

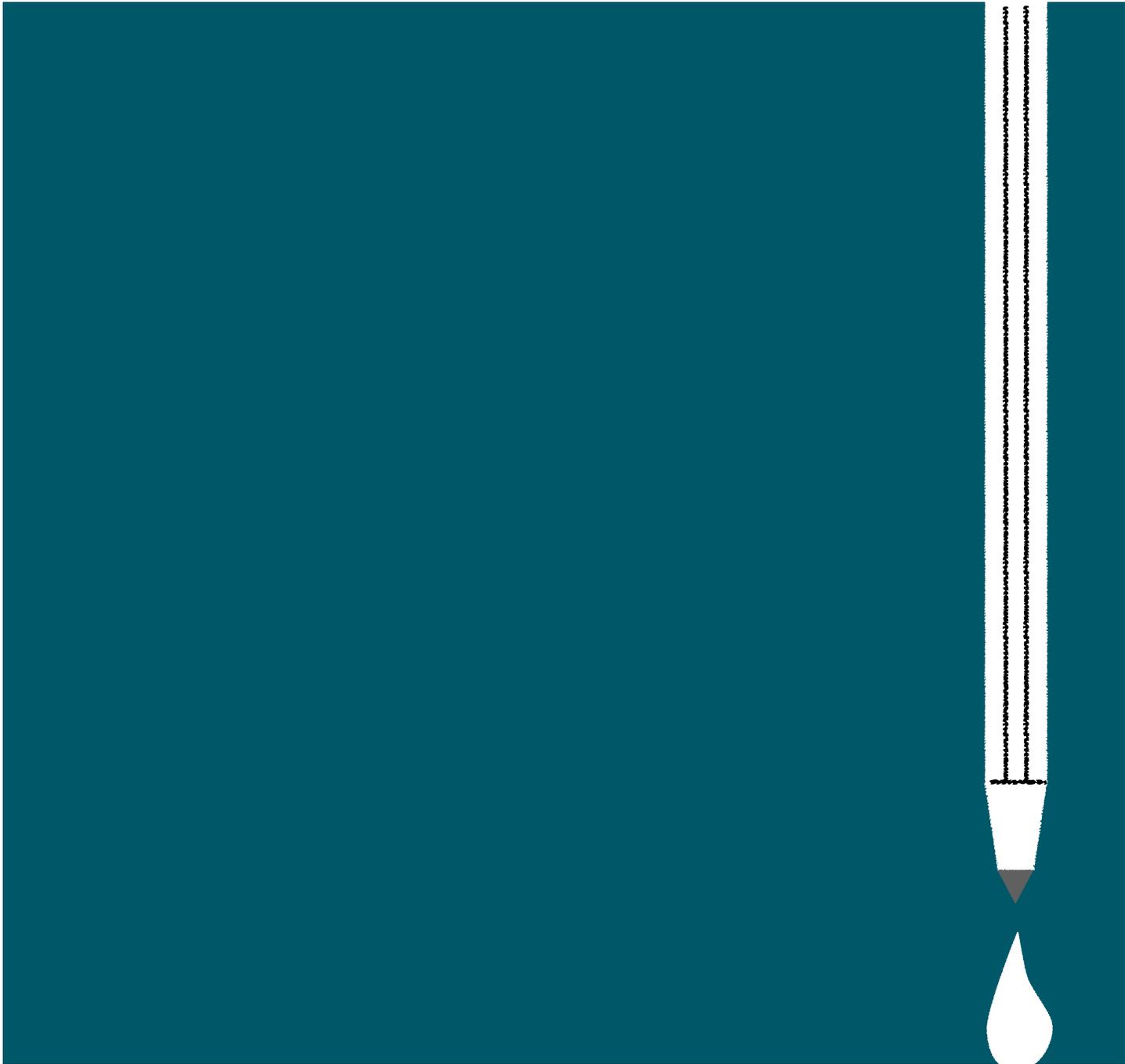
Unlocking
Collaborative Solutions
to Water Challenges in
the Los Angeles
Region:

**THE
POWER
OF
SCHOOLS**

Discovery Phase:
The Multi-Agency Collaborative



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2015



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TreePeople's mission is to inspire, engage and support people to take personal responsibility for the urban environment, making it safe, healthy, fun and sustainable and to share the process as a model for the world.

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Unlocking Collaborative Solutions
to Water Challenges in the Los Angeles Region:
THE POWER OF SCHOOLS
Discovery Phase: The Multi-Agency Collaborative

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01

EXECUTIVE SUMMARY

“It’s not about what it is, it’s about what it can become.”- The Lorax

The current drought provides urgency and a unique window of opportunity to address water challenges in the Los Angeles region. We can no longer look at the issues we face separately, or limit our problem-solving to yesterday’s solutions. The water scarcity we face challenges us to re-imagine the cities of tomorrow. As we do, it becomes clear that collaboration is essential to achieving water resiliency in the Los Angeles region.

In this report, TreePeople focuses on the concept of a *LAUSD Water Partnership* project, examining collaborative options that could allow for increased stormwater capture projects on Los Angeles Unified School District (LAUSD) campuses. This partnership could simultaneously increase the region’s water security, while creating a pathway for major public investment in greening and cooling campuses for LA’s children.

This report shares findings from the Discovery Phase of the Multi-Agency Collaborative, during which TreePeople and its agency partners uncovered potential barriers to building stormwater projects on school campuses and identified paths forward to address each barrier.¹

The Multi-Agency Collaborative grew out of LA County’s 2013 “Clean Water, Clean Beaches” Measure. Designed to raise \$270 million annually to build and maintain needed stormwater projects, the Measure lost traction due to strong resistance from some elected officials, homeowners, businesses, and, importantly, school districts across the County. In response, TreePeople proposed forming a unique, high-level collaboration to explore new forms of water-related partnerships among key agencies: the Los Angeles Department of Water and Power (LADWP), the LA County Department of Public Works (LACDPW), and the City’s Bureau of Sanitation (LASAN).

The Multi-Agency Collaborative explored untapped opportunities and benefits that could arise from a cooperative and systemic approach to water management. Utilizing LAUSD campuses to capture and store stormwater is one powerful opportunity that was identified. This report explores the potential collaboration between LAUSD and key water agencies and outlines steps to make this a reality.

Together with a sister project addressed by the Multi-Agency Collaborative, these efforts seek to support the City and County of Los Angeles in tackling numerous water-related challenges.² These include developing local water supplies, meeting stormwater quality regulations, developing climate resilient systems, and replacing aging infrastructure across the region. Various factors, including the drought, future costs of managing water, new regulations, and health impacts from increased heat, have given some of the region’s largest infrastructure agencies added incentive to work together to meet their discrete yet overlapping goals. TreePeople believes the approach outlined in these two reports would represent a major step toward resolving these challenges, and will help attain greener, healthier schools and more resilient neighborhoods.

¹ See Appendix A, “Project Process Description” for an explanation of phases.

² TreePeople, “Moving Towards Collaboration: A New Vision for Water Management in the Los Angeles Region,” www.treepeople.org/treepeople-publications.





