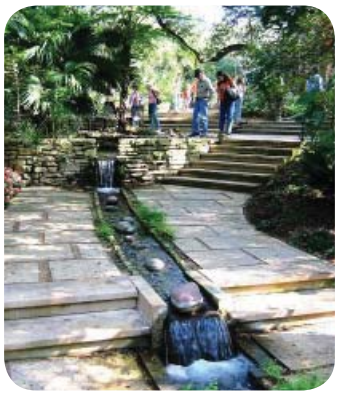
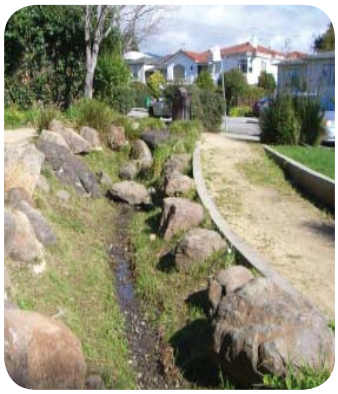
frequently asked questions

creek daylighting

SAN FRANCISCO PUBLIC UTILITIES COMMISSION





What is "creek daylighting?"

Creek daylighting refers to projects that uncover and restore creeks, streams, and rivers previously buried in underground pipes and culverts, covered by decks, or otherwise removed from view. Stream diversion, more akin to sewer separation than to stream restoration, involves re-routing an underground stream to discharge directly into another water body rather than being added to the combined sewer system. The City of San Francisco has several historic creeks that run clean water through sewers to treatment plants and then to the Bay and ocean. Diverting these historic streams to a separate system can decrease demand on treatment facilities. Daylighting creeks also has the additional benefits of partially repairing the natural hydrologic cycle, increasing effective capacity in pipes, slowing peak flow rates, providing habitat, creating recreational facilities, and providing a site for ongoing environmental awareness and education.

What are the benefits of bringing a creek to the surface?

There are numerous benefits of creek daylighting. Environmental benefits include providing wildlife habitat, flood protection, natural cooling, and an invaluable aesthetic and recreation amenity to the surrounding neighborhood. Economic benefits include increased property values and commercial activity in the area. Furthermore, reduction of flows to the sewer will reduce pumping and treatment costs in the City's combined sewer and potentially reduce combined sewer discharges.

Would daylighting create a risk for West Nile Virus or other diseases?

A day-lit creek involves careful engineering and reconstruction of a creek bed and is designed to keep water flowing. To address the possibility of standing water, the SFPUC would develop a maintenance program similar to the curbside catch basin program, which is an integrated pest management program to reduce mosquito populations around San Francisco reservoirs, pump stations, treatment facilities, and watersheds. Staff applies an insect growth regulator that stunts the mosquitoes' development and prevents them from reproducing. The compound rapidly degrades in water and is non-toxic to humans.

Would daylighting a creek increase the risk of flooding?

By creating a hybrid drainage system, we are providing more space for the creek when it is raining, thereby increasing the capacity of the entire system. Creek daylighting restores a more natural drainage channel, but is also designed to direct overflow to the sewer, thereby reducing the flood risk.

How would a day-lit creek be maintained?

Any new project initiated by the City or a community group will require a maintenance plan and secure funding to go forward. Successful projects often come from public-private partnerships.

Aren't creeks buried too deep underground to bring safely to the surface?

San Francisco's creeks currently run deep in the sewer pipe. A daylighting project would be more akin to a sewer separation, in which a new, man-made creek would convey the flows along the surface of the ground.

Since water flow in creeks vary at different times of the year, will they be ugly and dry and collect trash during the dry months?

California creeks are seasonal, and designs should celebrate the features typical in our climate. As for trash, any new projects would require a maintenance plan and secure funding.

Will we need flood insurance?

A creek daylighting project will only be done if it will *decrease* the risk of flooding in local flood zones. If you currently buy flood insurance, you may still want to consider keeping it. Each property owner should evaluate their comfort level, but understand that any daylighting project would increase water conveyance and storage capacity, thereby decreasing flood risk.

