TWV Podcast #058
The Envision™ Rating System with ISI VP for Public Education Denise Nelson
Show Notes at http://thewatervalues.com/pod58

Intro: Welcome to The Water Values Podcast. This is the podcast dedicated to water utilities, resources, treatment, reuse, and all things water. Now here’s your host, Dave McGimpsey.

Dave: Hello and welcome to another session of The Water Values Podcast! As my son Joey said, I’m Dave McGimpsey. Thanks for joining me on this special Wednesday release of The Water Values Podcast.

Why Wednesday? Well today is Earth Day of course! What have you done to improve the environment today, whether or not you’re listening on Earth Day because when you think about it, every day should be Earth Day.

Before we jump into today’s podcast, a quick thank you to those of you who’ve completed the online listener survey. It’s still open, so if you haven’t completed it yet, I’d really appreciate you taking a few minutes to let me know what you think about the podcast and what topics I should be covering. It’s online at http://thewatervalues.com. Also, a quick note on format change that you can expect. Beginning in May, we’re going to go to a bi-weekly or twice-a-month release. There are a number of reasons for this, but the realities of getting the work done that pays the bills is chief among them. Starting in May, look for podcasts on the first and third Tuesdays of the month.

Today’s guest is Denise Nelson. Denise is the Vice President for Public Education for the Institute on Sustainable Infrastructure, or ISI. Dangerous initials to be sure – don’t add an extra S on to the end. Denise joins us to discuss ISI’s Envision Rating System, which provides a ratings system for sustainable infrastructure. Envision covers a wide range of infrastructure types, but as Denise explains, a lot of the award-winning projects involve water. And that should come as no surprise to you because as we’ve talked about many times on other episodes of this podcast, water touches the environment and sustainability issues in a lot of different ways, and Denise does a great job explaining how water fits into the Envision Ratings System.

With that said, let’s get on with it. Open the valves, fasten your seatbelts and here we go.

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Dave: Well, Denise, thanks very much for coming on to The Water Values Podcast. Greatly appreciate your time. To start off, Denise, could you tell us a little bit about your background and how you got interested in water?

Denise: Well, hi, Dave, thanks for having me. I’ve been a practicing engineer in the water-wastewater field for over twelve years now. I graduated from civil engineering at Virginia Tech
in Virginia and earned a Master’s Degree in Environmental Engineering at the University of
Cincinnati. I’ve worked in consulting services, again related to water-wastewater and stormwater
engineering for AECOM companies and then most recently Greeley and Hansen.

Dave: Terrific. What are you doing now?

Denise: Currently, I’m the Vice President for Public Education at the Institute for Sustainable
Infrastructure. At the Institute, I manage all of the public messaging and training programs, as
well as general marketing and advertising.

Dave: Ok. So, how long have you been at the Institute for Sustainable Infrastructure?

Denise: Well, I was a volunteer for the Institute for three years now. I was the chair of the
Professional Development Committee, but recently in January, I came on staff as the Vice
President for Public Education, and I’ve been full time ever since.

Dave: Terrific. Now, can you tell us a little bit about what the Institute for Sustainable
Infrastructure is and what its mission is and just a little background on the Institute?

Denise: Sure. The Institute or ISI is a non-profit with a very focused purpose. We administer
the Envision Rating System. ISI was founded by three engineering societies, the American
Society of Civil Engineers, the American Council of Engineering Companies and the American
Public Works Association specifically to create and administer this infrastructure rating system.
ISI also teamed with the Zofnass Program for Sustainable Infrastructure at Harvard University at
the Graduate School of Design in order to create and put Envision out there for our use in the
industry.

Dave: Ok. And so you have the Envision Rating System. Can you tell us a little about what that
is?

Denise: Sure. Envision is a guidance and metric system for promoting sustainable
infrastructure. You could think of it as a sister to some of the other systems that are out there like
the LEED Green Building Program or Green Roads, INVEST by the Federal Highway
Administration. What we provide is free guidance and a free guidance manual and then a system
for evaluating infrastructure projects. We do actually offer professional accreditation and project
verification for awards on a fee basis.

