

**BURNING MAN**  
**2023 POST EVENT INSPECTION REPORT**



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## Summary

The 2023 Burning Man event Post Event Inspection (PEI) concludes that BMP's Playa Restoration crew was successful in meeting the 2019 EIS standard of less than 10% of monitoring sites exceeding 1ft<sup>2</sup>/acre of debris/litter. Of the 120 inspection points, 11 sites exceeded this threshold.

## Introduction

A Post Event Inspection (PEI) is required following each Burning Man event per Stipulation #49 of the Burning Man Project (BMP) 2023 Burning Man Event Special Recreation Permit (SRP), which states:

*BMP must clean the playa such that less than 10 percent of all Post Event Inspection points contain no more than 1 square foot per acre of debris/litter (SOIL-1, EIS mitigation).*

This stipulation is derived from the Record of Decision (ROD) for the Environmental Impact Statement (EIS) (July 16, 2019).

This 2023 PEI report summarizes the BLM's findings following cleanup efforts by BMP's Playa Restoration Crew and includes a summary of the collection protocol, calculations utilized, a discussion of the results and recommendations.

## Background

Since 2000, BLM and BMP's Playa Restoration crew have closely coordinated conducting the PEI. Over the years, inspection protocols were but the main objective of every cleanup inspection was, and still is, to determine if BMP's post event cleanup efforts of the Black Rock Desert playa, within the fenced perimeter of the event area, were successful and met the Cleanup Standards outlined the SRP.

This year's post Event clean up was significantly more challenging due to the rainy weather conditions encountered during the Event. Due to the rain, debris was buried and covered over by mud, which then hardened, making location and removal of debris more difficult. Additionally, participants driving and walking on the wet playa created significant ruts and disturbance not normally seen during previous events.

The 2023 PEI was conducted on October 11, 2023, by seven BLM employees and over 100 of BMP's Playa Restoration Crew. Debris/litter collected at each monitoring site was sorted, photographed, and measurements were recorded using photographic pixels to determine total surface area of debris for each site.

## PEI Protocol

The 2023 Burning Man event fenced perimeter totaled 3,883 acres. The event area was divided into four Core Inspection Areas: City Grid, Open Playa, Other, and Walk-in-Camping (Map 1). One-hundred twenty randomly generated inspection points and six BLM points of interest (POIs) were plotted via ESRI's ArcGIS software (Map 2). The breakdown of points in each core inspection area is as follows:

Core Area	Number of Points
City Grid	43
Open Playa	50
Other	21
Walk in Camping	12



