

Johnson Space Center's Free Range Bicycle Program.

Fall 2015 Intern Report

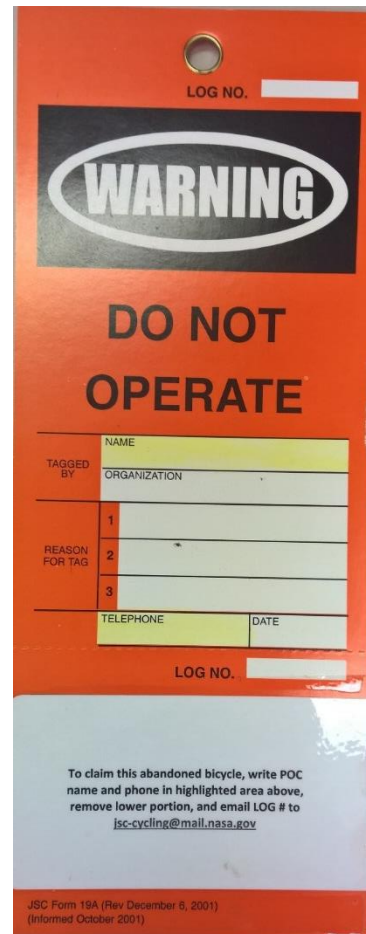


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NASA’s Johnson Space Center is a big place, encompassing 1,620 acres and more than a hundred buildings. Furthermore, there are reportedly 15 thousand employees, all of which have somewhere to be. To facilitate the movement of all these people JSC has historically relied on human power. Pedaling their way towards deep space, bicycles have been the go to method. Currently there are about 200 Free Range Bicycles at JSC. Free Range Bicycles belong to nobody, except NASA, and are available for anybody to use. They are not to be locked or hidden (although frequently are) and the intention is that there will always be a bike to hop on to get where you’re going (although it may not be the bike you rode in on). Although not without its own shortcomings, the Free Range Bicycle Program has continued to provide low cost, simple transportation for NASA’s JSC.

In addition to the approximately 200 Free Range Bicycles, various larger divisions (like engineering) will often buy a few dozen bikes for their team members to use or individuals will bring their own personal bike to either commute or use on site. When these bicycles fall into disrepair or are abandoned (from retirees etc) they become a problem at JSC. They are an eye sore, create a safety hazard and make it harder to find a working bike in a time of need. The Free Range Program hopes to address this first problem by “tagging out” abandoned or out of service bicycles. A bright orange “DO NOT OPERATE” tag is placed on the bike and given a serial number for tracking purposes. See picture to the right. If the bike has an active owner with intentions to repair the bike the bottom of the tag has instructions for how to claim the abandoned bicycle. After being tagged the owner of the bicycle has 30 days to claim the bicycle and either haul it off site or get it repaired (and labeled) in accordance with Johnson’s Bicycle Policy. If the abandoned bicycle is not claimed within 30 days it becomes the property of the Government. The bicycle is then (in short) repaired, labeled, documented and converted to a free range bicycle. Bikes beyond repair are cannibalized of useable parts and then scrapped.



That was nearly the first thing I did when arriving at work. After getting settled in and coordinating the purchase of 50 new bicycles (elaboration below); I started combing the Center. Bikes are hidden and tucked away in the oddest of places and it was my priority to root all of them out. I tagged 70 bikes on the center, setting a record. I tagged so many bikes I ran out tags and had to make more. Long ago it was discovered that the same harsh elements that wreak havoc on the bikes, destroy the tags before the 30 day timeframe. The tags are labeled with instructions on how to claim the bike and numbered, then these paper labels are laminated with packing tape. It sounds like a simple process but nothing fits right, everything has to be trimmed, put on straight and is generally a pain in the neck. So I made an assembly process and knocked out a few hundred to save having to do it again for a while. I walked the center and tagged bikes at every building hiding in nearly every nook and cranny.

While waiting for the 30 days to expire I set my sights toward improving the bike shop. The shop started out as a nearly empty room with a dirty floor and an old office desk. In terms of tools I had a great set of emergency tools. However they are light duty and for emergency use, little more than glorified Swiss army knives. While it is still certainly lacking, I turned it that empty room into a fully functioning bicycle repair shop. Although I believe NASA ought to have the best bicycle shop in the country, it is stocked with a near complete array of top of the line tools and two work stations. Acquiring these tools was a lesson in bureaucracy and especially procurement. However I got more expedient in the process, the continued procurement of the shop's needs gave me numerous opportunities to practice.



