LANDSCAPE PERFORMANCE SERIES
presented by the Landscape Architecture Foundation

Earvin "Magic" Johnson Park
Methods

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This investigation was conducted as part of the Landscape Architecture Foundation's 2025 *Case Study Investigation* (CSI) program. CSI matches faculty-student research teams with design practitioners to document the benefits of exemplary high-performing landscape projects. Teams develop methods to quantify environmental, social, and economic benefits and produce Case Study Briefs for LAF's *Landscape Performance Series*.

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The full case study can be found at: https://landscapeperformance.org/case-study-briefs/Magic-Johnson-Park

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Acknowledgements

We would like to acknowledge Earvin "Magic" Johnson Park is on land originally inhabited by the Tongva people and recognize the historical wrongs that happened on this land.

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Research Strategy

The CSI research team took an investigative approach to analyze environmental, social, and economic benefits of the park through collaboration with multiple organizations and extensive fieldwork. The research strategies included thorough interviews with park staff, the design firm, and government agencies, data collection via primary and secondary resources, and site observations. The research team made numerous visits to the park over a span of six months to record insights and gain personal experience of the site. Any data the research team received from government agencies, park staff, and the design firm was a necessary component to analyze the benefits. Through this research strategy, we were able to create a robust glimpse into measuring the layered performance benefits happening around the landscape project. The research team understands that some calculations may lack rigor and have taken the time to detail limitations under various benefits. Continued learning is a vital component in evaluating the performance benefits of landscapes through the role of researchers and designers.

Research strategy for Environmental Benefits includes the following methods:

Environmental Benefits	**Methods/Data Source**
Soil Restoration	Wallace Laboratories data
Stormwater Management	Los Angeles County Public Works data, MIG Inc. drawings
Water Conservation	Los Angeles County Public Works data, LA County and Los Angeles County Parks and Recreation maintenance guidebook
Water Quality	Los Angeles County Public Works data
Population & Species Richness	iNaturalist observations
Carbon Sequestration & Avoidance	i-Tree Planting calculator, MIG Inc. Construction Documents
Temperature & Urban Heat Island	CSI Research Team surface temperature measurements

Research strategy for Social Benefits includes the following methods:

Social Benefits	**Method/Data Source**
Recreational & Social Value	Earvin "Magic" Johnson Park staff
Educational Value	Earvin "Magic" Johnson Park staff
Safety	UCLA Parks After Dark Evaluation Data, Los Angeles County Parks and Recreation data
Health & Well-Being	CSI Research Team observations

Research strategy for Economic Benefits includes the following methods:

Economic Benefits	**Method/Data Source**
Job Creation	Earvin "Magic" Johnson Park staff
Construction Cost Savings	CSI Research Team observations, MIG Inc. price estimates

Environmental Benefits

- ***Improves soil health as indicated by a 63.2% decrease in soil salinity, 60.9% decrease in sodium absorption ratio (SAR), and a 2.5% decrease in pH value after remediation efforts as compared to previous soil conditions. Overall soil moisture content rose*** **482%, indicating improved plant health and drought resiliency.**

Background:

The park is located on a site that was previously a petroleum tank farm with associated storage and distribution facilities for over forty years. The land was cleared, and the Ujima Village Apartment Complex was developed on the site in the 1970s with HUD funding. It operated until the early 1990s when it was sold to Los Angeles County. At the time of the sale to the County, investigations were performed that found chemicals associated with the petroleum industry on the site. Based on additional soil and groundwater testing in 2007, a site cleanup consistent with EPA standards was ordered, and plans were implemented in 2008. The California Water Quality Control Board provides public information on the site testing and remediation. Contaminated soils were removed from the site, vapor barriers were recommended for future buildings, and studies predicted no anticipated future risk for park construction workers or visitors.

In addition, a main project goal to create a master plan for Earvin "Magic" Johnson Park (MJP), MIG believed it was important that its design heals the land and soils on the former industrial site. The firm hired Wallace Laboratories, LLC. to conduct soil surveys of various areas around MJP within Phases 1A and 1B between 2016 and 2019. Following each soil analysis, the firm followed the recommendations from Dr. Garn Wallace at Wallace Laboratories prior to planting. General soil conditions in Phase 1A included elevated pH, high salinity, high sodicity, very low organic matter, and fairly low percolation rates. In Phase 1b areas, the soils had low organic matter, high pH, presence of limestone, high phosphorus, potassium, iron, zinc, and other characteristics limiting potential plant growth. The general recommendations for Phase 1A included adding Potassium, Phosphorus, gypsum and organic compost. In the Phase 1b areas general recommendations included drainage sumps, ripping compacted soils and adding Potassium, Phosphorous, gypsum and organic compost. Along with general soil work to improve conditions for planting success, the firm integrated a volatile organic compounds mitigation (VOC) strategy by placing vents along tree plantings to prevent the accumulation of VOCs in the soil. Research on this Case Study investigated the potential for irrigated turf, native, and wetland plantings to improve soil health using widely accepted commercial procedures and products.

Method:

The CSI research team gathered agronomic soil test reports conducted as part of the park design project in areas within Phase 1A and 1B before the park design was completed, during construction and after the design was completed. The tests were conducted between 2017 and 2019 by Wallace Laboratories, LLC (https://wlabs.com/), a local laboratory that provides similar services in the region. The CSI research team collected four samples from a range of locations in the Phase 1A and 1B areas, then compared them to samples analyzed prior to construction. The purpose of the soil testing was to determine if the soil quality and characteristics changed with the introduction of native and wetland species compared to the soil conditions when the park vegetation was exclusively grass and trees. On Friday May 30th, 2025, the team collected four samples from a depth of approximately 6 inches below the surface of areas of turf, native species, and wetland species. After reviewing the most recent soil test results and comparing them to the pre-project results, the team selected three out of the four current soil samples because they were closest in sampling locations to the project's original sample collection areas. The team focused on comparing ECe (the measure of soil salinity), moisture content, pH, sodium absorption ratio (SAR) across soil surveys before renovation (2017 - 2019) to post renovation (2025). Our results determined that the most significant improvements to the soil characteristics were reduction of soil salinity, increase of moisture content, and reductions of pH and SAR. A summary of multiple soil test results from the soil surveys and calculations are found below.

Figure 1. Images of soil samples 1, 3, and 4 tested in May 2025.

Calculations:

Table 1. **Soil Quality Test Results from Wallace Laboratories with Calculated Averages**

	Phase 1A Tested: 2017	***Phase 1B Tested: December 2019***				***Phase 1A and 1B Tested: May 2025***			
Sample #	B-1	1	4A	10A	Average (1, 4,10)	1 (Phase 1B)	3 (Phase 1A)	4 (Phase 1A)	Average (1,3,4)
ECe (Measure of Soil Salinity) (milli- mho/cm) **"Soil Salinity"**	**2.76**	1.47	0.63	0.90	**1.0**	0.73	0.67	0.77	**0.7**
Moisture Content of Soil (%)	**2.4**	3.20	4.20	2.20	**3.2**	10.1	19.4	19.5	**16.3**
ph Value	**7.7**	8.12	8.44	8.06	**8.2**	7.70	7.86	7.84	**7.8**
Sodium Absorption Ratio (SAR)	**9.6**	8.0	0.8	3.9	**4.2**	1.1	3.7	3.4	**2.7**

Sample Calculations:

Average for Soil Salinity in Phase 1B 2019 / Soil Samples: Sum of ECe Results/ Number of Tests

(1.47 + 0.63 + 0.9) / 3 = 1.0

Average for Moisture Content of Soil (%) in Phase 1B 2016 Soil Samples: Sum of Percentages/ Number of Percentages

(3.20 + 4.20 + 2.20) / 3 = 3.20%

Table 2. Averages of Soil Quality Test Results and Percent Change Between Years

Sample #	ECe (milli-mho/cm) "Soil Salinity"	Moisture Content (%)	Ph Value	Sodium Absorption Ratio (SAR)
Phase 1A	2.76	2.4	7.76	9.6
Phase 1B: Average (1,4,10)	1.0	3.2	8.2	4.2
Phase 1A and 1B (2017 +2019): Average (B-1, 1,4, 10)	1.9	2.8	8.0	6.9
Phase 1A and 1B (2025): Average (1,3,4)	0.7	16.3	7.8	2.7
% Change	**63.2**	**482.1**	**2.5**	**60.9**

Sample Calculations:

Soil Salinity Percentage Change Based on Averages of Soil Samples Conducted

(1.9 - 0.7) / 1.9 x 100 = 63.2%

Moisture Content Change Based on Averages of Soil Samples Conducted

(2.8 - 16.3) / 2.8 x 100 = 482.1%

pH Value Change Based on Averages of Soil Samples Conducted

(8.0-7.8) / 8.0 x 100 = 2.5%

SAR Change Based on Averages of Soil Samples Conducted

(6.9-2.7) / 6.9 x 100 = 60.9%

Sources:

Wallace Laboratories, LLC. "Earvin "Magic" Johnson Park - Phase 1A. Ten Soil Boring samples received from GPI on March 16, 2017. Soil Sampling Depth - 0 to 5 feet." 2017. PDF.

Wallace Laboratories, LLC. "Magic Johnson Park, Phase 2 The improvements to Ujima Village Site visit on December 10, 2019." 2019. PDF.

Wallace Laboratories, LLC. "Magic Johnson Park Four samples received May 30, 2025." 2025. PDF.