Post 2023  
Burning Man

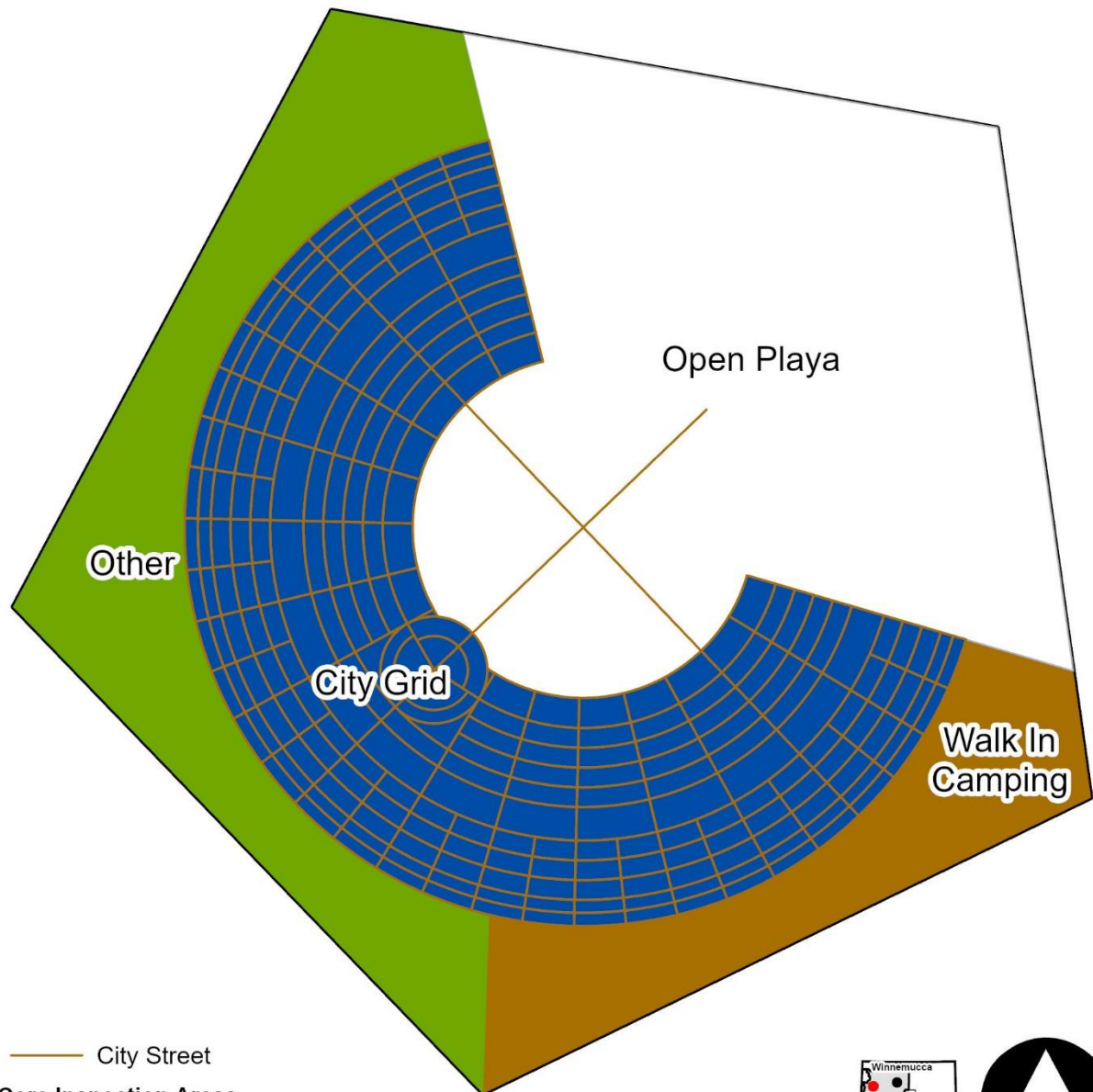
## Core Inspection Areas

Map 1

BLM

Black Rock Field Office

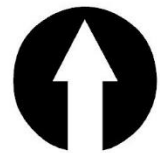
BLM



City Street

### Core Inspection Areas

- City Grid (1,346 acres)
- Other (627 acres)
- Open Playa (1,549 acres)
- Walk In Camping (361 acres)