QUESTIONS? CONTACT US

If you are interested in learning more about creek daylighting and stormwater management, please contact us:

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creek daylighting
SAN FRANCISCO PUBLIC UTILITIES COMMISSION

Case Study
Strawberry Creek Park
Berkeley, CA

Background

As one of the first projects of its kind in the U.S., Strawberry Creek Park in Berkeley paved the way for the many creek daylighting projects that followed. It demonstrated the array of community benefits achievable by reintroducing elements of nature into a highly urbanized setting. Moreover, Strawberry Creek Park took a derelict site – the abandoned Santa Fe Railroad railyard – and converted it into a multi-function neighborhood amenity.

Community Process

In 1974, the Santa Fe Railroad abandoned a railyard in west Berkeley. Under city control, it sat vacant and underutilized for eight years until city landscape architect, Douglas Wolfe, proposed a plan to transform the railyard into a neighborhood park with a daylighted Strawberry Creek as the central element. City officials resisted the idea, citing safety and flood hazards as well as its potential as a target for litter.

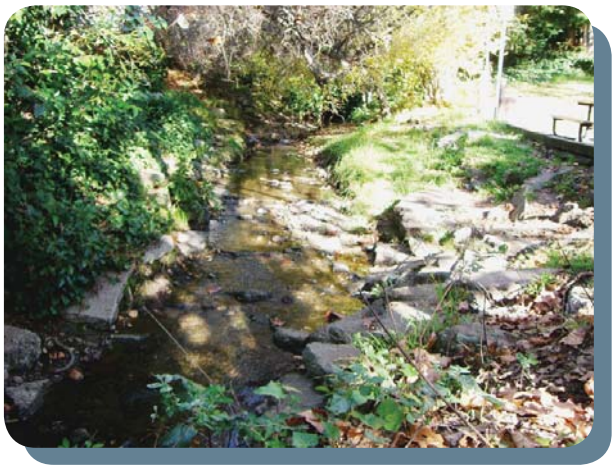
Without the community's support, the project would never have left the drafting board. But residents, in a coordinated and spirited campaign, executed a vigorous leafleting campaign and maintained a strong presence at a number of public meetings to show their support for the daylighted creek and park. Eventually, the Berkeley Parks Commission voted unanimously to approve the project.

Education

The daylighting of the creek in a naturalized setting increases community members' awareness of the natural environment, from an urban waterway and riparian vegetation to birds, fish, and other wildlife. Furthermore, as part of an innovative creek/park maintenance program, the city parks department contracted with Berkeley Youth Alternatives – an after-school program – to maintain the park, providing valuable job experience to local youth from low-income households. Up to a dozen high school students learn to prune plants, remove sediment and waste, weed, and otherwise maintain the creek and park.

Stormwater

The daylighted creek has provided Berkeley with stormwater and flood benefits rather than create flood hazards as originally feared by city officials. Designed for the 100-year storm event, the creek has survived many large storms, including those of El Niño in 1998. Creekside vegetation cools, slows, helps absorb, and filters stormwater on its way to the San Francisco Bay. To date, interaction with the creek has not resulted in any major injuries – no one has suffered an injury serious enough to warrant a hospital visit.



Aesthetics

The Strawberry Creek daylighting project transformed an abandoned railyard into four acres of ball courts, grassy meadows, native trees, landscaped hillocks, and 200 feet of babbling brook. The site's history is preserved in the repurposed concrete slabs that now function as steps down to the creek bed. On any given day, tens to hundreds of visitors come to Strawberry Creek Park for the opportunity to experience nature in this highly urbanized setting. Children, youths, and adults come to see, hear, and feel the flowing water; they also enjoy the presence of birds, aquatic creatures, and other wildlife.

Economics

Neighborhood property values have increased as the area – once troubled with crime and drug activity – has taken on much more of a family-friendly and nature-oriented feel. An old warehouse at the edge of the site houses a number of start-up and local businesses, non-profit organizations, and a bakery.

