

There are categories where you put in your actual amount and then there's some sq footage—for instance if it's visible—any of the sq footage that you get credit for, like on this sketch here that shows the little red car and the tree and the little trees to the right—you've already got green factor credit for those, and all of those get 10% added on top if they're visible from the public right-of-way. There's a couple of these and the other one is drought tolerance of plants and then also rainwater harvesting where they can apply to much of the area, so they're considered like a bonus on top. Because it's not a requirement, it just makes it easier to get to your score if you achieve these bonuses.

Mark Johnson, Futurity, Chicago:
Ok, great. Thank you.

Eva:
Thanks, Steve. Thanks a lot. Everyone, again, PowerPoints will be posted on our website, and this has been recorded, so if someone missed it they can see it again, or hear it again. Thanks again, Steve.

Steve Moddemeyer:
Oh, you're welcome.

Eva:
Now we're going to move on to Houston's Vertical Gardens Grant program, and Anton, if you want to take over the PowerPoint.

Anton:
Ok.

Eva:
Anton is the Planning and Urban Design Coordinator for Central Houston Incorporated, and he is going to present on the Houston Downtown Management Districts Vertical Gardens Grant Program. Everyone, please, phones on mute. Thank you.

Anton;

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Ok, thanks a lot. I go ahead and start. The Vertical Gardens Grant Initiative (VGGI) was started by myself, and Patricka Daniel, the Director of Community Development for the Downtown District in the years 2006 and 2007. So, we're going into the second year of this now, and, the Initiative is the outcome of thinking of ways to mitigate some of the negative aspects that exist within downtown.

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While downtown Houston has a collection of really great architecture, there is also this in many areas—inactive, blank facades that at times create inhospitable pedestrian environments that can really detract from the overall vibrancy of downtown.

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In addition to that, many parking structures in the downtown can create the same undesirable effect.

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So, in taking the whole environment into consideration, the facades, good or bad, really affect their surroundings—whether they are small portions of the block or an entire block.

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And in Houston's hot and humid climate, which is at times very inhospitable to humans, is actually ideal for supporting a variety of very attractive plant life. Consulting the USDA plant hardiness zone map, as well as precedent local projects, we found the strongest climbing plants to be fig ivy, Carolina Jessamine, star jasmine, evergreen wisteria, mermaid rose. Houston is in Zone 9a, which is listed as average minimum temperature of 25-20 degrees, but it still very rarely gets that cold here, which essentially means that things grow well year-round.

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So, with these concerns and opportunities in mind, along with the fact that both myself and Patrick come from backgrounds in architecture, we found this quote by Frank Lloyd Wright, we thought quite fitting: "A doctor can bury his mistakes but an architect can only advise his clients to plant vines."

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All in all we wanted to make some negative situations into something positive and unique—something that the ecology of Houston would lend itself to, something that all of the stakeholders of downtown would definitely benefit from.

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And that money in the budget was allocated to a vertical gardens grant. And we set out trying to convince property owners and managers of the merits of this initiative.

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So, different strategies of vertical planting exist. In this case, direct growth is simply planting a climbing species at the base of a structure and allowing it to grow up it.

Property owners we're finding are seldom comfortable with this for fear of long-term damage to the façade due to root penetration.

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Also a structured trellis or panel system—this green screen is a prefabricated system that exists on the market. They are essentially rigid panels that are fixed to the existing structure and plant material grows within them and they're installed similarly to a curtain wall installation. And these obviously have structural concerns at greater heights, and there's a greater expense because of the prefabricated material.

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Another system is a cable system where plants grow on tensioned stainless steel cables. Well, usually stainless steel that are attached to the building structure. A big benefit of these is they usually create a very attractive design even before the plant growth takes shape, and some manufacturers of these are Hang Lines, and Carl Stahl is a different cable line.

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Another is potted and irrigated structures where these actually affixed to the wall and soil sits in the pots—this allows you to achieve planting at additional heights. The larger photo there is the Portland airport. That was a while ago when I was there. I assume that's grown in by now quite beautifully, and I assume it's pretty new. That was about a year ago. And, that's a prefabricated system that's done by eltlivingwalls (www.eltlivingwalls.com). And the great thing about this is that a climbing species of plant is not necessary for it. So, you can really get some nice variation of color and different textures of plants in these kinds of situations.