10/18/2023



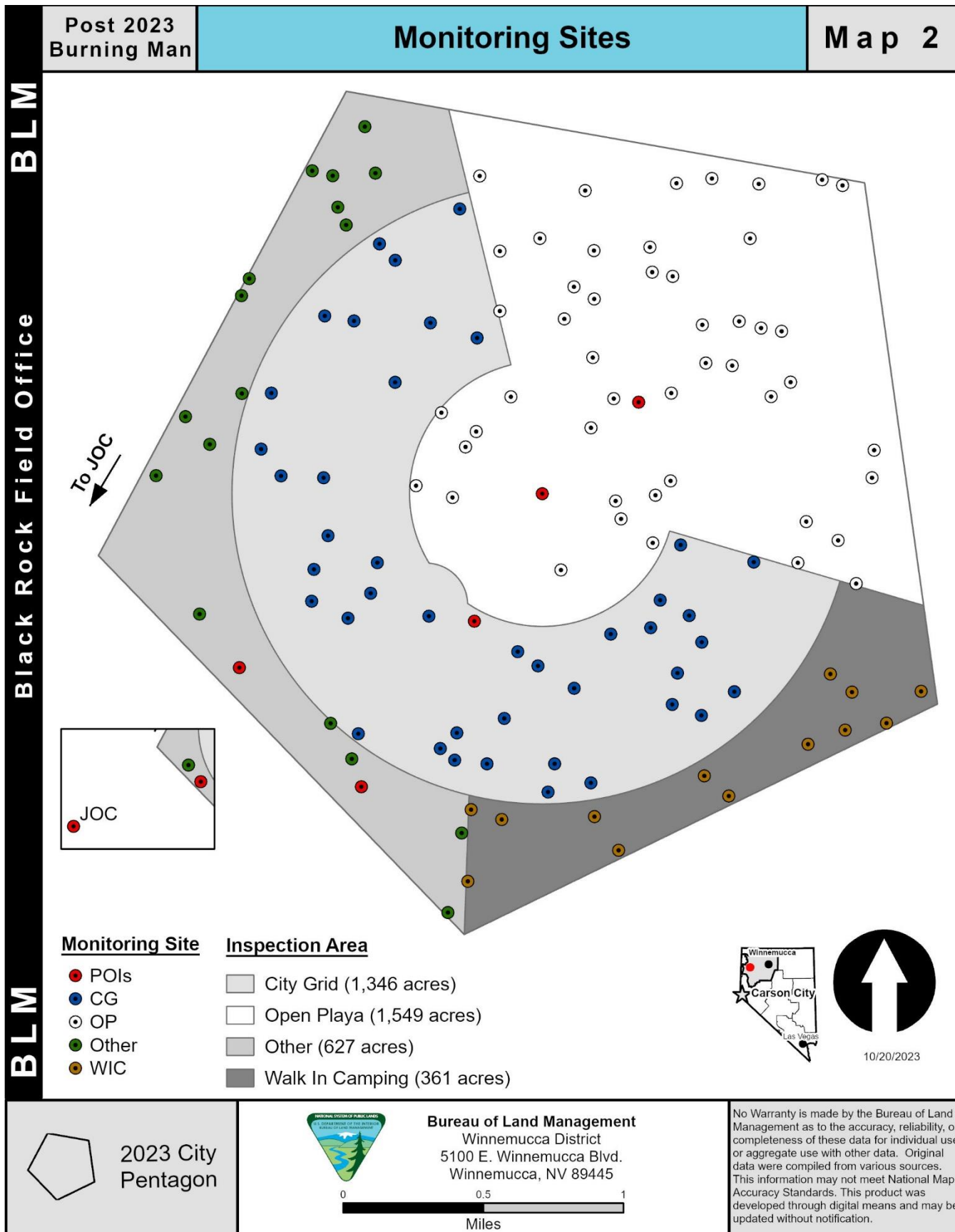
2023 City  
Pentagon



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Since 2013, six POI sites have been targeted for monitoring via the same monitoring protocol as the random sites because site-specific data is helpful determining potential issues associated with the high traffic volume these areas generate. The 6 POIs are surveyed in addition to the 120 random monitoring sites by BLM and BMP. The POIs are:

<b><i>Name</i></b>	<b><i>Justification</i></b>	<b><i>Northing (UTM)</i></b>	<b><i>Easting (UTM)</i></b>
<b>The Man</b>	The large-scale construction effort, frequency of visitation and structure burn	314078	4517380
<b>The Temple</b>	The large-scale construction effort, frequency of visitation and structure burn	314632	4517906
<b>United Site Services (USS)</b>	This area receives a high degree of traffic with large amounts of grey and black water	312339	4516381
<b>Dept. of Public Works (DPW)</b>	The level of use and population density of this area during the event	313039	4515697
<b>Joint Operations Command (JOC)</b>	The level of use and population density of this area during the event	309978	4515553
<b>Heavy Equipment and Transportation (HEaT)</b>	The use and storage of Heavy Equipment and Transportation items in this area	313688	4516648

*Table 1 Points of Interest / Justification / Location*

Garmin GPS units were used to locate each monitoring site based on UTM coordinates. The monitoring site was marked with wood stakes labeled with the site name. Per protocol, both random and POI sites were measured at 1/10 of an acre using a 37' 2" rope. A full clockwise or counterclockwise circle rotation by the team delineates the radius of 1/10 of an acre. Monitoring teams had a minimum of 3 people spaced no more than 10' apart along the rope and completed inspections at each location within their assigned zones. At each staked monitoring point, one person held the terminal end of the rope keeping the rope free of slack. This individual set the pace of movement to ensure the group worked at a consistent pace, maintaining full site coverage searching for and collecting debris. Debris collected was placed in a gallon-size plastic bag labeled with site, zone identifier, and UTM coordinates.





## Debris Sorting, Measuring, and Calculation

Adobe Photoshop was used to measure debris items for the 2023 PEI. Representatives from BLM and BMP met at the BLM's Gerlach Station on October 11, 2023, and photographed the debris collected from each monitoring site. The photographs were later processed by the BLM in accordance with the User Guide to Photo Monitoring Techniques for Moop Inspection (Desert Research Institute and BMP, 2019). Using Photoshop, the following actions were applied to each photo :

- Crop the image to the green background to ensure that there were no borders or non-MOOP objects in the photos,
- Set the measurement scale,
- Use Color Range command to determine the color of the green background,
- Select features not matching the green background,
- Measure selected features, and
- Record measurements.