Limitations:

- Our team initially selected a berm, located in Phase 1B, that was not analyzed by Wallace Laboratories in their initial soil testing and analysis.
- The soil in some areas was very compacted and difficult to sample below the surface.
- The soil samples collected for the case study were not in the precise locations collected in the previous soil samples analyzed from 2017 to 2019.
- Our Sample #3 was collected in a wetland area that did not exist in previously conducted soil surveys. The characteristics of this sample were likely impacted by the increased bird population in this area of the park.
- Significant increase in soil moisture content could be a result of the new well-functioning irrigation system used at the park.
- Wallace Laboratories analyzed samples in the first 12 inches to 5 feet of soil depth for the project soil samples in comparison to our 6-inch depth soil samples, which could reflect characteristics found in the surface that are different from deeper samples.

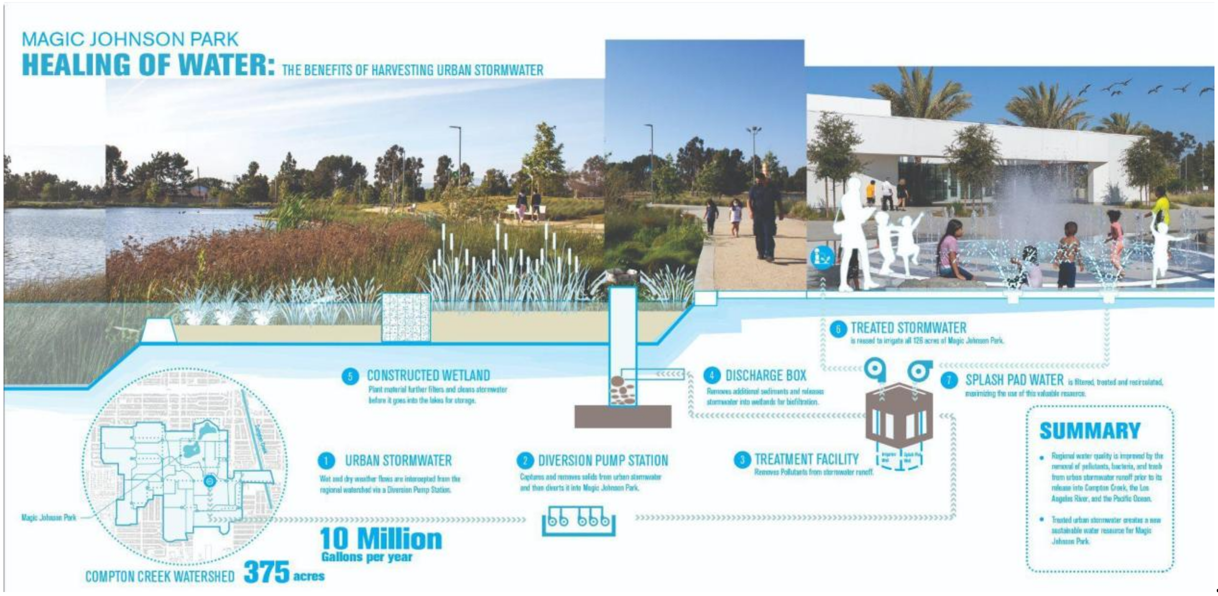
- ***Captures and treats approximately 2.3 million gallons of stormwater during a 24-hr, 85th percentile storm event, equivalent to 3.5 Olympic-sized swimming pools.***

Background:

See Case Study Brief section "Water" for more information on the stormwater management system.

Method:

The design firm provided the CSI research team with multiple project presentations and construction drawings that illustrate the new water treatment system at Earvin "Magic" Johnson Park and how it captures and treats an estimated 10 million gallons of urban stormwater runoff per year. The design firm identified the potential for the system to treat 12 acre feet or 3.9 million gallons of water from a significant wet weather event. We met with a representative of Los Angeles County of Public Works who described how the water treatment system captures 7 acre feet out of the potential 12 acre feet from a 24 hr 85th percentile storm event. According to the California State Water Resources Control Board, the 85th percentile is a common standard used in the volumetric design storm method.



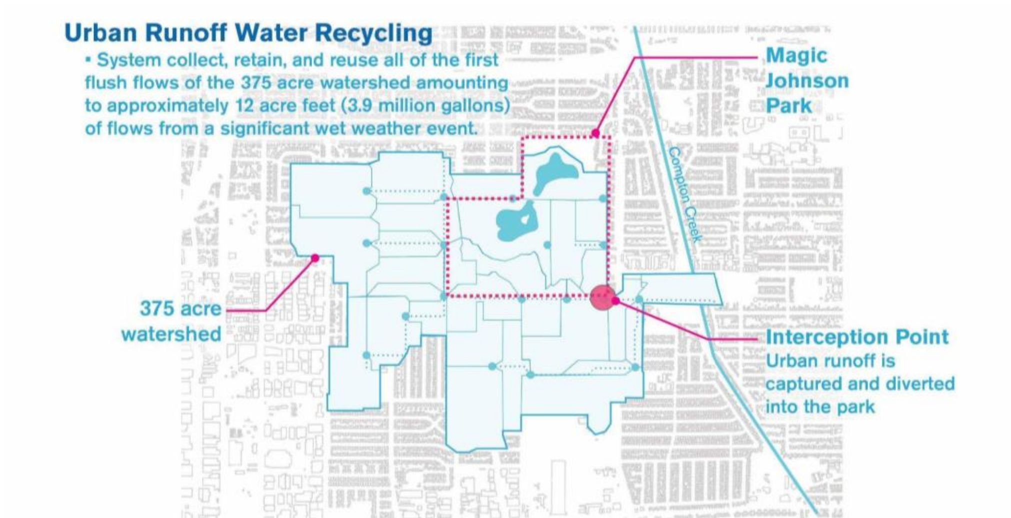


Figure 2. Diagrams of new water treatment system found at MJP from MIG

Calculations:

Acre Feet to Gallons of Water:

7 acre feet x 325,851 gallons/ 1 acre feet = 2,280,957 gallons of water

Olympic 50-meter pool: Requires 660,000 gallons of water

2,280,957 gallons of water x 1 Olympic 50-meter pool/ 660,000 gallons = 3.46 Olympic 50-meter pools

Sources:

Appendix B SCM Sizing Methods, California State Water Resources Control Board, www.waterboards.ca.gov/water_issues/programs/stormwater/storms/docs/appendix_b_scm_size_meth.pdf. Accessed 23 July 2025.

Jidoun, Grace. "How Big Is an Olympic Swimming Pool? Your Questions Answered Ahead of the Summer Games." NBC, 24 Apr. 2024, https://www.nbc.com/nbc-insider/olympic-swimming-pool-size-gallons-meters depth#:~:text=While%20there%20are%20rules%20for,avoid%20any%20currents%20or%20turbulence.

Nguyen, Thuan. Video Interview. 21 July 2025.

Limitations:

- Water capture data is based on modeling estimates on design volume. Annual water data reports detailing stormwater collection and treatment volume are not available.

- ***Saves an estimated* 47,363 gallons *of water every summer with the introduction of California native plant species and eliminating the use of potable water by using recycled water for irrigation.***

Background:

Before renovation, MJP did not have California native plants and used outdated irrigation technology. The updated system uses an advanced Hydropoint Weathertrek irrigation system which utilizes a controller specific to maintenance requirements throughout Phase 1A and Phase 1B. The controller can be set to specific times, months, and seasons, and monitor dispersal volumes of water from a bubbler, head, or valve. With the combination of this new technology and the addition of drought-tolerant California native vegetation, water can be better conserved.

Method:

The CSI research team acquired irrigation data for Earvin "Magic" Johnson Park from 2012-2016 from LA County Public Works. We were also given access to an LA County and LACPR maintenance guidebook from the head of the maintenance team at MJP on the general water strategies for the native planting areas. The maintenance guidebook provides staff with irrigation scheduling for native plants per season and recommends staff not irrigate native plants during the summer season once established. The head of maintenance informed us on how these areas require less water and how the Weathertrek controller system controls the amount of water applied in specific areas. Using the figure below, we estimated the irrigation data for the summer season prior to redevelopment of the park and found how much water could be applied per acre. Following this, we were able to determine an estimate for water saved per summer season based on the total acres for native planting.

Calculations:

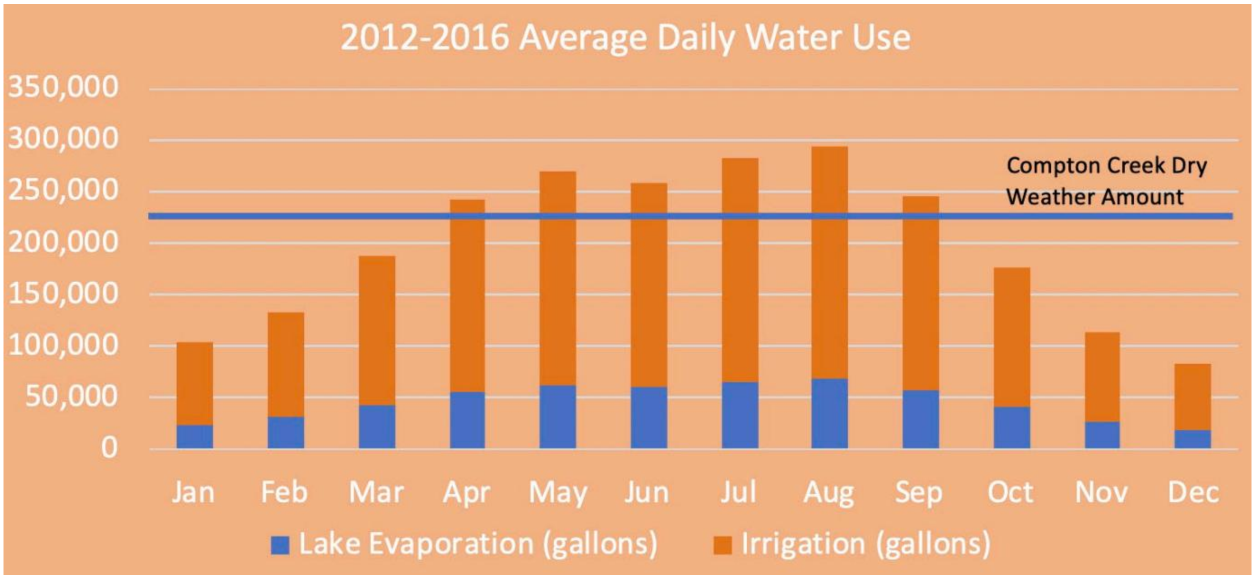


Figure 3. Irrigation use chart provided by Los Angeles County Public Works

Table 3. 2012-2016 Summer Average Daily Irrigation Use

Month	**Irrigation (gallons)**
June	189,024
July	209,146
August	216,463
September	181,098
Total	**795,731**

795,731 gallons (irrigation in summer season) / 126 acres (size of MJP) = 6,315 gallons/acre

5.5 acres (California Sage Scrub) + 2 acres (Wetland Planting) = 7.5 acres (Native Planting)

Recycled water used for irrigation in native planting areas is turned off during summer season

Recycled water saved per summer season: 7.5 acres x 6,315 gallons/acre = **47,362.5 gallons**

Sources:

Jarret, William. Personal Interview. 30 May 2025.