Envision is unique from these other rating systems because we look at the entire life-cycle of the
infrastructure from planning all the way to decommissioning or deconstruction. And we also
look at all different types of infrastructure, so you’re able to discuss the sustainability of a road
project compared to a wastewater treatment project.
Dave: Sure. And just to be clear, you’re talking about prospective or future infrastructure projects. Are you going around grading existing infrastructure to see what needs to be replaced, for example?

Denise: We did look at existing infrastructure to see what the best practices were that have evolved over time. But you’re right. The tool is focused on guiding new and improved planning and design processes so that we can create better infrastructure. Also, the existing infrastructure can be operated and maintained in a better way.

Dave: Ok. So, how do you go about doing this? What’s the actual process for how the Envision Rating System is graded or how does that play out?

Denise: Our authors took a broad look at the industry at all of the best practices that were in place. We took those sustainability philosophies and we adapted them specifically for infrastructure type projects. We came up with a list of sixty credits. Each one of those credits looks at a unique aspect of sustainability. We organized those credits into five categories. So it’s breaking them down and making it easier to explain to people and organize our approach. The categories are: Quality of Life, Leadership, Resource Allocation, Natural World and Climate and Risk.

Dave: Ok. And so that’s five categories, so each one has approximately twelve credits to it?

Denise: That’s right, give or take a few.

So we encourage project teams to look at these sixty credits and just make decisions about their projects. Sometimes they are decisions that they were going to make. It was inherent to the project. If you are doing a stream restoration, you’re automatically going to think about the buffer along the stream, but if you’re doing a road project, maybe you’re not automatically thinking about that buffer around a nearby stream. So we’re trying to help people improve the practices they’re doing but also take some time for additional considerations. So that they can use Envision to help guide their decision-making. And then when a project is near complete of the design phase, they can actually go through these sixty credits and rate the project and get a score.

Dave: Ok. And in terms of how each, say “credit” is weighted, are certain credits given more weight than others or is it all, hit one credit you get one point per se?

Denise: The credits are weighted differently. The categories, the five categories are generally balanced for the weighting but the different categories might have a slightly different number of credits. And we’ve provided all of the details behind that weighting in our guidance manual which is for free online. So it’s a very transparent system. It’s been in use for three years. People
reviewed an initial draft, and they’re constantly giving us feedback on the current version that’s out there for use. So that we’re always making sure that we are addressing the industry best practices, and we’re also being reasonable with our recommendations, so that these things can actually be implemented and given the proper weighting.

I’m glad you asked about weighting because sometimes we have questions, say, “On the roof of a pumping station building, should I make that a reflective surface to minimize heat islands? Or should I put plants up there so that I have a green roof to manage the temperature control in the building? Or should I put solar panels to generate energy? How do I decide other than the cost of these features, how do I decide the impact on the sustainability of the project?” Well, you can go into Envision and look at this rating, and it can help give you another number to compare.

Dave: Oh, wow, that’s very interesting to see how that could play out. I’m glad you went into that kind of detail on that. And you said it’s online and for those listening at home, we will put a link in the Show Notes to the ISI’s website and where you can find all of this information. If you’re running or something like that, don’t worry, we’ll take care of you there. Denise, could you tell us a little about, this podcast is obviously about water, could you tell us a little about how water is incorporated into the Envision Rating System and model?

Denise: Yes. I’ll go through each category and talk about how it addresses water. The first category we call Quality of Life, and this really a planning stage category that looks at how the project interacts with the community and serves the community’s needs for the long term. And so in this category, we look at water as a resource for the community for recreation, for enhancing public space, for promoting the local character and the sights that people want to visit. And it is also available to help with economic development and sustainable growth.

Under the Leadership category, we look at protecting our water as a resource and as a feature in our natural environment. So we encourage putting in place long-term planning for maintenance and monitoring, as well as looking at any regulations or codes that might seem conflicting when you are trying to have sustainable infrastructure interact with water.