The measurements for each photo were saved to an output .txt file and included an average measurement in square feet (ft<sup>2</sup>). (See Photos 1 and 2).



Photo 1: CG 56 (0.264 ft<sup>2</sup>)



Photo 2: Other 105 (0 ft<sup>2</sup>)

To calculate ft<sup>2</sup>/acre (Photo 1 Example):  $0.264 \text{ ft}^2 \times (10 \text{ acre}) = 2.64 \text{ ft}^2/\text{acre}$

## Results

### Amount of Debris<sup>1</sup>

Appendix B lists all inspections sites and area calculations. Map 3 displays the locations of sites exceeding the standard.

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<sup>1</sup> For the 2023 PEI, BMP was allowed to replace up to ten inspection points with randomly generated back-up points. Appendix A lists which points were replaced and their debris measurements.



### City Grid

The 2023 PEI results show that of the 42 monitoring sites within City Grid, 11 sites exceed the 1ft<sup>2</sup>/acre standard.

<b>City Grid Monitoring Sites</b>	<b>Area (ft<sup>2</sup>/acre)</b>	<b>Northing</b>	<b>Easting</b>
CG_56.jpg	2.64	313704	4518275
CG_58.jpg	1.61	312997	4518373
CG_59.jpg	1.08	312829	4518402
BU_CG_12	3.74	313233	4518020
CG_62.jpg	1.04	313143	4518816
CG_63.jpg	1.66	313604	4519016
CG_68.jpg	1.04	313131	4516984
CG_73.jpg	1.17	314111	4515667
CG_81.jpg	1.06	313860	4516089
BU_CG_20	1.13	314700	4516610
CG_94.jpg	1.04	314755	4516769

*Table 2 City Grid Sites Exceeding 1ft<sup>2</sup>/acre Standard*

### Open Playa, Other and Walk in Camping

Of the 78 monitoring sites in Open Playa none of the sites exceeded the 1ft<sup>2</sup>/acre standard.

### POIs

The 2019 Post Event Report recommended that the POIs be considered in the overall statistics. However, this was not specified in the 2023 protocol and therefore will not be included in the overall calculation for the 2023 event. The 2023 results show only HEaT did not meet the 1ft<sup>2</sup>/acre standard, having 1.02 ft<sup>2</sup>/acre of debris.