KEY FINDINGS:

1. By investing a portion of the anticipated two billion dollars needed annually for stormwater cleanup into greening and rainwater harvesting on school campuses, we can realize significant gains for our children.³ Transforming school campuses to capture stormwater will lead to greener campuses – creating environments that help increase concentration, reduce stress, and stimulate creativity in children.⁴ Greener campuses also offer more protection from extreme heat effects and contribute to the overall health of school communities and neighborhoods.

2. LAUSD’s concerns about accepting off-site stormwater can be successfully addressed and overcome. While it will not be easy, regulators and public leaders across Los Angeles and California believe transforming appropriate school campuses to capture rainwater and off-site stormwater is possible. Despite past failed attempts to institute major projects that would capture neighborhood stormwater on school sites, this report outlines options to move forward and allow schools and the community to both benefit from increased greening and local water capture.

3. An unprecedented opportunity exists to create a shared vision, defined goals, and a coordinated strategy for the Los Angeles region. Collaborative tools exist to encourage and assist each agency involved to operate beyond its individual mandates in support of an all-encompassing plan for water in Los Angeles, while simultaneously greening schools. Engaging key thinkers, leaders, regulators, and staff in a facilitated, collaborative process can not only enhance individual agency identities and strengths, but leverage the power of the partnership to achieve far-reaching regional solutions – solutions which may not be attainable through individual acts or singular perspectives.

4. Agencies are prepared to take the next steps toward making this vision a reality. This report outlines a three-pronged approach to quantify the investment value to the agencies, identify viable legal protection for LAUSD, and continue to build community and political support for these projects, all of which TreePeople believes are necessary before moving to an intense design process in Phase Two.

About TreePeople

TreePeople, a Los Angeles-based non-profit organization founded in 1973, has a long history of advocating for systemic changes in the management of our cities and watersheds. The organization has over 20 years of experience demonstrating the cost-effectiveness of multi-agency, multi-purpose water infrastructure. It specializes in facilitating processes to bring agencies together with communities to plan, fund, and implement the projects. TreePeople has organized projects with other partners that demonstrate, on-the-ground, the feasibility of building distributed green infrastructure at the individual parcel, school, park, and street levels.

This work looks towards the future, helping schools and communities prepare for and adapt to the increased temperatures and long-term water shortages expected in Los Angeles due to the changing climate.

³ Ibid.

⁴ Wolf, K.L., and K.Flora 2010. Mental Health and Function - A Literature Review. In: Green Cities: Good Health (www.greenhealth.washington.edu). College of the Environment, University of Washington.

VISION

Schools protect, nurture, and cultivate what is most important to our future – our youth. TreePeople believes schools are also smart places to cultivate and protect what is arguably our other most valuable resource – our water. TreePeople’s vision for the schools of Los Angeles is that they will be valued, managed, and perpetually and abundantly invested in as a key to the strength, success, and survival of the region.

This can be done, in part, by transforming campuses into living, vibrant outdoor spaces that foster creativity and learning, promote health and recreation, revitalize park-poor neighborhoods, and bring opportunities for contact with nature to LA’s youth. TreePeople believes this is not only possible, but it could be the smartest way forward for Los Angeles to meet many water-related needs, providing a path toward climate-resilience in the face of a hotter, drier future. In the coming decades, billions of public dollars will be invested in cleaning and collecting urban stormwater and developing new water sources for the region due to a changing climate and new regulatory mandates. An opportunity exists to invest these dollars in our school campuses as a way of meeting multiple community needs and providing the best return on investment to LA’s taxpayers and ratepayers.

TreePeople sees tremendous benefits that could be realized through collaboration among the Los Angeles County Department of Public Works (LACDPW), the Los Angeles Department of Water and Power (LADWP), the Los Angeles City Bureau of Sanitation (LASAN), and the Los Angeles Unified School District (LAUSD). The partnership could create beautiful tree-shaded campuses for students to walk, gather, eat, study, exercise, and recreate *without any additional cost to the school district*. Greener learning environments help

increase concentration, reduce stress, and stimulate creativity in children. Lack of access to green and healthy learning environments in low-income and ethnically diverse neighborhoods across Los Angeles is a social and environmental justice issue.⁵ Currently, the lack of greening and expanses of hot asphalt discourage physical activity and contribute to health risks including skin cancer, extreme heat effects, asthma, and obesity.

TreePeople’s vision for the schools of Los Angeles is that they will be valued, managed, and both perpetually and abundantly invested in as a key to the strength, success, and survival of the region.

LAUSD has made repeated commitments to green its campuses and become a leader in sustainability. A 2007 LAUSD Board Resolution declared LAUSD’s goal of striving “to be the most sustainable and environmentally-friendly urban large school district in the Country....”⁶ In 2014 alone, the school district established new programs, added staff positions, and allocated money from a recent bond measure to facilitate school greening.

⁵ Wolch, J.R., Byrne, J., Newell, J.P. Urban green space, public health, and environmental justice: The challenge of making cities ‘just green enough.’ *Landscape and Urban Planning* 125 (2014). 234-244.

⁶ LAUSD Board of Education, Green LAUSD Resolution, August 23, 2007.

Investing in school grounds is of great interest to local water agencies, as schools are evenly distributed parcels of land throughout the County, with significant open space ripe for transformation. Existing open spaces on school campuses can be safely engineered and managed to capture, treat, store, and use rainwater that has fallen on school grounds. Additionally, schools can be retrofitted to safely capture even larger quantities of water *under the campus* from rainwater falling on the adjacent neighborhood.⁷ This water would either be stored for on-site use, e.g., irrigation of recreational fields, or conveyed to groundwater aquifers. (See Appendix D for an illustration of this concept.)

Transforming campuses in this way would slow runoff to prevent flooding, clean the water, and increase local water supplies. These benefits to water agencies create an opportunity for them to fund school transformation and its associated maintenance costs, in addition to the capital and operations and maintenance costs of the project itself.

LAUSD cites legal and regulatory barriers as preventing implementation of green infrastructure projects on campuses to clean, store, and infiltrate stormwater “run-on” from the surrounding neighborhood. Unfortunately, these barriers mean that the billions of dollars of public funds projected to be spent in the near future on stormwater cleanup and capture – funds that could be spent on greening campuses – will likely get diverted to other projects. However, these barriers can be overcome.⁸

One example of the safety, functionality, and economic viability of the multi-use green infrastructure approach has been demonstrated at Sun Valley Park, a multi-use park that harvests and stores rainwater in the Northern San Fernando Valley, where children and families gather to play. It is an important example that shows it is possible to overcome barriers and leverage funds as a co-investment in LA’s children, schools, and neighborhoods.

BACKGROUND

The “Multi-Agency Collaborative” described in this report grew out of Los Angeles County’s 2013 “Clean Water, Clean Beaches” Measure. Designed to raise \$270 million annually to build and maintain needed stormwater projects, the Measure lost traction due to strong resistance from some elected officials, homeowners, businesses, and, importantly, school districts across the County – especially the Los Angeles Unified School District. LAUSD alone would have been accountable for \$4.8 million annually under this fee structure, paid for from its general fund – a significant figure that would compete with teacher salaries. Additionally, the Measure was intended to be a multi-purpose water improvement platform, but key water supply agencies were not engaged in planning the programs, and policy leaders across the region were not aware of the multi-benefit approach. With such strong resistance expressed by the public, the County Board of Supervisors placed the Measure on hold.