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Continuing, these potted, irrigated structures can range anywhere from very simple—where you might have the lower center image where it's literally a cage structure with numerous pots in it—to something very complex like on the upper center where the wall is actually impregnated with some soil material. This is actually a construction wall around a construction site where buildings are being built to create a nice spectacle rather than having a plywood wall around the surface. And to the right of that image, the right-top is actually a sound barrier wall on the side of the highway. So, these applications vary quite a bit and can really do a lot to improve an environment.

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Where I find these things to get a little more exciting is where you start to blur the distinction between the supposedly natural ecology and what the built-environment is. Here are some pretty interesting examples of that by a local landscape architecture firm (www.asakurarobinson.com), where they've used these gabion walls which are actually

rubble stones that are formed into large cubes, which are in a steel structure. And, like I said before, there's very little separation between what the structure is and what the planting medium is. And, again, because they're directly planted in the wall, and in some cases they don't actually irrigate these, you don't have to be dependent on using a climbing species of plants, so you can get a lot of variation.

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Here's where I think things get really interesting. I think it's some of the most involved and elegant work being done in vertical gardens right now. I include this as somewhat of a joke, but this seriously is part of this guy's work. It's a French botanist in vertical garden creator named Patrick Blanc.

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He's done some very incredible work, and this image is actually a collaboration with the French architect Jean Nouvel of the Musée du Quai Branly. It's a museum in Paris. This comes from him working with the knowledge that soil is not necessarily needed for plant growth, only constant water actually is. So these projects actually allow the plant to take root in an irrigated layer of felt that's attached to a steel structure with a PVC moisture barrier actually protecting the building.

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Again, a climbing species isn't necessary for these and it allows for a wonderful variety of plants. As well, from the context of a heat island, you could imagine that these buildings have very little, if any, heat gain. And, the evapotranspiration from all of the plants would have a cooling effect on the immediate proximity to them.

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For more technical information on this, actually on Steve's website, the Seattle site, there's a presentation by Randy Sharp, which is actually an excellent, in-depth technical overview of all of these aspects that I'm talking about. Obviously, when we show these images to property owners trying to get them interested in vertical gardens, they're always very excited by these images until they think about this one in the center with a guy maintaining these because projects like these would be quite a bit of maintenance involved with them. They're quite incredible.

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Moving on to our actual grant application, the Downtown Management District (HDMD) VGGI is intended to assist in the facilitation of wall cover plantings and exceptional landscaping on blank walls, parking garages, and sidewalks in Downtown; the intent is to improve overall aesthetics, pedestrian comfort, air quality and reducing heat island effect from keeping the sun from beating on these concrete and stone buildings.

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The grant is available to property owners, tenants, and registered non-profit organizations.

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New grants can exceed 50% of the total project cost. We can match the grant up to 20 thousand dollars. The match may include in-kind contributions such as professional services, materials, and/or labor costs.

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The timeline is with the optimal growing season beginning in mid-February and ending in mid-October, and the optimal planting season, which is actually a dormant season for plants is from mid-October to mid-February. We ask that applications be submitted before the end of the growing season to take advantage of the optimal planting season.

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Here are some of the projects that we have coming up from the 2007 grant applications. Here is a grant recipient in down-town Houston. The central parking garage serving the downtown office market.

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And, what they have proposed is a series of green screen panels, as well as super-graphic image sizes for all sides of the façade.

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This project will actually be executed in phases, so thus it may be eligible for subsequent funding, as the grant was conceived to be used on a per-façade basis.

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Here's one of the other facades of it.

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And another one that we have this year is another project in downtown. And it's actually the sidewalk façade of an office tower. This is not a vertical garden but we've expanded the grant application to include exceptional landscaping—anything that would add more evapotranspiration to the street, add more shade, etc. So, these building owners have proposed exceptional landscape plans with street trees and some pretty lush sidewalk plantings.