One source I used to its fullest advantage was Redistribution and Utilization (R&U). The staff there is great and it is a second hand treasure trove. Although a lot is thrown away very little becomes trash at NASA. Aside from an excellent recycling program a superb system is in place for dealing with excess. When something is thrown out it first goes through R & U and an attempt is made to reuse it. If it has no other purpose it is sold, if it can't be sold it is scraped or recycled. Literal truck-loads of stuff comes through R and U and if you're willing to take an older model (or don't mind a ding or a scratch) you can find just about anything in R & U. For example if a department buys ten sets of new socket sets and tosses out their old kits, 10 socket sets will turn up in R and U. If you're willing to go through 10 identical but incomplete socket sets, with dozens of sockets you can mix and match a complete set. Suddenly you've acquired a socket set (a nice NASA grade socket set) that you never had the budget to buy, for free. This is exactly what I did, stocking the workshop with 2 work benches, an air compressor, small parts bins, a myriad of high end hand tools and a really nice tool chest.



We also began several initiatives early on in my term. Aside from repairing 2 bicycles my first day and stripping 7 more for various parts I also was asked to check over the work of my predecessor and make a decision on which of 3 bicycles to purchase, writing a report documenting the reasons of my decision. I cleaned my hands as best I could and stayed late, knocking out that report on day one. Thanks to the diligent work of the former intern and my current colleague Syretta Watkins, the decision was simple. 3 vendors had offered a suggestion on which bicycle we should purchase to round out the Free Range Fleet. I knew a thing or two about bikes and I was to look at their report and make suggestions and come to a conclusion. I only had 3 options, and I simply had to pick the best one.

One option was an easy immediate rejection. It was an “industrial bicycle” which is just made of cheaper thick wall steel resulting in a heavy bulky bicycle. The chief difference between an industrial bicycle and a beach cruiser is angular geometry instead of curved tubes, which result in the same rider position. Often they even are needlessly further beefed up with the addition of a second top tube, a way of selling a customer more steel and giving an impression of heavy duty. The second option was a close contender with nothing particularly persuasive or dissuasive. The third option I initially and hastily discarded on face value. We were being up sold “Carbon Fiber Fenders” at a premium price when they were in fact poly-carbonate. It doesn’t take a materials scientist to know the difference between space age carbon fiber and tried and trusted plastic. There was nothing wrong with the polycarbonate fenders, they were just not worth the price we were paying. A simple oversight (and easy upsell for the vendor) would have resulted in us paying a needless \$25 extra per bicycle. Also, this vendor continued to prove difficult to work with, something I will touch on later.

None the less, option number three ended up being the best option, all things considered. When I asked about a few of the details of the bicycles (including the plastic fenders); the vendor came down in price for us, making it the best value. The bicycles also offered a contemporary “foot forward” geometry to the frame design, something in essential but really nice to have. This geometry increases the wheel base and length of the frame. It puts the rider further over the rear wheel and increasingly behind the pedals. The rider doesn’t pedal straight down, so some efficiency is lost; however full pedal stroke can be obtained, yet allowing the rider to put their feet flat on the ground while seated. It is generally more comfortable, as you don’t have to straddle a bar at rest and the relaxed riding position makes for a leisurely yet safe riding experience.

Both option 2 and 3 were corrosion resistant but the third option was made of powder coated aluminum eliminating frame rust from the maintenance equation. Furthermore the spokes were stainless steel with brass nipples, to prevent galvanic corrosion between the steel spokes and aluminum wheels. All around fantastic bike and they could ship us 50 of them with fenders, bells and baskets; within our price point and end of year spending time frame. A considered opinion in hand, I stayed late and finished my report, handing it to my boss on the morning of day 2.

My mentor was impressed with my quick and diligent work, we ordered the bikes and suddenly 50 bicycles were sitting in the warehouse. I inspected all of them, test rode most of them, found some faults and addressed them. After installing 50 fenders the vendor’s bike tech got a little sloppy with the fender installation, also a few tires had to be properly inflated. However, nothing too bad, and I had it before lunch.



