Rationale for Berkeley Creeks Task Force Recommendations

Berkeley Creeks Task Force
Approved April 17, 2006

Introduction

The City of Berkeley Creeks Task Force (CTF) has met for approximately 18 months to prepare recommendations to the Berkeley City Council concerning policies and ordinances related to Berkeley's creeks, including the Berkeley "Creeks Ordinance" (Berkeley Municipal Code 17.08). The CTF has made recommendations concerning the following regulatory issues:

(1) Required roofed structure setback[1] distances from open (i.e. above-ground) creeks;
(2) Required setback distances for decks and patios near open creeks;
(3) Required roofed structure setback distances from creek culverts[2];
(4) Rules concerning bridges over open creeks;
(5) Rules preventing impervious paving near open creeks;
(6) Allowing rebuilding of legally nonconforming structures;
(7) Allowing vertical expansion of legally non-conforming structures.

The CTF's recommendations, if adopted, will significantly reduce restrictions on property owners compared to the existing ordinance: setback distances for underground culverts will be greatly reduced on most properties, setback distances for open creeks will be reduced from 30 feet to 25 feet if mitigations are performed, and vertical expansions to existing legally nonconforming buildings will be allowed. Overall, the regulatory regime will be more flexible and more carefully tailored to specific conditions in Berkeley than is the case with the current ordinance.

The CTF has held public comment periods before each meeting, and has held two well-attended public hearings jointly with the Planning Commission. Based on these comments, it appears that the CTF's reasoning about some of the issues listed above is not clear to some members of the public, and perhaps some members of City Commissions or the City Council.

The Creeks Task Force Background Report (Creeks Task Force 2006) provides extensive background on the legislative history of the Creeks Ordinance and some discussion of each of the major issues on which the CTF has made recommendations. The present document provides specific and concise statements of the scientific basis of, and rationale for, the CTF's recommendations on several issues, broken down as follows:
Setbacks from open creeks

(1) Purposes of a setback
(2) Distinction between a setback and a buffer
(3) Scientific underpinnings of buffer width decisions

[1] "Setback" refers to a minimum distance that must be provided between a creek and a structure.
[2] In this document, "culvert" means an underground pipe carrying water.

(4) US EPA recommendations for urban stream buffers and structure setbacks
(5) CTF rationale for a buffer rule based on creek centerline rather than creek edge or "top of bank"
(6) CTF rationale for a buffer much smaller than experts' recommended minimum width
(7) CTF rationale for a 30-foot structure setback
(8) CTF rationale for a 5-foot encroachment zone if mitigation is provided
(9) CTF rationale for fixed rather than variable or case-by-case setback requirements

Setbacks from creek culverts

(1) Purposes of a setback from culverts
(2) CTF rationale for having the Department of Public Works define setbacks for underground creek culverts
(3) CTF rationale for regulating underground creek culverts in the Creeks Ordinance rather than somewhere else.

Purposes of a setback from open creeks

Schueler and Holland (2000) make the following comments about "aquatic buffers" (p. 223):

> Aquatic corridors, where land and water meet, always deserve special attention in the practice of watershed protection. A simple buffer along a stream, shoreline, or around a wetland is essential to maintain watershed health. The primary purpose of a buffer is to put some distance between a stream, lake, or wetland and any upland development. The second purpose of a buffer is to maintain riparian vegetation along the riparian zone, which is an essential part of all aquatic ecosystems.

They go on to say:

> Buffers maintain stream ecology, stabilize stream banks, shade streams, remove pollutants, create wildlife habitats and protect wetlands. Buffers also act as the "right of way" for a stream, allowing them to move around the floodplain, and pass their flood waters safely downstream without damaging properties or endangering lives.

Similar points are made by Riley[3] (1998):

> Land-use planning and site design can protect a natural waterway from the classic degradation caused by thoughtless urban development. Land-use planning locates developments away from hazard zones such as floodplains and river meander zones…Site-design measures can call for protection of stream-corridor buffer zones, minimal impervious surfaces and impacts to native vegetation, and sound storm-water management. Buffer zones of natural streamside vegetation and the use of natural swales and storm-water detention areas instead of sewer pipes greatly reduces the impacts of development on streams by reducing creek storm

[3] This is A.L. Riley, now at the San Francisco Bay Region office of the California Regional Water Quality Control Board. She gave a presentation to the CTF on May 2, 2005.