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Now, this is not a project that we funded, however, as it was constructed before our grant application was in place, but this is something we would consider a pretty exemplary project. This is the Christ Church Cathedral outreach center that was designed by Page Southerland Page. And you can see we have hanging planters and a trellis structure over a parking garage, and a planted arcade overhead trellis at the sidewalk edge. Now, this has all been planted with star jasmine, which will, probably within the next growing season, be covering the arcade area along the sidewalk, as well as that trellis façade over the parking garage.

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In addition to those green wall initiatives that we have going, we're also looking at various public right-of-way proposals.

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This specific one is looking at adding dedicated on-street parking, street trees, planting the street trees in-between the parking spaces, and utilizing structural soil in the planting areas along with permeable paving to allow percolation to increase water to the roots of the trees and add additional cooling to the streets by shading,

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And obviously creating a much better pedestrian environment, which we intend to do with this image.

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All of this is under the umbrella of the Heat Island Task Force, which is actually a larger initiative that was started by central Houston quite recently in downtown—being the Central Houston Environmental Stewardship Initiative. This includes obviously the Heat Island Task Force, the Energy Task Force, the Energy Task Force (basically energy use and trying to reduce it), Vehicle Miles Traveled per the amount of car trips, Vehicle Miles Traveled focusing on Bicycle trips, Recycling Task Force, as well as Education/Marketing.

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And, that's all I have for you today, so I guess I can answer some questions if there are any.

Ash, CARB:

Hi, this is Ash again. I have a basic question which seems to have just occurred to me. Both for you and for the other ones in Seattle, my question is, did you before the projects begin have somebody go and do some infrared heat measurements of what these

structures heat signature is and then take such a measurement after the project is completed to see what the difference may be?

Anton:

That's something we're actually looking at doing. Now, all of these proposed projects have not gone into construction yet, so we actually still have time to do that. And, doing basically a baseline heat index of downtown is something that's basically on the to-do list for the Heat Island Task Force.

Ash, CARB:

Thank you.

Darlene, Philadelphia:

I have a question about one of the images you had with those rocks and rubble—I don't know where it was located, but, you know growth taking hold through those rocks. Can that be also used as a kind of damming strategy?

Anton:

These gabion walls are used quite frequently in landscape architecture, and you see them quite a bit lining rivers to fortify river banks and things of that nature.

Darlene, Philadelphia:

Ok, right.

Anton:

And the great aspect of them is that they actually will turn into structural soil as the smaller particulate settles in-between the larger rocks, and eventually the metal cages around them do deteriorate. And this will become a natural structural wall.

Darlene, Philadelphia:

So it actually becomes sort of imbedded. So, part of the wall stays exposed and the other part becomes sort of earth material.

Anton:

Yeah, this could feasibly fill in with vegetation and subsequently with dirt as successive freeze and thaw causes decomposition, etc.

Darlene, Philadelphia:

I have another question just in terms of the vertical walls in your grant program. Do you have incentives for those who are interested in doing green vertical walls on buildings that are occupied, as opposed to, let's say, parking garages, so you have the added reduction of A/C.

Anton:

This grant is applicable to any existing building where the façade could use some sort of improvement. Obviously we have some buildings downtown with, you know some

incredible architectural facades that we would definitely not advocate growing a green screen over. But for the most part, this is open to any property owner that seems fit to apply for it.

Darlene, Philadelphia:
Ok, thank you.

Barry, San Jose:
Is fire ever a concern, or something you've thought about? I mean it seems like most of these are irrigated, but with natural vegetation, or un-irrigated examples?

Anton:
Actually, that's not something that's ever been a question. However, it's a very good point. That's definitely something worth addressing.

Barry, San Jose:
I understand that ASTM is working on some standards relating to green roofs and that would be one thing of consideration, but it would probably be very different to look at that in terms of green walls.

Anton:
Of course.

Eva:
I have two questions. I'm sorry if you've already said this but, how many applications have you received to date, and how many are you thinking that you'll actually grant? And, are you thinking this is going to continue, this program? You don't see an end-date for this yet?

