager, and their roles and responsibilities are applicable to all PARD assets regardless of grouping.

To utilize this matrix, PARD stakeholders are first encouraged to review operational recommendations, as many of them apply across all PARD assets. Filters have been provided above each categorization column to help navigate the matrix by specific groupings. PARD stakeholders and Division Managers can sort by priority level, implementation level, recommendation type, cost type, and asset groups to determine which recommendations are best suited for their needs.

A corresponding matrix titled *PARD Security Costing* is also issued with this report. The Cost Matrix contains the corresponding cost estimate associated with each of the priceable security measures listed in the Recommendations Matrix. Note that this cost estimate is classified as a Class 5 estimate according to the Association for the Advancement of Cost Engineering's (AACE) estimate classification matrix. The accuracy range of this estimate has been determined to be -40% and +50%. This range is a gauge of likely bid prices if the project was issued to tender at this current stage.

D.2 Security Director Qualifications

Applicants for the Security Director position, as recommended in the *PARD Security Audit Recommendations* matrix, are recommended to have the following qualifications.

Education:

- Recommend bachelor's degree in criminal justice or operational management (although experience may dictate otherwise).

Experience:

- 5 years of experience in security management or law enforcement.
- 3 years of supervisory or managerial experience to lead teams of security professionals and to work within a structured government landscape.

Skills:

- Strong leadership skills to manage and direct security personnel.
- Communication skills to convey approach to leadership and peers in support of security strategy.

- Security Directors must be adept at interpreting crime data, incident trends, and spatial risk patterns across diverse park typologies (e.g., metropolitan, neighborhood, nature preserves). This includes:
 - Proficiency in GIS-based tools like ArcGIS Survey123 and Atlas for mapping incidents and vulnerabilities.
 - Ability to synthesize data from Park Ranger reports, lighting assessments, and community feedback to prioritize interventions
- Ability to develop and manage an annual budget to support security strategies.
- Familiarity with evaluating and implementing CPTED principles in public spaces.
- Should understand behavioral threat detection and situational awareness techniques to:
 - Train frontline staff to recognize early signs of escalation.
 - Coordinate with APD or other agencies on behavioral health-related incidents.
- Crisis management abilities.
- Experience navigating interdepartmental relationships (e.g., with APD, Homeless Strategy Office, and community groups).
- Skills in stakeholder engagement and public communication to build trust and transparency around security initiatives
- Problem-solving and decision-making abilities to address security incidents and develop effective strategies.
- Familiarity with prevention strategies/principles for safety and security in a physical and open-air environment to promote positive interactions of the users/patrons.
- Familiarity with security technologies and systems, such as video surveillance, access control, radio communications, and alarm systems. This includes familiarity with:
 - Overseeing the full lifecycle of systems—from procurement and installation to maintenance and upgrades.
 - Ensure interoperability between surveillance, access control, and emergency communication systems across facilities.
- General understanding to the approach of developing physical security protective measures and strategies.
- Understanding of state and city legislation and ordinances, along with security regulations.
- Capability to develop security roadmaps, security operational plans, and security strategies.

Certifications:

- ASIS Certified Protection Professional (CPP)
- ICA CPTED Certification Program for Individuals (ICCP)