Research Summary

‘Understanding the Private Sector’ Green Stormwater Infrastructure Part II

May 4, 2018

The Nature Conservancy + AARDVARK design labs

what we hoped to learn

Through research, we set out to…

…understand the world of private real-estate developers and architects. We were especially interested in learning about their:

- motivations & aspirations
- challenges when it comes to developing real estate
- attitudes & experience around natural landscaping & managing stormwater in the built environment.

Big Question

How might we help private real-estate developers and architects **go above & beyond existing regulations** when it comes to natural landscaping and managing stormwater?

Interviews

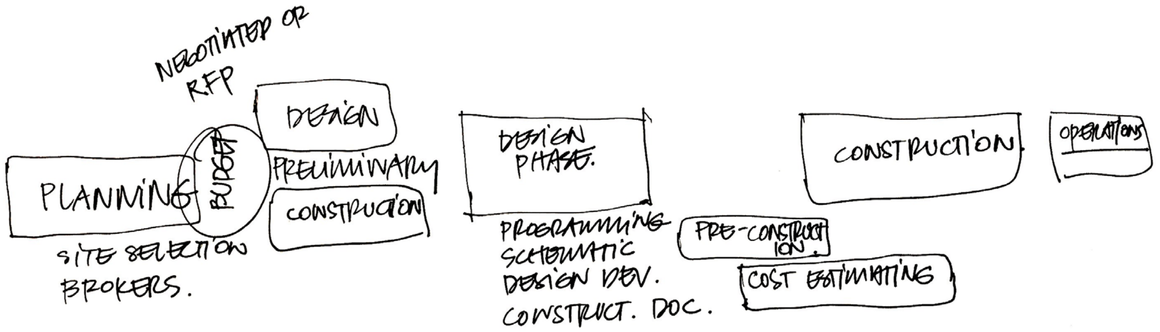
In-person Interviews (90min)

Private Developers & Architects in the Puget Sound Region

8 Development professionals
(mix of housing + corporate, Seattle + Bellingham)

2 Architects (working on commercial development)

1 Landscape Architect



The reality of development

Process/Challenges

So many people!

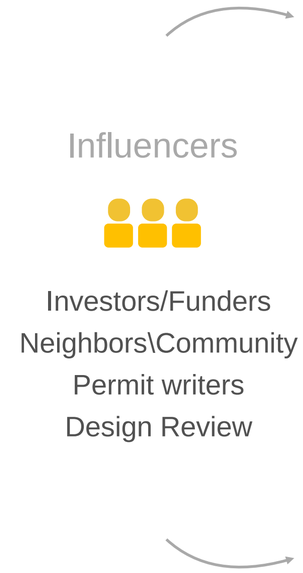
“A lot of my work is managing consultants”-
Developer

Developing real estate takes a lot of people. Projects range in scale, but even smaller development projects can be tens of millions of dollars and involve hundreds of people.

The property owner typically drives the vision and the financing for the project and has the final say about what gets implemented. Throughout the project, the owner relies on many others for guidance, financing, interpretation of regulations, and construction.

The primary roles for any development project are the owner (typically responsible for financing and the vision), the developer (sometimes the same as the owner), the architect (responsible for design), and the builder (responsible for construction).

When it comes to stormwater infrastructure, landscape architects and civil engineers have strong influence. They typically work within constraints handed to them by the architect, but in some cases (e.g. Amazon spheres), they play a more significant role.



A huge upfront financial burden

“You are hemorrhaging money in the process.”-
Architect/Development manager

In our discussions with developers, one thing became immediately clear: Development requires significant capital investment upfront with a payback that can take years.

As a result of this, developers and development managers carry incredible amounts of stress throughout each project as they attempt to move through a multi-year process without delay.

Slow-downs in the process such as delays in obtaining permits may increase development costs dramatically as construction and material costs change over time. Delays can also increase the time before a building can start generating rental income, and in some cases, may turn a profitable investment into an unfeasible project.

Housing is a hot topic

“You’re not going to outflank affordable housing.”- Developer

The Puget Sound Region’s rapid growth has shifted the conversation from one about environmental priorities to one about social priorities- most importantly: housing.

Every developer and architect we spoke with mentioned the current housing crisis facing Seattle. While the degree varied to which each was focused on ‘affordable housing’ per se, all were engaged in the challenge and the opportunity to rapidly create places for the roughly 20,000 people moving to Seattle each year who need a roof over their head.

In the midst of this dramatic change, developers identified a struggle to build housing that Seattlites (and citizens in other nearby cities) will embrace. Demand tells them they are creating valuable assets (new micro-apartments rent out almost overnight), but developers still encounter regular neighborhood resistance to projects. A few neighbors can stymie an entire project out of fear that increased density will destroy their neighborhood’s character.

What we heard from developers

Motivations/Attitudes

A sense of responsibility

“Development is necessary.”- Developer

Developers see themselves as leaders and change-makers with a duty to create necessary spaces for people to live and work.

Many commented on Seattle’s remarkable growth rate over the last few years which has highlighted the need for greater density, affordable housing, and compelling spaces for people to interact with one another.

The developers we spoke with feel that they alone must lead the charge to fund, design, and build such spaces for the people of Seattle and surrounding areas.