The biggest hurdle was a missing fender arm bolt. A spindly little wire comes up from the frame near the axle of the bike, this wire attaches to the fender. There is, typically, a bolt holding these two pieces together. It's an odd pan head carriage bolt with a hole drilled into it a few millimeters down followed by threads. The wire frame stabs through the hole in the bolt, the carriage head provides torsional resistance on the bracket in the fender. A nylon nut is threaded onto this fancy bolt providing axial load to the wire frame and the bracket of the fender. This one bolt held half of the back fender on the bike.

Anyway, in the process of installing 100 fenders the vendors bicycle tech dropped one of these fancy bolts, said screw it (pun-intended), and moved on. There in allowing the rear fender on one of our new free range bicycles to wobble, rattle and rub. I knew the vendor wouldn't even get back to me for days, and it's not like he had an extra bolt laying around or he would have fixed it in the first place. This bike could be sitting for weeks waiting for that fender bolt but I couldn't send it out like that. I needed to fix this, but I didn't have a replacement fancy bolt. However, I knew a brake cable tensioning bolt looked awfully similar. Upon inspection I discovered that it would indeed work however the hole for the wire frame needed to be about 4-5 millimeters (I didn't have a caliper at the time). None the less, if you harken back to your Boy Scout days you'll certainly recall that brake cable is 1.5-1.6 millimeters. That's no sweat, I reckoned I could waller out 2.5-3 mm, just wrench it down in a vise and drill it out with a wee little bit. Except I didn't have a bit, let alone a drill and a vise. So I asked the guys in the packing and shipping workshop, they had a drill and a vise but no bit that small. So I chucked up a needle file I had acquired from R & U in a big yellow dewalt drill and started chewing through it. Slowly and carefully I began eating through the material, flipped it and repeated the process from the other side.

Things were going great until I got a little greedy and snapped the brittle file in half. I had pushed it just a hair too far and broke it. I knocked free the broken file, and pulled out another needle file, storing the good half of the file back in the kit (most of which were missing when I got the set from R & U). This time around I resorted to elbow grease and hand precision. Already about 20 minutes into this boondoggle I began meticulously but quickly hand filing the hole bigger. Ten sweaty minutes later the wire frame slipped snugly into the brake cable bolt and I tightened her up and called it good. After that I peeled off and carefully applied 100 fiddly "Free Range 555" and 50 "Property of NASA" stickers (colloquially referred to as "silver bullets"); then all 50 bikes were ready to be distributed. Well, as soon as I had a plan for it. Where in the world where we going to put all them?

That decision to would fall to me. I formulated a plan, got approval from my mentors and submitted the work order to have them distributed. At the end of the day I went to check on them and by the second day nearly every bike had moved, many had come from other buildings. I considered that a success and we submitted a JSC Today announcement. We have heard nothing but praise from everyone about the bicycles and it is generally thought from myself and management that we made a good decision.

I also helped revise the official JSC Bicycle policy. Working with my mentor the update and improve the previous version. I was certain to add points like "cyclists must yield to pedestrians," and "cyclist must obey traffic signs (including stop signs)." The policy was printed up in pamphlets and included instructions on how to properly label a bicycle; either organization owned, personal or a Free Range bicycle. This policy was printed up on hundreds of pamphlets that I hand out frequently. It contains a concise policy of most matters related to bicycles and is a great resource to cyclists at the center.

To further bolster publicity for the free range program I was given the green light in a novel business card campaign. I got the idea from a small old school bicycle shop in New Mexico. Instead of business cards he would hand out patch kits with his business card cut up inside. Punctures are an all too common occurrence to cyclists, so a free patch kit is always a welcome gift. He had his business card in the saddle bags of nearly every cyclist he encountered, myself included. It worked well for him, he told me. When there was a big problem the home gamer couldn't fix with his own tool kit and gumption, the phone number for that little old bike shop would be in their hopeless hands.

With my mentors approval I front lined the entire project. I procured the patch kits (that regularly cost \$3 a piece) for just a dollar each. All while using a new vendor, the owner of a small bicycle shop and a former mentor who first taught me about bike repair. Then I redesigned our business cards and coordinated their printing. Following that I folded up 500 business cards into precise thirds, stuffed them in the patch kits and carefully attached a "quick links" sticker to the back. The sticker directs folks to our JSC bicycle forum, the JSC cycling email inbox and the URL to our new cycling homepage.