Under the Resource Allocation category, we look at water as a resource that we’re using and we’re also discharging from the infrastructure during construction and during operations and maintenance. So in this category, we’re trying to conserve our water and protect it and make smart choices about the amount of water that we use.

In the Natural World category, we’re looking at water as a feature of the site and as a major part of the eco system, the natural habitats and the water table to support bio-diversity in the health of the natural world.
And then finally under Climate and Risk, we’re looking at any short-term or long-term hazards that could be related to water in some way, whether it’s sea-level rise or whether it’s rainfall and extreme storm events, excuse me.

Dave: Sure. So under each of these five categories, there are a number of credits and so when we’re looking at, say, you mentioned under Quality of Life, water as a community resource. What are some of the examples of some of the actual credits under each one of these categories?

Denise: Under Quality of Life, for example, we have a credit called Enhanced Public Space. And in this credit, we’re talking about creating or preserving or restoring a public park, a plaza, some place where the people have to get outside and get the fresh air. Certainly a water feature or the water in this area would be a significant contributor.

Under Leadership, the big credit there would be plan for long-term monitoring and maintenance. So this might be checking the quality of the water in a stream or even the drinking water supply and then setting aside resources, financial and technical resources, so that you can make sure you’re monitoring that quality over time.

Under Resource Allocation, there are several credits where we are trying to reduce our potable water consumption, monitoring the water systems again, and protecting the fresh water availability.

Under the Natural World, we’re managing the stormwater. We’re protecting wetlands, flood plains and any other surface waters.

And under Climate and Risk, we’re assessing the climate threat and the impact of changes to the weather patterns, the sea level rise and anything that might be related to these variables that are changing over time that we need to take into account as changes to defined or standard variables that we typically use in our design calculations.

Dave: Ok. Let’s just take Natural World. You mentioned stormwater, stormwater management and things of that nature. That’s something that I’m really interested in. What are the types of credits that particularly affect or are impacted by the stormwater management type credits?

Denise: Well, the one main credit is actually a general overall credit called managed stormwater. Here, the intent of the credit is to minimize the impact of infrastructure on stormwater runoff quality and quantity. And our metric for tracking that is the infiltration and evapotranspiration capacity of the site and returning the site to pre-development capacities. So even if this is a redeveloped area, we want to make sure that people are considering containing the storm water on-site and helping it infiltrate back down into the ground as if it would had there been no development.
That’s very interesting. So what types of infrastructure are helping achieve that kind of return to pre-development status? Is it just green roofs or are there other infrastructure types of projects that can get that infiltration and evapotranspiration rates back to pre-development status?

Dave: That’s a good question because we’ve had some projects that specifically focus on stormwater and surface water type projects. So, the intent of the project is to create a wetland system to filter our stormwater run-off and treat it and infiltrate it back into the ground or the intent of the project is to create a riparian buffer along a stream. And it’s very natural for those projects to incorporate that infrastructure to protect and contain and manage the stormwater. But sometimes we have projects, for instance, a bridge project or a roadway project through the desert where managing the stormwater might not be the first thing that comes to mind. And so what we’re trying to do is remind them that they still have options. They can replace the soil with a more natural soil to the site so that it actually helps infiltration to replenish that ground water supply. And they can take other actions like that.

Dave: So, let’s say that I’ve got an infrastructure project. I’ve gone through the Envision grading and metrics process and so what’s next? So I build my project, is there any recognition that Envision gives out to recognize and promote projects that are implemented in a sustainable manner?

Denise: Yes, we do. First, we encourage everybody to review the guidance just to improve our practices in the industry. But if you do want to go through the full rating system and get a score, you can do that as a self-assessment and then you know it was a process that was documented and you can report that you have this score available. If you needed an additional step, you could go through a third-party verification phase where ISI brings in a local expert to review your adherence to the criteria in the Envision Rating System, and they will confirm your score and depending on the level of score you achieve, you can be awarded a plaque or some sort of recognition.