> flows and runoff pollution. Setback requirements that site structures away from creeks lower the risk of future property damages from overbank flows and changing stream meanders.

Schueler and Holland give a list (p. 226) of "Twenty benefits of urban stream buffers," of which the following six items seem particularly relevant to Berkeley (items have been re-numbered from the original list):

1. Reduces small drainage problems and complaints. When properties are located too close to a stream, residents are likely to experience and complain about backyard flooding, standing water, and bank erosion. A buffer greatly reduces complaints.
2. Stream "right of way" allows for lateral movement. Most stream channels shift or widen over time; a buffer protects both the stream and nearby properties.
3. Provides food and habitat for wildlife. Leaf litter is the base food source for many stream ecosystems; forests also provide woody debris that creates cover and habitat structure for aquatic insects and fish.
4. Prevents disturbance to steep slopes. Removing construction activity from these sensitive areas is the best way to prevent severe rates of soil erosion.
5. Discourages excessive storm drain enclosures/channel hardening. Can protect headwater streams from excessive modification.
6. Allow[s] for future restoration. Even a modest buffer provides space and access for future stream restoration, bank stabilization, or reforestation.

Lesley Estes, City of Oakland Watershed Improvement Program coordinator, gave a presentation to the Creeks Task Force (Estes, 2005), that included specific examples related to several of these points. For instance, she discussed a house located close to Chimes Creek that was threatened by erosion of the creek bank on which it was built. The caption of a graphic that accompanied Estes' presentation was "This undermined bank in Oakland was the result of increased creek flow, due to increased impervious surfaces upstream, causing increased erosion and slope instability. This slope required a $1 million publicly funded repair project." In this case, the stream channel was attempting to widen over time (point 2, above), leading to complaints because of bank erosion (point 1, although hardly a "small" problem in this case), and the only way to save the home was to install expensive channel hardening (point 5) which will now have to be maintained in perpetuity, or at least as long as the house is there. A very similar situation can be found on Strawberry Creek in Berkeley, across the creek from Strawberry Creek Lodge: the City of Berkeley recently installed "emergency" gabion walls, at public expense, to prevent further erosion of a bank on which a house is built; this site was visited by the Creeks Task Force on March 12, 2005.

With regard to both property protection and flood control, the Regional Water Quality Control Board (2003) says:

> Protect a stream corridor that has enough feet to accommodate the stability needs of the active channel width, meanderbelt, and terrace slopes. Where possible seek expansion of the width of the floodplain area beyond the minimum for the calculated channel meanderbelt. This floodplain area will contribute to the cross-

> sectional area needed to convey a design discharge for flood control considerations, add to the ability of plants to stabilize the stream system and reduce terrace side slope erosion hazards.

Distinction between a setback and a buffer

In a presentation to the Berkeley Creeks Task Force on July 18, 2005, UC Davis ecology professor Don Erman emphasized the distinction between a "setback" and a "riparian buffer" or "vegetated buffer": a "setback" is a requirement that defines where structures may or may not be built in relation to a stream. A "riparian buffer" or "vegetated buffer" is a zone along a creek that contains vegetation, specifically native or at least habitat-friendly vegetation. A setback is not a buffer, but is a regulatory way of attempting to retain a buffer, or at least the opportunity to have a buffer.

The CTF Background Report (2006, p. 24) summarizes a discussion of buffers vs. setback that was provided by Balance Hydrologics in a report to the CTF.

Scientific underpinnings of buffer width decisions

As discussed above, buffers and setback requirements serve multiple purposes, including property protection, flood prevention, and environmental quality protection.

