

Planning

Let's all plan this thing together!

- High Level Plan
- Camp Layout
- Reno Prep Week
- Build Week
 - Placement Checklist
 - Utility Container Checklist
 - Food Handling Checklist
- Utilities
 - Water / Showers / Kitchen
 - Power / Solar Power
 - Camp Bike
- Construction Projects
 - Power & Water Unit
 - Kitchen Container

High Level Plan

Before we start

- Create a plan
- Publish the plan & start advertising HARD
 - Facebook has several (many!) BM groups
- Establish leadership (part of the plan creation)
- Reach out to ex campers:
 - Some will want to come back regardless (hardcore fans)
 - Some may need convincing and will only come back if things improve (see comment)
 - Some have already abandoned to other camps or events (for example Africa Burn)
 - Some just won't go in 2024, regardless of anything

Note: It is always a good idea to make joining the camp irresistible, and I believe this is something every camp should be doing (and some of them are doing a great job with this).

Ticket sales

The FOMO Sale is January 31, 2024 at 12 PM PST–February 4, 2024 at 6 PM PST.

Stewards Sale is March 1, 2024 at 12 PM–March 8, 2024 at 12 PM PST.



Build Plan

Here's what we need to accomplish this year BEFORE anything else:

1. **Existing van:** Pull the bike rack + Carry some campers
 - This van will be parked in Reno / North of Reno
2. **Purchase:** Box truck for kitchen & food, stored in Reno, easy to refill (from Costco, etc.)
 - Move our kitchen equipment into the Kitchen truck/trailer
 - This truck will be towing the interstate trailer
 - A/C permanently mounted into this truck
 - Store Tables & Benches on this truck
 - Store propane on this truck (only during the event?)
3. **Clean up / Sort out Empire**
 - **Interstate Trailer:** Take everything out, decide what to keep, chuck the rest
 - **Small bike trailer:** Sell the smaller bike trailer
 - **Bike trailer:** Figure out how to load onto the large bike trailer
 - **Optional:** Sell bike trailer, replace with an enclosed trailer
 - **Bike storage:** Throw away bikes that are beyond repair
 - **Bike:** Sell most bike, only keep the good bike
4. **Infrastructure unit - We have two options:**
 1. **Option 1 - Rental:** A container/trailer from some vendor that services & drops off & picks up
 - Strap shelving units
 - Put our stuff into labeled boxes
 - No permanent solar infrastructure
 - Use Integrarack for solar panel mounting
 - Mount power board / solar controller / breakers (leave it on the wood for now)
 - Sandeep thinks mounting panels would take an hour
 - Requires a lot of manual labor in the beginning and at the end
 - Estimated cost:
 - \$100/month storage (for year round storage)
 - \$2330 Dropping off on playa & pick up from playa
 - Monthly cost: $(\$2330 + (\$100 \times 12)) / 12 = \$294/\text{month}$
 - Includes 2~3 times a year visit to the facility (close to Empire)
 - Reach out to Paper Crane to discuss this to ask for advice/tips
 - No need for engine maintenance
 - No need for vehicle related insurance / registration (DMV crap)
 - No need for fuel / maintenance / new tires / etc.
 2. **Option 2 - Purchase:** Another 26' Box Truck -> Solar / Infrastructure / Water
 - Shelving units (permanent)
 - Put our stuff into labeled boxes (permanent)
 - Stored in Empire
 - Mount power board / solar controller / breakers (leave it on the wood for now)
 - Boost our power storage capacity (more batteries)
 - Manufacture an easy apparatus to deploy our solar panels upon arriving on Playa
 - Fit the power truck with infrastructure for water (pumps, hookups, etc)

- Estimated cost:

Cost of truck

Cost of storage somewhere (Empire?)

Insurance / Registration / DMV Crap

Cost of Remote Start kit that turns the engine on/off remotely

Cost of one time retrofit / labor

The more permanent, more self reliant option

5. **Reliability / Legalese:** Make sure the trucks or trailers are in great running condition (and legal)
6. **Storage:** Fit both trucks with secure shelving for all of our crap, including water jugs, propane tanks, shade structure, etc.
 - Figure out how to store everything we need into those trucks/trailers
7. **Get rid of storage in Reno because now everything's permanently on two trucks/trailers**
8. Figure out where to store those trucks/trailers while we're home & sign agreement (so we know we have a place for sure)
9. **Consider renting a shower trailer (US\$), etc).**

Planning Requirements

• Planning

- Plan what build looks like (especially considering the new equipment projects)
- Plan what the week looks like (fun & exciting activities)
 - Find a lead for our activities**
- Plan how nutrition & hydration works
 - Consider food prep / meal prep
 - KISS & LAZY!!!!
- Plan how LNT & Garbage works (**and find a lead**)
- Plan how bike are handled (**and find a lead**)
- Plan what breakdown looks like (in detail!)
- Frontage (**Lead: Neil Tygar**)
- Prepare our basic/core infrastructure
 - Design it such that the laziest, smallest team can EASILY build & breakdown
- Design our volunteer structure (deposit + refund on successful volunteering)
- **Advertise our “job openings” and start soliciting members (other camps have already begun)**
- Designate our lead team members and create one Discord room for each team - **WIP**
- Actually get our asses to Gerlach and build our infrastructure
 - Can ship a bunch of the stuff to LA and I can drive with it upstate
 - Build it & Test it and make sure it's perfect!
 - Make sure we schedule service to move this stuff to Playa on time

Deployment Plan

Silver Springs Arrival

We arrive at Silver Springs, unlock our containers and take stock of gasoline and propane. We power on the generator and turn on the freezers and refrigerators to prepare them for receiving food. We turn on the A/C, clean filters if needed, etc.

Restocking Run

We take the van and drive it to Reno to pick up:

- Food from RestaurantDepot.com
- Propane
- Gasoline
- Anything else we need for the burn
 - Sunscreen
 - Water
 - Etc.

Driving to the Playa

We make sure everything is secured within the containers, and that batteries are charged so they can carry the refrigerators & freezers. We then leave to the Playa.