Los Angeles County, and Los Angeles County Parks and Recreation. Earvin "Magic" Johnson Park Maintenance Guidebook. 2022.

Los Angeles County Public Works. "2012 - 2016 Average Daily Water Use." JPG.

Limitations:

- Current irrigation data was not available for us to estimate precise calculations for irrigation of native plants
- Estimates were made using an assumption that previous irrigation data reflected distribution of water evenly per acre

- ***Improves urban runoff water quality by 55% during dry events, 83% during wet events, and 69% on average for all events based on water quality indicators like reduction in turbidity, total nitrogen, total suspended solids, total phosphorus, total coliform, and E. Coli, when comparing inlet to outlet measurements of the constructed wetland system.***

Background:

See Case Study Brief section "Water" for more information on stormwater management system.

Method:

The CSI research team received monitoring data on water quality indicators on selected wet and dry events from 2021 to 2024 from the Los Angeles County Parks and Recreation department. Using the data provided, we analyzed and compared various average inlet and outlet measurements of the analytes (chemical substances identified and measured) to calculate the improvement of water quality in wet and dry events between the different fiscal years. We calculated the removal efficiency for each analyte within a single year, the average removal efficiency of analytes in both wet and dry events, and the overall removal efficiency for all analytes. Water quality average measurements and calculations are found in the tables below.

Figure 4. Satellite image of Earvin “Magic” Johnson Park marked with monitoring site locations where inlet and outlet measurements were taken. Image provided by Los Angeles Department of Public Works.

Calculations:

Removal Efficiency Formula: (Inlet Measurement - Outlet Measurement) / Inlet Measurement x 100

Table 4. 2021 - 2022 - Wet Events

Analyte	***Average Inlet Measurement***	***Average Outlet Measurement***	***Removal Efficiency (%)***
Turbidity (NTU)	15.17	3.62	***76.14***
Total Nitrogen (mg/L)	5.63	1.32	***76.55***
Total Suspended Solids (mg/L)	57.00	8.23	***85.56***
Total Phosphorus (mg/L)	0.74	0.09	***87.84***
Total Coliform (MPN)	4,413,333	46,810	***98.94***
E. Coli (MPN)	1,221,000	5,412	***99.56***

**Note: NTU defined in the report as nephelometric turbidity. MPN identified in the report as the most probable number. "Wet Event" indicates a storm event.*

Sample Calculation for Turbidity: (15.17 - 3.62) / 15.17 x 100 = 76.14%

Table 5. 2021 - 2022 - Dry Events

Analyte	***Average Inlet Measurement***	***Average Outlet Measurement***	***Removal Efficiency (%)***
Turbidity (NTU)	4.80	3.95	***17.71***
Total Nitrogen (mg/L)	4.08	1.35	***66.91***
Total Suspended Solids (mg/L)	8.86	6.81	***23.14***
Total Phosphorus (mg/L)	0.77	0.08	***89.61***
Total Coliform (MPN)	1,670,000	8,060	***99.52***
E. Coli (MPN)	1,104,600	4,609	***99.58***

**Note: NTU identified in the report as nephelometric turbidity. MPN identified in the report as the most probable number. "Wet Event" indicates a storm event.*

Sample Calculation for Total Nitrogen: (4.08 - 1.35) / 4.08 x 100 = 66.91

Table 6. 2022 - 2023 - Wet Events

Analyte	***Average Inlet Measurement***	***Average Outlet Measurement***	***Removal Efficiency (%)***
Turbidity (NTU)	186.60	15.09	***91.91***
Total Nitrogen (mg/L)	5.89	2.10	***64.35***
Total Suspended Solids (mg/L)	430.37	60.93	***85.84***
Total Phosphorus (mg/L)	1.17	0.12	***89.74***
Total Coliform (MPN)	381,400	16,533	***95.67***
E. Coli (MPN)	8,433	3,553	***57.87***

**Note: NTU identified in the report as nephelometric turbidity. MPN identified in the report as the most probable number. "Wet Event" indicates a storm event.*

Sample Calculation for Total Suspended Solids: (430.37 - 60.93) / 430.37 x 100 = 85.84%

Table 7. 2022 - 2023 - Dry Events

Analyte	***Average Inlet Measurement***	***Average Outlet Measurement***	***Removal Efficiency (%)***
Turbidity (NTU)	10.27	13.12	***-27.75***
Total Nitrogen (mg/L)	3.04	2.23	***26.64***
Total Suspended Solids (mg/L)	12.30	13.65	***-10.98***
Total Phosphorus (mg/L)	0.73	0.11	***84.93***
Total Coliform (MPN)	137,500	2,970	***97.84***
E. Coli (MPN)	12,850	823	***93.60***

**Note: NTU identified in the report as nephelometric turbidity. MPN identified in the report as the most probable number. "Wet Event" indicates a storm event.*

Sample Calculation for Total Phosphorus: (0.73 - 0.11) / 0.73 x 100 = 84.93%

Table 8. 2023 - 2024 - Wet Events

Analyte	*Average Inlet Measurement*	*Average Outlet Measurement*	*Removal Efficiency (%)*
Turbidity (NTU)	7.35	2.29	***68.84***
Total Nitrogen (mg/L)	2.3	1.25	***45.65***
Total Suspended Solids (mg/L)	117.50	12.00	***89.79***
Total Phosphorus (mg/L)	0.54	0.08	***85.19***
Total Coliform (MPN)	8,800,000	35,000	***99.60***
E. Coli (MPN)	487,000	515	***99.89***

**Note: NTU identified in the report as nephelometric turbidity. MPN identified in the report as the most probable number. "Wet Event" indicates a storm event.*

Sample Calculation for Total Coliform: (8,800,000 - 35,000) / 8,800,000 x 100 = 99.60%

Table 9. 2023 - 2024 - Dry Event (*Report states only one dry weather event was conducted)

Analyte	*Inlet Measurement*	*Outlet Measurement*	*Removal Efficiency (%)*
Turbidity (NTU)	17.99	6.54	***63.65***
Total Nitrogen (mg/L)	1.5	1.3	***13.33***
Total Suspended Solids (mg/L)	32	4	***87.50***
Total Phosphorus (mg/L)	0.25	0.15	***40.00***
Total Coliform (MPN/100mL)	28,800	17,000	***39.29***
E. Coli (MPN/100mL)	240	23	***90.42***

**Note: NTU identified in the report as nephelometric turbidity. MPN identified in the report as the most probable number. "Wet Event" indicates a storm event.*

Sample Calculation for E. Coli: (240 - 23) / 240 x 100 = 90.42

Table 10. Removal Efficiencies of Analytes and Total Average

Analyte	**2021-2022 Wet Event (%)**	**2021-2022 Dry Event (%)**	**2022-2023 Wet Event (%)**	**2022-2023 Dry Event (%)**	**2023 - 2024 Wet Event (%)**	**2023 - 2024 Dry Event (%)**	**Average Removal Efficiency Wet Events (%)**	**Average Removal Efficiency Dry Events (%)**	**Average Removal Efficiency (%) for Wet and Dry Events**
Turbidity (NTU)	76.14	17.71	91.91	-27.75	68.84	63.65	**78.96**	**17.87**	**48.42**
Total Nitrogen (mg/L)	76.55	66.91	64.35	26.64	45.65	13.33	**62.18**	**35.63**	**48.91**
Total Suspended Solids (mg/L)	85.56	23.14	85.84	-10.98	89.79	87.50	**87.06**	**33.22**	**60.14**
Total Phosphorus (mg/L)	87.84	89.61	89.74	84.93	85.19	40.00	**87.59**	**71.51**	**79.55**
Total Coliform (MPN/100mL)	98.94	99.52	95.67	97.84	99.60	39.29	**98.07**	**78.88**	**88.47**
E. Coli (MPN/100mL)	99.56	99.58	57.87	93.60	99.89	90.42	**85.77**	**94.53**	**90.15**

Average Removal Efficiency Formula: Sum of average removal efficiencies per analyte / Number of observations

Sample Calculation for Turbidity:

Average Removal Efficiency Storm Events: (76.14 + 91.91+ 68.84) / 3 =78.96%

Average Removal Efficiency Dry Events: (17.71 + (27.75) + 63.65) / 3= 17.87%

Average Removal Efficiency for Storm and Dry Events: (76.14 + 17.71 + (27.75) + 68.84 +63.65) / 6 = 48.42%