Post 2023  
Burning Man

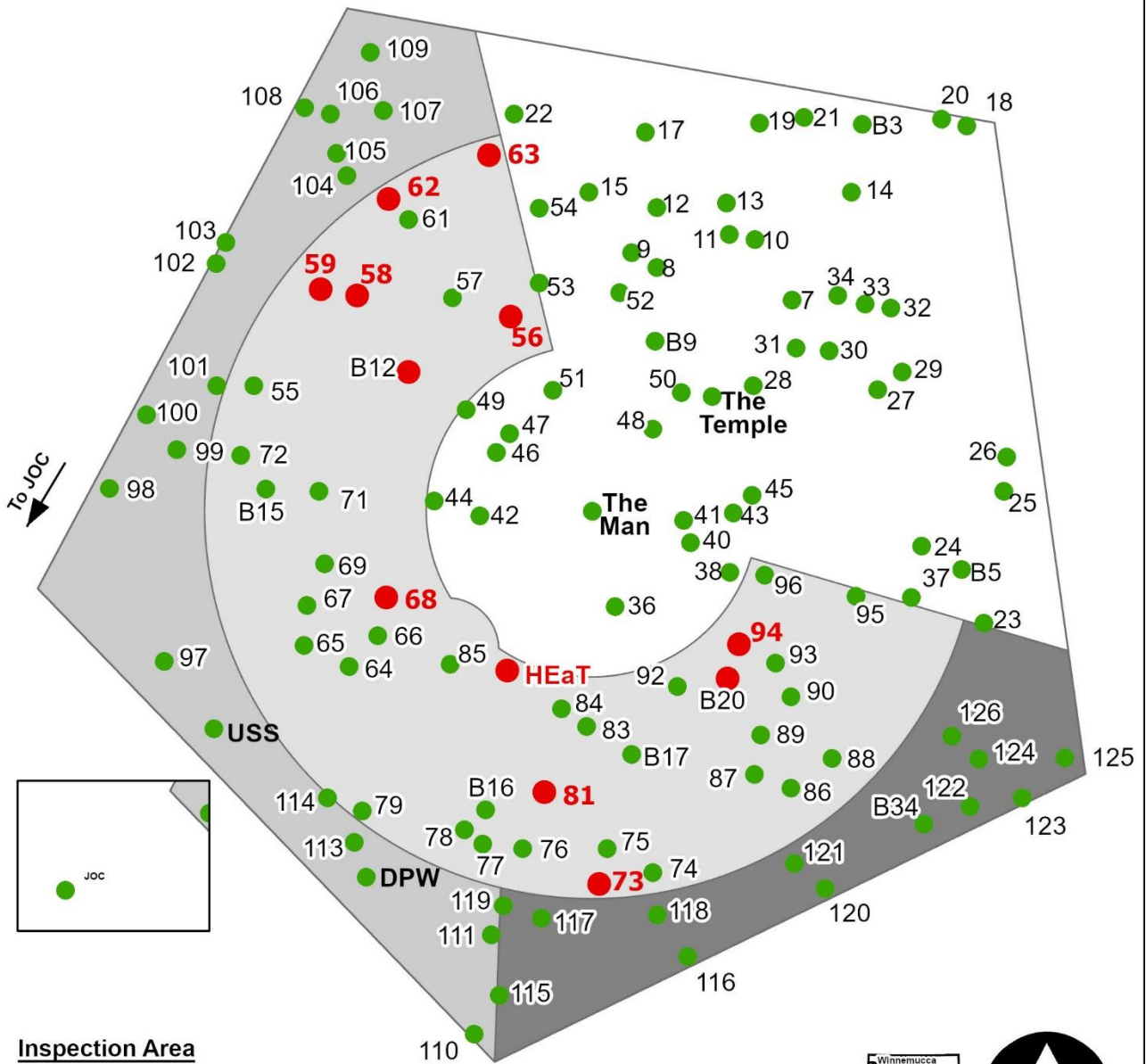
## Monitoring Results

Map 3

BLM

Black Rock Field Office

BLM



### Inspection Area

- City Grid (1,346 acres)
- Open Playa (1,549 acres)
- Other (627 acres)
- Walk In Camping (361 acres)

### Monitoring Results

- 0 - 0.90 Ft² of debris per acres
- 1.02 - 2.6 Ft² of debris per acres



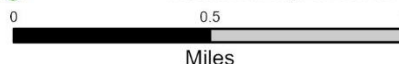
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## Analysis

In 2023, the Burning Man Restoration crew was able to reduce the debris area average by roughly 25% from the 2022 average. While the BLM realizes the Event had a decrease in attendance of around 2% from the 2022 Event, the sloppy conditions created by the unexpected rain created more challenges in the cleaning of the playa after the 2023 Event.

The City Grid continues to be an area of concern. Twenty-five percent of the sites in City Grid exceeded the standard, whereas none of the sites in the remaining Core Inspection Areas exceeded the threshold. HEaT exceeded the standard for the 2023 event and is also located in the City Grid.