Camp Layout

Useful Do / Don't

Burningman.org has a useful document for camp layout Do's and Don'ts:

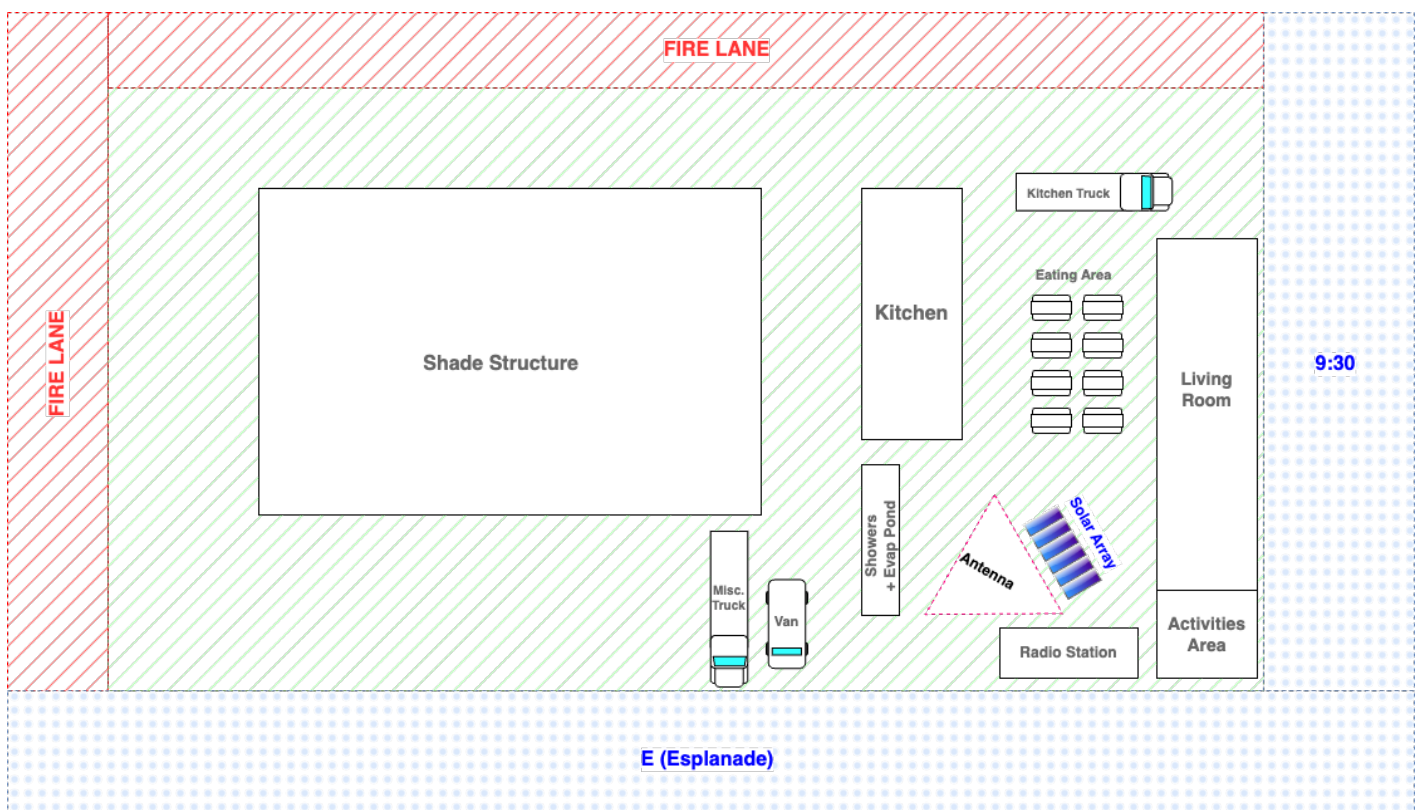
<https://burningman.org/event/participate/camps/placement-process/camp-layouts/>

Our camp layout in 2023

Seen in the drawing below are just the camp's structures, systems and vehicles. The rest of the space was taken by people's cars & RV's (95% occupancy!). The shade structure was about 60% full.

Camp Diagram

Note that while this diagram is straight, the actual plot was slightly curved but not enough to warrant representation in this diagram (see satellite photo further down).