Table 11. Total Average Removal Efficiency for Analytes in Dry and Storm Events

Analyte	Average Removal Efficiency- Wet Events (%)	Average Removal Efficiency- Dry Events (%)	Average Removal Efficiency (%) for Wet and Dry Events
Turbidity	78.96	17.87	48.42
Total Nitrogen	62.18	35.63	48.91
Total Suspended Solids	87.06	33.22	60.14
Total Phosphorus	87.59	71.51	79.55
Total Coliform	98.07	78.88	88.47
E. Coli	85.77	94.53	90.15
Total Average Removal Efficiency (%)	**83.27**	**55.27**	**69.27**

Formula: Sum of average removal efficiencies for all analytes (in either storm or dry events) / Number of analytes

Calculations:

Total Average Removal Efficiency - Wet Events:

(78.96 + 62.18 + 87.06 + 87.59 + 98.07 + 85.77) / 6 = **83.27%**

Total Average Removal Efficiency - Dry Events:

(17.87 + 35.63 + 33.22 + 71.51 + 78.88 + 94.53) / 6= **55.27%**

Total Average Removal Efficiency - Wet and Dry Events:

(48.42 + 48.91 + 60.14 + 79.55 + 88.47 + 90.15) / 6= **69.27%**

Sources:

Los Angeles County Public Works. “EMJ Sampling Results Summary (2022-2024).” 2021. PDF.

Limitations:

- The monitoring sites focused only on South Lake and therefore North Lake was not measured or included in this benefit. This may not reflect the overall water quality across the entire park.
- Water quality in South Lake is not sufficient or intended for recreational uses and is not tested for that type of use.

- Each type of treatment for the project did not describe how each method processes and eliminates contaminants.
- Data on how birds affect water quality is not available.

* ***Provides habitat for at least 71 observed bird species representing an 82% increase over the last four years (2021-2025). The site serves as a stopover for 58 protected migratory bird species including greater yellowlegs, black-crowned night heron, and Allen's hummingbird.***

Background:

The presence of bird species at Earvin "Magic" Johnson Park has become part of the site experience for community members and visitors to enjoy. Educational signage around South Lake provides learning opportunities for youth and adults to gain a better understanding of local coastal birds and assists with species identification. In addition to signage, there are binocular stations surrounding South Lake that provide opportunities to make bird observations. Bird watching is a growing outdoor activity, especially among older adults. Apps such as E-Bird (Cornell U.) and iNaturalist (crowd sourced biodiversity data network) provides opportunities for community involvement and education.

Method:

We compared observations of endangered or protected migratory bird observations during a period of 5 years before and during the project construction from January 2014 to February 2019 to observations from the official project opening date in January 2021, to the present day (June 2025). Using iNaturalist observations from these two selected time periods, we determined the number of bird species that were observed at the park by citizen scientists. We drew approximate boundaries of Phases 1A and 1B for the software to generate the number of observations. Then we filtered the observations classified as "research grade" that met the established criteria such as photographs or sounds, identification of organisms, geolocation, date of observation, posted to the citizen scientist's iNaturalist account. Along with these criteria, research grade observations must have a ⅔ consensus on the identification of the species. Once we filtered these observations, we reviewed and selected species that are categorized either endangered and/or classified as protected migratory species in California.

Figure 5. Images of bird species found at MJP. Photographs taken on July 14th, 2025

Calculations:

Table 12. iNaturalist Observations by Citizen Scientists

	Bird Species	**Number of Observations Between January 2014 to February 2019**	**Number of Observations Between January 2021 - June 2025**
1	**Mallard (*Anas platyrhynchos*)**	8	43
2	**Brewer's Blackbird *(Euphagus cyanocephalus*)**	7	33
3	**Western Gull (*Larus occidentalis*)**	5	17
4	Yellow-throated Warbler (*Setophaga dominica*)	5	0
5	**Muscovy Duck (*Cairina moschata*)**	4	26
6	**American Wigeon (*Mareca americana)***	4	12
7	**American Coot (*Fulica americana*)**	3	20
8	**California Gull (*Larus californicus*)**	3	5
9	**Canada Goose (*Branta canadensis*)**	3	49
10	**Wood Duck *(Aix sponsa*)**	3	1
11	**Great-tailed Gackle (*Quiscalus mexicanus*)**	3	29
12	**Brown-headed Cowbird (*Molothrus ater*)**	3	9
13	**Black Phoebe (*Sayornis nigricans*)**	3	12
14	**Yellow-rumped Warbler (*Setophaga coronata*)**	3	5
15	Black-throated Gray Warbler (*Setophaga nigrescens*)	3	0
16	**House Finch (*Haemorhous mexicanus*)**	3	10
17	Eurasian Collared-Dove (*Streptopelia decaocto*)	2	0

18	**Ring-billed Gull (*Larus delawarensis*)**	2	1
19	**Black-necked Stilt *(Himantopus mexicanus*)**	2	21
20	**Black-crowned Night Heron (*Nycticorax nycticorax*)**	2	4
21	**Red-tailed Hawk (*Buteo jamaicensis*)**	2	3
22	House Sparrow (*Passer domesticus*)	2	7
23	Greylag x Canada Goose (*Anser anser × Branta canadensis*)	2	2
24	**Ruddy Duck (*Oxyura jamaicensis*)**	2	2
25	Rock Pigeon (*Columba livia*)	1	1
26	**Mourning Dove (*Zenaida macroura*)**	1	4
27	**Snowy Egret (*Egretta thula*)**	1	2
28	Greylag Goose (*Anser anser*)	1	1
29	**Bushtit (*Psaltriparus minimus*)**	1	5
30	Tropical Kingbird (*Tyrannus melancholicus*)	1	0
31	**Say's Phoebe (*Sayornis saya*)**	1	4
32	Cassin's Vireo (*Vireo cassinii*)	1	0
33	Egyptian Goose (*Alopochen aegyptiaca*)	1	27
34	Yellow Warbler (*Setophaga petechia*)	1	0
35	**Lesser Goldfinch (*Spinus psaltria*)**	1	3
36	Mallard x Muscovy Duck (*Anas platyrhynchos × Cairina moschata*)	1	7
37	Greylag x Swan Goose (*Anser anser × cygnoides*)	1	0
38	**Northern Shoveler (*Spatula clypeata*)**	1	2
39	**Double-crested Cormorant (*Nannopterum auritum*)**	1	3

40	**Vermilion Flycatcher (*Pyrocephalus rubinus*)**	0	25
41	**Great Blue Heron (*Ardea herodias*)**	0	15
42	**Tundra Bean Goose (*Anser serrirostris*)**	0	9
43	**Great Egret (*Ardea alba*)**	0	8
44	European Starling (*Sturnus vulgaris*)	0	7
45	**Snow Goose (*Anser caerulescens*)**	0	6
46	**American White Pelican (*Pelecanus erythrorhynchos*)**	0	5
47	Swan Goose (*Anser cygnoides*)	0	4
48	**Song Sparrow (*Melospiza melodia*)**	0	4
49	**Neotropic Cormorant (*Nannopterum brasilianum*)**	0	4
50	**Killdeer (*Charadrius vociferus*)**	0	3
51	**Allen's Hummingbird (*Selasphorus sasin*)**	0	3
52	**White-crowned Sparrow (*Zonotrichia leucophrys*)**	0	3
53	**Red-winged Blackbird (*Agelaius phoeniceus*)**	0	3
54	Scaly-breasted Munia (*Lonchura punctulata*)	0	3
55	**Gadwall (*Mareca strepera*)**	0	3
56	**Pied-billed Grebe (*Podilymbus podiceps*)**	0	2

57	**Yellow-crowned Night Heron** (***Nyctanassa violacea***)	0	2
58	**Green Heron** (***Butorides virescens***)	0	2
59	**American Robin** (***Turdus migratorius***)	0	2
60	**Cassin's Kingbird** (***Tyrannus vociferans***)	0	2
61	Swan Goose × Canada Goose *(Anser cygnoides × Branta canadensis*)	0	2
62	**Greater Yellowlegs** (***Tringa melanoleuca***)	0	1
63	**American Kestrel** (***Falco sparverius***)	0	1
64	**Merlin** (***Falco columbarius***)	0	1
65	**Blue-gray Gnatcatcher** (***Polioptila caerulea***)	0	1
66	**Brewer's Sparrow** (***Spizella breweri***)	0	1
67	**Common Yellowthroat** (***Geothlypis trichas***)	0	1
68	**Yellow-headed Blackbird** (***Xanthocephalus xanthocephalus***)	0	1
69	**Lark Sparrow** (***Chondestes grammacus***)	0	1
70	**Western Bluebird** (***Sialia mexicana***)	0	1
71	**Red-breasted Nuthatch** (***Sitta canadensis***)	0	1
72	**Northern Flicker** (***Colaptes auratus***)	0	1
73	White-winged Parakeet (*Brotogeris versicolurus*)	0	1

74	Yellow-chevroned Parakeet (*Brotogeris chiriri*)	0	1
75	**American Goldfinch** **(*Spinus tristis*)**	0	1
76	**Ross's Goose** **(*Anser rossii*)**	0	1
77	**Eurasian Wigeon** **(*Mareca penelope*)**	0	1
78	Cooper's Hawk Astur cooperii	0	1

Note: Bolded bird species are classified as protected migratory birds and were observed at MJP from 2021 – 2025.