Pride in complexity

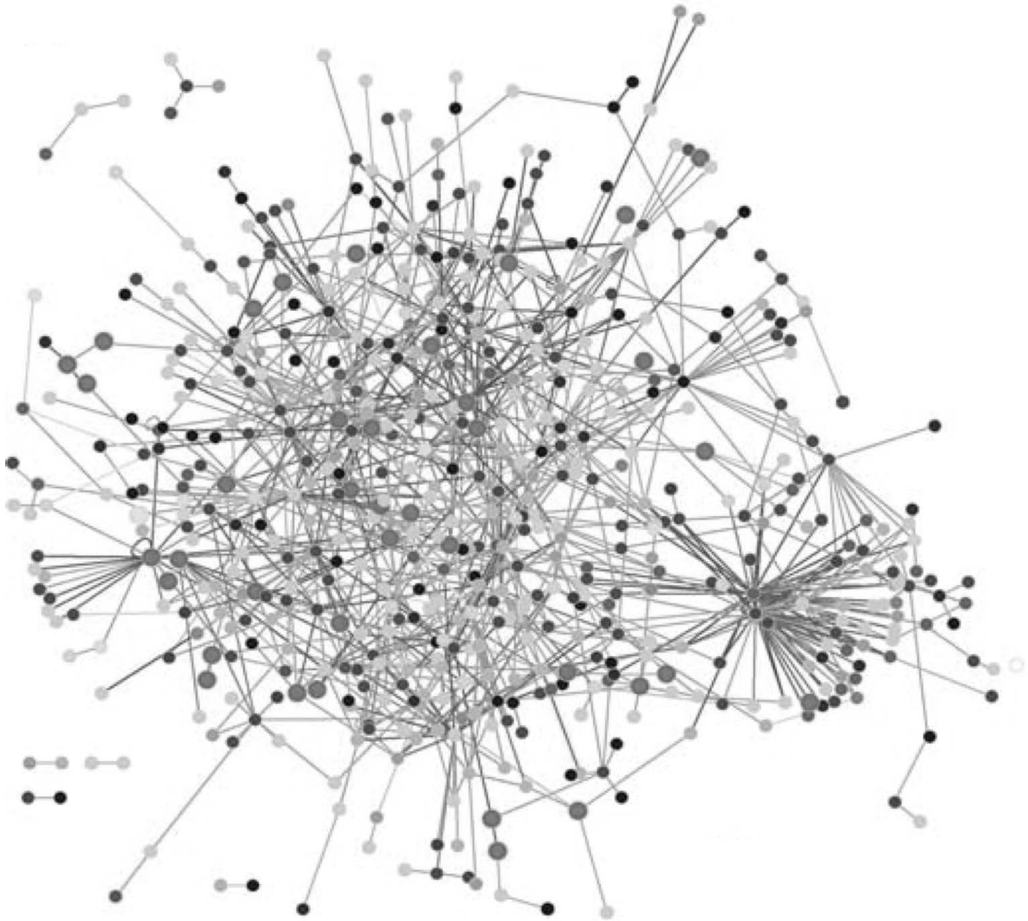
“We have passion for intellectual challenges.”-
Developer

Developers we interviewed spoke with pride about the complexity of developing real estate.

Projects regularly require significant capital investment, take years to complete, and involve a variety of stakeholders from investors to designers, builders, and operational managers.

Every project requires deep analysis even before construction begins to ensure it will be able to meet local requirements/codes within a given budget. In addition, every project is different, providing developers with a new challenge every time.

Given the challenges, it seemed as though developers were almost amazed at their own ability to complete each project.

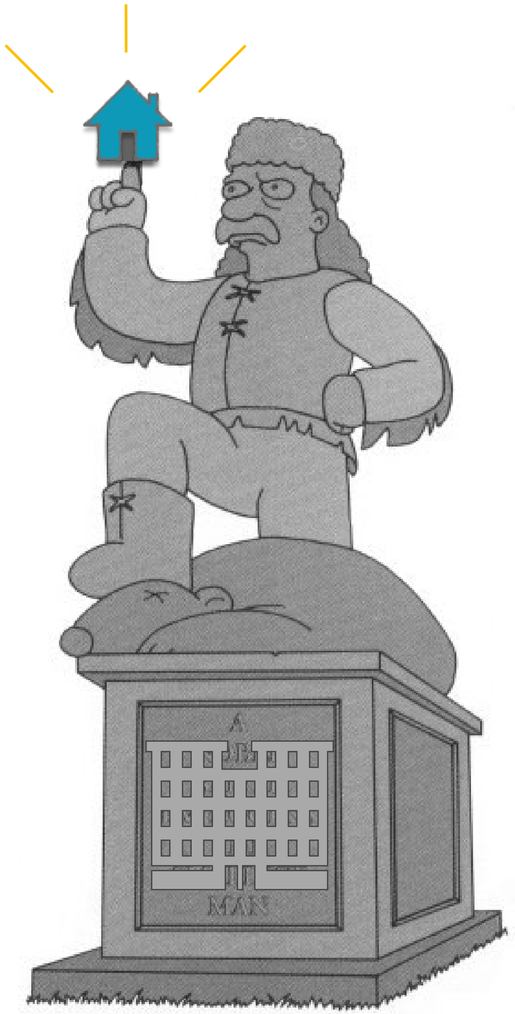


Concern about legacy

“The thing about buildings…they don’t go away.”
-Developer

Many of the developers we spoke with expressed a desire to do more than simply build necessary spaces. They want to have a lasting impact on the region.

They want to build beyond what is necessary and create sites that are remarkable (‘cool’, ‘innovative’) that they can be proud of. As one developer put it, “I want people to respond to what I do by saying ‘Hey, that’s really neat!’.”



Attention to the bottom line

“It penciled.”- Developer

At the end of the day, developers are creating and managing an investment. As such, budget is always on their mind and they must operate with fiscal responsibility.

Money heavily drives decision-making, and often developers are playing with money that is not their own. As they hunt for new projects, they go to great lengths to analyze and assess the potential risks and returns that will contribute to or detract from their success. This helps them attract and retain investors who are also focused heavily on the financial return of their investment.

What we learned from Architects

How they are different

Creative influencers

“I like to be creative…to get to push the boundary.”- Architect

Architects are creative professionals by nature. They pull together input from a variety of sources (e.g. client goals, regulations, programming needs) and synthesize it to provide creative options for their clients. As they design, they challenge conventional thinking and push their clients to new places. They are essential partners to owners & developers in this way as they clarify an owner’s vision and narrow design possibilities from an infinite number of choices to a select few.

While they rarely have final say in development decisions, architects have power. Their designs are often subtle, based on experience and intuition, and because of the number of micro-decisions they make along the way, their participation in any project has significant influence on how a building is experienced and on its environmental impact.