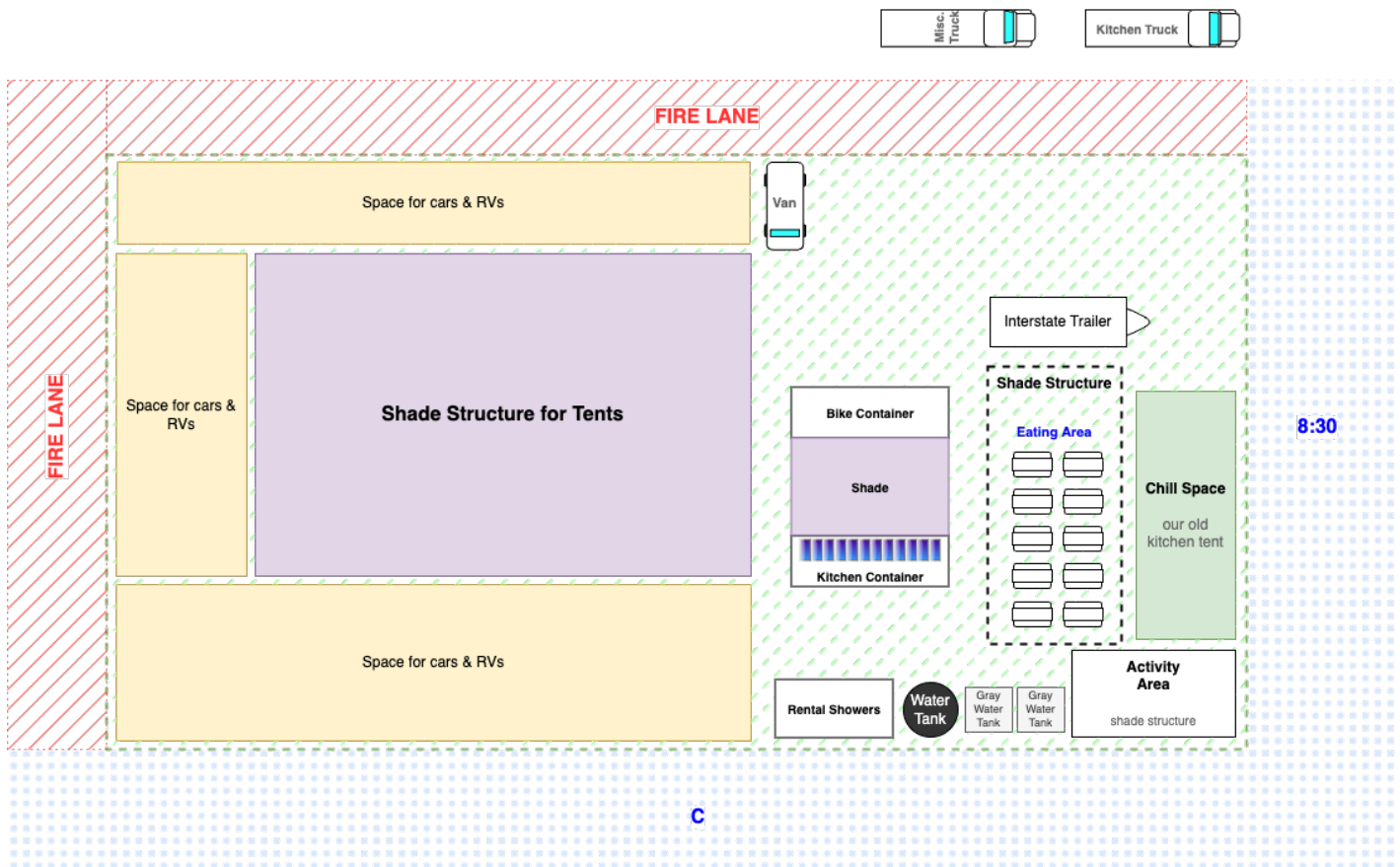
Satellite photo



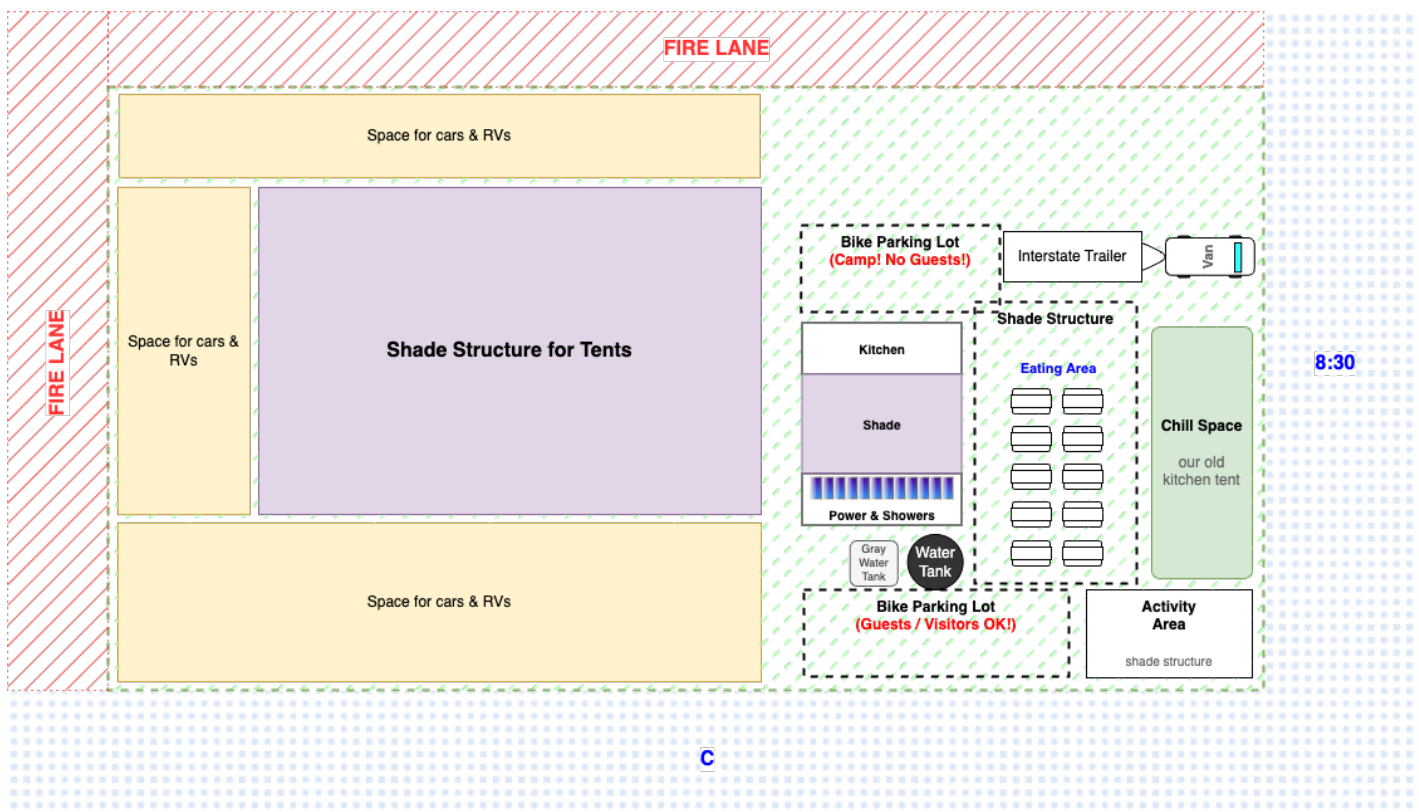
Proposed camp layout for 2024

Placement has placed us at **8:30** and **C** this year.