Table 13. Overall Percent Change of Bird Species Between Years

Number of Bird Species Between January 2014 to February 2019	Number of Bird Species Between January 2021 - June 2025	Overall Percent Change (%)
39	71	82.1

Percent Change Formula:

(Number of Bird Species Between January 2014 to February 2019 -Number of Bird Species Between January 2021 - June 2025)/Number of Bird Species Between January 2014 to February 2019 x 100 =

(39- 71) / 39 x 100 = **82.1%**

Sources:

iNaturalist, www.inaturalist.org/. Accessed June 2025.

Leffer, Lauren. "Birding Is a Booming Hobby-and a Big Business." Audubon, National Audubon Society, 20 Feb. 2025, www.audubon.org/magazine/birding-booming-hobby-and-big-business.

"List of Birds Protected by the Migratory Bird Treaty Act (2023)." U.S. Fish & Wildlife Service, U.S. Fish & Wildlife Service, www.fws.gov/media/list-birds-protected-migratory-bird-treaty-act-2023. Accessed 18 June 2025.

Limitations:

- o There were no bird observations during construction of Phase 1A between February 2019 to January 2021 and Phase 1B between February 2020 to January 2022 as those areas were closed to the public, limiting observations.
- o Bird observations are based on educated assumptions by citizen scientists which may impact the accuracy of observations for each bird species.
- o Because of the increased popularity of bird watching, it is assumed bird watchers will continue to increase published observations on websites like eBird and iNaturalist over time.
- o Drawing boundaries in iNaturalist were limited to two distinct shapes: rectangle and circular. We were unable to create freeform shapes which may skew the calculations of the observations

- ***Sequesters an estimated 1,301 tons of atmospheric carbon dioxide annually in an estimated 355 preserved existing trees and is projected to sequester an additional 6,380 tons of atmospheric carbon over the lifespan of 501 newly planted trees.***

Background:

The Earvin "Magic" Johnson Park landscape was almost exclusively trees and turf grass prior to the new design. Many of the existing trees were planted at the time of the original park construction in approximately 1987. Within Phase 1A and 1B construction sets, the design firm included Tree Disposition Plans based on survey data that established the location and size of existing trees in the park. The drawings indicated the species, DBH size, height, and removal or protection status of all existing trees. Within the original 681 trees within the two phasing boundaries, 363 trees were protected while the remaining 318 were either removed or salvaged. Decisions on trees to be protected or removed were made based on tree health, presence of disease, safety, and if the location would be impacted by planned construction. As a result, 80 out of the 318 trees identified to be removed were salvaged for park seating or chipped for mulch. The planting plan provided by the firm includes 518 proposed trees in the two phases of construction. The existing trees that remained and the new trees in the project all contribute to carbon sequestration. The palette of tree species in the park prior to the renovation was moderate and typical of parks developed during the late 20th Century. Species included Pines, Flowering Pear, Melaleuca, Palms, Ash, Koelreuteria, Eucalyptus, Chinese Elm, Magnolia and other exotic species. There were few native trees in the park. Trees planted in the renovation project included more native species such as Alder, Toyon, Oaks, Sycamore, Willow, and Blue Elderberry along with other exotic species.

Method:

The CSI team calculated atmospheric carbon sequestration for the existing trees that remained and the trees planted in Phase 1A and Phase 1b using i-Tree tools. We tested both the i-Tree Canopy calculator as well as the i-Tree Planting calculator to determine carbon dioxide sequestration. After reviewing the results of the two tools, we concluded that the i-Tree Planting Calculator provided significantly more accurate results. i-Tree canopy calculator operated as a random generator (Trees and shrubs, herbaceous and grass, concrete, bare ground) and did not allow us to specify whether trees were existing or newly planted. I-tree Planting provided the opportunity to estimate the carbon sequestration for the specific species of existing trees and the trees planted as part of the project. The i-Tree Planting Calculator tool was used to generate comparative data for the park prior to renovation and after. The tool was used two times, once for all the existing trees protected from being removed that are approximately 30 years old, and a second time for the trees planted in the renovation project, which were much younger. The CSI team recorded tree diameter, species name, and whether the tree was existing or newly planted from the construction documents for both Phase 1A and Phase 1B provided by the design firm.

Existing trees present before renovation were evaluated for sequestration results over a 40-year lifespan under the i-Tree Planting Calculator, assuming they were mature with over 30 years of growth. In comparison, the newly planted trees used a 65-year lifespan for sequestration results under the i-Tree Planting Calculator. We used a 30% mortality rate for existing trees and a 10% mortality rate for newly planted trees. We used the higher expected mortality (30%) for the mature trees for the added stress of increasing warming and drought due to climate change.

Calculations:

Table 14. Existing Trees in 2017- Carbon Sequestration (40 Additional Year Lifespan with 30% Mortality)

Tree Group Characteristics	Species	Initial Number of Trees	DBH (inches)	CO2 Sequestered (lbs)
Persian silk tree (Albizia julibrissin)	Albizia julibrissin	1	18.7	414.0
Bottlebrush spp (Callistemon)	Callistemon ssp	2	18.7	1,324.6
Camphor tree (Cinnamomum camphora)	Cinnamomum camphora	1	35.2	4,480.3
Lemonscented Gum (Corymbia citriodora)	Corymbia citriodora	12	43.4	46,000.8
Cunninghamia spp (Cunninghamia)	Cunninghamia spp	4	45.6	24,367.2
Coral tree (Erythrina speciosa)	Erythrina speciosa	9	36.7	4,483.9
Dwarf Sugar gum (Eucalyptus cladocalyx v. nana)	Eucalyptus cladocalyx v. nana	21	19.1	14,493.8
Flooded gum Eucalyptus (Eucalyptus grandis)	*Eucalyptus grandis*	18	48.1	61,129.2
Shamel ash	Fraxinus uhdei	7	36.9	7,201.4

(Fraxinus uhdei)				
Shamel ash (Fraxinus uhdei)	Fraxinus uhdei	11	35.7	21,608.4
Blue jacaranda (Jacaranda mimosifolia)	Jacaranda mimosifolia	1	19	11,490.3
Koelreuteria spp (Koelreuteria)	Koelreuteria spp	11	18.7	5,819.9
Common Crapemyrtle (Lagerstroemia indica)	Lagerstroemia indica	4	18.5	1,706.7
Sweetgum (Liquidambar styraciflua)	Liquidambar styraciflua	8	45.8	85,855.1
Lophostemon spp (Lophostemon)	Lophostemon spp	4	18.7	2,418.3
Southern magnolia (Magnolia grandiflora)	Magnolia grandiflora	2	36.7	52,763.6
Paperbark (Melaleuca minutifolia)	Melaleuca minutifolia	24	18.7	14,972.4
White mulberry (Morus alba)	Morus alba	8	34.3	41,575.3
Canary island pine(Pinus canariensis)	*Pinus canariensis*	28	34.4	430,475.2

Canary island pine (Pinus canariensis)	Pinus canariensis	24	51.7	84,043.4
Aleppo pine (Pinus halepensis)	*Pinus halepensis*	48	47.1	261,450.1
Italian stone pine (Pinus pinea)	Pinus pinea	48	48.7	267,641.4
Chinese pistache (Pistacia chinensis)	*Pistacia chinensis*	7	31.5	52,720.7
California sycamore (Platanus racemosa)	Platanus racemosa	15	22.4	211,676.7
London planetree (Platanus x hybrida)	Platanus x hybrida	1	45	11,679.2
Callery pear (Pyrus calleryana)	Pyrus calleryana	14	35.5	44,389.6
Callery pear (Pyrus calleryana)	Pyrus calleryana	3	34.3	14,618.4
California peppertree (Schinus molle) tree	Schinus molle	1	18.9	487.8
Peppertree spp (Schinus) tree	Schinus spp.	1	18.4	431.0
Tipuana spp (Tipuana) trees	Tipuana spp	14	37.7	260,218.2

Chinese elm (Ulmus parvifolia)	Ulmus parvifolia	3	47.2	20,790.9
Total		**355**		**2,062,727.8**

Table 15. Newly Planted Trees in Phase 1A and Phase 1B: Carbon Sequestration (65 Year Lifespan with 10% Mortality)

Tree Group Characteristics	Species	Initial Number of Trees	DBH (inches)	CO2 Sequestered
White alder (Alnus rhombifolia)	Alnus rhombifolia	29	53.3	520,816.2
Strawberry tree (Arbutus unedo)	Arbutus unedo	10	19	9,810.2
Lemonscented gum (Corymbia citriodora)	Corymbia citriodora	14	54.7	315,496.1
Pink ipê (Handroanthus impetiginosus)	Handroanthus impetiginosus	9	53.5	436,031.3
European Olive (Olea europaea ssp. europea)	Olea europaea ssp. europea	6	19.5	7,817.3
Date palm (Phoenix dactylifera) tree of 20 inches initial DBH	Phoenix dactylifera	5	44.5	18,316.8
Date palm (Phoenix dactylifera) trees of 16 inches initial DBH	Phoenix dactylifera	2	41.9	7,253.3

Italian stone Pine (Pinus pinea)	Pinus pinea	56	53.9	822,040.2
California Sycamore (Platanus racemosa)	Platanus racemosa	123	38.7	2,665,339.7
London planetree (Platanus x hybrida)	Platanus x hybrida	10	39.3	275,799.1
Lombardy poplar (Populus nigra v. italica)	Populus nigra v. italica	58	49.1	2,454,983.9
Coastal live oak (Quercus agrifolia)	Quercus agrifolia	52	49.1	1,762,716.5
Live oak (Quercus virginiana)	Quercus virginiana	19	37.9	57,317.6
Willow spp (Salix)	Salix ssp	24	37.2	207,997.5
Elderberry spp (Sambucus)	Sambucus ssp.	4	18.8	11,935.3
Tipuana spp (Tipuana)	Tipuana ssp.	80	44.4	3,185,381.2
Total		**501**		**12,759,052.2**

Existing and Planted Tree Calculations

CO_2 Sequestered (lbs) for Existing Trees: 2,062,727.8

Convert to Tons: 2,062,727.8 lbs x 1 US ton /2000 lbs = **1,301.4 tons**

CO_2 Sequestered (lbs) for Planted Trees: 12,759,052.2

Convert to Tons: 12,759,052.2 lbs x 1 US ton / 2000 lbs = **6,380.0 tons**

CO_2 Sequestered (lbs) for Existing and Planted Trees: 2,062,727.8 + 12,759,052.2 = 14,821,780

Convert to Tons: 14,821,780 lbs x 1 US ton /2000 lb = 7410.9 tons

Sources:

"i-Tree Planting Calculator." Accessed 16 June 2025. https://planting.itreetools.org/.