**Average Debris Area (Ft<sup>2</sup>/Acre) by Population**

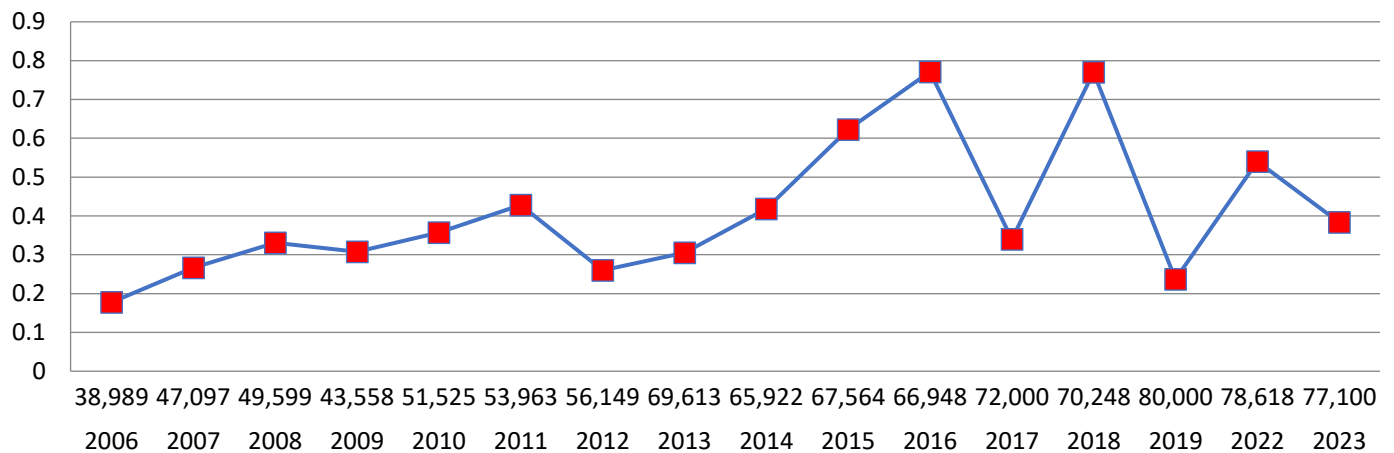


Figure 2 Debris Area by Population

**Population and Debris Area**

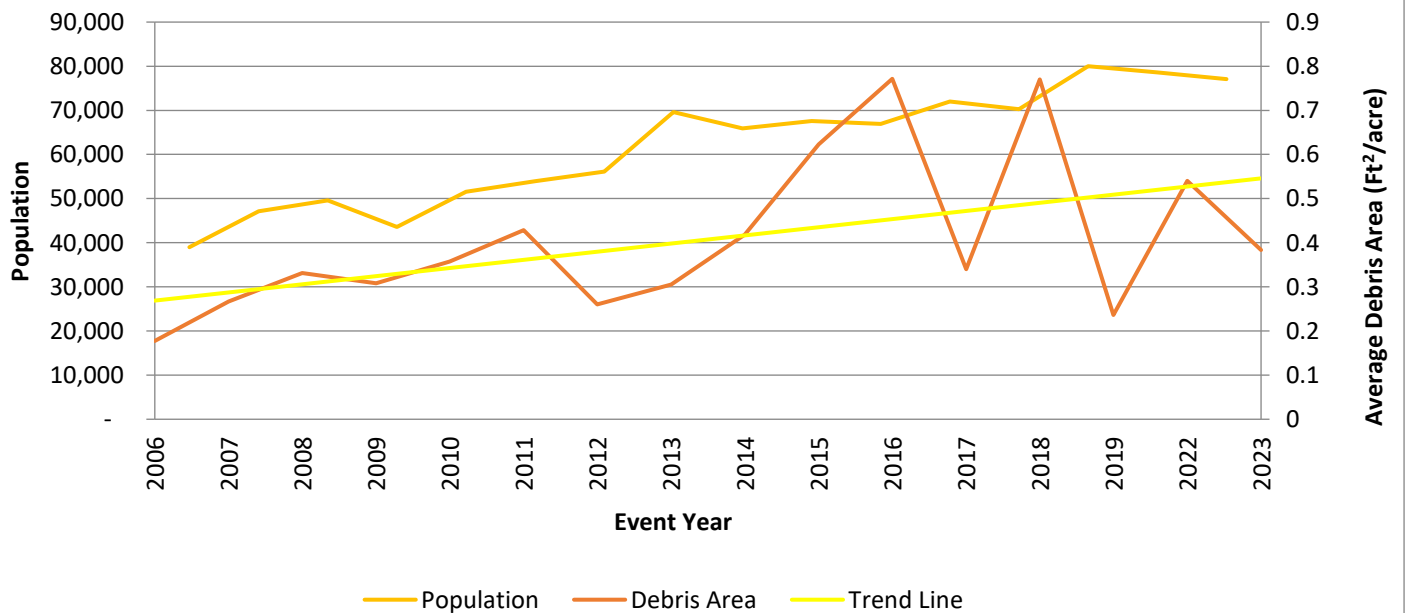


Figure 3 Average Debris Area and Population Since 2006

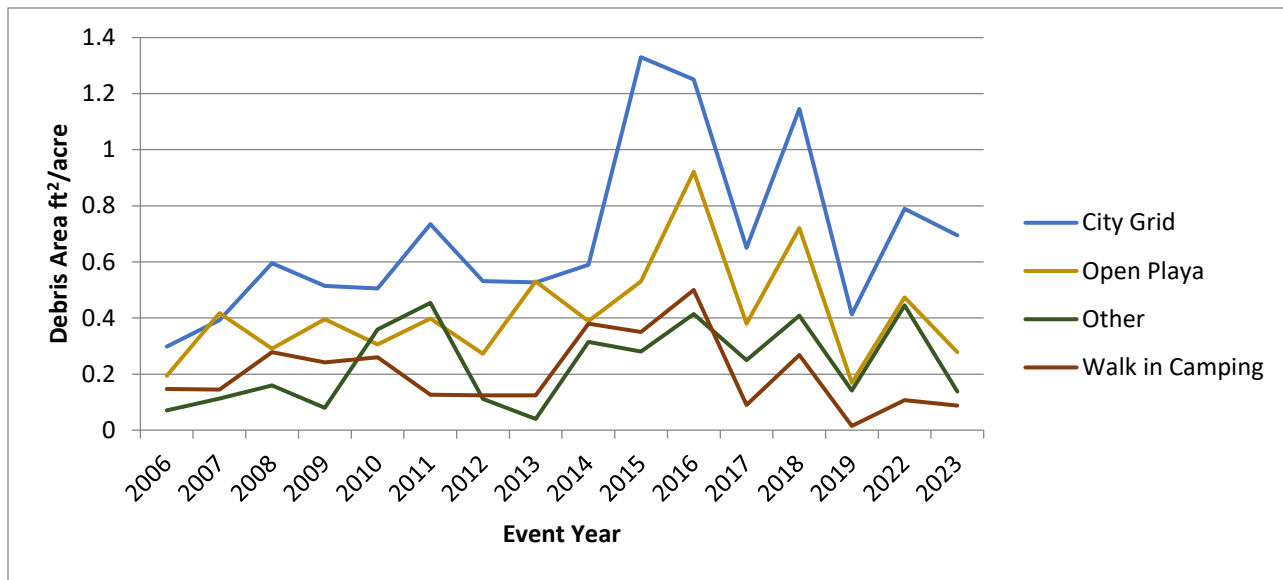


Figure 4 Average Debris Area by Inspection

## Conclusion

The 2023 Burning Man event Post Event Inspection concludes that BMP's Playa Restoration crew **was successful** in meeting the 2019 EIS standard of less than 10% of monitoring sites exceeding 1ft<sup>2</sup>/acre of debris/litter. Of the 120 random points inspected, 11 failed. Of the six BLM points of interest inspected, one failed.

BLM recognizes the effort and good faith put forth by the Burning Man Organization and their Restoration Crew for this year's post event playa restoration effort. A special recognition goes to DA and Chaos, who were responsible for overseeing not only the restoration of the playa but also the cleanup of roadways to and from the Event. While the planning went smoothly, the weather added many new complications and requiring out-of-the-box solutions not undertaken during previous Events. BLM looks forward to collaborating with the Burning Man Organization to improve upon current restoration protocols for the 2024 Event.

## Recommendations

Following the results of the 2023 Burning Man Event PEI, the following recommendations are made for the 2024 Event:

- During the 2024 planning phase, come up with a protocol to identify points to be inspected pre and post event. The expectation is this will provide a more accurate picture of debris associated with the event.
- BLM will continue to monitor all six POI Monitoring Sites and through the planning phase determine with BMP if these sites will be added into the overall reporting statistics and if they should be considered when making the determination if the cleanup effort was successful. The final determination will be included in the 2024 Post Event Protocol.
- BLM will continue to document annual PEI efforts and retain all monitoring data collected. If requested, this data will be shared with BMP.



## 2023 Burning Man - Post Event Inspection Report

- The PEI protocol will be continued to be reviewed annually during the planning process and updated as necessary.
- BLM/BMP should continue to ensure that Contractor's and Vendor's working the event are made aware of the Leave No Trace® policy.
- BMP should continue to educate participants in the ethos of Leave No Trace® and intensify Pack it In, Pack it Out communications. Camps, both large and small, leaving large, bulky items and piles of trash following exodus dramatically impacts the amount of time and coverage the Playa Restoration Crew has to address micro-debris.