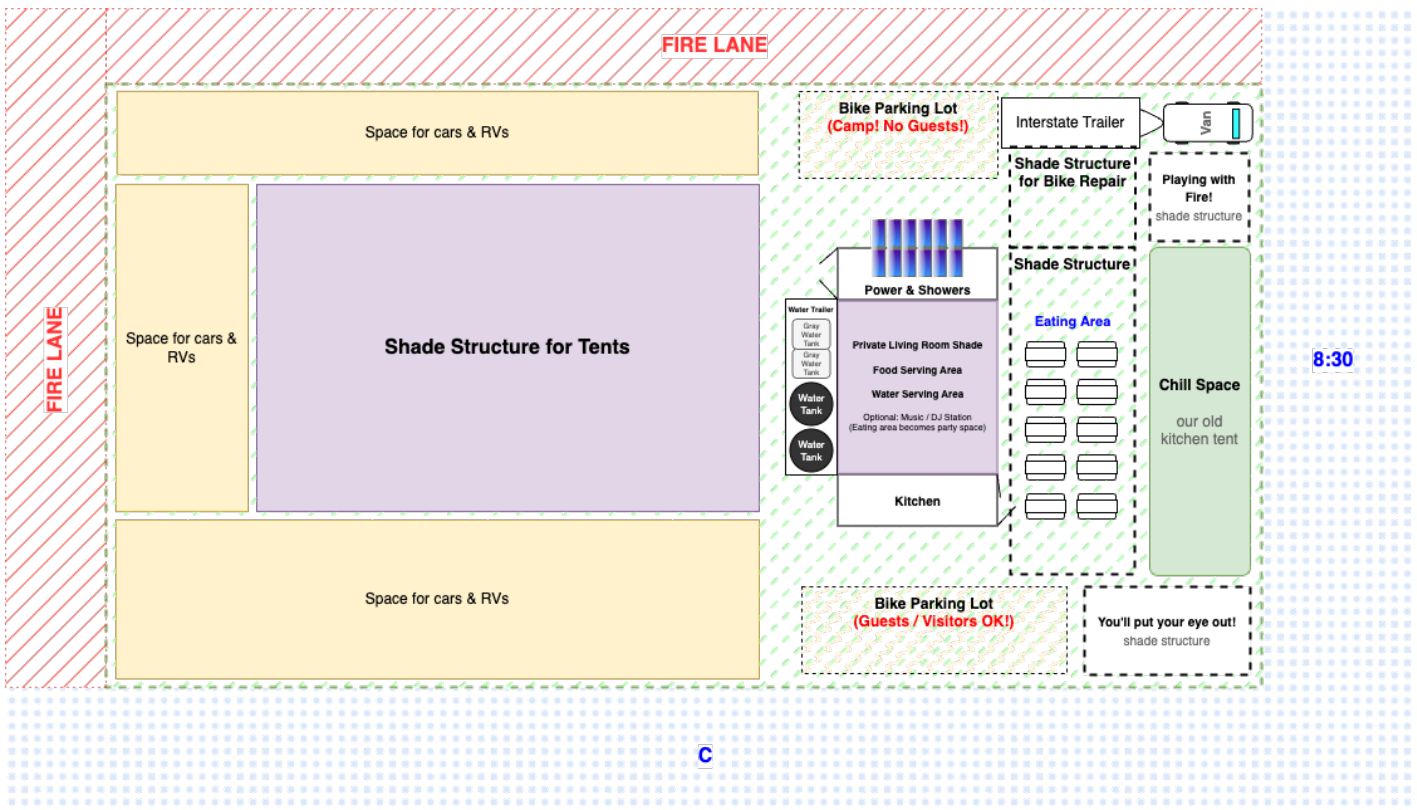
Layout Option 1 - With Rented Showers



Layout Option 2 - With our own showers



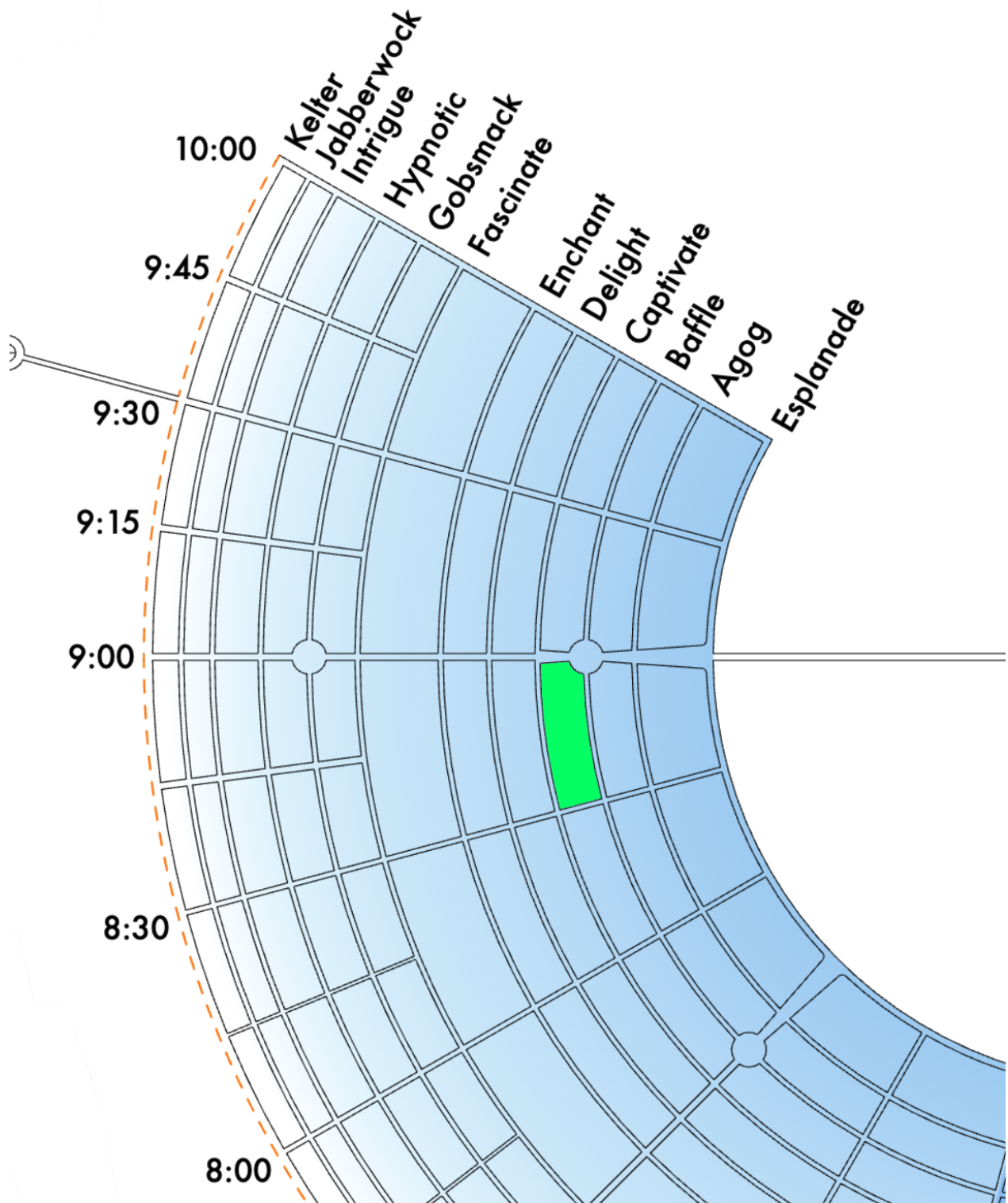
Layout Option 3 - Tom Breen 28' Water Trailer



