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### Green + Grey = Success

Architecture has been evolving in urban areas since humans built the first mud-hut, but not all of the progress has been good. Since the beginning of the urban boom of the 1800s, cities have been pressured to keep expanding their infrastructure in their responsibility to take in all residents. However, not all of the progress has been good. In the last several decades infrastructure engineering has been improving but we keep running into roadblocks such as water infiltration issues and soil compaction. Only lately have engineers begun collaborating with green space planners and soil experts in an effort to create a sustainable urban plan that takes into account not just buildings and parking lots, but green areas and trees as well.

Still, progress has been hindered. Building engineers often only learn about how to build strong buildings that can withstand hurricanes, yet they are not educated on the ground they build upon. That is where collaboration comes in. Only when experts from many fields come together are sustainable plans put into place in order to not compromise the integrity of the building, but the ground it lays on. This duality is highly important since it solves issues further down the line of water infiltration and successful green space integration. The three sources I draw from are all meant to be educational, but there are gaps in the communication we still need to solve in order for successful implementation of knowledge.

First, I want to examine the article put out by the Seattle Department of Construction and Permits. This information-rich document details examples of green parking lots. These lots integrate normal parking lot procedures with green spaces designed to take water run-off from these lots and turning it into functionality while reducing drainage costs. Overall, I think this document was highly successful at laying out options and all of the benefits each provides. I particularly found that providing cost analysis of the different plans and comparing it with the traditional parking lot design was a wonderful addition since it showed that there is no added cost associated with expansion of green infrastructure. I also think that since they provided the specific statutes and requirements from the city added credibility to the document. However, I wish that the document explained some of the individual components of green engineering. A significant portion of the examples included telescope swales in the design. I was unsure what

exactly those were and had to look into outside resources to find out. That kind of additional digging could potentially cause the reader to not want to incorporate these ideas since they would have to do additional research and they might take an easier alternative in the form of traditional building. However, I do think this document was well put together and is a great way to introduce the idea of green integration.

Moving on, I want to take a look at the study titled “Stability of landscape trees in engineered and conventional urban soil mixes”. I found this study to not be quite as relevant as the other sources presented. I do find the concept to be interesting and a great starting point to the idea of engineered soils for urban trees. What I have an issue with is the means they went about to test the integrity of the soil strength relative to tree bending. From the diagram they provided it seemed they used other trees in the study as anchoring and pulley trees to test another tree. To me that seems like it could compromise the integrity of the other trees in the form of pre-weakening the soil. Now, I may be wrong in that conclusion and if I am then I would have appreciated the paper including that in their methods. The fact they left it out makes me slightly concerned.

Going further into that study they themselves offered up potential errors in their experiment. For example, they said that their methods may not match up with actual factors that would affect trees in urban landscapes. I think this is important to include and gives a second experiment a leg up on design. I think there could have been a more effective simulation of wind force that simply pulling on the trees could not provide. I also think they should include measurements of growth the different soils could have inhibited. Just because one soil was better at wind resistance does not mean it will be a soil conducive to tree growth. Further research should be done in this area to be truly effective.

Lastly, examining the video of Structural Soils and Construction Technology, I find some faults in the delivery. Overall, I think the video would be a great visual aid if it accompanied a paper or lesson detailing the strategies used and why they are effective. Even if there was some simple narration accompanying the footage that explained why they were doing what they were doing instead of text simply stating what they were doing would have made the video much more informative and enjoyable to watch. But I would also like to take into account the time this video

was released, which was in 2011. In the last ten years, video design has increased leaps and bounds from the earlier years. I think if this same video was attempted by video editors it would have made a much more impactful message. Simple things like trimming segments into more watchable parts and changing the strange, almost bollywood-esque music would create a digestible video that more of the public would be willing to watch. I found this video to be the least effective of the three sources provided and would not really suggest it as a resource to learn more about grey and green integration.

This meshing of two completely different engineering fields has fantastic impacts on water infiltration and run-off. It also provides a cushioning in the effect car pollution can have on local waterways and I think this should be a field more resources go to. Moving forward, this growing movement of eco-friendly infrastructure has the potential to create new jobs and better collaboration between fields. People like our speaker, Peter Macdonagh, are an example of a great mesh of soil planning and urban planning. I think this field has a lot of potential for growth and should provide even more niches in planning careers. If grey-green planning is to survive and continue spreading then more resources should be pushed into communication in the science sector. Too often, scientists and engineers lack communication skills and this can provide a barrier to collaboration since it is hard for one side to understand the other. Moving forward, I do think there is a rolling movement of people pushing for better communication in the STEM fields and I think this will greatly contribute to the success of similar projects in the future. Pushing this will allow for more projects and creations to flow and allow more grey-green projects in the future.

## Works Cited

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