

Guardians of Greenspaces Episode 1: Staff Engagement – Transcript

Rukmini

Could you all introduce yourselves briefly for our listeners?

Peter Pierson

So my name is Peter Pierson. I'm the Natural Resource Management Specialist in our Watershed and Parks Operations Department here at the San Antonio River Authority.

Tommy Mitchell

My name is Tommy Mitchell. I'm the Watershed and Park Operations manager here for the San Antonio River Authority.

Brian Laechelin

Hello, Brian Laechelin with the San Antonio River Authority. I'm the Low Impact Development Foreman.

Rukmini

Thank you. All right, so we're here to talk about water conservation, the tools of water conservation, and specifically how you all are bringing your staff along in your water conservation efforts. I would love to start at the beginning and get some background on what water conservation looks like for the San Antonio River Authority. And then can you fill in what the importance of that staff engagement is?

Peter Pierson

Okay, so our water conservation efforts are a direct impact of our low impact development green infrastructure programs. So these are sustainable approaches to stormwater management that mimic natural processes. And what all that means is we attempt to restore the hydrology of developed properties to their pre-development state.

We do this through a number of different strategies. We attempt to capture runoff from impermeable surfaces and allow them to either infiltrate on site or to be stored and used on site as a supplemental water supply for other purposes that we might otherwise rely on our existing potable water system for, such as landscape irrigation or household purposes such as running toilets and doing laundry. And if appropriately filtered and treated, they can actually be brought up to potable or drinking water standards. These infiltration features, we use different types of strategies. Again, they may be rain gardens, bio-retention features, or even permeable pavement.

These features, as they infiltrate the water, help to increase groundwater recharge and increases the stored water capacity or the water table volume in the immediate area, which improves the resilience of the landscape. So if we have more water stored in, we're less reliant on irrigation. The landscape is more in a typical type of situation that it would normally exist in.

It helps to mitigate the urban heat island effect because these are usually kind of a cooling effect that is occurring with all the water and the plant material in these areas. And by reducing that heat island effect, it helps to save on energy use and potentially reduces the contributing factors to air pollution. Now with the rainwater harvesting systems for alternative use, that requires some type of a cistern either above or below ground, which we can capture and hold runoff for future use. Capturing the runoff locally on properties also helps to reduce the stormwater volume that occurs during rain events, which may contribute to flooding in the local area and which reduces the capacity required for our traditional stormwater systems then and it may translate into savings from reduced construction and upkeep of these traditional systems.

Rukmini

Thank you for that really comprehensive look at the different techniques and tools you're using for water conservation and the impact, mean the massive impact that that has on your community, your neighborhood and the environment. I would love if one of you could give me some context on like, why do staff and maintenance staff specifically play such a key and pivotal role in being able to accomplish your goals around water conservation?

Tommy Mitchell

It's extremely important to ensure that your maintenance team or who's going to be managing these features are in the upfront, if you will, as far as the design of these features. It's really important for those that are designing the features to really understand, that maintenance team, their capabilities, their knowledge base, and also the equipment that they utilize on a day-to-day basis. We've seen many times where there's been some, very elaborate or very good features developed and identified and implemented to see those throughout the years start to decline. And it wasn't because of the design not being functional. It was more so the staff weren't fully engaged. weren't fully aware of those expectations and goals.

And maybe it just was not in alignment of their normal practices and procedures. So it's just extremely critical to ensure that even when we're starting the very initial design component of one of these features that we bring in the folks that are going to be managing and maintaining these features and just see how they mate with their normal operation maintenance procedures. If you do that, you can quickly identify maybe some of those things that are outside of those normal operation and maintenance, that's being performed and be able to really hone in on that. And, you know, that could be some first opportunities of training, making sure that they're understanding of the goals, how to manage those, and also with the equipment that they currently utilize, that may be being able to identify different tools and techniques just to overall benefit and support the long-term success of the feature.

We've seen, like I said, we've seen some of these features before and very appropriately designed and implemented, but without the staff engagement and really having their buying and their understanding of those goals really has impacted the long-term success of those features. So just really being able to understand what the current capabilities are, knowing what that training curve may be. So those can be properly implemented, but then also just what are their day-to-day operations and is there a way to have a win-win to where it's compatible with the existing staff and how they manage and maintain the tools that they have. If we're able to be compatible with that while also providing that function that's intended for that feature, it's more of a win-win.