⁷ Projects taking water from off-site would only be implemented at appropriate school locations. Appropriate school locations can be identified through a prudent site-selection process that includes computer modeling, and would site projects according to neighborhood hydrology, soil type, and many other factors.

⁸ The proposed projects are designed to take water from neighborhoods, clean it, and store it under school campuses for later use or to infiltrate it into the aquifer. Water would be diverted from nearby storm drains into underground filtration systems where it would be cleaned, then pumped into large storage tanks or infiltration galleries built under playgrounds or parking lots on schools. At no point would stormwater come in contact with students, staff, or school community members.

In response, TreePeople proposed forming a unique, high-level collaboration to explore deeper partnerships among three key water agencies – LADWP, LASAN and LACDPW – to achieve the multi-benefit objectives sought in the County Measure. TreePeople leveraged its long-standing relationship with LAUSD to gain their buy-in to explore mutually beneficial solutions that could relieve them of future fee requirements. With all four partners on board, the Multi-Agency Collaborative provided an opportunity for three public water agencies responsible for managing different aspects of the water cycle to explore the efficiencies and benefits of increased collaboration, and expanded partnerships with private and public landowners, including LAUSD.

A separate report, *Moving Towards Collaboration: A New Vision for Water Management in the Los Angeles Region* documents the incentives, barriers, and opportunities for water agencies to work together that were identified during the first phase of the project. See Appendix A for a complete description of the project phases.

ABOUT TREEPEOPLE

TreePeople brings unique skills and perspectives to this collaboration. For years, TreePeople has called for systemic changes in the way our city is managed. Each rainy season, even in the driest years, greater Los Angeles uses billions of gallons of water and spends hundreds of millions of dollars to deal with flooding and the polluted water that overwhelms our storm drains, threatens our neighborhoods, and fouls local waterways and the ocean. At the same time, billions of dollars and a significant portion of California's total energy use are spent to import water from hundreds of miles away – resulting in economic, social, and environmental externalities that are not accounted for.

TreePeople has 20 years of experience demonstrating the cost-effectiveness of multi-agency, multi-purpose water infrastructure, and facilitating processes to bring agencies together with communities to plan, fund, and implement the projects.⁹ TreePeople created a cost-benefit analysis tool and organized projects with other partners that demonstrated the feasibility of building distributed green infrastructure at the individual parcel, school, park, and street levels.¹⁰

In addition, TreePeople has a strong record of providing transformative environmental education to the children of Los Angeles. By translating obscure and complex environmental issues into State-standard curricula, service-learning activities, and facilitated school-based projects, TreePeople inspires students to change personal, family, and community behaviors. Since 1973, TreePeople has delivered more than \$20 million to local schools in education programs and services.

⁹ Projects include Sun Valley Watershed Management Plan, City of LA Integrated Resources Plan for Water, the TREES Cost-Benefit Modeling Tool, and Hall House Demonstration project, among others.

¹⁰ See Appendix C for two examples of school campus retrofits for on-site stormwater capture.



PROCESS

On behalf of the Multi-Agency Collaborative, TreePeople began the *LAUSD Water Partnership* process by engaging former LAUSD Superintendent John Deasy and his key staff to convene a gathering of twelve senior directors from across the LAUSD. The meeting was hosted by the LAUSD Facilities Division in July of 2013. The purpose was to hear concerns, understand major barriers, and explore opportunities to help address the region's pressing water-related needs by building projects on school campuses that accept stormwater from surrounding neighborhoods to be treated, held, and infiltrated or captured for later use underneath select campuses. The thoughts and concerns from this July, 2013 meeting were documented, and shaped the strategy for identifying and overcoming perceived barriers in the *LAUSD Water Partnership* project. As highlighted in Figure A (page 13), TreePeople worked to explore the challenges cited, while keeping key LAUSD staff updated on the progress.

From January to July 2014 TreePeople conducted key interviews to find resolutions for the concerns raised by LAUSD and water agency staff. The goal was to determine if the barriers were indeed insurmountable, or if they could be overcome through negotiations, agreements, or other mechanisms.

Representatives from the following offices were consulted:¹¹

- California Department of Toxic Substances Control
- California Water Resources Control Board
- Los Angeles City Council Members
- Los Angeles County Department of Public Health
- Los Angeles Regional Water Quality Control Board Members and Executive Staff
- Los Angeles Unified School District School Board Members and Staff
- Los Angeles Unified School District Staff
- Office of Los Angeles City Attorney
- Office of Los Angeles City Controller
- Office of Los Angeles Mayor Eric Garcetti
- US Environmental Protection Agency (Region 9)

¹¹ See an expanded list of meetings and participants in Appendix B.

BARRIERS

HEALTH RISK

Potential Barrier LAUSD identified the potential risk to students' health as a barrier to building regional stormwater projects on school properties. Schools are responsible for protecting the health of their students and staff, and many resources are invested in reducing risk of exposure to anything toxic or harmful. LAUSD is concerned that these projects could increase exposure to potentially harmful substances, and that students, staff, or neighbors could become ill after contact with contaminated stormwater.

Path Forward TreePeople contacted the top Directors at the County Department of Public Health (DPH) who stated that any concern over health risk to school occupants or visitors could be addressed by demonstrating insignificant risk of exposure. The risk that anyone would have contact with this water and contract an illness is quite small. With proper engineering, any neighborhood stormwater would immediately go underground and never come into contact with students. In addition, DPH can make the determination of insignificant risk with the appropriate controls in place (e.g., characterization of contaminants and methods to ensure against direct contact or inhalation). DPH leaders expressed their support of this concept and are willing to help this process achieve success. A support letter addressing these issues is attached. (See Appendix E.)

REGULATORY BARRIERS

Potential Barrier In the past, it was LAUSD's understanding that the California Department of Toxic Substances Control (DTSC) would not allow schools to build regional stormwater projects on their campuses for reasons related to water quality and potential exposure to contaminated water. Additionally, LAUSD staff members were concerned that stormwater projects could interfere with or create Superfund sites.

The LAUSD Office of Health and Safety (OEHS) expressed concern that previously proposed stormwater projects (like the one at Fremont High School¹²) could create exposure risks and would require ongoing monitoring and/or clean-up to meet environmental health and safety standards.

LAUSD expressed concern that even if the District were to proceed, monitoring and cleanup costs required to remain in compliance with the additional regulations would be cost-prohibitive.

The California Division of the State Architect (DSA) reviews significant construction projects on public school campuses (K-12) across the state. Though TreePeople did not identify any prohibitions or explicit barriers from DSA, the agency will need to be involved in future design, approval, and/or implementation of stormwater projects.

¹² In 2010, the City of Los Angeles and LAUSD decided not to move forward on a proposed stormwater infiltration project at Fremont High School due to project concerns that would have raised cleanup and monitoring costs beyond economically feasible levels.