With regard to property protection, the Regional Water Quality Control Board (2003) provides guidance for several "tools for regulators and project analysts," including (p.71) "Protect or restore adequate side slopes from the tops of banks to the tops of terraces":

> Counter-intuitively, a headwater stream channel may require greater right-of-way or protected corridor than downstream channels with wider meanderbelts. This is because headwater channels in the San Francisco Bay Region are characteristically deeply entrenched in the landscape. In small and large watersheds alike, the stream channels in the upper portions can be located 30 to 50 feet or more below the level ground of a site. For such a stream to have natural terrace slopes at [2 feet horizontally for each 1 foot vertically], it requires 60 to 100 feet on <u>each</u> side of the channel in addition to the required meanderbelt width to create a stable channel corridor. [Emphasis in the original.]

In his presentation to the Creeks Task Force, Erman said that from an ecological standpoint, the wider the buffer the better, up to distances in the hundreds of feet. In an email communication to the Task Force in February 2006, he provided some backup data and references (Erman et al., 1977; Naiman et al., 2005).

Wenger (1999) contains a review and synthesis of "over 140 articles and books … to establish a legally-defensible basis for determining riparian buffer width, extent and vegetation." Wenger's article was reviewed by a long list of other researchers in the field. With regard to the single issue of sediment control, Wenger says:

> Scientific research has shown that vegetative buffers are effective at trapping sediment from runoff and at reducing channel erosion. Studies have yielded a range of recommendations for buffer widths; buffers as narrow as 4.6m (15 ft) have proven fairly effective in the short term, although wider buffers provide

> greater sediment control, especially on steeper slopes. Long-term studies suggest the need for much wider buffers. It appears that a 30 m (100 ft) buffer is sufficiently wide to trap sediments under most circumstances, although buffers should be extended for steeper slopes. An absolute minimum width would be 9 m (30 ft). To be most effective, buffers must extend along all streams, including intermittent and ephemeral channels.

The importance of small and intermittent streams was also discussed in Erman's presentation to the CTF in July 2005. The CTF minutes for that presentation say "[Erman] explained that a lack of buffers on small streams in the headwaters with low or intermittent flows will lead to impairment of downstream waters despite buffers in the lower reaches of a watershed."

As far as aquatic habitat, Wenger's (1999) summary of the existing state of scientific knowledge is:

> To maintain aquatic habitat, the literature indicates that 10-30 m (35-100 ft) native forested riparian buffers should be preserved or restored along all streams. This will provide stream temperature control and inputs of large woody debris and other organic matter necessary for aquatic organisms. While narrow buffers offer considerable habitat benefits to many species, protecting diverse terrestrial riparian wildlife communities requires some buffers of at least 100 meters (300 feet). To provide optimal habitat, native forest vegetation should be maintained or restored in all buffers.

Since environmental benefits of stream buffers continue to increase as buffer width increases, setback zones that are intended to preserve wilderness characteristics are often far wider than most of the widths discussed above. For instance, the logging plan for the Rogue River-Siskiyou National Forest requires a buffer zone of 348 feet on each side of both perennial and intermittent streams (Associated Press, 2005).

Expert recommendations for urban stream buffers and structure setbacks

In November 2005, the U.S. Environmental Protection Agency (EPA) finalized a several hundred page document (available online) entitled "National Management Measures to Control Nonpoint Source Pollution from Urban Areas" (USEPA 2005). This thoroughly researched and reviewed document provides a synthesis of expert judgment concerning many aspects of watershed management. Section 3.3.3.6 recommends "Establish setback (buffer zone) standards", and says in part:

> The use of setbacks or buffer zones may prevent direct flow of urban runoff from impervious areas into adjoining surface waters and provide pollutant removal, sediment attenuation, and infiltration. Riparian forest buffers function as filters to remove sediment and attached pollutants, as transformers that alter the chemical composition of compounds, as sinks that store nutrients for an extended period of time, and as a source of energy for aquatic life (USEPA, 1992). Setbacks or buffer zones are commonly used to protect coastal vegetation and wildlife corridors, reduce exposure to flood hazards, and protect surface waters by reducing and cleansing urban runoff (Mantel et al., 1990). The types of development allowed in

> these areas are usually limited to non-habitable structures and those necessary to allow reasonable use of the property, such as docks and unenclosed gazebos.