Denise: We have four levels of recognition. They are conveniently named to match the LEED levels just to help with the vocabulary for our senior officials and politicians. We have bronze, gold, silver and platinum.

Dave: Do you have some examples of, you said it’s a three year old program, are there any projects that have won awards? Can you give us a thumbnail on some projects that have used the Envision Rating System?

Denise: We know of hundreds and hundreds of projects that have used the rating system for self-assessment. To date, there have been six that have achieved awards through this third party verification program. It may not sound like a lot but if you think of the overall timeline of planning and designing and constructing an infrastructure project, the fact that we have six...
already in three years is actually quite a big achievement. Now that the rating system has been out, we expect to see a much faster influx of projects come through.

All of the six projects have a unique relationship to water. So I would like to take a minute to mention each one. The William Jack Hernandez Sport Fish Hatchery in Anchorage, Alaska, was the first project to get an award in July, 2013. This was a warehouse-type facility that was on a redevelopment site. It was actually a contaminated brownfield that had a stream and natural environment. So the purpose of the facility is to grow fish to put back in the stream to support the sport fishing industry. The facility came up with a new innovative method for reducing the amount of water and energy needed to support the growth of fish, saving 95% of the water and energy. And then, they were also able to create a park-like setting on the site so that the public could visit, learn about the fish hatchery and take a stroll around the site and visit the stream. This way they could be educated on the sport fishing industry.

The second project was the Snow Creek Restoration Project in Placer County, California. So the intent of this project was to restore the buffer zone around a stream. So they really focused on removing any extraneous materials that had been there from development over the years, putting back natural fill dirt and then putting back natural vegetation to support the wildlife in the species. And this really helped filter the stormwater and protect the quality of the water in the stream.

Another interesting project is the South LA Wetland Park in the City of Los Angeles, California. This project earned a platinum award in January of 2014. This project built on a brownfield in the middle of an industrial area a new park for the citizens that incorporated a three-tier wetland system specifically to treat stormwater runoff. So they had huge stormwater pipelines redirected to this wetland system to remove the trash and then to clean out the smaller particles with this natural filtration process.

The Sun Valley Watershed Project in Los Angeles County, California, received a platinum award in August, 2014. This project was actually a series of several projects in the Sun Valley watershed that looked specifically at managing stormwater and infiltrating that water back into the ground. So they were looking improving the watershed quality as a whole and supporting the wildlife and the species diversity.

Now the next two projects are a little different. They’re more of the traditional grey-type infrastructure. One is the Pipeline Project at the Tarrant Regional Water District in North Central Texas. This earned a Silver Award in October, 2014. The purpose of the project was to move water from a reservoir down to the city so that they would have a backup water supply. So while they’re putting in this water line, they’re looking at the long-term needs of the community and the long-term trends in the climate and realizing that they’re going to need additional water
resources. So they’re putting this infrastructure in place now, very forward-thinking to meet the future demands.

And then the final project is a wastewater treatment facility in Ontario, Canada, that received a platinum award this year in February. This is the first wastewater treatment plant to get an award. And what they did here was convert some existing lagoons into aerated wetland treatment facilities as part of the water treatment plant in order to clean that water and make it available for the local streams but also let it infiltrate and recharge the ground water table.

Dave: So, by my count, that’s four platinum, one gold, one silver, and I’m just curious, how many credits are needed to hit each of these levels that these projects have achieved?

Denise: Well, it’s kind of funny. A lot of people when hear the number of points which we report as a percentage, they are instantly a little baffled because our award levels start at 20%, 30%, 40% and 50%, which might sound a little low if you’re looking at the grading system from high school or even if you’re looking at the LEED Green Building System, which starts at, I believe, at 40, 60, 80. The reason our numbers are lower is because Envision looks at all different types of infrastructure, and it looks at all the different ways to be sustainable. And we recognize that there’s no way that you could put every credit into every project.

For example, sometimes the credits are mutually exclusive. You might not be able to use recycled content material, if it’s not available locally, you can’t get both of those credits.