Path Forward TreePeople reached out to three different regulatory agencies to better understand the barriers:

- Follow-up conversations with the DTSC revealed that although the Department could prohibit these projects in specific instances, the DTSC does not have a blanket prohibition regarding off-site stormwater capture for schools, and would be willing to work in partnership with LAUSD and water agencies to identify viable paths forward.
- TreePeople contacted two members of the State Water Resources Control Board to identify any water quality concerns or barriers statewide regulators might have about this kind of project. Both are in strong support of advancing this concept and partnership.
- TreePeople also contacted the Environmental Protection Agency's Region 9 headquarters to discuss the EPA regulations and Superfund concerns. They acknowledged that the transfer of liability could be an issue, but are supportive of identifying a resolution.

MAINTENANCE AND MONITORING COST

Potential Barrier LAUSD Facilities stated green space maintenance costs are three times that of asphalt.¹³ Appropriate stormwater project monitoring costs can also be significant. Statewide budget cuts have resulted in significant teacher layoffs and a general reduction in funding in past years. Therefore, it is important to the District that any project be maintenance-cost neutral and not compete for scarce education funding.

Past stormwater projects on school campuses have been rejected by LAUSD due, in part, to a lack of long-term plans for how to maintain both the gray (traditionally built) and green (nature-based) infrastructure.¹⁴ Stormwater projects implemented on LAUSD campuses to capture only on-site water – at Open Charter Elementary and Broadous Elementary – were seen as only partially successful because the District was left with the burden of maintenance. (See Appendix C.)

There are additional barriers to resolving this concern. Due to legal restrictions on how funds can be spent, the water agencies cannot cover Operations and Maintenance costs on land they do not own.

Path Forward There are two critical steps to overcoming this challenge. The first is for water agencies and LAUSD to identify long-term, sustainable funding to cover the cost of monitoring and maintenance on LAUSD campuses for both the above-ground greening work as well as the major stormwater infrastructure underground. TreePeople believes this challenge can be addressed through the Phase Two charrette process. (See Appendix A.)

Second, any new stormwater funding, whether it be a countywide fee or any other type of funding source, must allow for spending maintenance dollars on third-party land. Ultimately, this could be a net benefit to LAUSD, as they could have more money to pay additional Maintenance and Operations (M&O) staff. This is a key issue that should be raised in any future funding mechanism considered in the region.

¹³ From a presentation by Mark Hovatter, Chief Facilities Executive for LAUSD, on April 24, 2014.

¹⁴ Gray infrastructure refers to traditional practices for stormwater management and wastewater treatment, such as pipes and sewers. Green infrastructure refers to sustainable pollution reducing practices that also provide other ecosystem services. <http://www.epa.gov/nrmrl/wswrd/wq/stormwater/green.html>.

LABOR AGREEMENTS

Potential Barrier Proper maintenance of the new infrastructure will likely require new staff and additional training above and beyond current LAUSD Maintenance and Operations staff core skills. Contracting with properly trained M&O staff from the water agencies is one option, however labor and union agreements could prevent non-unionized LAUSD workers from performing maintenance on LAUSD grounds without prior approval.

Path Forward Many sources cited this as a possible barrier, but one that could be overcome through early conversations with the unions. One pathway forward is for maintenance to remain in the hands of the LAUSD labor unions, with money to hire additional maintenance staff and conduct training supplied by the water agencies. Alternatively, it is possible that unions could negotiate exemptions if they prefer for the water agencies' staff to address the work.

GEOTECHNICAL CONSIDERATIONS

Potential Barrier There is concern over possible soil destabilization or other land impacts (not related to contamination) that could occur as a result of this project.

Path Forward In conversations with engineers, water agencies, consultants, and lawyers, TreePeople was assured that soil destabilization is not a threat to campuses with these projects. Proper geotechnical analysis and engineering will account for any shifts or changes to the soil or earth below the school.

LIMITS TO FUTURE CONSTRUCTION

Potential Barrier There is some concern that stormwater projects constructed below parking lots or grass fields could limit the District's ability to construct new buildings or make other changes to the campus if necessary.

Path Forward Any alterations to LAUSD campuses would be made in accordance with each school's master plan to account for projected growth and future need. Infiltration galleries and tanks are best held below parking lots or playing fields, which can be repaired and improved during construction.

Additionally, if needed, infiltration infrastructure can be constructed to support structural weight of buildings and other improvements.

REAL ESTATE VALUE

Potential Barrier There is concern that if the District wanted to sell property in the future, the infrastructure could reduce the property value or limit the ability to sell. Though property sales are uncommon, LAUSD does occasionally sell its land.

Path Forward Although the possibility that LAUSD will need to sell property is small, TreePeople acknowledges that it could present challenges and may have to be part of any negotiation among the agencies. Additionally, water agencies suggested that one path forward could be purchasing just the land where the projects are built (fields or parking lots) and then developing joint-use agreements or easements. Though it may be controversial with the District, this approach could resolve other barriers as well (including maintenance and liability).

It is worth noting that, in a time of coming water shortages, an on-site water supply facility could become a very attractive and valuable asset, raising potential resale value.

TRUST

Potential Barrier Many interviews revealed that there is a lack of trust between LAUSD and the water agencies because of complex histories that include broken promises and significant lawsuits on both sides. Many of the legal solutions require a partnership and a basic level of trust as collaborators.

Path Forward Facilitated charrette processes (meetings in which all stakeholders in a project attempt to resolve conflicts and map solutions) are designed to help build partnership and trust across agencies. The history of mistrust is long and cannot be ignored, but very specific steps can be taken to build better working relationships, and to address and remedy each of the sources of distrust.

Current research on building trust between collaborative partners suggests that the most effective way to build trust is to set clear goals and commitments. Shared measurements of success allow partnering agencies to understand the ways their participation in a process is needed, and allow the network to see the competence, honesty, and reliability in each of their partners.¹⁵

¹⁵ "Essential Mindset Shifts for Collective Impact." Stanford Social Innovation Review, Fall 2014. http://www.ssireview.org/articles/entry/essential_mindset_shifts_for_collective_impact.

LIABILITY

The issue of liability is the largest barrier to the success of this process. As the second-largest school district in the United States, LAUSD is accountable for the health, safety, and security of over 900 schools, and 640,000 children every year. In addition, the District has an obligation to be responsible stewards of public education funds. After remediating sites for over 130 new schools, LAUSD is acutely aware of the costs and time-consuming nature of environmental cleanup.

The District's liability concerns fall into the following areas:

- **Environmental Contamination:** Property owners may, in many circumstances, face strict liability for environmental contamination under the federal CERCLA statute, commonly known as Superfund. LAUSD lawyers believe that the School District is at risk, regardless of any indemnification or insurance, for lawsuits from neighboring property owners should system failures in the project lead to groundwater or soil contamination on LAUSD or neighboring property.
- **Personal Injury:** There is concern that students, staff, or neighbors could become ill after contact with contaminated stormwater or exposure to potentially harmful chemicals or toxins in the water and/or soil. Though this is highly unlikely and difficult to prove, people could sue LAUSD for damages even without actual proof that the cause of alleged harm originated on LAUSD property.
- **Subsidence Effects (and other land impacts):** Though adverse impacts to land or buildings are unlikely, LAUSD requires assurance that the cost of any necessary repairs will be covered.

Regional stormwater management is beyond LAUSD's core mission, and at this time LAUSD is unwilling to assume responsibility for any potential liability that arises from the construction and/or operation of the proposed projects. Therefore, any such potential liability will need to be assumed by governmental or private entities other than LAUSD. From research and interviews, TreePeople believes a number of options exist for protecting LAUSD from any real or perceived physical or financial harm.