Peter Pierson

Yeah, I might add that so low impact development in green infrastructure and the grand scheme of things is fairly recent development in technology. In fact, these features are still developing in the different types of features and how they function for us. But as in many of

the manuals, they will specify that the maintenance required for a lot of these features is the same as traditional landscapes. Well, traditional landscapes, particularly commercial landscapes, are designed for aesthetics primarily. And they tend to be kind of static features because of that. They want a specific look and they want it year in and year out. The crews that maintain those do a wonderful job, but that's what they're geared towards is that aesthetic look, whereas these types of low impact development and green infrastructure features, they have a lot of different components to them that you're not going to see in a traditional landscape. They have different types of inlets that allow the water to flow into these features so they can capture it. They have overflows and outlets that have to be correctly designed and maintained so that we don't create some sort of an erosion point on these features.

The plants actually serve very specific functions in these features. For one, they help to stabilize these features to prevent some of that erosion that might occur otherwise. They're also there to create sustainability in these features as the plant and soil communities contribute to breaking down the captured pollutant load. So as this runoff runs across the surface, of yards and impermeable surfaces, it's picking up all kinds of different pollutant loads from pesticides and fertilizers to just about anything you can think of and it's delivering that to these features. So in order to make these features sustainable, that has to be used up at some point. It's like it's filling up the filter in there and we've got to keep that filter clean.

That's accomplished through the plants in the soil communities. They help to break down this captured pollutant load, which breaks down into nutrients that are used by plants to satisfy part of their requirements for healthy growth. So having the appropriate plants to help improve the sustainability of the infiltration rate of these features also is part of how these work.

Now cisterns, they have very unique systems to them, and they're not complicated necessarily, but they do need to be monitored and maintained on a continuing basis to function as desired and intended. There's a lot of different components to these features that aren't often recognized that need to be monitored and maintained to make sure that all these continue to operate as they should.

Brian Laechelin

From a maintenance standpoint, I think the biggest challenge is education. know, whenever I came into this, I came into it with a background in horticulture and equipment

operating, but I didn't quite understand, you know, what a low impact development system was. And come to find out I have them, you know, in the backfield of my house. I got a low lying area that I was going to fill in with the tractor because it's just a nuisance to drive through, understanding what it is, know, whenever it collects water, it slowly infiltrates it. Then coming here as a maintenance thing, you got to, you got to go out there and see what you're working with. You need to get the site plans first and go over this with your manager-- understand how it functions, go over what the inlet is, what the overflows are, what kind of plants are supposed to be there, then come up with a maintenance schedule and then continue to develop that maintenance schedule because it's going to change as you work with it.

Tommy Mitchell

We've seen other partnering agencies with some of these features that just long-term wasn't successful. And again, going back to our original, some of the original comments and discussion that we've had, it wasn't necessarily because of the design, wasn't applicable for the location, anything like that. The design was appropriate. The intentions were there. It's just that the staff weren't brought in in the forefront or even really in the afterwards, if you will, after the design was in place and the construction was completed, there wasn't enough time and spent with the team that was gonna actually manage these long-term to get that understanding. So we've been part of these programs before and it really is, it's extremely crucial.

If you're able to bring the maintenance staff in as soon as you possibly can, even in the design component of it, obviously during construction of it, it's extremely important as well if they're able to participate in that, because they could actually see these features installed. They can see if there's an under drain, if there's a lining in there, things like that. They can start to recognize that and understand that through that construction process as well. So it's important to bring them in at any phase of the project. So if you're not able to bring them in on the initial upfront of the design of the project, it's still not too late.

You can bring them in during the construction of the project, have them witness that installation, be able to understand that installation and how they all function together.

Lastly, if for some reason the maintenance staff or the team that's going to be managing these features, if they're not able to be brought in during those two opportunities of the design and actual construction of the feature, being able to bring them in prior to the turnover of operation maintenance. Normally a lot of these projects, unless they're done internally, a lot of these projects will have some period as far as establishment phase to where that contractor, that vendor is required to maintain that feature until establishment.

And then that turnover would occur. It's really crucial then if nothing else to bring your maintenance staff in during that time and allow them to interact with whoever is currently managing that, whether that's that contractor or the contractor has subcontracted that out, it's crucial to start bringing that maintenance staff in for sure at that time if you possibly can. So they start to understand the feature a little bit better. There's multiple different training opportunities.