Where is 8:30 and C

Here's the BM page showing this year's map: <https://burningman.org/event/2024-black-rock-city-plan/>

It looks like we're in front of a roundabout which could mean more traffic to our camp:



Reno Prep Week

General Task List

New containers prep work

1. Make sure our containers made it to Tom Breen's yard
2. Purchase proper locks that are suitable for containers
3. Spray the containers with the special primer & sun reflecting sealant
4. Mount a shelving solution based on our container layouts

Move our stuff out of Empire Storage

1. Empty that entire storage unit for sorting
2. Decide what to throw away and what to keep
3. Get rid of the junk
4. Clean the stuff we want to keep, test it and make sure it still works,
 - If it can be fixed, fix it
 - If it can't be fixed, it joins the junk pile
5. Catalog it in our inventory management system
6. Load it onto a truck and move it to Tom Breen's yard for proper storage in our new containers

Move our Bike out of Gerlach storage

1. Move the bike trailer to Tom Breen's yard
2. Get rid of that storage
3. Once at Tom Breen's yard, use the power washer to rinse the bike from last year's playa mud
4. Inspect each bike and understand if it's playa-worthy or not
 - If it can be fixed, fix it
 - If it can't be fixed, it joins the junk pile
5. Dispose of the trash
6. Store the good bike

Move our Interstate Trailer out of Gerlach yard

1. Move our Interstate Trailer to Tom Breen's yard
2. Open it and take everything out
3. Clean the stuff we want to keep, test it and make sure it still works,
 - If it can be fixed, fix it
 - If it can't be fixed, it joins the junk pile
4. Catalog it in our inventory management system
5. Setup secure shelving / storage and load the stuff we're keeping

Build Week

Build Week

Placement Checklist

Build Week

Utility Container Checklist

Food Handling Checklist

Receiving the food

Bonanza will deliver the food on Monday of build week. They will deliver the food directly to our camp on the Playa.

To prepare for their arrival we'll need to perform the following tasks:

1. **Power up:** Connect power to the kitchen container to start up the A/C, fridges and freezers.
2. **Clean:** Thoroughly clean the fridges and freezers so they can receive food.
3. **Shelf Space:** Make sure shelf space is ready for our dry goods.
4. **Tracking:** Make available the **Purchase Order** so it can be compared with what's being delivered. If there are several purchase orders make sure they are all printed out. Make sure there are at least 3 copies, just in case somebody loses a set. **The pages should be clearly numbered.**
5. **Leadership:** Make sure a kitchen lead is present to check all receivables match what was ordered. **Verification should happen while the items are on the vendor's truck, so that if something is rejected, it doesn't have to leave their truck. And we do not want to accept something that was ordered by another camp.**

WARNING: This should be done first to allow the delivery staff to leave. **Do not** attempt to sort the items into our fridges and/or shelves while the staff is unloading. The goal here is to make sure we received everything we ordered, and doing any other task may confuse everybody and result in mistakes and delays.

Sorting the food

As in previous years, food is sorted into specific days and marked for that day with the Chef's name and the day name and/or number. This should take place within the kitchen container as it is refrigerated, which means frozen goods won't thaw.

1. Go through the daily kitchen schedule and count how many items belong to that day
2. Use a fat permanent marker and mark: **"Day 1 - Chef Mario"** on a wide label (will be supplied), and apply to food item.
3. If it is a sensitive perishable item (fish / seafood), handle first and refrigerate immediately.
4. If it is a frozen item, immediately place it into a freezer. Frozen goods should be handled next.
5. All dry goods should be handled last.

Utilities

Basic infrastructure offered by the camp

Water / Showers / Kitchen

Basic Facilities

Showers

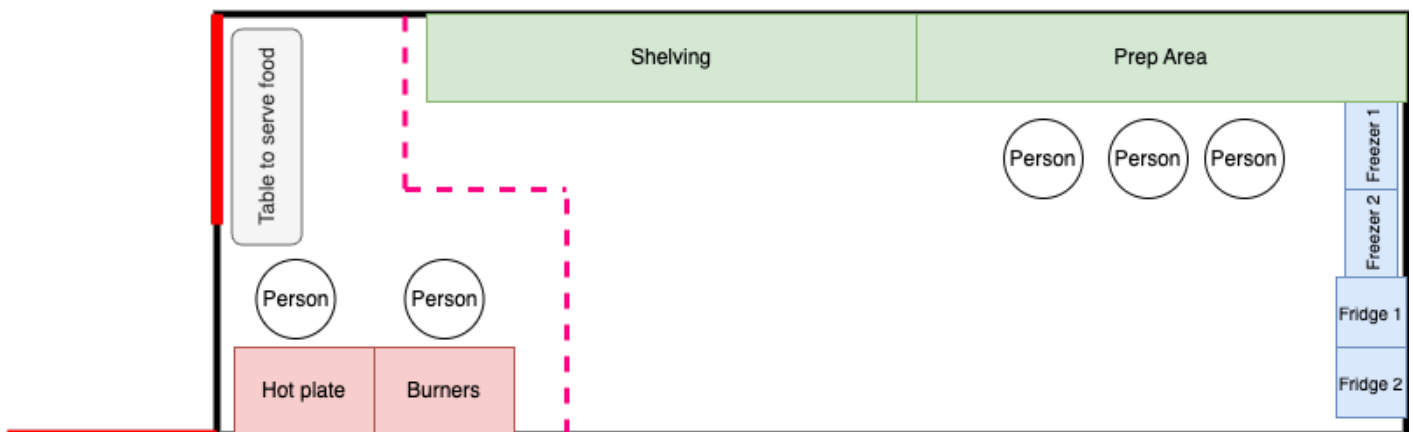
The camp has two wooden showers which worked quite well in previous years. Campers are asked to use biodegradable soaps only, and are also asked to follow a specific shower protocol.