Under Current Law:

Indemnification Agreements:

- LAUSD's current position on this issue is that an "indemnification agreement" between the major governmental entities in this region (either between LAUSD and the City of Los Angeles, or LAUSD and Los Angeles County, or a combination of the City and County), may not be enough to protect LAUSD from lawsuits. However, other sources believe that a well-crafted indemnification agreement (whereby either the City or the County or both "indemnify" LAUSD) can provide sufficient indemnification protection for LAUSD to go forward with the proposed projects.

A former Assistant City Attorney and General Counsel for the City Department of Public Works believes that indemnification agreements can be entered into that would fully cover LAUSD's potential liability for any possible property or personal injury claim which may arise from the construction or operation of the proposed water projects. The one area that may be difficult to get local government to cover in such an agreement is any gross negligence on the part of the District. (Indemnification agreements may not protect against soft costs incurred by staff lawyers or LAUSD outside counsel in the case of a lawsuit, unless the local governmental entities expressly agree to this concept in an indemnification agreement.)

- Indemnification agreements would need to come with the financial capability to pay for any costs associated with a cleanup effort for any contaminated property lawsuit, as well as damages imposed for a personal injury case. This can be accomplished either through the overall financial viability of the City and/or the County, or through an actual insurance policy with a sufficient limit to cover any potential claim.
- LAUSD could be protected in the case of subsidence or other impacts to the land, during and after construction, through contractor provided indemnification/insurance in addition to that provided by the County or the City.

Land Purchase or Easements:

- A water-related or other governmental agency could explore the possibility of securing an easement, or even land purchases, with a joint-use agreement. (This could be limited to part of the school, such as the recreational fields under which the stormwater would infiltrate or be captured.) This would transfer the liability away from LAUSD and to the other respective agency or agencies. An example of such an agreement can be seen in the partnership between the Portland Bureau of Environmental Services (BES) Sustainable Stormwater Program and Glencoe Elementary School. BES purchased an easement on the school property; subsequently, they designed and built, and continue to maintain, the green infrastructure project.

Clean Water Act Permits:

- According to the State Water Resources Control Board, LAUSD is currently regulated under the Phase II Small Municipal MS4 Program. However, when the first round of Phase II passed in 2013, the school districts were given relief due to the state of the economy and other factors, and are not currently required to comply. The next round of the Phase II permit could commence within two to three years, and permittees, including LAUSD, may be responsible for compliance. Partnerships with regional stormwater projects have the potential to offer LAUSD an alternative form of compliance, and could provide an additional incentive for LAUSD to collaborate on these projects.

Under New Law:

- New state legislation could be written to indemnify individual schools or school districts when they implement stormwater capture projects where the water is being infiltrated or stored for future beneficial use. Though the state law would not protect LAUSD in federal court, the additional protection should help alleviate most of LAUSD's concerns about liability arising from these projects.

TreePeople conducted its research to understand the scope of the challenges and identify pathways to address or overcome the concerns and perceived barriers identified in the July 2013 meeting. Figure A gives a brief overview of each barrier and the suggested path forward.

CONCERN	DESCRIPTION	POTENTIAL RESOLUTION
Health Risk	Concern that contaminated stormwater brought onto school sites could have adverse effects on students, teachers, staff, and the community.	LA County Department of Public Health is supportive of finding a viable path forward and issued a letter of support stating their position. (See Appendix E.)
Regulatory Barriers	Concern that the Department of Toxic Substances Control (DTSC) would not allow off-site stormwater capture projects on school campuses.	Commitment of support from DTSC on appropriate school campus sites. State and Regional Water Quality Control Board and US EPA also expressed their support.
Maintenance and Monitoring Costs	According to LAUSD, green spaces on campuses cost three times as much to maintain as does asphalt. Maintenance is covered by the general fund, which also covers teachers' salaries.	Water agencies would need to determine viable methods to cover O&M costs for both the green and gray infrastructure added to retrofitted campuses. This may include innovative public-private partnerships with nonprofits or corporations, as well as joint agreements among the agencies allowing their funding to be used for these purposes.
Labor Agreements	Labor/union agreements could prevent outside workers from performing maintenance on LAUSD campuses.	Early conversations could eliminate this barrier. Maintenance support from agencies could be directed to hire additional staff and conduct training.
Geotechnical Considerations & Other Land Impacts	Concern that infiltration or tank/pipe leaks could have soil destabilization effects on campus structures.	Proper engineering will address this issue.
Limits to Future Construction	Underground infrastructure projects could limit the construction of new buildings or other renovations in the future.	Infiltration galleries or tanks would be located beneath fields/parking lots and could be designed to fit long-term plans for each school. Additionally, if needed, infiltration basins can be built to accommodate the weight of future structures.
Real Estate Value	Concern that if LAUSD wants to sell property in the future, the infrastructure could significantly reduce the property value or limit the ability to sell.	Acknowledge that this could be a barrier. However, in an increasingly water constrained world, this could become an attractive value-added asset.
Trust	There is a lack of trust between water agencies and LAUSD.	A closely facilitated process that allows space for trust-building and specific working agreements to address those concerns can build shared goals and satisfy agency needs.
Liability	LAUSD raised concerns regarding environmental contamination, personal injury and subsidence effects.	As described on pages 11-12, several options exist for protecting LAUSD from any real or perceived harm.

Figure A:
Potential Barriers to Stormwater Projects on LAUSD Campuses

BENEFITS

BENEFITS TO LAUSD

There are potentially many benefits to LAUSD if regional stormwater projects are able to proceed on LAUSD campuses. Benefits include, but are not limited to:

- **Increased Funding** Spending on stormwater compliance will skyrocket in the coming years and is projected to surpass \$2 billion annually.¹⁶ A portion of that money could be directed toward making improvements on LAUSD campuses, instead of spent elsewhere. In addition, LAUSD's participation in these projects could create increased financing for school maintenance and operations, as well as financial savings through reduced water usage and a reduction in energy bills (from shading of buildings through strategic tree planting).
- **Strategic Partnerships** Partnerships with water agencies could have significant regulatory and financial benefits for LAUSD, including: potential reduction in water rates, exemption from future taxes or fees related to stormwater, compliance with state stormwater permits, and more.
- **Achieving Sustainability Goals** In a resolution passed in 2007, LAUSD Board Members declared their goal of striving "to be the most sustainable and environmentally-friendly urban large school district in the Country..." The *LAUSD Water Partnership* could provide some of the capital and maintenance funding to move LAUSD into this leading position.
- **Greener Schools** Greener, healthier schools will help support learning and achievement goals. Research has repeatedly found that "contact with nature helps children to develop cognitive, emotional, and behavioral connections to their nearby social and biophysical environments."¹⁷ These projects offer an opportunity to tie into Next Generation Science Standards with hands-on learning for students.¹⁸
- **Improved Health** Trees and green space help mitigate major public health risks¹⁹ including skin cancer, extreme heat effects, asthma,²⁰ and obesity,²¹ contributing to the overall health of school communities and neighborhoods.
- **Improved Community Space** A green and attractive campus environment creates a more inviting community space, which has been shown in TreePeople's experience to engender greater volunteerism amongst parents. The parents in turn spend more time on the campus, help maintain the green space, and engage with the students as parent helpers before and after school. Creating school-based green spaces helps to address some of the existing social justice issues in our communities, especially in park-poor neighborhoods.