On the homepage, which I continue to help revamp, a user could be directed to a form for reporting an out of service Free Range Bike and find helpful information for cycling at JSC. Furthermore, the business card, tucked inside the patch kit has a QR code to direct users to our homepage. I'm happy to report the initiative a success, people are elated to receive them. I've handed out dozens while on site at the center, passing them out like business cards every time I have an encounter with someone. We even handed out cases of them at safety day.

At safety day a Logistics support contractor (and cycling enthusiast) and I had a booth in the center green space of the mall, right in front of Building 1. We brought down all the tools, the bike repair stands, a few bikes (including one of the newly purchased Free Range Bike and a demo bike from Rugged Cycles.) I demonstrated repair and conversion of a Free Range Bicycle, talked with people about the project and handed out the revised bicycle policy pamphlets. Despite the weather constantly drizzling down on us we had a great turn out, especially thanks to the staff of JB7 that came out to help spread the cycling gospel.

In response to what I believe is an increase of public awareness, and an easy way to reach us, emails and reports of out of service bicycles began increasing. I took the incentive of circumventing the long process of submitting a work order for pick up and waiting for the movers to get around to it; I checked out a government cargo van and picked the bikes up myself. Instead of putting in a work order to locksmith, waiting for them to complete it, then submitting a work order for the movers to pick it up and waiting for them; I just grabbed a van and then brought the bike to the locksmith myself. Then I fixed the bent fender and basket, aired up the tires and returned the bicycle. A routine I made habitual.



I began this direct, JSC 2.0 approach, in response to the first wave of tagged out bicycles reaching their 30 day mark. It was time for the first wave of bicycle pick-ups and suddenly 30 abandoned bicycles needed to be moved from the center and sent on the process of becoming a Free Range Bicycle. This was a learning process for me, one made easier by my exceptional mentorship and a handy desk guide Syreeta made. I compiled a spreadsheet of the unlocked abandoned bicycles and sent a date specified work order out to get them picked up. Then sent out a second spreadsheet with the locked bicycles to the locksmith, with a work order to have the locks cut. When they completed that work order, I would send that spreadsheet back to Delores Marshall to have a work order made for those bikes picked up. Next I would check the bicycles in as they arrived in the warehouse, update the spreadsheet to reflect the bicycles coming in and then stack the bicycles in as neatly a fashion as possible. Later, in an attempt to speed up the process, my supervisor purchased me a set of bolt cutters, I checked out a government cargo van and picked up the last 30 bicycles myself in a single flex Friday. This saved weeks of time and was easier since I knew the bicycles from tagging them before and roughly remembered their locations. Not only that, tens of man hours were saved in other departments.

In a further attempt to expedite the process of abandoned bicycles being converted to free range, and with a suitable workshop, I began to work on repairing or cannibalizing the bicycles myself. However lacking consumables (like chains, tires, tubes, lubricants, degreasers and other replaceable parts); the process was slow going. These were abandoned bicycles and in a derelict condition. Every nut and bolt was rusted shut, requiring great force to remove and very prone to stripping. This was the problem at first: I had no replacements for stripped nuts yet every nut really wanted to strip. So I had to perform the very delicate operation of applying just enough force to break free a seized bolt without stripping it. Enough torque to spin the bolt without rounding it and slamming your knuckles against a bicycle frame. Often times this procedure failed and the corroded bicycle became a parts bike. These, frequently with a vengeance, are stripped down and scavenged of any useable components.

At first I was just grabbing only decent wheels and tires, or seats that weren't yet ripped; things I could take off with just one wrench. Now I'm saving every nut and bolt I can and organizing them in their respected small parts bins. Nearly any replacement part is on hand, readily available and ready for use. Stocking the bike shop in this manner has proven to be a lucrative endeavor. Numerous bikes that would be deemed "too far gone" can now be restored because extra handle bars or bearings (etc) are available. At first we were excessing whole "lots of bicycles" and now (with help from my mentors and R & U) we expediently and simply excess dumpster loads of scrap metal. Instead of work orders plus the heavy lifting and transport of individual of bicycles, now an email is sent and a fork lift driver empties the scrap metal bin and returns it. Simple and efficient. Additionally, more is recovered from abandoned bicycles and more is returned. If a bicycle is deemed to be serviceable only as a parts bike, only the frame (or parts broken or heavily corroded) are thrown out as scrap metal. Later when a bicycle comes that has a nice frame but needs a bearing overhaul, a complete (pre cleaned) assembly is ready, simply needing to be greased and dropped in.