So our scores start at the 20% level and go up to 50%, and the way we like to think about this is Envision takes you beyond conventional or standard design practices. So you have a project that is in compliance, you’re at 100% as far as the industry is concerned, to get an Envision award you need to go to 120% and that will get you that first level bronze award and then you can go above that. One of the projects that received the platinum award, the highest score that we have seen so far was a 67% and that’s really quite outstanding.

Dave: Terrific. That’s excellent. I’m glad it’s being so well received in the community. I like how you indicated that given the long planning horizons that many projects face, to have six already in the first three years is really impressive, so, kudos on that. You said there were also hundreds of other projects that you’re aware of. Could you discuss some of those other projects that have kind of or are in the pipeline or have self-checked themselves?

Denise: Oh, sure. These run the gamut from any type of sustainability or any type of infrastructure project that you can think of. We target communities in the U.S. and Canada and every type of infrastructure you can think of. Most of the infrastructure that’s publicly-owned is going to be roads, utilities, bridges, things like that. We have seen a couple of projects come in
from the power industry, transmission lines. We look at reservoirs, pipelines, anything you can think of that is built but not inhabited.

We’re also seeing people use Envision in other ways. It was intended for individual infrastructure projects, but because it is just such a useful tool for the planning phase of the project, communities are using it to help plan multiple projects. So they’re using the tool to help select which projects get funding and which projects get priority. And they’re also using the tool as an outreach mechanism. So they can go and talk to the community and say, “Listen, we’ve selected this national standard to address sustainability. It’s very organized in these sixty credits, and we’d like to explain this process to you so you can see how our projects fit in, and hopefully, then, you will support our projects.”

Dave: Ok. So, if I’m looking at an infrastructure project, what’s the first thing I’m going to do if I want to use the Envision System?

Denise: Well, the first thing I would do is go to our website and download the guidance manual. It’s basically a textbook. It’s available for free, and you can look at each of these sixty sustainability principles. For your own reference, think about the things you do already; the things you might be willing to do or would make sense to incorporate in your project. And then by default, there’s going to be a few things left over that don’t quite make sense to you for the purpose of this specific project or for the purpose of this community. And that’s fine, you can exclude those credits.

There are two tools that you can use if you are just getting started. We offer a checklist which is a quick and easy tool that has a series of yes/no questions. So we’re helping people work through the sixty credits. In about an hour or two hours, they can get a final score from the checklist, and that really helps introduce a lot of the sustainability concepts that people may not have ever considered. But, for people who are already beyond that and are ready to go in depth, they can use the full-blown rating system and that is clearly laid out in the guidance manual.

We do offer an online calculator to walk people through the evaluation because here now, we’re looking at the sixty credits, but we’re not just asking, “Did you do it, yes or no?” We are asking to what extent and that gives us a chance to clarify. If you’re a beginner in using recycled materials and you have 20% of your content coming from recycled materials, we definitely want to applaud you for that effort. But we also want to have deeper levels so that we can encourage you to go aim for 40% or 60% or strive to do a little better in each one of the credits.

Dave: For the actual rating process, let’s say I am going to have someone from ISI come out or as you indicated earlier, get someone local to come out, a local expert to grade our project, what’s the timeline for the process? How long is all this going to take me?
Denise: Well, we encourage you to use Envision throughout the planning and design phases, and hopefully by the end of that design phase, you would have a self-assessment complete. You would have a good idea where you stand among the sixty credits and then if you wanted that third party verification, you’d contact ISI. There is a fee for this process. And you would turn over your self-assessment with supporting documentation to be reviewed by the third party verifier. Now, we don’t want you to spend weeks and weeks preparing hundreds and hundreds of pages of documentation.