Kitchen

The camp has two sinks, one for washing dishes and one for dispensing water into water jugs (for drinking). Dishes are washed using two sets of spray bottles: One with a vinegar solution, and one with clean water.

Kitchen Container Layout

Proposed camp layout - Work done by Aric Fedida & Neil Tygar:



How we handle water in general

You can survive burning man without power, but you definitely can't survive without water. The welcome staff will reject you at the entrance if you do not have an adequate amount of water with you (which the org sets at 1.5 gallons per day). **To be on the safe side, we go with 2 gallons per camper per day.**

We bring a bunch of 5 gallon jugs of water with us in our camp van when we enter BRC, but that's just backup (self reliance baby!). What we actually do is purchase water from a water vendor. They show up and drop a large 500 gallon water tank at our camp at the beginning of the event, and fill it with drinkable water. We then drop a pump into the container which pumps water to our kitchen, an outside sink for general refill of water bottles, and to our showers.

The Math

For 75 campers camping for 7 days + 2 days build (9 days total), we need this much water:

$$75 \text{ people} \times 2 \text{ gallons} \times 9 \text{ days} = \mathbf{1350 \text{ gallons of water}}$$

A 500 gallon tank will last:

$$500 \text{ gallon} / (75 \text{ people} \times 2 \text{ gal/day}) = \sim \mathbf{3.3 \text{ days}}$$

This means we would need to refill our 500 gallon tank every 3rd ~ 4th day depending on consumption.

Our water vendor

The water vendor supplies the tank and the water, but not the pump. We will need to purchase a pump that can run directly off of DC power (it's more efficient when you don't use transformers).

<https://mecoreno.com/reservations/>

Note: Deadline for reserving water from MECO is August 1st.

BM Resources / Useful links

<https://burningman.org/event/preparation/playa-living/water/>

Gray water disposal

What we did in 2023

Drinking water: Our camp had a water vendor drop a large water tank at the start of the event, which they also filled with potable water. We covered the black tank with a large piece of Aluminet to keep it cool. It worked well.

Gray water: Last year we built an evaporation pond using a large black tarp and some wood as the frame. We also placed 3 tables inside the pond, with pumps pumping gray water onto the tables and the idea was to accelerate the evaporation process. A rough estimate is that the pond helps evaporate roughly half of the gray water, however we did not have a gray water tank and due to the rains and mudpocalypse the entire thing ended up failing, with the remaining un-evaporated gray water mixing with the rain water and escaping the pond...



We we want/plan for 2024

We are considering having permanent tanks for potable water and gray water. The camp does not produce black water and getting rid of gray water is significantly simpler, especially considering our gray water is biodegradable (vinegar and biodegradable soaps being the "worst" molecules in the water).

To ensure microbes and mold do not grow in our gray water tank, we could use any of the following options:

1. **Vinegar:** A natural disinfectant, vinegar can help prevent the growth of bacteria and mold in gray water tanks. It's biodegradable and safe for the environment.
2. **Baking Soda:** This is another natural product that can help maintain pH balance in the water, discouraging microbial growth. It's also harmless to the environment.
3. **Hydrogen Peroxide:** Used in a low concentration, hydrogen peroxide can serve as a mild sanitizer and disinfectant for the water without causing harm to the environment when released.
4. **Citric Acid:** A natural preservative and antibacterial, citric acid can be used to control bacteria and mold growth. It's biodegradable and commonly used in septic treatments.
5. **Eco-friendly Tank Treatments:** There are commercially available tank treatments designed specifically for gray water systems that are biodegradable and non-toxic. These often contain a blend of natural enzymes and beneficial bacteria that break down organic matter and reduce odors without harming the environment.

Power / Solar Power

The promise of Solar Power

When we hear the word "solar," thoughts of "green energy" and even "free energy" often spring to mind. Yet, it's important to recognize that solar power systems can be costly, and the return on investment isn't immediate—especially compared to the low costs of grid-supplied electricity.

At Burning Man, however, the situation is quite different. Here, there is no grid. The predominant sources of power are gasoline-powered generators. Some camps deploy massive, industrial generators that are not only expensive to transport but also consume large quantities of gasoline. Unfortunately, these generators contribute to environmental pollution through noise, odors, and harmful emissions.

In the unique setting of Burning Man, adopting solar energy offers a distinct advantage. Solar power provides a quiet, clean energy source that doesn't emit noise or pollutants. This means it can be set up anywhere, allowing participants to enjoy their music and conversations without interruption. Moreover, solar energy enhances self-reliance—a crucial benefit, particularly in hypothetical apocalyptic scenarios where gasoline might become scarce. Unlike gasoline, sunlight is an ever-abundant, freely available resource.

BMORG Pressure

The BORG is applying gentle pressure on camps to give up their gas based generators in favor of solar power. It is not a hard requirement, and in my opinion we should always have generators as backup (because things can break), but seeing as we already have a solar power system, we might as well continue using it and even slowly expanding it to more reliably cover 24 hours of power for the camp.

How it performed in 2023

Let's just start by saying it's a good thing we had backup generators, for several reasons:

1. We miscalculated our power draw, and due to the radio station we operated, as well as a massive antenna covered in LED lights, we drew more power than originally anticipated.
2. The weather got weird and we had clouds & rain, which resulted in the now famous mudpocalypse.