After some discussion of criteria for determining setbacks and buffer zone widths, the report continues:

> Buffer width is an important measure of pollutant removal effectiveness. Buffers typically range from 20 to 200 feet wide and should include the 100-year floodplain, riparian areas including adjacent wetlands, steep slopes, or critical habitat areas (Schueler, 1995). A buffer at least 100 feet wide [on each side of the stream] is recommended for water quality protection, and a 300-foot buffer is recommended to maintain a wildlife habitat corridor. Wider buffers offer increased detention times, infiltration rates, and diversity of soil, vegetation, and wildlife.

Section 3.3.3.6.2 provides more detailed recommendations concerning allowed activities in a buffer of 100 feet or larger, an issue related to the distinction between a "setback" and a "buffer" as discussed above:

> Buffers can be divided into three zones—the streamside, middle, and upland zones (Herson-Jones et al., 1995). Dense vegetation in the streamside zone (recommended to be approximately 25 feet wide) prevents excessive activity in this sensitive area, maintains the physical integrity of the stream, and provides shade, litter, debris, and erosion protection. The width of a grassed or mostly forested middle zone (minimum of 50 feet) depends on the size of the stream and its floodplain and the location of protected areas such as wetlands or steep slopes. The upland zone, typically 25 feet wide, is an additional setback from the buffer and usually consists of lawn or turf. Zones in the buffer should be delineated to determine the types of vegetation that should be maintained or established.
>
> Allowable land uses in the three zones vary. The streamside zone is limited to footpaths, runoff channels, and utility or roadway crossings. The middle zone may be used for recreation and runoff control practices. The upland zone may be used for many purposes, with the exception of septic systems, permanent structures, or impervious covers. A depression incorporated into the design of the upland zone can detain runoff during storms. This runoff is released slowly to the middle zone as sheet flow, which is then transferred to the dense streamside zone, designed to have minimal to no discharge of surface water to the stream.

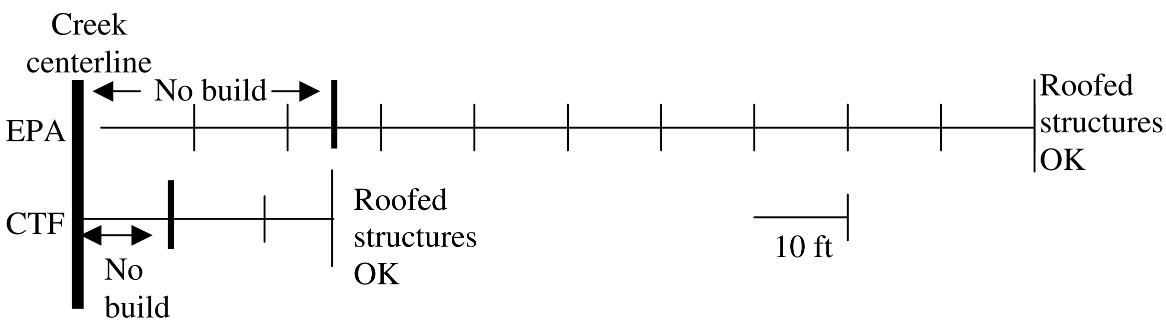
CTF Rationale for a buffer rule based on creek centerline rather than creek edge or the "top of bank."

Most jurisdictions (and the EPA document cited above) define buffers based on the creek edge, top of bank, or (in some cases) the edge of riparian vegetation. In contrast, the Berkeley Creeks Task Force recommendations propose to measure the buffer width from the creek centerline. An effect of measuring from the creek centerline is that a given numerical value of buffer width leads to a smaller buffer than would be achieved through another method. For instance, if the "active channel" of the stream is 8 feet wide, then a buffer measured from the centerline will be 4 feet narrower than if the same numerical value were applied from the edge of the channel.

The main advantage to basing regulations on the creek centerline is that it is relatively unambiguous, compared to other options such as the "edge of the active channel" or the "top of bank." For small creeks, seasonal creeks, and creeks that are constrained by riprap, the "creek edge," "edge of the active channel," or "top of bank" are not well defined and different people might assess the meaning of these terms differently.