There's a national certification program called National Green Infrastructure Certification Program that all of our team here is certified through that really gives you an in-depth look and understanding of the various principles and practices that exist. And it's a lengthy course and there's an exam to follow for that certification, just to identify and show that you've retained that knowledge and experience. really starting to go out there in in-depth and identify as far as those features.

We've developed field manuals when we've come in on the back end of projects and maybe long-term, a year, two, three years out and noticing that there's starting to a decline in that feature. And we've been engaged to come in and maybe assist, get that feature back up to either functionality or aesthetically, because as Peter has mentioned, aesthetics are also brought into this, especially when you're dealing with in urban areas, being able to understand does it mate with its surroundings and things like that. And it's all possible, to be able to do that and to have an aesthetic, a pleasing feature in a downtown urban area and still have that functionality.

Again, it kind of goes back to the design and as far as what those maintenance personnel are able to perform on a day-to-day basis.

But we've come in, we've developed also some field manuals, if you will, that is intended for the maintenance staff to be able to put this manual in their pocket and be able to carry that with them while they're out there on site. And they can flip through, be able to identify the vegetation that was intended to be there, how to manage the best practices to manage that vegetation. It also helps quickly for those maintenance staff to be able to identify those grasses and what shouldn't be there. It's just as critical to understand what should be there on a native vegetation standpoint and maybe what shouldn't be there on a non-native vegetation standpoint and what you would want to remove.

It's just as critical to identify that native species as it is to be able to identify that non-native species. So we've seen historically that if you have some type of field manual that is readily accessible, easy to kind of put in their pocket and carry around with them to where they can use that in the field, look at those species that are intended to be there and be able to start to make those decisions in the field as far as what should be removed.

This has really been beneficial to the staff and to the team and just making sure that you have the overall support. So whoever leads that maintenance team, really getting their buy-in, getting their commitment to being able to manage that feature, full understanding of the feature really helps filter down to those staff members that are out in the field is when they see that manager, that superintendent, that foreman, really having the buy-in, having a good understanding of that.

It filters down to those folks in the field that are actually doing the hands-on work to have that drive, that same commitment to managing that feature. So that's some of the benefits that we have seen. We've actually transitioned some features that's had some relatively, I would call elaborate planting schedules, a lot of good native plants, a lot of hardy native plant material, but it just didn't necessarily fit, if you will, with its current environment, the surrounding environment, the use of some of these park lands and linear trails and things like that. It just didn't necessarily fit.

So we wanted to maintain and manage that function to ensure that that feature is still provided that core function of why it was prescribed there, why it was designed there and installed there. But we may have transitioned the landscape to more be appropriate with the surroundings, with the maintenance schedule, the maintenance abilities of those staff members. And then seeing that actually turn out to be far more successful.

Again, just really being able to kind of look at the area that you're going to install these features in, understand the maintenance capabilities, their knowledge, and being able to try to align those as best you can. And where those don't align, that's fine. If you identify things that just are not able to be aligned, then that's where you would really start to want to focus your training and further deepen that understanding of those items that don't align. So that way you have a commitment long-term to manage these features.

Peter Pierson

Yeah, I agree with everything Tommy just said there. And in fact, over the years, one of the things I've been promoting is to try and bring the maintenance staff that's going to be operating these features together with the designers in the beginning of the project, so that they can work together and have an understanding of what they're getting involved with and what their capabilities are within the maintenance of these features. And we talk a lot about the different types of components of these features.

There are a lot of different types of components that are involved in these features, but they're not highly technical. It's something that people can learn easily and they can, as long as they have an understanding of how it's supposed to function, they can easily maintain these features without too much difficulty.

What tends to be the bigger challenge is the plant material often. It's a little more difficult to educate people on all the different types of plants that the designers might come up with. And sometimes the designers have some challenges with understanding which types of plants will be most appropriate to that particular site and that particular type of function. They may not be completely familiar with these types of systems either, and they might not understand how long the inundation may occur within these features and what that might do to the development of different types of plants.