¹⁶ TreePeople, "Moving Towards Collaboration: A New Vision for Water Management in the Los Angeles Region," www.treepeople.org/treepeople-publications.

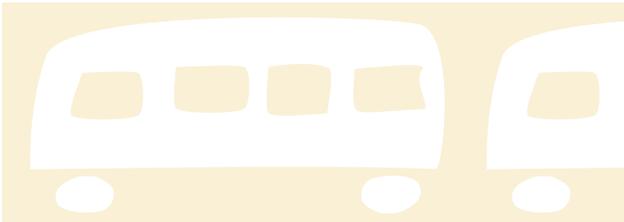
¹⁷ Wolf, Kathleen, and Katrina Flora. "Mental Health & Function." http://depts.washington.edu/hhwb/Thm_Mental.html. University of Washington, 26 Dec. 2010. Web.

¹⁸ Science standards issued in April 2013 created by a consortium of states and educational organizations.

¹⁹ Catherine, Martineau. Public Health Benefits of Urban Trees. Canopy, 15 Feb. 2011. Web.

²⁰ Lovasi, G. S., J. W. Quinn, K. M. Neckerman, M. S. Perzanowski, and A. Rundle. "Children Living in Areas with More Street Trees Have Lower Prevalence of Asthma." *Journal of Epidemiology & Community Health* 62.7 (2008): 647-49. Web.

²¹ Katz, D. L. MD. Public Health Strategies for Preventing and Controlling Overweight and Obesity in School and Worksite Settings: A Report on Recommendations of the Task Force on Community Preventive Services. Centers for Disease Control and Prevention, October 7, 2005.



Main Street Elementary School, a campus greening project, used above-ground green infrastructure (rain gardens) to capture on-site water only. The project was completed with leadership from TreePeople.



By increasing green spaces and tree canopy in the urban landscape, the air temperature in surrounding neighborhoods is cooled, protecting residents from the dangerous impacts of heat islands and severe heat events. Recent studies from the United States and Australia show a decrease in human mortality from increased vegetation, tree canopy and soil moisture (to enable evaporative cooling).

BENEFITS TO COMMUNITIES

There are many benefits that could accrue to communities throughout the region if these projects are able to proceed, including, but not limited to:

- **Local Investments** Increased volumes of local water will reduce future imports from distant locations. Thus, local dollars can be allocated for improvements and jobs within the community, reducing the resources that are sent outside of the watershed.
- **Local Improvements** Local dollars can be directed to make improvements on public spaces where members of the community – and most importantly their children – spend a significant amount of time.
- **Future Generations** When schools have actively programmed as well as passive natural watershed areas as outdoor classrooms, Los Angeles will create and support generations who have inculcated the skills, knowledge, and values of water stewardship as part of their core knowledge and “ethos” of local citizenship.
- **Public Health and Safety** By increasing green spaces and tree canopy in the urban landscape, the air temperature in surrounding neighborhoods is cooled, protecting residents from the dangerous impacts of heat islands and severe heat events. Recent studies from the United States and Australia show a decrease in human mortality from increased vegetation, tree canopy and soil moisture (to enable evaporative cooling).²²

BENEFITS TO WATER AGENCIES

The partners in the Multi-Agency Collaborative – LADWP, LASAN and LACDPW – will all benefit from access to schools as stormwater-capture sites. All three agencies are looking for large open spaces that are suitable to infiltrate or capture stormwater, and school sites provide an ideally suited opportunity. Modeling needs to be done in order to determine the appropriate sites as well as the volume of water that will be able to be captured. Based on these modeling results, benefits can be quantified in terms of water supply gained, pollution prevented, and flooding averted. In addition, if water agencies consider purchasing land or easements, financial savings can be realized over privately owned sites that would require land acquisition.

²² Modeling a combination of vegetation increase and reflectivity, significant decreases in urban heat temperature were achieved in Los Angeles, resulting in up to 22 lives saved over a 10-year period that would otherwise have been lost to heat-related causes. Vanos, JK., Kalkstein, LS., Sailor, D., Shickman, K., Sheridan, S. "Assessing the Health Impacts of Urban Heat Island Reduction Strategies in the Cities of Baltimore, Los Angeles, and New York". *Global Cool Cities Alliance*. July 3, 2104.

17

RECOMMENDATIONS

Despite the long list of potential barriers, finding a mutually beneficial solution is possible through innovative approaches and strong political leadership. This Discovery Phase has revealed the challenges, but has also clarified opportunities and paths forward.

Before moving into a full planning process, LAUSD requires assurance that the District will be legally protected. TreePeople's recommendation is to move into a next phase of work with three components:

DETERMINE INVESTMENT VALUE

Embark on a process to measure the benefit to the water agencies. The process would include:

- Conducting a primary screening to eliminate unsuitable schools based on physical and jurisdictional characteristics;
- Quantifying the amount of stormwater flowing through the storm drains adjacent to LAUSD properties (during dry and wet periods) that could be captured for the feasible school locations;
- Performing additional analysis to evaluate the potential volumes that can be feasibly treated and infiltrated for groundwater recharge; and
- Quantifying the amount of potential stormwater capture on specific school sites to determine whether investing in on-site water capture would provide water supply, water quality, and/or flood protection benefits significant enough to warrant investment.

FIND LEGAL RESOLUTION

LAUSD Facilities staff has expressed a willingness to engage in further conversations about the kinds of projects that could be built as well as the options for indemnification. They have requested that TreePeople oversee a process in which the water agencies put together concept design alternatives for building these projects, based in part on the liability findings noted above.

In the next phase, TreePeople would work with the agencies' design teams to create design alternatives illustrating the proposed systems and safety mechanisms that ensure LAUSD meets regulatory obligations. TreePeople would then work with the legal teams from all agencies in facilitated meetings to discuss options for moving the concepts forward to address any remaining liability concerns.

DEVELOP SUPPORT

A critical component of success in this process is developing understanding and demand for these changes. TreePeople recommends the continued collaboration of the public leaders who stand in support of using school campuses for distributed water capture, and who have agreed to participate in further conversations. TreePeople began building this support in Phase One, and asked officials if they would participate in an effort to eliminate the issues of concern to LAUSD. Ultimately, the support of these key officials standing with the District is critical for moving to the next phase.

MOVING FORWARD

Following successful completion of an Interim Phase to address the three recommendations above, all partners could embark upon a full project charrette (Phase Two) to make the economic case for investment and address any remaining barriers.²³ A charrette process would bring together agencies to share their specific needs, resources, and long-range plans, in specific geographical areas, with the intention of identifying opportunities to leverage the combined investments into projects that meet or exceed each agency's goals. If opportunities are identified and initial cost-benefit and other feasibility analyses are positive, the agencies will create partnerships to finance, approve, design, implement, and maintain projects. It is only at the conclusion of this process – when all parties understand the long-term benefits – that LAUSD would be asked to commit.