CTF rationale for a buffer much smaller than experts recommend

As discussed above, Wenger (1999), Schueler (1995), and the U.S. EPA (2005) recommend, for urban areas, a buffer zone of the order of 100 feet. The EPA recommends a "no-build" zone (limited to footpaths) of 25-feet from creek *edge* and a structure setback of at least 100 feet from creek edge. In contrast, the Creeks Task Force proposal calls for a no-build zone of only 10 feet from the creek *centerline*, and a structure setback of only 30 feet, which may be reduced to as low as 25 feet if mitigations are performed. Graphical and tabular summaries are provided below, assuming a 4-foot-wide creek channel:



Comparison between EPA recommended urban buffer zones and CTF recommendations.

	No-build zone	**Structure setback**
EPA	25 feet from creek edge	100 feet from creek edge
CTF	10 feet from centerline	30 feet from centerline 25 feet if mitigations are provided

In practice, in Berkeley there would be little practical difference between setting a structure setback at 100 feet or more, and setting a setback at, say, 60 feet: in either case, the effect would be to prohibit new roofed construction, or horizontal expansion of existing structures, on almost all creek properties. CTF members considered the bases for setbacks, the existing conditions in Berkeley, and the impacts on the impacts on property owners and concluded that Berkeley's structure setbacks and buffer zones must be far smaller than those recommended by experts in the field of stream setbacks.

CTF rationale for a 30-foot roofed structure setback

(1) A 30-foot roofed structure setback has been required in Berkeley for the past seventeen years.

(2) The Creeks Task Force consulting team from Balance Hydrologics collected data on a sample of 79 Berkeley properties. On 65% of the properties that they visited, there was a "primary roofed structure" less than 30 feet from the creek. Properties in the hills (which tend to have larger existing setbacks than homes in the flats) were somewhat under-sampled: most of the mileage of Berkeley's creeks is in the hills, but the Balance sample included only slightly more hills samples than samples in the flats. Given these facts, it seems likely that between 35%-50% of houses on creek properties are currently more than 30 feet from the creek centerline.

As discussed in previous sections, in order to protect property and preserve stream functions the setback distance should be larger than can be reasonably implemented in Berkeley. The decision on a setback distance is therefore a balance between the amount of stream degradation and property damage that can be accepted and the amount of limitation on creek property owners that can be accepted. A 30-foot setback distance is an attempt to set that balance.

A 30-foot setback distance may be insufficient to protect structures from creeks (and vice versa) in some cases, for instance if it permits building on extremely high and/or steep creek banks, which may slide or collapse.

CTF rationale for a 5-foot encroachment zone if mitigation is provided

(1) Building closer to the creek will permanently reduce the amount of vegetated buffer zone that can ever be provided on the property, which is clearly detrimental. However, if, in exchange, the property owner provides a permanent mitigation – such as removing riprap to restore natural channel banks – the overall effect of the project may be acceptable.

(2) Some speakers in CTF public comment periods and public hearings indicated a desire for "flexibility," by which they mean less restriction than they are subject to under the current ordinance.

Allowing encroachment by up to five feet is an attempt to provide the desired "flexibility" for some property owners, while requiring mitigation is an effort to limit the negative impacts of encroachment into the 30-foot standard setback.

CTF rationale for fixed rather than variable or case-by-case setback requirements

Some members of the public and some CTF members have suggested that setback requirements or other regulatory requirements related to land use should be site-dependent or should be based on case-by-case analysis rather than on hard-and-fast rules.

Several jurisdictions have implemented setback or buffer requirements that take site-specific conditions into account using precise formulae. For example:

(1) Buffer regulations for Baltimore County, Maryland, which the EPA cites as one of their recommended sample ordinances, apply different setbacks for streams based on a formula that takes into account stream size, whether the stream contains trout, the location of a "wetland boundary" adjoining the stream, and the width of the 100-year floodplain. In consequence, a small stream that does not

contain trout may require a buffer as small as 75 feet from the center of the stream, whereas a large stream that contains trout and has adjoining wetlands may require a buffer of several hundred feet from the center of the stream. (Baltimore County, no date).