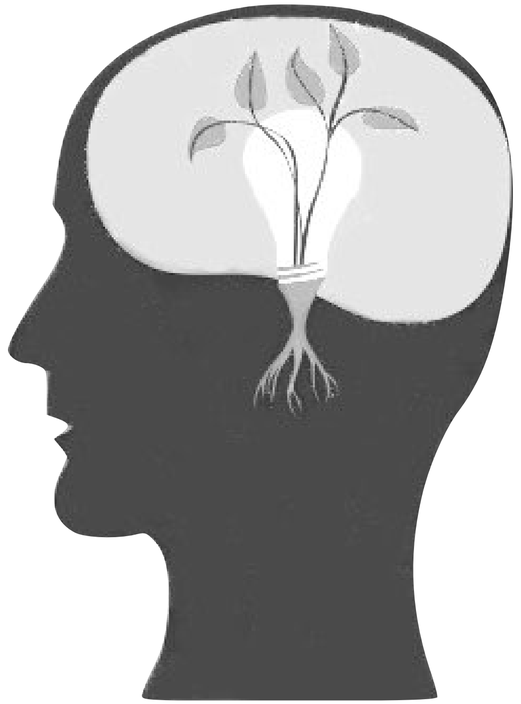
The increase in LEED certified buildings over the last ten years is a great example of this. Many architects now consider LEED guidelines standard practice and automatically design with them in mind.

Socially & Environmentally minded

“Use architecture to help people.”- Architect

In addition to having the power to push developers’ thinking, architects are less burdened by financial return than developers. They too have an interest in their legacy, but unlike developers who must account for the explicit payback of their investment, regional architects are able to dedicate more of their thinking toward the social and environmental impact of their designs.

This plays out explicitly as architects interpret and apply regulations. They understand code strengths and weaknesses and where they can be flexed or interpreted differently. As they support developers by weighing trade-offs and looking for creative ways to cut costs, they often leverage code flexibility to find creative ways to incorporate social and environmental measures and still meet project goals.



Shared goals

Where motivations align

A desire to think and work creatively.

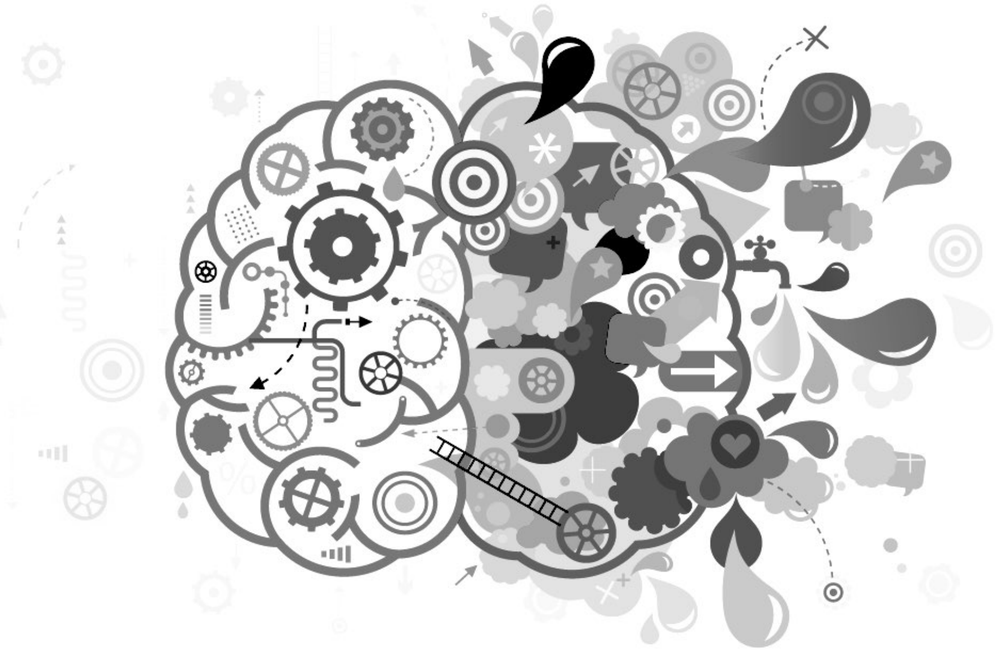
“I love being involved in creative thinking.”-
Developer

Both architects and developers love working creatively to bring projects to life.

For developers, the creativity is in the challenge of solving a complex problem, making an investment pay off and developing a building or site that will attract tenants and public interest.

For architects, the creativity comes in the output and expression of the design itself. They are focused on how well the project fits the people and want to create quality experiences for people they are proud of.

Regardless of how they express their creativity, we heard both architects and developers tell us how they enjoyed the fact that every project is different with its own unique challenges, and both put significant effort toward creating places that are noteworthy and appealing in an attempt to support a legacy they can be proud of.



Activating places

“Designing good cities is about ‘place-making’.”-
Developer

We heard both developers and architects talk about the concept of creating ‘places’- namely, designing and building remarkable locations where people want to gather, interact, work, and play.

This desire is built on the belief that many places in the city currently have an unrealized potential and simply need to be ‘activated’ to become something better than they are today.

Developers and architects believe it is their role together to activate the full potential of such locations.

Improving the community

“Shared resources is a great way to crack the stranger code.”- Architect/Development manager

In addition to activating specific sites, both developers and architects expressed a strong desire for their projects to add value beyond the site footprint and contribute to improving the ‘community fabric’.

Examples we heard included things like adding bike-friendly streets, attracting popular retail establishments, and creating public gathering places to give the neighborhood a unique character and welcoming ‘vibe’.

It is worth noting that developers tend to have a more ‘building-first’ approach to this, suggesting that what they create informs and perhaps enhances the character of a given neighborhood. Architects, on the other hand, tend to have a more ‘people-first’ approach, placing the most value in designs that align with existing neighborhood or community characteristics.

Maximizing land usage

“Real estate is all about creating value.”- Developer

When it comes to the specifics of designing a particular site, architects and developers share an appreciation for the value of square footage and for making the most out of every square inch of each space they develop.

For developers, maximizing land usage equates to getting the most income per square foot, so they develop high-value real estate or try to fit as many affordable apartments into a footprint as they can to maximize cash flow.