On the other hand, often times a really nice frame will come in but everything else is broken or rusted. All of the components can be quickly stripped off and thrown away, and replacements installed. Then with 5 minutes on the bench grinder (wire wheel side), an old rusty pair of handlebars from the pile of spares can be cleaned up to nearly new condition. After a quick once over with a rag, you have what appears to be a brand new bicycle; another bike in the free range fleet, cobbled together out of nothing but excess. Although it may be hard to appreciate without opening up all of the drawers or looking through all the bins; this supply of interchangeable and replaceable parts makes repairs quick and cheap, as well as allows more bicycles to be repaired.

None the less, with all the bicycles I tagged beginning to come in at an exceeding rate, piling up in the warehouse; we had to call in some back up. I coordinated with the vendor to send out a technician, with a truck load of tools and supplies to help knock out a lot of the quick repairs. There were simply too many bicycles for one man without consumables to efficiently repair. For example: when I encountered a flat tire, I would manually pump it up and then do something else for 30 minutes while waiting to see if it would hold air. Quickly it would be apparent it wouldn't hold air (but about 30 percent will, so it is worth checking). So I'd remove the wheel, then the tire, then find the puncture, remove the object from the tire, patch the tube, install the tube, manually pump up the tire, then wait to see if patch will hold. That is a time consuming but economical process. Total repair cost: 30 cents. Total repair time: 1 hour at best (most of which is spent doing other things). The vendor's process is this: he sees a flat, opens a new tube, installs new tube, *installs a new tire*, inflates with an air compressor and writes up a bill for \$65 an hour plus \$22 for the tire and \$9 for the tube. This is very expensive but very quick. However we had a literal pile of bicycles in the warehouse and more on the way, so we chose the quick route.

We sought out lowest bidder price and we got lowest bidder work. The vendor had been out before but either a different mechanic came out this time around or he wasn't ever scrutinized. Four out of the 4 bikes that were quality checked for safety and functionality had to be returned to the technician for further repairs or adjustments. Instead of either the recommended dry wax with Teflon or wet petroleum based chain lubricants (both have pros and cons but are high grade options) this mechanic used a bottle labeled "special NASA blend chain lube" that turned out to be recycled motor oil. "Mostly 10-W30 bulk grade."

We also had issues with his punctuality, work ethic, and professionalism. He created hazardous and unrepresentable work conditions as well as leaving the warehouse and workshop in a mess. Then he claimed more hours than he worked, the office was hard to get invoices from and they over billed us. Needless to say we will not be working with them in the future. After I did some negotiating with vendors, we will be getting our consumables at a substantially lower price: \$11 per tube versus \$22, then, (ideally) I will once again simply change it myself.

Regardless, tubes are still kept. I still air up the tire first (but will be using my air compressor) and check to see if it will hold. As earlier mentioned about 30% of out of service bikes are repaired simply by airing up the tires and wiping the bike down with a rag. If it doesn't hold air, usually the leak is taking place at the valve stem (the bit where you plug in an air hose to inflate it). Here 2 pieces of rubber are joined (that eventually wears apart) plus is a high stress area. It gets bent and pulled on by a user hasty with an inflator. If this is the case, the tube is thrown out.

Similarly, pinch flats are a common problem. When a tire gets low on air, not even flat, just low on air; it is a flat waiting to happen. What occurs is the bike is taken over a bump or a drop, low on pressure the tire over compresses. The tube is pinched between the metal rim, the tire, and the ground; without any air as a buffer. What results is a little tear called a snake bite or a pinch flat. Resulting in not only a time consuming tube change, but often a tube that doesn't easily take a patch. By simply maintaining a proper minimum air pressure, I reckon fully a third of the out of service bicycles could be prevented. A problem we are attempting to correct and I will discuss below.