So if you can bring everybody together in the beginning and work out these issues before it's actually built, you'll have a more successful feature. And then just taking advantage of all the different knowledge sources that are out there, learning more and more about this. This is a growing technology, definitely. There are a lot more people involved. There's a lot more resources out there to rely on to get a better understanding of how these features work and what types of materials are appropriate in these features.

So just taking advantage of all that and going to meetings and understanding what everybody else is involved with and understanding the issues they might come up with also that might help you in the long run with how you maintain your features. There's a lot of opportunities out there for growth in this field. And hopefully everybody will take advantage of that. What do you think, Brian?

Brian Laechelin

Agree 100 % with both you and Tommy. Another part of our job is going out and doing LID inspections. And I mean, we've seen it all. I mean, going out there, you've got to try to figure out exactly what the feature was supposed to be. There was one I went out to and somebody just completely mowed over the overflow. So the overflow was straight at ground level. So the water was just infiltrating and going right into the storm drain. And I think what would help with that is just, you know, big education aspect of what everything is to the maintenance staff. What really helped us out as a team is one of our first projects we went out and started from the ground up. We went out and, you know, measured, got the square footage, figured out how much runoff we wanted to collect.

Went out, did a percolation test, made sure the feature was going to work as designed. Then we went through and we actually dug it out. We installed the plant material. We did the whole project 100 % and that really helped out the whole team on understanding what these features were supposed to do.

Rukmini

Brian, what do you see as the impact of the education with your staff? Like as y'all have been receiving this education, do you feel like there's a difference in like Tommy was saying, like drive or vision? Like those are the things that this education is like trying to build up. Do you see that happening with your staff members?

Brian Laechelin

For sure, 100%. Us getting out there just hands on, then Peter helps a lot with sending us educational videos and different things to watch. We're just continuing to learn as a team and grow. Another big thing is we are all certified with the NGICP and as a team, you know, we all share that same education. So it really helps us.

Tommy Mitchell

I think it's definitely important for the leadership to call out the wins. We at times really are hyper-focused on areas that we need to improve on, we need to work on, we need to focus on. So a lot of times that tends to transition our focus more to the losses or areas that improvement is needed. And I think just as a leader, it's really important to also be able to recognize and focus on the wins that you and your team have had, be able to make sure that those wins and those successes, those stories are carried not only upwards, but throughout the entire team to know that people are aware of those successes.

Again, and being with the organization here for over 30 years, it just really tends to be where do we need to focus our attention? Where do we need to focus our resources? Where are areas that we can improve upon? And that's very, very, very beneficial and a good exercise to use, but it's also just as important to really focus on those wins, on those successes, and what has built those successes.

So if that is through training, through educational opportunities, it is extremely important to recognize those. So you can continue those programs that at times are often looked at as maybe one of the first budget cuts and things like that, as far as outside or additional educational opportunities for your team members is really to be able to focus on these are where the wins were. This is what happened throughout this fiscal year, this annual calendar year. These are some of the wins that occurred and this is why they occurred and this is why it's important for us to continue some of those educational opportunities and programs that we have. So I think that that's extremely important.

Peter Pierson

Yeah. Yeah, I was just going to say this is absolutely a team effort and everybody has a voice in what we're doing out here. And the whole point of the education and the certification is to create a knowledgeable crew that everybody has the opportunity to go out and look at the projects and everybody has the opportunity to see what can be improved upon or how everything is functioning well. And they have the ability to bring that up and we all react to everybody's input on these features.

Tommy Mitchell

I think it's also just important that to be able to put out that anybody can maintain these. It isn't something that requires a significant amount of education or background. Education is extremely important, but anybody that has a desire and understanding of these features, anybody can maintain these. We hire entry level staff at times that come just straight from maybe a high school diploma education that has some interest and landscaping and horticulture as Brian mentioned, and being able to just really involve them in these projects, these processes and things like that. So, you know, it's not something that really requires a significant amount of higher education level. It just really, really is just being able to inform the folks that are going to be managing and maintaining these and getting that commitment and buying.

So definitely with these features, just as Peter had mentioned, this is kind of a new and upcoming kind of world thought process, design element, construction process, things like that. But don't want to deter anybody away to where it's just really, really difficult to manage and maintain these. aren't these anybody can manage and maintain these features. It's just being able to be able to, to increase their awareness, their knowledge. And as they continue to maintain these, we see that their confidence increases, their field judgment is able to increase and then of course, the success will follow.