For architects, maximizing land usage goes beyond generating income. Architects care about maximizing a person’s experience within a space and they provide guardrails to developers to help them develop experiences people will pay for.

Architects also think about land use holistically. A walking path, for example, may not seem valuable to a developer because it doesn’t generate rental income directly, but seen from an architect’s point of view, the space it provides for letting residents relax adds holistic value and thus may be considered maximizing land usage.

Shared CHALLENGES

The pains of {nearly} every project

Collaboration

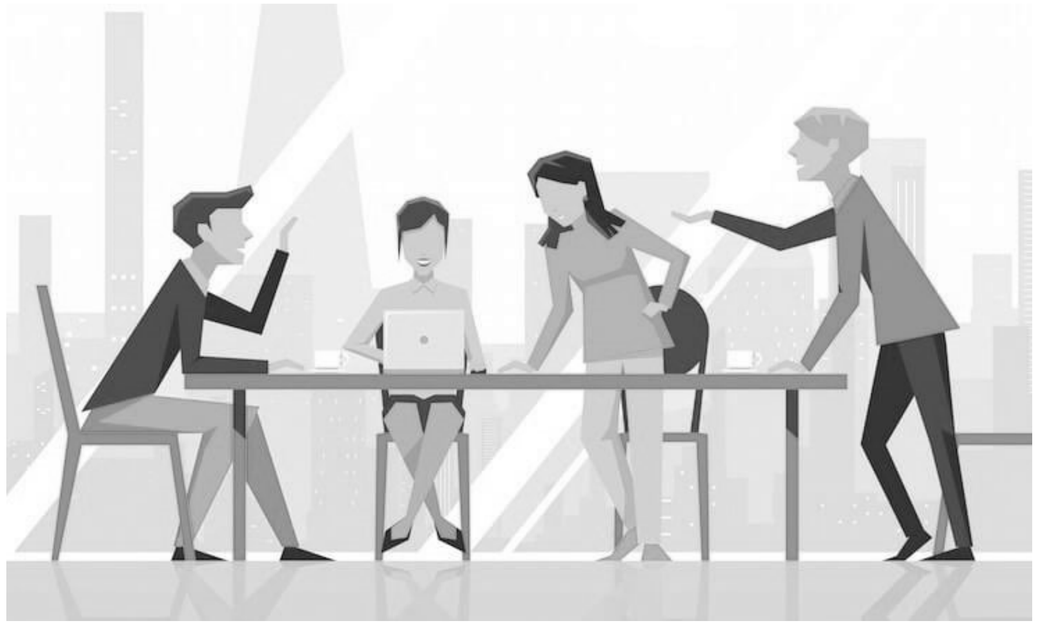
“Everybody thinks differently about how to construct something.”- Developer

It takes a lot of people to realize a new real estate development.

We heard about the value of bringing a diverse group of many people together to stimulate new thinking and push development to go beyond the basics.

We also heard developers express frustrations with navigating the ‘politics’ of every project: trying to keep workers aligned with the project vision, happy, and motivated to do their best work amidst a variety of opinions, expertise, and interpretations of project goals.

Everyone we met with agreed that getting parties involved early was the key to ‘making big things happen’. Owners typically have the final say over every decision, but expertise from others informs their vision, so the sooner that expertise enters the picture, the less likely it is to have cascading implications and cause project delays.



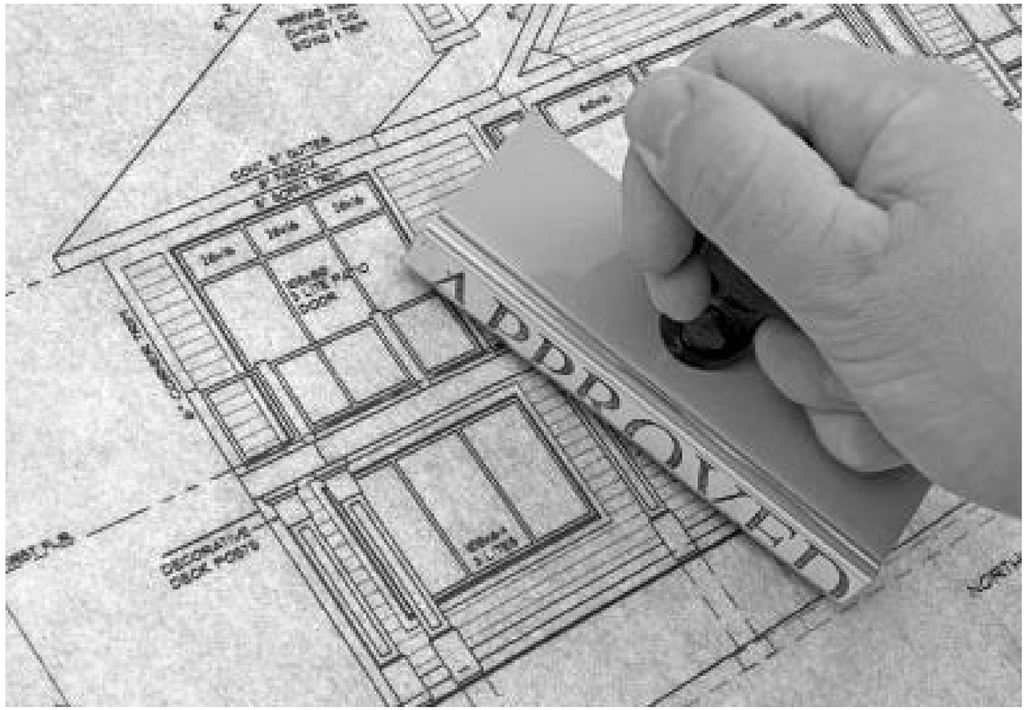
Codes & regulations

“DCI (Dept. of Construction & Inspections) doesn’t have the mentality of supporting development.”-
Architect/Development manager

Developers and architects shared with us the challenges of meeting local codes and regulations in their projects. Codes are complex, restrictive, difficult to decipher, and constantly changing.