Source: Daylighting: New Life for Buried Streams (Richard Pinkham, Rocky Mountain Institute)

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Case Study
San Luis Obispo Creek
San Luis Obispo, CA

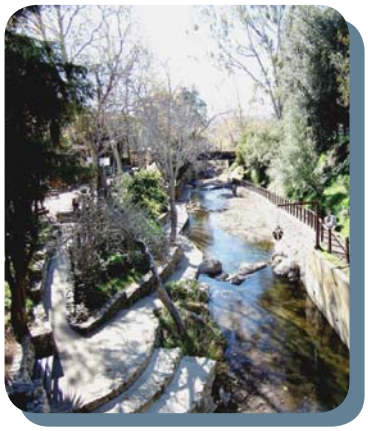
Background

The daylighting and clean-up of San Luis Obispo Creek traces its humble origins to a community college class project, which called for the partial closure of Monterey Street and the creation of a public garden, to beautify downtown San Luis Obispo. The end result of the city's effort was a thriving plaza – Mission Plaza – in the heart of downtown that capitalizes on its creekside location to draw tourists and locals to an eclectic mix of restaurants, shops, and historic institutions. San Luis Obispo Creek, nonetheless, is the centerpiece of it all.

Community Process

A 1963 feasibility study, along with the student-driven effort, helped galvanize public support for a downtown creekside plaza. More than anything else, the study stressed the city's unique gifts—its small town character, historic Mission, and natural downtown creek. The study and ensuing community engagement process indicated residents' growing appreciation for the creek as a key thread in the City's increasingly urban fabric.

A citizen committee, consisting of downtown merchants, Waterway Planning Board members, City advisory commission members, and City staff, studied the project and worked with residents to resolve concerns. Ultimately, plans for the plaza's development called for the phasing-in of a multi-objective, comprehensive planning program. Merchant access and parking were maintained; businesses were encouraged to open a second "storefront" onto the creek walkway, creating opportunities for strolling and outdoor dining.



Stormwater

Concern over flood control also generated support for Mission Plaza. In 1969 and 1973, San Luis Obispo experienced serious flooding downtown. The 80-year old culvert could not accommodate the stormwater flows resultant from an increasingly impervious watershed. Furthermore, years of dumping, sedimentation, and neglect reduced the flow capacity of local creeks.

As part of Mission Plaza, the creek floodplain was widened and re-contoured; terraced stone walls would prevent bank scouring during heavy rains. The city also made the critical choice not to convert its creeks to the concrete-lined channels prevalent in many California cities. Instead, the city adopted an environmentally sensitive flood management program committed to protecting local creeks while reducing the risk of flooding.

Aesthetics

Through a number of design elements, the city gave the creek and Mission Plaza a distinctive character. Locally flavored art pieces celebrate the heritage of the creek and mission. Decorative lighting and walkway railing help to identify the area while also addressing safety concerns. "Mission-style" sidewalk paving further unifies the plaza's design. In addition to these hardscape elements, the plaza's plant palette features an extensive array of California natives such as California Sycamore, California Lilac, Oregon Grape and Coast Live Oak. The landscaping is such that it shades and cools the creek, provides food and habitat for wildlife, and re-engages the city with its natural riparian heritage.

Economics

The emphasis on the San Luis Obispo Creek as an amenity and asset turned around the city's downtown. Shops and restaurants face onto not only streets but also the creek, promoting an interface of natural and built environments. Mission Plaza also plays host to a number of community events such as concerts, festivals, and a popular farmer's market. Perhaps the single most instrumental factor behind the creek and plaza's success, however, is the walkability – constant pedestrian activity gives the scene an air of vibrancy and a true sense of destination.

Sources:
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http://www.berkeleydailyplanet.com/issue/2004-05-25/article/18931?headline=Berkeley-Studies-S.L.-Obispo-s-Downtown-Creek##18931.

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