None the less, of the flats I see a final 20 percent or so will have a simple minor puncture. Thorns, glass and other sharp objects are uncommon at Johnson. Here, a flat frequently occurs when the rim tape has rotten away or broken. Rim tape is a piece of rubber or cloth on the rim of the wheel to prevent the protruding end of a spoke from making contact with a pressurized inner tube and causing a puncture. These simple punctures are a cheap fix however; simply by applying some duct tape to the rim and applying a 20 cent patch, both the tire and tube can be reused. This only requires about 20 minutes and allowing the bicycle to sit in quarantine for a day or so to insure the patch held. The gains are substantial when, once again, compared to the cost of a \$22 tire and a \$9 tube (plus labor).

When consumables are on hand, I often will check the tire for an object that will cause a puncture and replace the inner tube with a new one. The old tube, if there isn't a pinch flat or a valve stem rip, is saved. The intention is to not only use them later but also offer a hands on seminar/workshop on tire patching at one of our open shop days. The open shop day, of which we've had a successful pilot, is a morning or afternoon where the shop is open for all JSC team members to use. On those days tools and work stations are available to use and I also offer my expertise and demonstrate how to perform bicycle maintenance and repair. While as of yet, we can't offer or sell any government owned parts or materials for personal or organization owned bicycles; most bicycles just require minor adjustments and tuning to be serviceable again.



Demonstrating brake adjustments during an Open Shop Day.

Furthermore, just outside of gate four there is an excellent little bicycle shop called The Bike Barn. They host the Space City Cycling Club, a 300 member strong group of cyclists that have been a tight knit community since 1979. They have always offered superb service to NASA, its employees and the Free Range Bicycle Program. If someone comes in with a bicycle needing a part, The Bike Barn is close and very happy to provide and will give you a square deal. However, as mentioned before, usually bikes can be fixed; only the tools, know-how and a little elbow grease are needed. Expensive visits to a bike shop can be avoided with a visit to an open shop. A conversation I had with Amanda sums it up best:

"Why did they tell me I should just buy a new bicycle?"

"Probably because they are in the retail business..."

"WELL! I'm in the single parent business."

So, not only because I owe her (and everyone else in building 419) several favors, on my lunch break I fixed her kid's bicycles. Two bicycles that really only required a little oil and some wrench turning. Definitely not totaled. This act sort of embodied what I did with my first term at NASA. Simply put,

I did everything I could to get folks on bicycles and keep folks on bicycles. That had me working on all facets, including turning the wrenches on (at the time of writing this) 35 bicycles and by the end of my term that number will be approaching 50. This has been my flock and I have tended them.

I have been a steward to this fleet not just by turning the bolts and oiling the chains. I also found homes for the bicycles as they were repaired. As bikes are repaired they are labeled, documented, tracked and accounted for then work orders were sent to have them picked up and distributed. Frustrated with the slow process, on the second round (and with blessing from my mentors) I checked out a cargo van and distributed them myself. I took my laptop into the field with me and updated the spreadsheets in real time. The bikes were quickly distributed at a considerable savings of time and effort, and they were all instantly accounted for in the database. Checking on them just the following day I noticed that they had mostly all moved, once again confirming a success. Two bicycles were right where they were left, both with a flat tire, a result of the poor workmanship of the vendor who repaired them.

Another way I found homes for new bikes was to order new racks for the parking lots. We had a common problem of people riding bikes to their cars in the parking lots and just leaving a bicycle leaning between cars. The bikes would fall over or be forgotten about for often months at a time. The solution was to put bike racks in the majority of parking lots. Moveable, free standing racks, so we could evaluate their effectiveness and tweak their locations. Formulating a plan for placing them was simple, just put racks where people were leaving bicycles. Ordering them proved a challenge however, but also a lesson in how bureaucracy works. I needed to get 3 competing quotes from vendors to compare, obviously seeking the best value for this purchase. I got this done and ready to go, only lacking approval. Then, in the final hour, it was brought to my attention that all bike racks have to be certifiably made from a certain percentage of recycled steel, to comply with green initiatives. Although most steel is recycled these days, the best deal I negotiated from the vendors couldn't be certified as recycled steel; so I was essentially back to square 1. With superb help from Jeni Morrison, I was able to find 3 more quotes for bicycle racks that are bonafide recycled steel. All of which were significantly higher than the great price I had negotiated. Thus I was allowed to get a waiver for them and get the original bicycle racks ordered, but getting that form filled out and approved was another hoop to jump through (one I did with a flourish).