Developers must rely on architects and engineers to interpret and apply them, and many developers feel codes are in direct conflict with their goals. They apply a significant amount of their creativity toward either trying to avoid requirements or finding low cost ways to meet them.

We also heard that codes can be valuable as they help architects implement sustainability measures they believe in without a fight from developers. For those architects and developers who do support the intent behind the codes and would like to suggest innovations or code improvements, however, there doesn’t seem to be a way or any incentive for them to do so.



Speed affects cost

“I finally got our permit approved after 3 years of waiting.”- Development manager

Development doesn’t pay back until the property gets a tenant and starts generating income, so the faster developers can move through the development process, the happier they are.

Anything that slows the development process down is a burden for developers. A delay may push back the date of generating the first income; it can also allow for the prices for design and construction to increase beyond original estimates during that time and force cuts to other aspects of a project later down the line.

The most common frustrating delays we heard about were the speed of the permitting process (often 1-2 yrs) and delays due to neighborhood resistance to development.

“Overdemocratization”

“A project can be stymied by just a few people.”-
Architect/Development manager

Perhaps the most common challenge we heard developers talk about is neighborhood resistance.

As Seattle and the surround areas face rapid growth, developers and architects see an opportunity and a need to increase housing availability. They support increased population density. Many Seattle locals, however, are concerned about the impact on Seattle’s existing character (currently primarily single-family homes).

Because local laws allow project neighbors to weigh in with their opinions before cities award developer permits (referred to by one developer as the ‘overdemocratization’ of the process), a few neighbors can delay development projects for months or even years at a time, and thereby effectively halt projects by making them no longer financially viable.

How does stormwater fit in?

Spoiler alert: It’s low priority

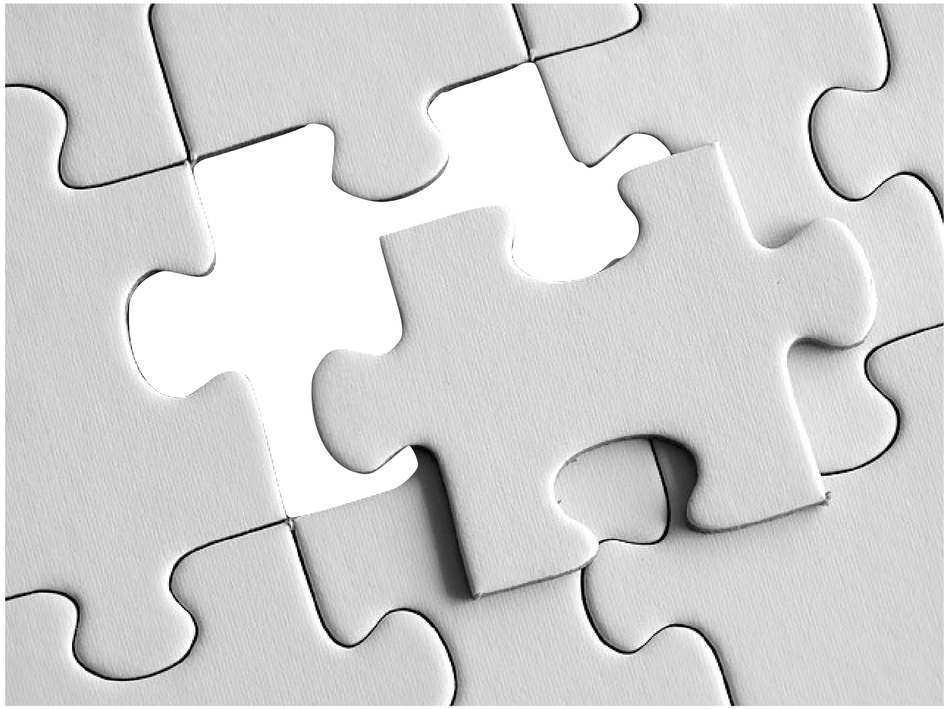
A missing piece

“Stormwater management is mind-numbingly complex.”- Developer

From finding initial income-generating opportunities to managing design and construction, developers have a lot to think about as they move through the process. Stormwater management is barely a blip on their radar and is low priority relative to other project needs.

The sustainability movement has done a good job of highlighting the importance of material choice and energy efficiency over the last ten to fifteen years, but stormwater management is still a missing piece and feels like a foreign concept to most people. It doesn’t have the same ‘sexy’ appeal as other sustainability aspects to developers or building tenants, and as a result, it gets overlooked until developers discover that codes require it. At that point, they are faced with understanding and applying a complex integrated feature.

The combined lack of awareness about stormwater management and the difficulty of understanding and implementing it means that few developers implement anything beyond basic requirements.