However during the sunny days of the event it performed fantastically well, and we enjoyed noise-free days (as well as the knowledge and satisfaction of knowing we were getting ample power from the sun!).

During the day, our battery bank was being charged while the panels powered several air conditioning units, a small ice making machine, a charging station for phones & batteries, lights, fans, and god knows what else (and I say this because on various occasions, some people just plugged in their tent A/C's etc.).

Some key facts from 2023:

- The peak output from the panels was 5kW/hr. Theoretical max is about 5.3kW/hr and about 6.5kW/hr with bifacial gain.
- The average daily energy produced was about 27kW/hr. The best days (no dust storms or clouds) were 33-34kW/hr.
- The batteries would last until about 4-5am on days with less than max production.
- Some days we filled the batteries by 11am, and had lots of potential energy not collected.



Seen above is a team of 5 people who spent almost an entire day cumulatively, to build the frame that holds the solar panels, so they can be properly mounted (and not blown away by the winds, which can get pretty strong in BRC).

The finished product:



Existing hardware

The camp currently owns the following hardware:

Item name	Description	Quantity
445W Solar Panels Data Sheet	Canadian Solar High Efficiency 445W Mono Bifacial Solar Panels	12
Solar Panels Mounting Kit	Solar Mount & Racking (Array Tilt = 30deg) Constructed using 1/2" Galvanized Pipe & Fittings	TBD (need to count @ storage)
Solar Inverter User Manual	6kw 48v 120/240vac inverter MPP Solar LVX6048 (mounted to power board with dc and ac distribution panels, Solar disconnect, fuse blocks, battery bus bars, etc)	1
Genmax Generator User Manual	Genmax 6000iED Inverter Generator. This Genmax can supply split phase power directly to the solar Inverter if the batteries run low, and charge up the batteries as well.	1

Honda Generator User Manual	Honda 3000is Generator Power for furnace, fridge, most 13,500 BTU RV AC units, & more. Super quiet & fuel efficient, Electric start, Inverter (stable power for computers), CO-MINDER: advanced carbon monoxide detection system.	2
EVE LF-280K Batteries Vendor Link	EVE 280Ah Prismatic LiFePO4 Cell: This battery is widely used in electric vehicles, electric motorcycles, solar power, energy storage, etc.	12

New hardware requirements for 2024

Mounting kit

Jack is proposing we purchase mounting equipment from this company <https://integrarack.com/>

Their mounting mechanism makes it quick and easy to install solar panels. Their products can be purchased here:

<https://solarpowerdistributors.com/product/ir30-ballasted-ground-mount-racking-system/>

Jack estimates around \$1500 for the full kit.

Extra Batteries

While we do not plan to run a radio station in 2024, I still think we need to expand our battery bank if we want to run 24/7 with not ever needing to start an ICE based generator. I do think we should bring them with us, as an emergency, but ideally we should be able to avoid using them throughout the entire length of the event.

Conclusion: What we need to purchase

To bring the system up to spec, we'll need to purchase the following items/products:

Item name	Description	Quantity

Camp Bike

Intro & Required reading

Black Rock City is vast. While you can explore it on foot—and I strongly recommend dedicating at least one full day to walking, as it offers a unique and immersive experience—the convenience and speed of a bike provide unmatched freedom of movement.

Definitely read this page:

<https://burningman.org/event/preparation/getting-around/bikes/>

Bringing vs. Renting

You have the option to bring your own bike, but many campers choose to rent one from the camp instead. The camp offers a selection of bikes in different conditions for rental. Renting a bike is a convenient option if you prefer to travel light and helps prevent bikes from being abandoned on the playa by those who can't take them back home.



The bike team

The camp's bike lead and a bike team handle our bike, including fixing the bike during the event (and by the way they are awesome!).

Construction Projects

Let's build some permanent infrastructures for the camp, which can be used year over year and make our build & breakdown significantly easier (and shorter).

Power & Water Unit

How we handle water in general

You can survive burning man without power, but you definitely can't survive without water. The welcome staff will reject you at the entrance if you do not have an adequate amount of water with you (which the org sets at 1.5 gallons per day). We bring a bunch of 5 gallon jugs of water with us in our camp van when we enter BRC, but that's just backup (self reliance baby!). What we actually do is purchase water from a water vendor. They show up and drop a large 500 gallon water tank at our camp at the beginning of the event, and fill it with drinkable water. We then drop a pump into the container which pumps water to our kitchen, an outside sink for general refill of water bottles, and to our showers.

For 75 campers for 7 days, we need this much water:

$$75 \text{ people} \times 1.5 \text{ gallons} \times 7 \text{ days} = \sim \mathbf{787 \text{ gallons of water}}$$

A 500 gallon tank will last:

$$500 \text{ gallon} / (75 \text{ people} \times 1.5 \text{ gal/day}) = \sim \mathbf{4.5 \text{ days}}$$