The idea here is that you would already have the plans, the specifications, the design report and maybe some site investigations or other reports that have data in it that addresses each of the sixty credits and you can say, “Well, for credit Natural World Managed Stormwater, what I did was I installed permeable pavers and then I also put in an infiltration trench as shown on Contract Drawing, page 4.” So you point the verifier directly to that. They go through and review you work on the sixty credits and then ISI would give you the award. We try to keep that whole third party process to get you to the award within ninety days for your own sake because we know you’re very excited to celebrate your successes. So far it hasn’t taken that long, but that’s a general timeline for you to consider.

Dave: Ok. In terms of the fee for the self-verification, what’s a ball park for that?

Denise: So far a self-assessment, that’s free. If you’d like to go for the third party verification, the fee varies based on the size of the project. Understandably, a larger project with more documents is going to take longer for a verifier to review. We have all of this information on our website. For projects up to two million dollars for design and construction, the verification fee is $2400 and then it scales up from there. For projects that are closer to $250 million, if you’re a large infrastructure developer, the verification fee is $28,000.

Dave: So it’s really a pretty small percentage of the overall project cost, is what I’m hearing.

Denise: Yes, it is. But we realize that a lot of the infrastructure in the country is owned by the public sector and that any added cost is going to be a burden. So that’s why we make sure that the self-assessment is out there and available free. We provide education so that people are using it properly.

Dave: Well, Denise, you’ve been absolutely fantastic today. Really appreciate you walking us through how the Envision Rating System works and what the Institute for Sustainable Infrastructure is. For those who want to find out more information about you or the ISI, can you tell them where they can find that information?

Denise: Sure. We are a web-based company. All of our information is available at www.sustainableinfrastructure.org.

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**Dave:** Good. And you guys are on Twitter, I assume and LinkedIn and all that?

**Denise:** Yes. On LinkedIn we have a group called Institute for Sustainable Infrastructure that’s available for everybody to join. We also have a professional accreditation program for people that would like to get extra training on using Envision. And we have a special LinkedIn group for those people. It’s called the Envision Sustainability Professional Group. And then on Twitter we are ISIENVISION.

**Dave:** Well, Denise, thanks again. You’ve been fantastic. Really appreciate your time. And we’ll talk to you soon.

**Denise:** Thank you so much.

**Dave:** You bet. Bye, Denise.

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**Dave:** Well, I hope you liked that interview with Denise Nelson, the Vice President for Public Education for the Institute for Sustainable Infrastructure.

Just a couple quick takeaways this week. The first is what I mentioned at the top of the podcast, and that is how deeply water sustainability is interconnected with environmental sustainability. All 6 award-winning projects Denise identified have a strong relationship with water.

Another takeaway is how quickly the Envision Ratings System has grown – to be this young and have 6 award-winning projects already, and hundreds more having gone through the self-accreditation process. It’s just fantastic and speaks volumes to how important this system is. I’d love to hear from you if you’ve used the system or are using the system and what you thought or think about it.

You can check the Show Notes out for this session at [http://thewatervalues.com/pod58](http://thewatervalues.com/pod58). Leave a comment on the Show Notes or email me at david@thewatervalues.com. You can also tweet at me @DTM1993, and you can tweet about the podcast using #WaterValues. And don’t forget to rate and please review the podcast on iTunes, Stitcher, TuneIn and other podcast directories. And please don’t forget to tell your friends and colleagues about the podcast, to sign up for The Water Values Newsletter, and to take the listener survey, which can be done at [http://thewatervalues.com](http://thewatervalues.com).

In closing, please remember to keep the core message of The Water Values Podcast in mind as you go about your daily business. Water is our most valuable resource. So please join me by going out into the world and acting like it.
Outro: You’ve been listening to The Water Values Podcast. Thank you for spending some of your day with my dad and me.

Dave: Thank you for tuning in to the disclaimer. I’m a lawyer licensed in Colorado and Indiana. And nothing in this podcast should be taken as providing legal advice or as establishing an attorney-client relationship with you or with anyone else. Additionally, nothing in this podcast should be considered a solicitation for professional employment. I’m just a lawyer that finds water issues interesting and that believes greater public education is needed about water issues. And that includes enhancing my own education about water issues because no one knows everything about water.