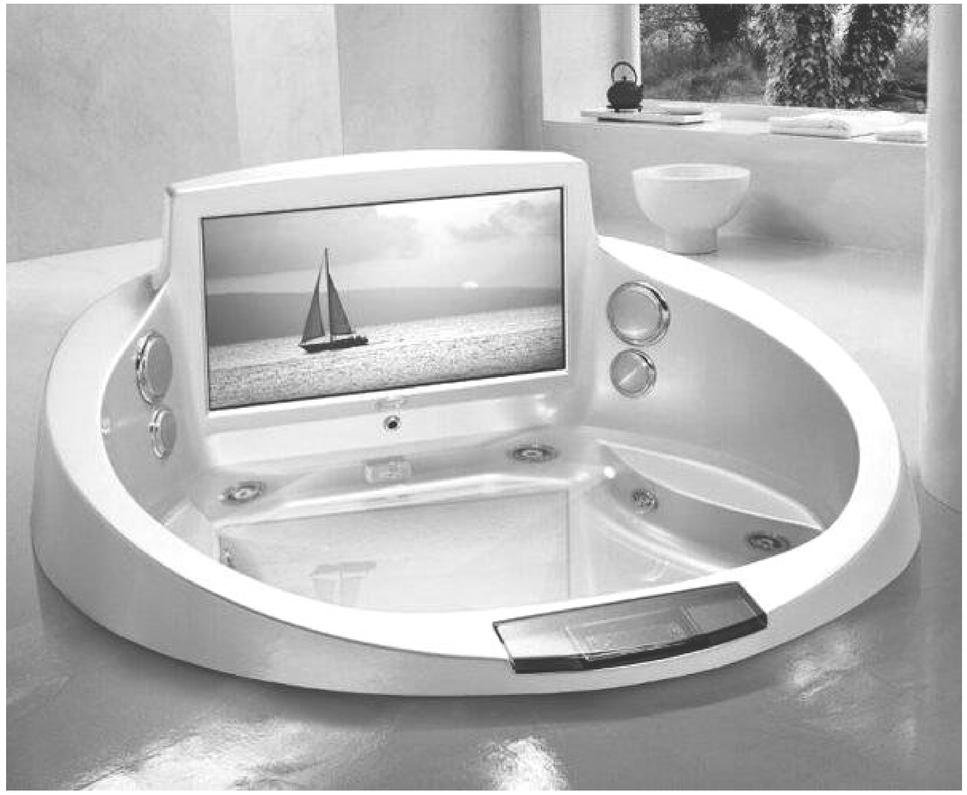
Sustainability is a luxury

“Sustainability falls down in the finances.”-
Developer

Developers have trouble seeing the direct financial value of effective stormwater management and are therefore hesitant to implement anything that goes above and beyond requirements.

Most don’t recognize how managing stormwater benefits the surrounding community and see it as either a luxury or as ‘not my problem’…something that local utilities should be handling. It is no surprise then that this results in only the lowest-cost solutions getting implemented. Experimental and ‘above and beyond’ measures are often cut from projects through the process of ‘value engineering’.

Developers and architects will continue to have little motivation to think beyond what is required until they can see the value that even the current required measures add to their projects.



Lack of proven examples

“There’s a big disconnect between design & research.”- Landscape architect

One of the biggest barriers to seeing the specific value of stormwater management techniques is the lack of readily available research and case studies on the topic.

Research and case studies provide developers and architects with confidence to apply specific BMPs as well as inspiration and jumping-off points for trying new methods and advancing the discipline.

One landscape architect told us how he had searched for research on stormwater management BMP effectiveness only to find most of the research hidden in journals behind costly access fees.

Bright Spots

Things that are working

Thinking beyond the building

“We can make a difference…especially by thinking outside of the building.” -Architect

Implementing stormwater infrastructure in a single building can be costly and seem futile since stormwater flows naturally beyond site boundaries. In cases where a stormwater management plan is not already in place, developers must often confront the fact that the first building often bears the brunt of the cost for implementing stormwater infrastructure for a larger development.

When developers have the opportunity to think beyond a single building or single project, it becomes easier for them to both distribute the cost and better see the impact of stormwater management.

We heard about a number of successful projects where developers were able to plan with a campus or neighborhood mindset (e.g., Amazon HQ, WWU). The increased scale of these projects forced developers to think about cost and impact at a large enough scale that stormwater management became a significant part of the conversation.

In many cases, when implementing sustainability measures completely was cost prohibitive, developers and architects also planned for the future and included framework components (e.g. plans/infrastructure for boilers, pipes, brackets, etc.) to make it easier to implement improvements down the road.

Incentives

“The #1 way to motivate developers is to give them more rights.”- Architect/Development manager

One of the most obvious and common solutions to motivating developers to implement green stormwater infrastructure in their projects is to provide them direct incentives.

The green energy movement has seen a fair amount of progress as a result of financial incentives to incorporate things like LEDs and energy efficient appliances into building projects. We heard from developers that the payback for an energy retrofit is as short as two years. It makes sense that stormwater infrastructure might benefit from similar measures.

We also heard from developers that non-monetary incentives may also be motivating. Offerings such as allowing code compliance flexibility or speeding up the development permit process could save developers money without a direct cost to local jurisdictions.

Certifications & Point systems

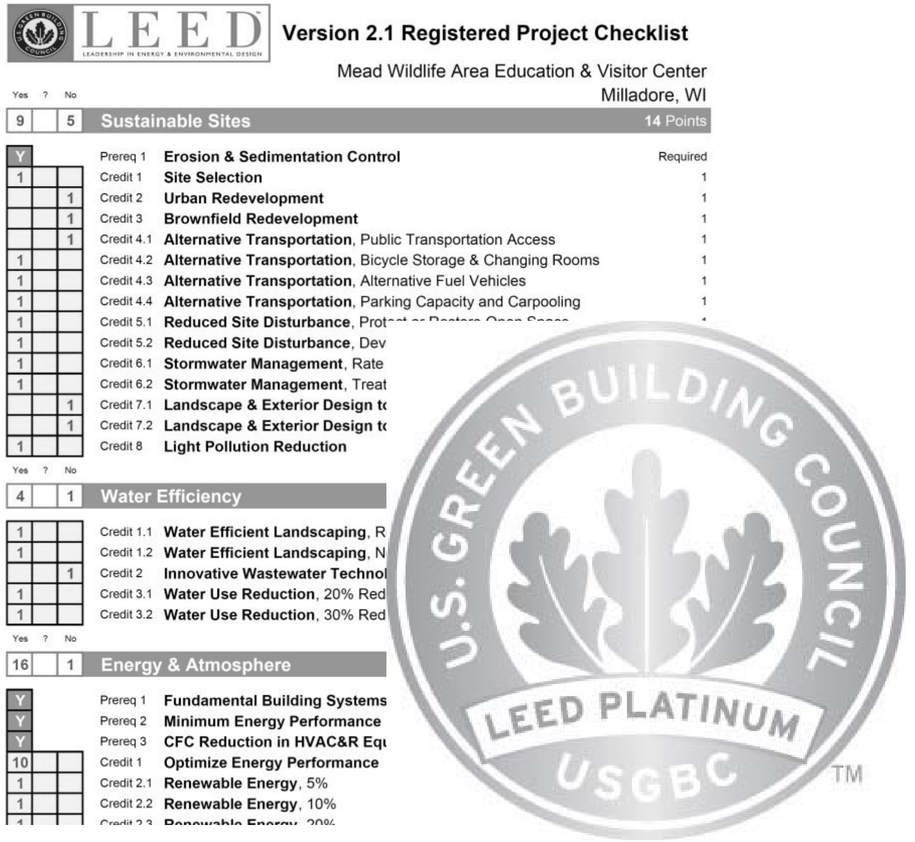
“Almost all of our projects are LEED Gold or better.”- Architect

Beyond direct incentives, certifications and point systems seem to be motivating to architects and developers to ‘do the right thing’.