Limitations:

- The iTree Planting tool is not updated for all California native plant species. Toyon (*Heteromeles arbutifolia*) and arroyo willow (*Salix lasiolepis*) were not listed. The calculations do not include Toyon, which makes up 17 newly planted trees and represents 3.3% of the total planted trees. Arroyo willow was substituted with the general species of Willow spp (Salix).
- The team worked entirely with the trees found in the Tree Disposition Plan and Planting Plan of the design firm's construction documents, and were not observed/measured on site for conditions.
- Some of the protected trees listed in the Tree Disposition Plan were listed as "General Species", which could not be entered in the i-Tree Planting calculator.
- There is limited data on the anticipated lifespan of trees, especially in urban conditions on a former industrial site. The lifespan and mortality estimations are educated guesses.

- **Reduces local surface temperatures. Wetland plantings decrease temperatures by 36.6°F on average as compared to bare earth. Decomposed granite decreases temperatures by 24.8°F and concrete paving decreases by 19.1°F on average as compared to asphalt.**

Background:

Historically, communities of color have suffered disproportionately from heat island effects throughout Los Angeles. Paving materials like concrete and asphalt are used in abundance with minimal tree coverage making South Los Angeles hotter than surrounding areas. In the original Willowbrook State Recreation Area, the park transformed a petroleum storage and processing site into two constructed lakes, turf grass, trees, and a concrete-lined path surrounding the lakes. In the Phase 1A area, prior to the renovation project in 2020, significant lawn areas in the park were in poor condition with large areas of exposed bare earth. The Phase 1B portion of the site was originally developed as a multi-family housing development. Buildings had dark colored roofs, asphalt parking areas, concrete paths, and sports courts, with few high-quality shade trees. Today, Earvin “Magic” Johnson Park is the largest regional park in South Los Angeles. The substantial green space and tree canopy is helping to reduce the impacts from heat island effects and providing a refuge from heat disparities for communities in and around the region.

Method:

The CSI research team measured surface temperatures on paving, site furnishings, and tree trunks surrounding South Lake to compare temperature differences based on material or tree canopy character. Surface temperatures were recorded for permeable and impermeable materials found along the concrete path and around South Lake in Phase 1A in the morning, afternoon, and evening. We took a total of 84 east-facing surface temperature measurements of 14 materials across 2 days. To maintain consistency, temperatures were recorded in the same location throughout the day in full sun. Collecting this data provided us with information on the comparative surface temperatures of a variety of materials and the variability of tree canopy shade effectiveness in cooling.

We used a KIZEN LaserPro LP300 Infrared Thermometer, which has a margin of error of ± 2°C based on the manufacturer’s manual. We recorded readings of the temperatures found in areas that we assumed would have lower heat absorption of wetland vegetation and decomposed granite in comparison to surface materials with higher potential for heat absorption, including asphalt and bare ground. The materials category types and surface temperature measurements can be found below in Tables 16 - 20. Temperature readings for each surface material were compared based on the afternoon temperatures of each material (asphalt; bare ground). We found the difference and then calculated the average temperature differences for each surface material category to find average surface temperature reduction within the site. These results demonstrate a reduction in heat island effect for the localized region.

Figure 6. Research Assistants Recording Surface Temperatures

Calculations:

Figure 7. Google Earth Aerial with Planting and Paved Locations for Surface Temperature Measurements.

Table 16: Planted Area Surfaces Temperatures on June 11, 2025

	Morning - 11:30 AM (72 °F)	Afternoon- 3:30 PM (76 °F)	Temperature Difference (Afternoon compared to Bare Ground)	Evening- 6:30 PM (68 °F)	Average Temperature of Material
Bare Ground in Wetland Area	119.5 °F	124.7 °F	N/A	66.0 °F	103.4 °F
Wetland Planting	68.9 °F	79.9 °F	-44.8 °F	62.8 °F	70.5 °F

Temperature Difference Formula: Afternoon Measurement of Material - Bare Ground (Afternoon Measurement) = Temperature Difference

Example: Temperature Difference Calculation between Bare Ground and Wetland Planting:
79.9 °F - 124.7 °F= -44.8 °F

Table 17: Planted Area Surfaces Temperatures on June 14, 2025

	Morning - 11:30 AM (74 °F)	Afternoon- 3:30 PM (75 °F)	Temperature Difference (Afternoon compared to Bare Ground)	Evening- 6:30 PM (69 °F)	Average Temperature of Material
Bare Ground in Wetland Area	N/A*	106.7 °F	N/A	67.6 °F	87.2 °F
Wetland Planting	81.1 °F	78.3 °F	-28.4°F	64.4 °F	74.6 °F

*Inaccurate surface temperature reading/measurement

Table 18: Average Temperature Differences for Planted Surfaces on June 11, 2025 and June 14, 2025

Planted Surfaces	**Temperature Difference (Afternoon)**
Wetland Planting (June 11)	-44.8 °F
Wetland Planting (June 14)	-28.4 °F
Average Temperature Difference	**-36.6 °F**

Average Temperature Difference for Wetland Planting:

(-44.8 °F) + (-28.4 °F) / 2 = -36.6 °F

Table 19: Paved Surfaces Temperatures on June 11, 2025

	Morning - 11:30 AM (72 °F)	Afternoon- 3:30 PM (76 °F)	Temperature Difference (Afternoon compared to Asphalt)	Evening- 6:30 PM (68 °F)	Average Temperature of Material
Asphalt	111.4 °F	120.9 °F	N/A	90.1 °F	107.5 °F
Concrete	89.2 °F	100.8 °F	-20.1 °F	86.7 °F	92.2 °F

	Morning - 11:30 AM (72 °F)	Afternoon- 3:30 PM (76 °F)	Temperature Difference (Afternoon compared to Asphalt)	Evening- 6:30 PM (68 °F)	Average Temperature of Material
Asphalt	111.4 °F	120.9 °F	N/A	90.1 °F	107.5 °F
Decomposed Granite	94.8 °F	98.6 °F	-22.3 °F	80.4 °F	91.3 °F

	Morning - 11:30 AM (72 °F)	Afternoon- 3:30 PM (76 °F)	Temperature Difference (Afternoon compared to Concrete)	Evening- 6:30 PM (68 °F)	Average Temperature of Material
Concrete	89.2 °F	100.8 °F	N/A	86.7 °F	92.2 °F
Decomposed Granite	94.8 °F	98.6 °F	-2.2 °F	80.4 °F	91.3 °F

Table 20: Paved Surfaces Temperatures on June 14, 2025

	Morning - 11:30 AM (74 °F)	Afternoon- 3:30 PM (75 °F)	Temperature Difference (Afternoon compared to Asphalt)	Evening- 6:30 PM (69 °F)	Average Temperature of Material
Asphalt	109.4 °F	114.4 °F	N/A	91.2 °F	105.0 °F
Concrete	89.1 °F	96.3 °F	-18.1 °F	85.6 °F	90.3°F

	Morning - 11:30 AM (74 °F)	**Afternoon- 3:30 PM (75 °F)**	**Temperature Difference (Afternoon compared to Asphalt)**	**Evening- 6:30 PM (69 °F)**	**Average Temperature of Material**
Asphalt	111.4 °F	120.9 °F	N/A	90.1 °F	107.5 °F
Decomposed Granite	93.4 °F	93.6 °F	-27.3 °F	80.8 °F	89.3°F

	Morning - 11:30 AM (74 °F)	**Afternoon- 3:30 PM (75 °F)**	**Temperature Difference (Afternoon compared to Concrete)**	**Evening- 6:30 PM (69 °F)**	**Average Temperature of Material**
Concrete	89.1 °F	96.3 °F	N/A	85.6 °F	90.3°F
Decomposed Granite	93.4 °F	93.6 °F	-2.7F	80.8 °F	89.3°F

Table 21: Average Temperature Differences for Paved Surfaces on June 11, 2025 and June 14, 2025

Paved Surfaces	**Temperature Difference (Afternoon) - June 11, 2025**	**Temperature Difference (Afternoon)- June 14, 2025**	**Average Temperature Difference**
Asphalt and Concrete	-20.1 °F	-18.1 °F	**-19.1 °F**
Asphalt and Decomposed Granite	-22.3 °F	-27.3 °F	**-24.8 °F**
Decomposed Granite and Concrete	-2.2 °F	-2.7 °F	**-2.5 °F**

Average Temperature Difference Asphalt and Concrete:

(-20.1°F) + (-18.1°F) / 2= -19.1 °F

Sources:

On-site measurements conducted by the CSI research team.