## Appendix A

### Replaced Points

Site ID	Northing	Easting	Area (ft <sup>2</sup> /acre)	Replacement ID	Northing	Easting	Area (ft <sup>2</sup> /acre)
CG_60	312660	4518407	4.54	BU_CG_12	313233	4518020	3.74115
CG_70	312519	4517177	1.42	BU_CG_15	312578	4517483	0.63884
CG_80	314120	4516024	1.30	BU_CG_16	313587	4516006	0.69292
CG_82	313677	4516221	1.44	BU_CG_17	314261	4516263	0.17233
CG_91	315113	4516550	1.78	BU_CG_20	314700	4516610	1.13115
OP_16	314571	4518848	1.19	BU_OP_3	315321	4519160	0.08117
OP_35	315856	4518950	1.81	BU_OP_5	315777	4517112	0.31543
OP-39	315474	4517168	1.66	BU_OP_9	314368	4518163	0.25558
Other_112	313501	4515574	1.50	BU_WIC_34	315604	4515941	0.06393

The tenth back-up point (BU\_CG\_19) exceeded the 1ft<sup>2</sup>/acre standard with a n area of 2.01 ft<sup>2</sup>/acre, therefore this will not be used.

## Appendix B

### Burning Man Post Event Monitoring Site Results

Location	Ft <sup>2</sup> /Acre		Location	Ft <sup>2</sup> /Acre
The Man	0.10		CG-76	0.12
The Temple	0.76		CG-77	0.22
USS	0.90		CG-78	0.19
DPW	0.02		CG-79	0.10
JOC	0.29		BU_CG-16	0.69
HEaT	1.02		CG-81	1.06
CG-55	0.46		BU_CG-17	0.17
CG-56	2.64		CG-83	0.22
CG-57	0.35		CG-84	0.34
CG-58	1.61		CG-85	0.28
CG-59	1.08		CG-86	0.41
BU_CG-12	3.74		CG-87	0.66
CG-61	0.30		CG-88	0.30
CG-62	1.04		CG-89	0.72
CG-63	1.66		CG-90	0.35
CG-64	0.22		BU_CG-20	1.13
CG-65	0.11		CG-92	0.28
CG-66	0.54		CG-93	0.53
CG-67	0.50		CG-94	1.04
CG-68	1.04		CG-95	0.89
CG-69	0.54		CG-96	0.73
BU_CG-15	0.64		OP-7	0.34
CG-71	0.61		OP-8	0.25
CG-72	0.16		OP-9	0.23
CG-73	1.17		OP-10	0.70
CG-74	0.20		OP-11	0.66
CG-75	0.15		OP-12	0.12



Location	Ft <sup>2</sup> /Acre		Location	Ft <sup>2</sup> /Acre
OP-13	0.44		OP-46	0.86
OP-14	0.28		OP-47	0.16
OP-15	0.29		OP-48	0.21
BU_OP-3	0.08		OP-49	0.29
OP-17	0.31		OP-50	0.22
OP-18	0.21		OP-51	0.66
OP-19	0.22		OP-52	0.45
OP-20	0.13		OP-53	0.22
OP-21	0.09		OP-54	0.19
OP-22	0.05		Other-97	0.21
OP-23	0.08		Other-98	0.24
OP-24	0.32		Other-99	0.59
OP-25	0.14		Other-100	0.24
OP-26	0.33		Other-101	0.59
OP-27	0.12		Other-102	0.15
OP-28	0.09		Other-103	0.12
OP-29	0.55		Other-104	0.01
OP-30	0.16		Other-105	0.00
OP-31	0.48		Other-106	0.00
OP-32	0.10		Other-107	0.00
OP-33	0.08		Other-108	0.03
OP-34	0.30		Other-109	0.03
BU_OP-5	0.32		Other-110	0.08
OP-36	0.46		Other-111	0.02
OP-37	0.15		BU_WIC-34	0.06
OP-38	0.09		Other-113	0.08
BU_OP-9	0.26		Other-114	0.05
OP-40	0.50		WIC-115	0.23
OP-41	0.88		WIC-116	0.12
OP-42	0.06		WIC-117	0.08
OP-43	0.03		WIC-118	0.00
OP-44	0.09		WIC-119	0.27
OP-45	0.10		WIC-120	0.05

Location	Ft <sup>2</sup> /Acre		Location	Ft <sup>2</sup> /Acre
WIC-121	0.09		WIC-124	0.08
WIC-122	0.03		WIC-125	0.01
WIC-123	0.06		WIC-126	0.03