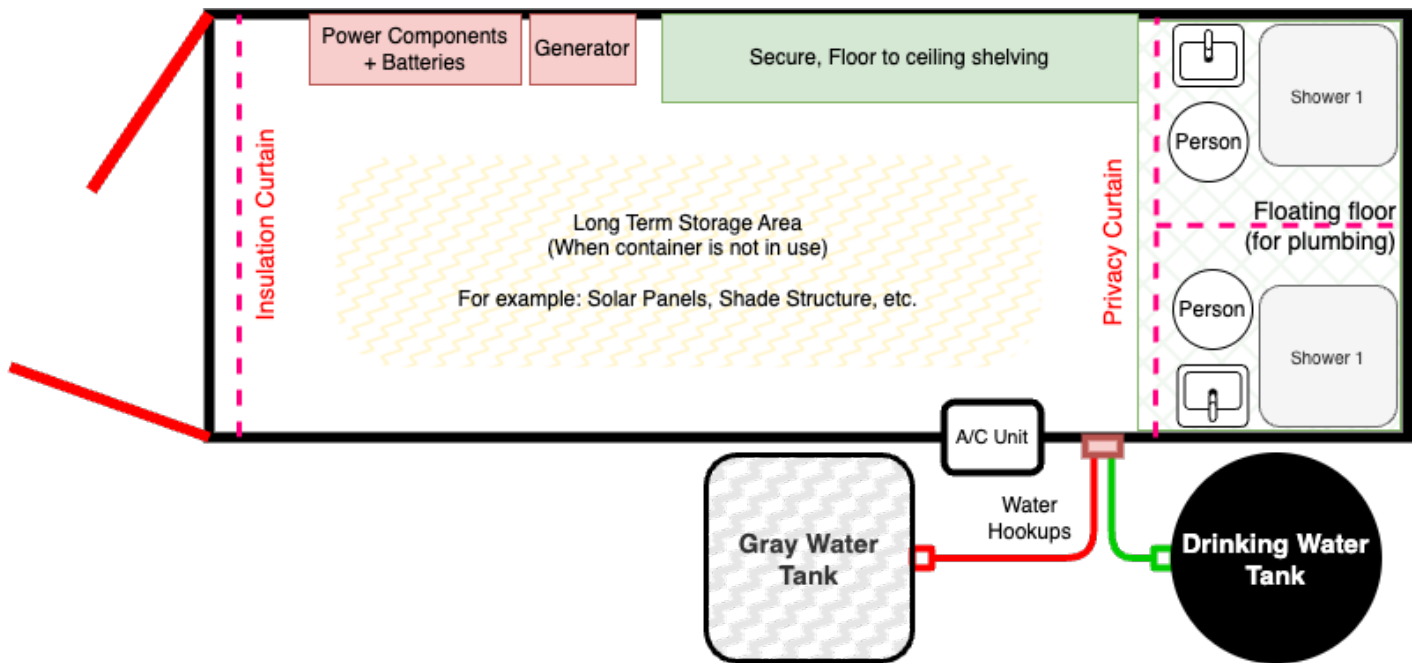
This means we would need to refill our 500 gallon tank on the 4th day of the event.

Proposed layout

Once deployed, this layout offers:

- Hookups to the water tanks (potable water tank & gray water tank)
- 2 showers & a sink
- A privacy curtain for the people showering
- Secured Shelving for propane, gasoline & tools
- Secured Shelving for generators
- The power distribution board / breakers
- The main generator ready to go for emergencies (with exhaust vent)
- An A/C unit + An insulating curtain to maintain the inside temperature

Before / After being deployed, this will also house the solar panels, as well as some camp furniture.



Kitchen Container

General features

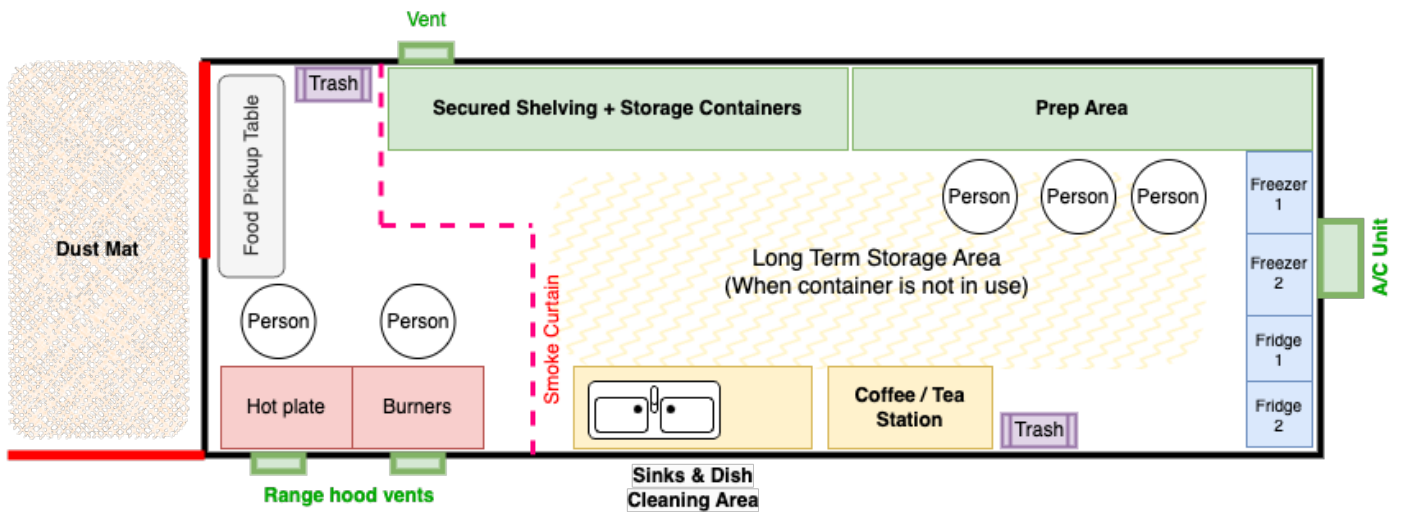
Functionality

- **Storage for Perishables**
 - 2 x Full size fridges
 - 2 x Top loading freezers
- **Tables / Shelves / Storage units**
 - For pantry / dry goods
 - For pots, dishes & other kitchen utensils
 - Work areas for food prep & benches
- **Appliances**
 - Sink + Faucet + Under sink tank + Pump
 - Stove top (hooks up to gas canister)
 - Hot plate (hooks up to gas canister)
 - Coffee machine
 - Ice maker
- **Water / Gatorade Area**
 - One large water dispenser with clean water
 - One large water dispenser with gatorade
- **Trash bins (one bin per type of trash)**
 1. Recyclable paper
 2. Non-recyclable paper / mixed materials
 3. Aluminum Cans
 4. Steel Cans
 5. Battery recycling bucket
 6. Cardboard recycling
 7. Compostable organics

Infrastructure

- Power sockets in strategic areas
- A ton of very bright lighting & ventilation
- Ventilated hood above stove top / hot plate
- Air Conditioning Unit(s)
- Airlock curtain (keep the cold air in / keep the dust out)
- Dust mat at the entrance

Proposed layout



Alternative Layout