Limitations:

- Surface temperature measurements were limited to materials found in Phase 1A which does not account for other variable temperature measurements of similar surfaces found in Phase 1B.
- Surface temperature measurements of the park were not taken at MJP before redevelopment.
- Surface temperatures are fluid and are constantly fluctuating. Also, a margin of human error is expected as it is difficult to stand perfectly still to capture temperature measurement with a laser.
- Results are based on a typical summer day in June, which does not reflect conditions for the hottest month (September) in Los Angeles.
- A thorough study of surface temperatures would require numerous controlled condition readings.

Social Benefits

- ***Attracts an estimated 198,000 total visitors per year and hosts at least 1 event monthly.***

Background:

Prior to its development, Earvin "Magic" Johnson Park's (MJP) resources were underutilized for the surrounding community. MJP serves as the largest park in South Los Angeles, providing the surrounding community with amenities that foster outdoor recreation, connection to nature, and community engagement. According to the design firm, the park provides 3.3 acres of open space per 1,000 residents or approximately 2 average adult soccer fields. Before the park was renovated in 2020, the facilities were limited to parking lots, paved paths, picnic shelters, restroom buildings, two artificial lakes, lawn areas, and trees. There was no existing community building or facility in the park. The renovation project included the construction of a large community multipurpose building with offices, classrooms, restrooms, public art, and outdoor shaded areas.

This facility substantially expanded the range of park activities and events from classes to social and community events. Today, the park hosts and supports monthly events for Willowbrook, including wellness day events, ceremonies, soccer games, quinceañeras, and graduations. One wellness event, “Hangin’ with the Coopers,” is an 8-week health and wellness workshop that discusses health education, wellness, and healthy meal preparation. MJP also hosts holiday events, such as a Halloween Trick-or-Treat Village, featuring costume contests, candy, arts & crafts, raffles, games, and more. Another program happening throughout the school year and during the summer, “Our Spot” empowers teens to reach their full potential, providing free activities such as arts, music, gaming, homework assistance, and social events.

Method:

The CSI research team conducted comprehensive fieldwork at the park, engaging directly with park staff to gather data on visitor attendance across different timeframes—a typical weekday, a weekend day, and during a scheduled community event. To validate these staff estimates, we conducted independent observational studies, recording patterns of park use during operating hours on both a weekday and a weekend day. These observations confirmed that the park experiences steady and diverse use throughout the day, week, and weekend, reflecting its role as a consistently active community space. In addition, numerous posted flyers and conversations with staff indicated that the park hosts at least one organized event every month, year-round. With these findings verified, we determined that the park staff's attendance averages provided a reliable basis for calculating the estimated annual number of visitors to MJP.

Calculations:

<u>Average Attendance Weekday:</u>

200 people + 500 people /2 = 700 people/2 = 350 people/weekday

Average Attendance Weekend: 1000 people/weekend days

Average Attendance at Event Held 1/Month: 200 people/event/month

<u>Average Attendance Weekdays in a Year:</u>

350 people/ weekday x 260 weekdays/year = 91,000 people/year

<u>Average Attendance Weekend Days in a Year:</u>

1000 people/weekend days x 104 weekend days/year = 104,000 people/year

<u>Average Attendance of Events Held in a Year:</u>

200 people/event/month x 12 events/months/ year = 2,400 people/year

<u>Sum of Attendance Per Year</u>:

Attendance on Weekdays/Year + Attendance on Weekend Days + Attendance of Events Held at Park:

91,000 people/year + 104,000 people/year + 2,400 people/year = **197,400 people/year**

Sources:

Miller, Christopher. Personal Interview. 30 May 2025.

Limitations:

- Our observations and interviews with park staff are representative of a limited number we met at MJP.
- The average number of visitors was recorded in early summer before summer camps began, and when immigration protests were occurring, which could affect particular days we attended.
- There was a lack of historical attendance data for comparison before and after the park renovation project.

- ***Provides educational opportunities for an estimated 350 students each summer attending ESTEAM Summer Camp covering subjects in environment, science, technology, engineering, art, and mathematics.***

Background:

ESTEAM Summer Camp at Earvin "Magic" Johnson Park is held for one-week sessions across eight weeks on weekdays from 7 AM - 6 PM. The award-winning Los Angeles summer educational program is held for children between the ages of 6 - 11 years old. The program provides campers with connections to nature while exploring innovative technologies in order to develop problem-solving skills. The program is geared towards creating engaging and fun approaches to learning through interactive group activities, arts, and cultural interactions.

Method:

The CSI research team spoke with park staff about attendance for the ESTEAM Summer Camp. Park staff initially discussed with us that there was an average of 30 to 40 students per week in attendance. As of July, the park staff informed us there was full enrollment for the 8-week ESTEAM Summer Camp program for this summer (2025) with 45 students per week. We used these results to calculate the number of students enrolled in the entire summer program.

Calculations:

45 students per week x 8 weeks = 350 students

Sources:

"Earvin 'Magic' Johnson - ESTEAM Summer Day Camp 2025." Los Angeles County Online Reservations and Registration, anc.apm.activecommunities.com/losangelescounty/daycare/program/218?onlineSiteId=0&locale=en-US&from_original_cui=true&online=true. Accessed 30 May 2025.

Miller, Christopher. Personal Interview. 30 May 2025 and 14 July 2025.

Limitations:

- ESTEAM Summer Day Camp at MJP is limited to 45 students per week. Students could potentially be repeated students throughout the summer program.
- ESTEAM Summer Day Camp is not a free educational program and costs $25 per student per week to be enrolled.
- ESTEAM Summer Day Camp may reveal only part of the educational opportunities provided by the site. There are 7 educational signs around South Lake, but we could not determine the impact these had on park visitors.

- ***Encourages outdoor physical activity, with 84% of 2,151 observed visitors participating in at least 1 out of 10 different active uses in the park.***

Background:

The park promotes an active lifestyle providing 3 miles of walking trails, 11 workout stations, and fitness loop while incorporating native Californian vegetation for outdoor enjoyment. Prior to development, the park already served as a resource for physical activity, but lacked robust fitness features and a diverse plant palette. The addition of play equipment and splash pad provided motivation for active families with youth of all ages. The community center opened doors to indoor physical activities including martial arts, dance classes, and light exercise. Overall, the park provides options for a full range of active participants from babies in strollers to senior citizens on strolls.

Method:

The CSI research team conducted a series of observational studies on a weekday (Wednesday) and a weekend day (Saturday) to determine the average physical activity of observed park users. We created a spreadsheet, as displayed below, with popular physical activities along with one passive category. The popular physical activities were chosen based on initial fieldwork observations conducted by the research team. We collected the data on-site by noting each individual we observed coinciding with the associated activity at specific times in the morning (9:30 AM -12 PM), afternoon (1:30 PM - 4 PM) and evening (5 PM - 7 PM). We followed a consistent route and chose four specific areas within Phase 1A and 1B boundaries (See Fig.   below) and spent 20-30 minutes at each location. The recorded site data helped us understand quantitatively how many people were physically active in the park, and also to describe the qualitative nature of the physical activities they engaged in. To calculate the average physical activity of the park, we utilized an average formula by entering our observations through Microsoft Excel.

Figure 8. Research Assistants Tallying Visitor Activities and Visitors Overlooking South Lake
Calculations:

Table 22: Observations on Types of Activities by Users on Wednesday June 11, 2025

Time of Day	Running	Walking	Dog Walking	Biking	Playing	Exercises/ Fitness Stations	Rollerblading	Skateboardi-ng	Scoot-er	ADA*	Passive
9:30 AM - 12 PM	31	246	31	10	3	4	0	2	6	0	16
1:30 - 4 PM	11	113	10	26	51	1	2	1	8	1	51
5 - 7 PM	42	246	33	30	72	7	1	1	14	1	72

**Note: ADA is an acronym for American with Disabilities Act which protects people with disabilities. ADA here refers to people using wheelchairs or mobility devices.*

Physical Activity Percentage (%): Sum of Observations of Physical Activities / Total Observations of All Activities (Physical and Passive) x 100

Physical Activity Percentage: 1004 / 1143 x 100= **87.8%**

Table 23: Observations on Types of Activities by Users on Saturday June 14, 2025

Time of Day	Running	Walking	Dog Walking	Biking	Playing	Exercises/ Fitness Stations	Rollerblading	Skateboardi-ng	Scoot-er	ADA*	Passive
9:30 AM - 12 PM	46	240	36	9	4	7	1	1	4	1	6
1:30 - 4 PM	21	90	11	16	49	2	4	2	2	0	104
5 - 7 PM	6	129	24	28	60	3	2	3	7	0	90

Physical Activity Percentage (%): Sum of Observations of Physical Activities / Total Observations of All Activities (Physical and Passive) x 100

Physical Activity Percentage: 808 / 1008 x 100= **80.2%**

Average Physical Activity Percentage: Sum of Physical Activity Percentages / Number of Percentage

(87.8 + 80.2) / 2 = **84%**

Source:
On-site observations conducted by the CSI research team.

Limitations:

- Park users were observed for two days during the month of June, which does not accurately describe the potential variations in the number of users being physically active throughout the year.
- Based on the dense number of people observed on both days, headcounts can be variable and challenging which can lead to a potential margin of human error in the calculations
- Some park users switched physical activities which could have led to inaccurate recorded data based on human variability

- ***Increases sense of safety, with an estimated 32% increase in visitors to the Parks After Dark program between 2022 and 2024, encouraging community participation in park events at night.***

Background:

Parks After Dark (PAD), a seasonal program held across 34 Los Angeles County Parks, provides free activities to park visitors such as concerts, movie nights, and more. The event turns parks at night into vibrant community centers, attracting visitors of all ages, including families, teens, and senior citizens. This program hosts events on Thursdays and Saturdays during spring evenings from 6-9 PM, on summer evenings from 6-10 PM on Thursdays, Fridays, and Saturdays, and winter evenings from 4-9 PM on Fridays and Saturdays. A recent UCLA Center for Health Policy Research evaluation reported 93% of all park attendees stated they felt safe at Parks After Dark events. Researchers from the UCLA Center for Health Policy have conducted this evaluation report for multiple non-consecutive years (2017, 2018, 2023, 2024). Parks After Dark was implemented at Earvin "Magic" Johnson Park (MJP) in 2022, the same year as the completion date for Phase 1B.