²³ As described in Appendix A, at the inception of the Multi-Agency Collaborative the partners planned a three-phase process. At the conclusion of Phase One, the partners determined an Interim Phase was necessary before moving to Phase Two.



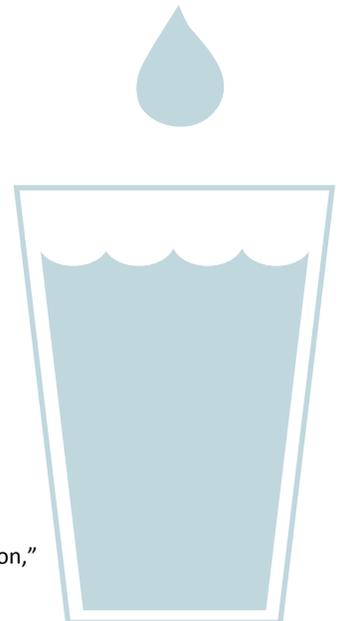
The *LAUSD Water Partnership* project holds the potential to transform LA's water management and do so in a way that protects our most valuable resource – our children. Successfully overcoming the barriers to building regional stormwater projects on school campuses would help ensure that students in LA's schools have access to beautiful, tree-shaded spaces to learn, gather, eat, study, and recreate. In the past, concerns have been identified, and the process has halted. Though difficult negotiations are ahead, TreePeople believes the chance of success is great enough to keep pursuing innovative solutions.

Today, many LAUSD staff members understand the potential benefits of these projects and would support them. In addition, TreePeople heard unequivocal enthusiasm, support, and desire to see positive change institutionalized across and among agencies in the more than fifty interviews, presentations, and conversations held during the Discovery Phase of this Multi-Agency Collaborative. There is a clear recognition that LA's water management must shift to meet 21st century water and infrastructure needs. There is an equally clear understanding of the multiple benefits that would accrue from a partnership with LAUSD.

This path is not simple, but the time to act is now. The drought has created a unique window of opportunity that could propel Los Angeles to lead the nation in innovative green water infrastructure and planning. As the Multi-Agency Collaborative's sister report highlights, the economic case for this shift is clear.²⁴ The public is demanding change from its public agencies and the way they handle taxpayer and ratepayer dollars. Numerous water-related planning efforts and regulatory changes are underway and have the potential to direct LA's new water future. Policymakers and elected officials are increasingly supportive of efforts to examine all options to move LA toward increasing local water supplies.

Today, we have an opportunity – even an obligation – to engage the highest-quality innovators, thinkers, and leaders to move this critical effort forward and guide Los Angeles toward a water and climate resilient future. The narrative described in this report will need to be held, advocated, and told by individuals, business leaders, NGOs, agency staff, and policymakers across the region. TreePeople looks forward to working with all of you to build the Los Angeles we all dream of.

²⁴ TreePeople, "Moving Towards Collaboration: A New Vision for Water Management in the Los Angeles Region," www.treepeople.org/treepeople-publications.



APPENDIX A: PROJECT PROCESS DESCRIPTION

At the inception of this Multi-Agency Collaborative, TreePeople proposed a three-phase project to design and test the viability of a fully collaborative system to support sustainable solutions for Los Angeles:

PHASE ONE

Discovery Phase – Identify key opportunities and barriers, through interviews and research, for both systemic agency collaboration as well as LAUSD engagement in stormwater capture. This phase is complete and this report is one of two reports summarizing the results.

PHASE TWO

Design Collaborative Solutions – Bring groups together to develop concepts and design integrated pilot projects and collaborative systems through a series of facilitated meetings and design charrettes.²⁵ The collaborative process will empower the agencies to confront and either eliminate or solve issues that appear to make deeper and systemic collaboration difficult to achieve.

PHASE THREE

Model New Ways of Working – Building upon the charrette results, the partners create the necessary systems and management agreements, and then build and co-manage the pilot sites.

²⁵ A design charrette is an intensive, multi-disciplinary design workshop to facilitate an open discussion among various stakeholders. The format is designed to increase transparency, as information is shared immediately between the design professionals and the stakeholders, building trust among the parties involved.

APPENDIX B: LIST OF MEETINGS

California Department of Toxic Substances Control

Deborah Raphael, Director (former)
Ray Leclerc, Project Director

California Water Resources Control Board

Felicia Marcus, Board Chair
Fran Spivey-Weber, Member

City of Los Angeles Bureau of Sanitation

Enrique Zaldivar, Director
Adel Hagekhalil, Assistant Director
Traci Minamide, Chief Operating Officer
Shahram Kharaghani, Division Manager
Wing Tam, Assistant Division Manager
Jeff Catalano, Liaison, Government Affairs
Robert Vega, Assistant Division Manager

Los Angeles City Council Members

Felipe Fuentes, Member
Nury Martinez, Member

Los Angeles County Department of Public Health

Jonathan Fielding, Director
Angelo Bellomo, Director, Environmental Health

Los Angeles County Department of Public Works

Mark Pestrella, Chief Deputy Director
Massood Eftekhari, Deputy Director
Gary Hildebrand, Deputy Director
Angela George, Assistant Deputy Director
Terri Grant, Assistant Division Engineer
Ken Zimmer, Senior Civil Engineer
Russ Bryden, Civil Engineer
Coby Skye, Civil Engineer

Los Angeles Department of Water and Power

Jim McDaniel, Senior Assistant General Manager - Water Systems
Martin Adams, Acting Assistant General Manager
David Pettijohn, Director of Water Resources
Beth Jines, Director of Strategic Initiatives

Los Angeles Regional Water Quality Control Board Members and Executive Staff

Madelyn Glickfeld, Board Member
Sam Unger, Executive Officer
Renee Purdy, Regional Programs
Deb Smith, Surface Water Division

Los Angeles Unified School Board

Steve Zimmer, Board Member
Staff of Board Member Monica Ratliff

Los Angeles Unified School District Facilities (July 2013)

Alix O'Brien, Director, Facilities Asset Development
Jay Golida, Associate General Counsel
Amanda Rios, Special Assistant, Facilities Division
Bill Wherritt, Facilities Division
Roger Finstad, Director, Maintenance and Operations
Ana Lasso, Special Facilities Program Manager
John Sterritt, Director - Environmental Health and Safety
Aaron Bridgewater, Deputy Director, Asset Management
Krisztina Tokes, Director, Asset Management
Richard Luke, Director, Design, Maintenance and Operations
John Walsh, Financial Policy Director

Los Angeles Unified School District Facilities (May 2014)

Amanda Rios, Special Assistant, Facilities Division
Krisztina Tokes, Director, Asset Management
Pedro Salcido, Legislative Liaison, Office of Government Affairs

Office of Los Angeles City Attorney

Mike Feuer, Los Angeles City Attorney

Office of Los Angeles City Controller

Ron Galperin, Controller

Office of Los Angeles Mayor Eric Garcetti

Rick Cole, Deputy Mayor for Budget & Innovation
Greg Good, Director, Infrastructure Services
Matt Petersen, Chief Sustainability Officer
Ted Bardacke, Deputy Director, Sustainability

United States Environmental Protection Agency (Region 9)

Jared Blumenfeld, Administrator, Pacific Southwest Region

Former Assistant City Attorney and Public Works General Counsel, City of Los Angeles

Chris Westhoff

APPENDIX C: PILOT PROJECTS

Below are two examples of past pilot projects on school campuses that captured stormwater falling on-site through underground and above-ground green infrastructure:²⁶

THE BROADOUS SCHOOL

The campus of the Hillery T. Broadous Elementary School in Pacoima was suffering from periodic flooding that sometimes reduced student attendance by as much as 15 percent. With the support of the school district, the site was retrofitted to capture, treat and hold all the rain falling there, reducing the flood risk and recharging the groundwater. An underground infiltration system, a swale, permeable ground cover, and strategically planted trees replaced over 30 percent of the asphalt that once covered the campus. Energy use was also reduced by shading and cooling the buildings and their air conditioning units. Construction of the infiltration system was completed in February 2001. Three tree-planting events, involving the school's students and community members, completed the transformation of the campus.