We can point to LEED certification is a particularly successful example worth a closer look. Ten years ago, achieving LEED status was a stretch for many developers. Today, however, we heard that *most* buildings built are LEED certified to some level and LEED feels like a minimum standard.

A number of factors have contributed to LEED’s prevalence:

- A simple and approachable evaluation scheme.
- Connected to funding: Federal funding is tied to LEED status.
- Attracts architects by adding value to being ‘LEED certified’ (LEED AP) and attracts developers with status (e.g. ‘Gold’)
- Flexibility: offering ‘innovation points’ and continuing to be updated to make it ever challenging (currently on v. 4).



Making it easy

“PSE (Puget Sound Energy) has an easy resource for incentives that’s really helpful.”- Developer

Even with their love for complexity, developers still need help understanding the complex stormwater regulations and implementing and maintaining stormwater solutions. We heard a few inspiring examples of making the process easier.

Developers were grateful for organizations such as ‘Sustainable Connections’ and ’Historic Seattle’ who provide sustainable development expertise and enlighten developers to available incentives. These organizations make getting assistance easy by proactively reaching out to developers, and the information they provide helps developers quickly make design decisions.

Another inspiring story came from a landscape architect who was struggling to get local maintenance crews to properly care for bioswale plants. By making pictorial flashcards that showed the crew proper plant pruning, he made proper maintenance easy and saw dramatic improvement in the bioswale effectiveness as a result.

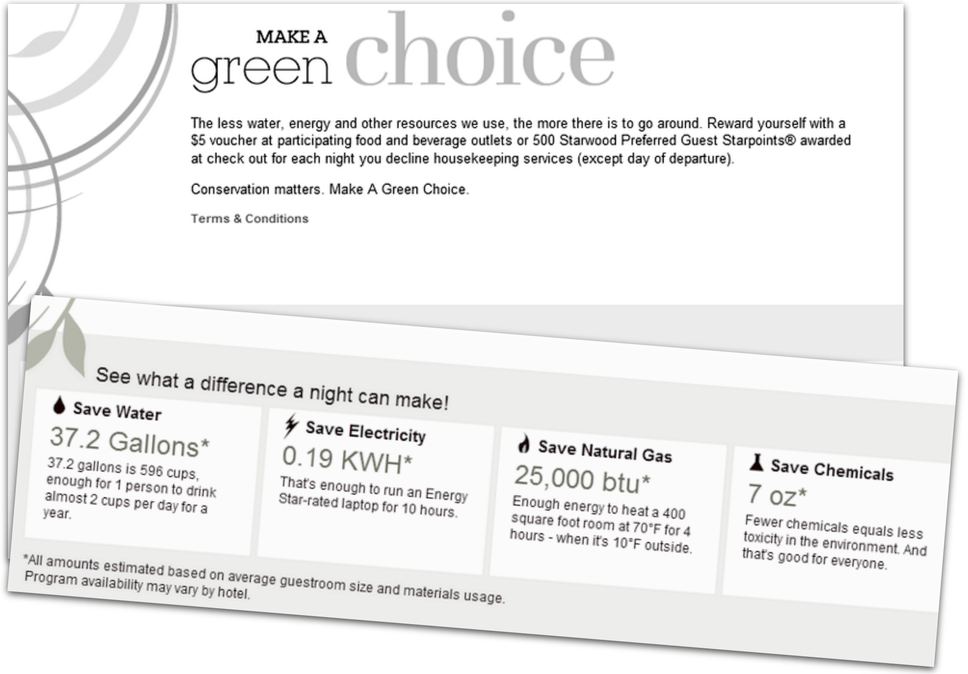
Communicating the value

“We emphasize having visible stormwater processes.”- Landscape architect

In order for people to care about stormwater, they have to understand what it is and how managing it is valuable.

Many developers and architects we spoke with made suggestions for how we might increase awareness; one idea that came up multiple times was to require building owners to educate residents on sustainable features of the building they are inhabiting. Another developer suggested getting people excited about stormwater management using gamification.

We heard about only one specific example of public education efforts underway currently (a project where designers have drawn attention to stormwater infrastructure at the building entrance), though we are sure more exist. Even so, it seems that increasing education and awareness around this issue for professionals and the general public is in high demand.



An example of communicating value: Westin Hotel’s “Make a green choice” card shows hotel guests the value of opting out of housekeeping for a day.

Encouraging experimentation

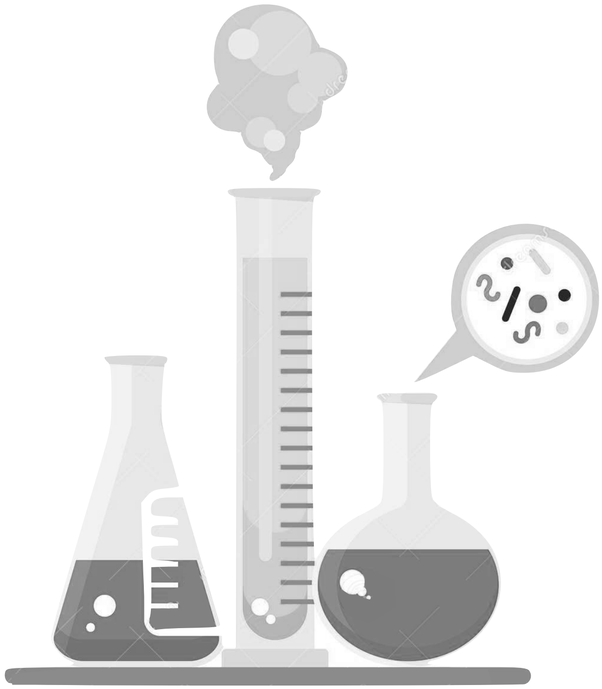
“Universities have a lot of autonomy.”- Landscape architect

Stormwater management is still in its infancy, and regulations and codes have room to grow. Years ago in Portland, OR, buildings with public funds were given opportunities to experiment with stormwater management. Learnings from those experiments has informed current stormwater regulations.