Due to recent budget cuts, the Parks After Dark program was canceled for the 2025 summer term. In line with the budget cuts, the LA County Sheriff's Department released a crime data report showing a rise in crime under the Century Sheriff Station area, which includes Willowbrook. The report showed an overall increase of violent crimes by 7.42% and an overall increase of aggravated assault of 19.47% between January 1st to September 30th, 2024, versus 2025. In comparison, in the years of 2023-2024, when PAD was active at MJP, the crime report revealed an overall decrease in violent crimes by 10.65% and aggravated assault decreased by 14.15%. The data reveals how activating MJP at night with the implementation of PAD programs decreases the crime rate and can be correlated to the increase in sense of safety among community members.

Figure 9. Park After Dark flyers designed and promoted by Los Angeles County Parks and Recreation

Method:

The CSI Research team used the data for Earvin "Magic" Johnson Park provided in the Parks After Dark Evaluation reports. Along with the Parks After Dark Evaluation reports, we contacted a data scientist from Los Angeles County Parks and Recreation to help provide us with data for 2024. With this data, we were able to calculate the average number of attendees and the overall percentage increase of visitors to PAD at this park.

Calculations:

Table 24. Total PAD Visits by Park and PAD Group with Percent Change by Year

Date Period	**Total PAD Visits by Park and PAD Group**
2022	7,612
2023	15,845
2024*	8,724
Average Number of Attendees	10,727
Percent Change from 2022 to 2023 (%)	108.2
Percent Change from 2023 to 2024 (%)	-44.9
Average Percent Change from 2022- 2024 (%)	**31.7**

*Slight decrease attributed to competing events held by other organizations outside of the park

Average Number of PAD Attendees: Total PAD visits/Number of years

(7612 + 15845 + 8724) / 3 = 32,181 / 3 = 10,727

Percentage Change from 2022 to 2023:

(15,845 - 7,612) / 7,612 x 100 = 108.2%

Percentage Change from 2023 to 2024:

(8,724 - 15,845) / 15,845 x 100 = -44.9%

Average Percent Change from 2022 - 2024

= (108.2 + (-44.9)) / 2 = **31.7%**

Sources:

LARCIS 5C UCR Data. "Los Angeles County Sheriff's Department Century Station Part 1 Crimes January 1 - December 31, 2023 vs. 2024." Los Angeles County Sheriff Department, 19 Jan. 2025. https://lasd.org/wp-content/uploads/2025/02/Transparency_Crime_2023-2024_Comparison_12_Patrol_Stations.pdf

LARCIS 5C UCR Data. "Los Angeles County Sheriff's Department Century Station Part 1 Crimes January 1 - September 30, 2024 vs. 2025." Los Angeles County Sheriff Department, 19 Oct. 2025. http://shq.lasdnews.net/CrimeStats/CAASS/Patrol-CurrentMonth-YTD.PDF

Lieu, Patricia. “Parks After Dark Data for Earvin "Magic" Johnson Park for Summer 2024.” Received by Jordan Fucci and Ashley Stephens. 21 July 2025.
Lieu, Patricia. Phone Interview. 23 July 2025.
Pourat, Nadereh, et al. “2022 Parks After Dark Evaluation Report.” Policy File, UCLA Center for Health Policy Research, 2023.
Pourat, Nadereh, et al. “2023 Parks After Dark Evaluation Report.” Policy File, UCLA Center for Health Policy Research, 2024.

Limitations:

- Different approaches to evaluate perceived and actual safety are recognized. We could not utilize crime data to measure actual safety because data from previous years was compiled together into one report for the entire Willowbrook community instead of specific to MJP. The localized interactive crime map available to the public only provides access to up to 4 weeks of past data. Surveys could not be conducted to evaluate the community’s perception of safety at the park, so the CSI research team utilized PAD evaluation reports on nightly attendance to gain insight.
- The crime analysis found in the UCLA PAD Evaluation Reports did not include Magic Johnson Park, as it did not meet the minimum requirements of years of crime data to analyze trends. Crime and violence prevention and reduction are core concepts for PAD programs.
- Recent budget cuts have removed PAD at Magic Johnson Park starting summer 2025, however, extended summer hours will remain open at the park until 9pm.
- Our results are based on attendance evaluation reports data and do not contain direct quotes on park attendees’ experiences specific to safety at Magic Johnson Park’s PAD programs.
- Outside competition with other night programs could affect attendance participation at Magic Johnson Park.
- Sense of safety from park attendees relies on the assumption they feel safe visiting the park at night compared to when park programs were not available to the community at night.

Economic Benefits

- ***Creates 12 full-time and 4 part-time job positions for site operations and maintenance. On-site staff work 560 hours per week and 29,120 hours per year maintaining the park.***

Background:

The addition of the recreation center and native plant palette has increased popularity for the park and the number of hours towards site operations and maintenance. There are 6 dedicated ground workers and 10 working within the recreation center.

Method:

After collaborating with park staff, the CSI research team gathered information on the number of full-time and part-time park positions currently held at the park. Using the amount of work hours per week from LA County Parks and Recreation job listings, we calculated the estimated number of hours per week and hours per year for all currently held positions.

Calculations:

Number of positions x Number of Hours Per Week Per Position = Total Number of Hours Per Week

4 part-time park positions x **20 hours** per week per position = 80 hours per week

12 full-time park positions x **40 hours** per week per position= 480 hours per week

Total Number of Hours Per Week = 80 hours + 480 hours = **560 hours per week**

560 hours per week x 52 Weeks/ Year= **29,120 hours per year**

Sources:

Jarret, William and Christopher Miller. Personal Interview. 30 May 2025.

Limitations:

- Employment was supposed to be higher during the summer season. However, due to recent budget cuts, positions were transferred to other county parks.
- The majority of park staff have been working at MJP for one year or less.
- Park positions are fluid as some staff members were promoted or transferred to other parks.

- ***Saved an estimated $120,826 in construction costs by using salvaged trees and reused crushed base from the former Ujima Village Apartments.***

Background:

See Case Study Brief section “Features” for more information.

Method:

The CSI research team identified the material reuse for benches and crushed base from the design firm’s construction documentation. We received cost prices paid for concrete ($1718/unit) and salvaged wood bench units ($950/unit) from the design firm. The design firm confirmed that they would have used all concrete bench units for seating if salvaged wood was not a viable option, and we determined the savings costs for benches by the design firm's decision to incorporate salvaged wood bench units with concrete bench units. Next, we estimated the cost savings in reusing the crushed base from Ujima Village Apartments into areas of Phase 1B ($30/cu yds) in comparison to the bin and labor costs of hauling material off site. The $30/cu yds estimate was a set-controlled variable for labor and transportation from professional quotes in the Los Angeles region. Using an average price quote from a local commercial junk hauling company, we were able to calculate accurate cost savings. We combined the cost savings estimate for the benches and reuse of crushed base to calculate the total construction cost savings.

Figure 10. Concrete Bench and Salvaged Wood Bench. Taken on July 14, 2025

Calculations:

<u>Bench Calculations</u>

Concrete Benches: 35 in Phases 1A and 1B ($1718/unit)

Salvaged Wood Benches: 32 in Phases 1A and 1B ($950/unit)

Total Benches: 67

Total cost IF concrete benches used for ALL 67 benches, ($1,718/unit) x 67 units = $115,106

Concrete Bench Costs: ($1,718/unit) x 35 units (confirmed units) = $60,130

Salvaged Wood Benches: ($950/unit) x 32 units (confirmed units) = $30,400

Savings Formula for Benches: Hypothetical Costs (All Concrete Benches) - Actual Costs (Concrete and Salvaged Wood Benches)

$115,106 - ($60,130 + $30,400) = **$24,576**

<u>Crushed Base Reuse (CBR) Calculations</u>

11,000 cu yds of crushed base reuse (CBR)

Estimated Costs (Transporting and Placing CBR)

(11,000 cu yds CBR) x ($30/cu yd for transportation and labor) = $330,000

Hypothetical Costs (Labor and Bins for Hauling Debris Off Site)

Estimate Bin Cost: $950 / 40 cu yd bins

11,000 cu yds CBR x $950 / 40 cu yd bins = 10,450,000 / 40 = $261,250

Estimate Labor Cost: $600 x quantity of 40 cu yd bins

11,000 cu yds of crushed base / 40 cu yd bin = 275-40 cu yd bins

$600 x 275-40 cu yd bins = $165,000

Total Estimate Costs for Bins and Labor: $261,250 + $165,000 = $426,250

Savings Formula for Reuse of Material: Hypothetical Costs (Cost of Hauling Excess Material) - Estimated Costs (Transporting and Placing CBR)

$426,250 - $330,000 = **96,250**

<u>Total Savings Formula: Savings for Benches and Savings for Material Reuse</u>

$24,576 + $96,250 = **$120,826**

Sources:

Gutierrez, Jose. "Re: CSI - Follow up." Received by Jordan Fucci and Ashley Stephens. 5-6 June 2025. Phone Interview. 25 July 2025. (Source asked not to be quoted)

Limitations:

- Costs for material reuse were received from professional quotes from 2025 which are based on averages for the Los Angeles region at the time.
- Estimated costs do not include landfill fees for hauled-off materials.
- Bench costs do not account for inflation.