The Broadous retrofit was a collaboration involving TreePeople, LAUSD, LADWP, Pacoima Beautiful (a community action group), the city council district, landscape architects and the engineering firm of Montgomery Watson (now MWH).



Hillery T. Broadous Elementary School



²⁶ TreePeople, Rainwater as a Resource. *A Report on Three Sites Demonstrating Sustainable Stormwater Management*, 2007. www.treepeople.org/treepeople-publications.

OPEN CHARTER

Prior to the project in 2001, hard pavement covered much of the Los Angeles Open Charter School campus in Westchester. There were few shade trees to cool the campus and a lack of grassy play areas for the children. In addition, the paved surfaces contributed to rainwater becoming wasted runoff.

A Santa Monica Bay Restoration grant provided TreePeople, LAUSD, the L.A. County Open Space District and L.A.'s Bureau of Sanitation with the opportunity to green this hardscaped elementary campus and emulate some of its original watershed functions. Working in conjunction with DWP's Cool Schools program and LAUSD, TreePeople installed an integrated set of best management practices at the site.

An underground treatment-and-storage facility was installed to capture campus runoff and reduce the pollutant load to Santa Monica Bay. New playing fields above a 110,000-gallon underground cistern provide much-needed recreation space. Additionally, a forest was planted that included 88 new trees, swales and other vegetation enhancements on the urban campus.

Open Charter School



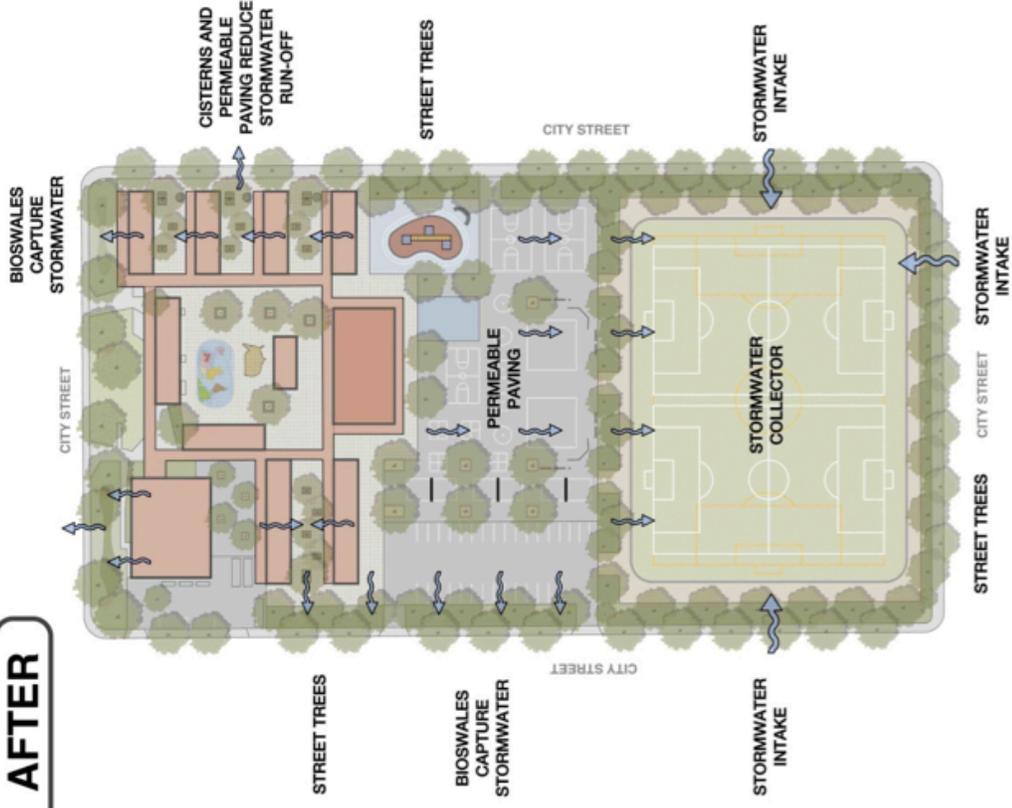
Appendix D: Schoolyard Transformation Examples

Schoolyard Transformation

BEFORE



AFTER



APPENDIX E: LETTER OF SUPPORT FROM LA COUNTY DEPT OF PUBLIC HEALTH



JONATHAN E. FIELDING, M.D., M.P.H.
Director and Health Officer

CYNTHIA A. HARDING, M.P.H.
Chief Deputy Director

313 North Figueroa Street, Room 806
Los Angeles, California 90012
TEL (213) 240-8117 • FAX (213) 975-1273

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Zev Yaroslavsky
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Don Knabe
Fourth District

Michael D. Antonovich
Fifth District

May 8, 2014

Andy Lipkis
President and Founder
TreePeople

Dear Mr. Lipkis:

The County of Los Angeles Department of Public Health is supportive of efforts to construct distributed stormwater projects on school campuses in Los Angeles County as a catalyst to enhanced campus greening. We support leveraging public dollars to create healthy and sustainable public schools when possible.

When constructed and maintained appropriately, integrated systems to divert stormwater and dry-weather flows from surrounding neighborhoods into filtration and storage units under school sites can occur safely and without significant risk to the environment. We believe this opportunity represents a critical step forward for creating healthy, resilient campuses that promote learning, provide healthy outdoor instructional spaces, and help reduce the impact of heat exposure.

Because of the distributed nature of stormwater projects on school campuses, the risks associated with accumulated pollutants is low, as long as stormwater is brought into cisterns or infiltration galleries hosted beneath campus playgrounds or parking lots without surface exposure.

Additionally, there is a long-term environmental benefit to the communities of distributed stormwater projects. Capturing and retaining fresh water within our neighborhoods to help support greening and natural habitat is a priority in a city prone to severe drought and severe heat events.

The County of Los Angeles Department of Public Health encourages integrated water management and is willing to engage with local, regional, and State partners in finding a viable path forward.

Sincerely,

A handwritten signature in black ink that reads "Jonathan E. Fielding MD".

Jonathan E. Fielding, MD, MPH
Director and Health Officer
Los Angeles County Department of Public Health

A handwritten signature in black ink that reads "Angelo J. Bellomo".

Angelo J. Bellomo, REHS, QEP
Director of Environmental Health
Los Angeles County Department of Public Health

JEF:AJB

NOTES



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