Experimentation like this must continue. Developers are not inclined to take on the financial risk of experimentation, so we need to make it easier for those who are interested to experiment with limited financial risk. This will speed progress.

Current prime candidates for experimentation include universities (often operate outside of regulations), publicly funded projects, and ‘legacy’ projects funded by wealthy well-intentioned developers.

How might we mitigate the risk for others to experiment as well?



opportunities

Big Question

How might we help private real-estate developers and architects **go above & beyond existing regulations** when it comes to natural landscaping and managing stormwater?

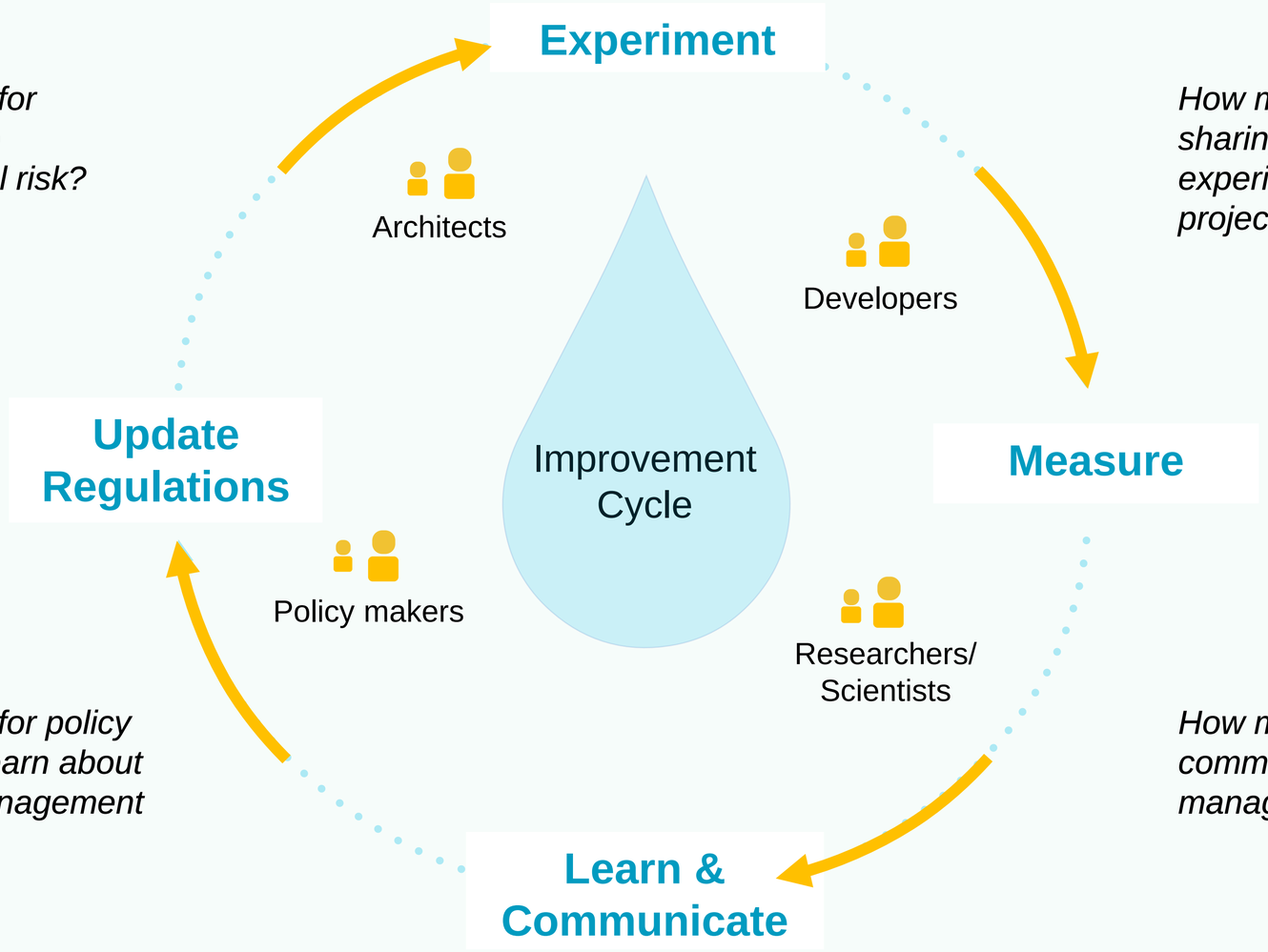
Based on our insights, we offer the following **ideation prompts** to consider for brainstorming ways to address this challenge.

brainstorming prompts

How might we…

- Create opportunities for developers to think beyond the building?
- Influence the creation of incentives that will be motivating to developers?
- Enable affordable housing to easily incorporate stormwater management into development projects?
- Update existing certification systems like LEED to incorporate higher stormwater management standards?
- Make it easy for developers and architects to understand and apply regulations?
- Help developers and architects clearly articulate the various values associated with ‘above and beyond’ stormwater management?
- Help architects convince developers to go above and beyond when it comes to stormwater management?
- Position stormwater management as a way to create a sense of place, maximize land usage, and positively impact the community?
- Leverage architects’ and developers’ desire for creativity to advance stormwater management practices?
- Encourage experimentation around stormwater management?

Increasing the speed of progress



How might we make it easy for architects and developers to experiment with low financial risk?

How might we encourage tracking and sharing of metrics related to experimental stormwater management projects?

How might we make it easy for policy makers and developers to learn about cutting-edge stormwater management techniques?

How might we make it easy to communicate cutting-edge stormwater management case studies?