Anton:
Oh no, we definitely don't see an end-date for it in the soon future. The 2007 Grant, while the two projects I've shown you were two of the applications received and we subsequently gave the grant to, we actually have a couple of more that are coming in that are requesting 2007 funds, and we do still have the funds to grant those. However, what we've found is, the word essentially got out a little bit late in the 2007 year for property owners to move on this initiative. However, in 2008, we've gotten a considerable amount more interest simply because property managers and property owners already knew about the grant and were able to build it into their 2008 budgets some exterior improvements to where they could match our grant portion. So, we're expecting quite a bit more for the 2008 season.

Eva:
One other question. Sorry to hog this, but, what about enforcement? Someone submits a proposal that they're going to do this, you give them the grant, what kind of enforcement do you have to make sure they follow through?

Anton:

Well, that is essentially that after the project is done, the funds would be dispersed.

Eva:

Ok, that clarifies it. Thank you.

Anton:

Any other questions?

Eva:

I think we have a couple of questions in the queue. Is Irene on the phone? Not to put you on the spot.

Irene:

Where does the funding source come from? And, how do you determine who gets selected, and what is the criteria for the grant award?

Anton:

Ok, I heard that your question was, what was the criteria for selection, and where do the funds come from?

Irene:

Correct.

Anton:

Ok the funds come from the HDMD operations budget. That essentially comes out of funds that are done by an incremental tax assessment of all of the downtown property owners. So, that's why we tried to craft this so it would be of mutual benefit to all of the stakeholders of downtown. As far as the selection criteria, that totally depends on the amount of applications that come in, and through the review process, how we feel any of the given applications would best impact the overall environment.

Irene:

So then are the downtown folks actually part of the selection committee?

Anton:

No, that's actually done by the management district staff.

Irene:

Thanks.

Irene:

You had mentioned that Randy Sharp gave a presentation about the wall?

Anton:

This was just something that Steve had suggested I look at that is actually on the Seattle website. And it's a pretty comprehensive overview of the more technical aspects of the kinds of things that I've shown you in this slideshow.

If you have further interest in more of the technical portion, I would recommend looking at it, definitely.

Cathy, R9:

One of the concerns that we have here in the Bay Area is that we have a lot of hills, so all of the runoff goes down into the Bay. And because of the exotic plants, we have a really high load of nutrients and pesticides ending up in the Bay. And I'm wondering if either of the Seattle or Houston projects have looked at that factor.

Anton:

I can tell you, yes, definitely. That is a concern for Houston. Not so much in terms of fertilizers for the plants, but just basically the city runoff and what not, which is another reason why more of the living wall structure portions, rather than the vines growing on trellises are what we're very interested in because these things actually do filter water as it runs off of the buildings, and it has a very beneficial effect in that context, as well as other things we're doing with permeable pavings and things of that nature in some of the right-of-way improvements that we're trying to do.

Steve Moddemeyer, Seattle:

This is Steve in Seattle, and I have the same basic answer. Yeah, all of those things that keep water on-site help with the problem of mobilizing pollutants to larger bodies of water.

Eva:

Anton, there's a question here from Shana in the queue. Shana, I don't know if you want to un-mute your phone and ask, or...

Shana:

No, that's fine. I was just wonder to the extent that you were talking about planting trees in areas where you're parking, that generally tends to eliminate some parking, so I was wondering if you're coordinating with public transportation agencies.

Anton:

Yes, we definitely are. And the way that is really working is, for instance, situations like this image where we're proposing to put street trees in-between parking. That will essentially eliminate one parking space per block face. However, by doing this, we're actually creating a dedicated lane of parking, whereas now it's a kind of schizophrenic situation where it's only rush-hour parking. So, even though it's one less parking space, the revenue would be increased. So, we're not finding that to have too much resistance with the parking commission, so to speak. However, we are doing a traffic modeling study for this to make sure that with future development happening we can afford to take these lanes out of the street.

Shana:

Ok, are you working with public transportation though to increase access to downtown?

Anton:

Oh yes, certainly.