The bike racks were ordered, the price came back over what we had negotiated on the phone, so that took some reworking. A few phone calls straightened that out, saving us \$400. Eventually the order was placed, the racks were delivered and paid for. All that was left was to number, label and track them. Then I accompanied the movers to point out their exact placement. I have since gone back and moved them several times (tweaking the locations), I am happy to report they are all being used. Bikes come and go and less are being left stranded in parking lots. Additionally, bike racks from older out of service buildings are being repurposed throughout the center to save funds and keep the site tidy. Also, resulting from my rapport with the Facility Managers; when a bicycle rack is no longer used, I get called to remove it. Usually I have taken my JSC 2.0 approach with by simply checking out a van and moving it myself.

It was just easier and quicker to skip the work orders and waiting and just do it myself. However, I once caught myself in a bind when I, gung ho about doing a good job, I spontaneously promised the facility manager of building 110 a bicycle rack by the end of the day. I had forgotten it was raining cats and dogs and I didn't have a bike rack on hand to give him, plus it was nearly 2 in the afternoon (most people are starting to head home at 4). I remembered where we had a free standing rack that was not in use, one from a disused building. So I grabbed a poncho and a van and moved it, in the rain. I was so soaked I had to go home to change, but I got a gold star that day.

Building 110, the NASA Security entrance, continues to be a challenge to the Free Range Bicycle program and this rack surely has helped. Employees will ride a bicycle to the gates at the end of the day, usually to meet a ride home. Often times the bicycle is left there the next day. There were always a heap of bikes strewn about at building 110, an eyesore right on the front gate. You couldn't miss it as you exited and neither could everybody leaving on a tour tram. The racks have helped, I often have to pick bikes up and put them in the rack, but overall the building looks significantly improved. None-the-less, an ongoing chore is loading up a van load (or 2) of bicycles from building 110 and re-dispersing them throughout the center.

Beyond bike racks I attempted to address other problems at JSC by completing an initiative started before my arrival. As previously expressed the majority of out of service bicycles can be prevented by simply maintaining a proper air pressure in the tires. The problem was that air isn't readily available across the campus. There are 2 locations where compressed air, regulated to about 40 PSI, is plumbed in and available for use. Similarly in the satellite complex of buildings (400's) there is unregulated compressed air at the motor pool (however this is pretty far out to walk a bike with a flat bike tire). Also, several bike pumps are throughout the center next to bike racks. Unfortunately these are all old and their condition ranges from poor to junk. A few facility managers or avid cyclists keep a bike pump in their office, but this is largely unknown. The solution is to put a bicycle pump inside every entry way, next to the bags for wet umbrellas, so a pump is always available.

Ideas were thrown around for hanging the pumps, installing them in a bracket or even a suction cup on the windows. Ultimately, the simplest solution proved most effective, we hung a sign and set the pumps on the ground underneath it. I have already seen them being used at 2 locations on the campus, and at the time of this writing, they have only been in the field for a week (and I don't spend much time at the heart of the Center). First all the pumps were numbered, labeled and documented in a tracking spreadsheet. Next a plan was formulated and a map made. Then the facility managers of the prospective buildings were contacted. Many immediately approved but many simply ignored the email. We found out that, once again, the direct approach proved most effective. With about a dozen pumps left to give out, Syreeta and I simply walked into buildings, found the facility manager, stuck out our hand, introduced ourselves and asked where they wanted the pump at. A few said no, a few were particular about the placement, a few even wanted the sign to be edited to be more politically correct. To change: "Please leave it in good shape for the next guy." to: "Please leave it in good shape for the next person." None-the-less, all the pumps were distributed and hopefully the number of flats will decrease.



Thus, in conclusion, I've done many things here at JSC on my first term and had a blast doing it. I've learned a lot from my multi-faceted roles and continual challenges. In short I've done my best to get folks at JSC on bikes and keep folks at JSC on bikes and tended a flock of free range bicycles. Everything from turning the rusty bolts and oiling chains to coordinating a \$20,000 deal on 50 new free range bicycles. I am proud of the bicycle shop I have built and am infinitely grateful to the people who lead, help, guide and support me. I have fixed a great number of bicycles and cleaned the center of unsightly and unsafe piles of bicycles. I am immensely thankful for this opportunity to learn and serve and appreciate the privilege of coming back for a second term. A second term, in which I will continue to develop this awesome program.

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