(2) The City of Orinda (2005) adjusts structure setback requirements depending on "channel depth" (i.e. depth from top of bank to bottom of creek) so as to require additional setbacks away from steep slopes. Depending on the bank slope, setbacks are either from "toe of slope" (i.e. bottom of creek bank), or from top of bank. The effect is setbacks that range from 35 feet from the edge of a creek to well over 100 feet from the edge of a creek.

The CTF does not recommend a varying-setback approach for Berkeley. Reasons include:

(1) Lot sizes along creeks in Berkeley are small enough that on most lots a setback substantially larger than 30 feet would prevent any new construction or horizontal expansion of structures. Imposing such restrictions on some creek properties but not others would probably be perceived as unfair.
(2) Balance Hydrologics, the CTF's consulting firm, did not find substantial variation in existing setbacks among creeks or portions of creeks (Balance Hydrologics, 2006), so there is little ability to choose larger setbacks in some areas in a way that will not severely restrict property owners in those areas.
(3) Depending on the complexity of a varying-setback approach, it could lead to large demands on City resources. For instance, Robins and Leventhal (2006) said this is a problem for the City of Oakland.
(4) Depending on the complexity of a varying-setback approach, people might have trouble determining in advance of the permitting process what development will or will not be permitted on their property.

The CTF Background Report (2006) provides more information about some of these items in sections on Creek Regulations in Other Communities and Setbacks Applicable to Open Creeks.

Purposes of a setback from culverts, including creek culverts

The CTF Background Report (2006) provides a summary of the extent, condition, and ownership of creek culverts in Berkeley. Culverts are temporary installations that eventually need repair or replacement, and the Background Report documents that many Berkeley culverts need such attention soon.

No matter who is legally responsible for paying for culvert repair in various circumstances, the City may be forced to take action related to culverts under certain conditions. Collapse of a culvert can endanger properties and cause flooding. It can also cause large quantities of silt to enter a creek, which may, in addition to causing environmental and property damage, put the City in contravention of one of the many State water quality requirements to which it is subject. These requirements are described in Jensen (2005a).

According to a Berkeley City Council item on June 14, 2005, from City Manager Kamlarz to the City Council (and forwarded to the CTF), "When there is development over a culvert, the only choice is to perform repairs from within the culvert. When there is no development over a culvert, there is a choice to repair from inside or to replace the culvert from the top by open trench." He goes on to say that for a section of less than several hundred linear feet of culvert, "On average, open trench replacement (no development) is roughly half the cost of using a structural liner when there is development [over the culvert]." This assumes that a structural liner is feasible; if the culvert is already under-sized so that installing a liner is not feasible, then there are other options as discussed in Berkeley Department of Public Works engineer Lorin Jensen's August 15, 2005 memo to the CTF (Jensen, 2005b). The least expensive of these, Jensen speculates, would be to lower the floor of the culvert to add capacity, and then re-line it. He did not provide an estimate as to the additional cost of this procedure, but it would obviously further increase the cost difference between open trench replacement and re-lining.

According to Jensen, most cities do not allow construction near or over culverts. In response to an information request from the CTF, City of Berkeley engineer Lorin Jensen wrote in a memo on August 15, 2005, that with respect to storm drain culverts, "generally, the City requires construction near its storm drain pipes to be set back from the edge of the pipe the following distance: at least as far as the distance from the ground surface above the pipe to the bottom of the pipe."

CTF rationale for having the Department of Public Works define setbacks for underground creek culverts

The Department of Public Works has experience with installation, maintenance, and repair of culverts. The Department is qualified to assess the safety of building a structure at a given location relative to a culvert, and to assess the ability to dig a trench to access the culvert should repair or replacement be necessary.

CTF rationale for regulating underground creek culverts in the Creeks Ordinance (BMC 17.08) rather than somewhere else

Creek culverts have several impacts or potential impacts on open creeks. A.L. Riley of the Regional Water Quality Control Board Riley included many examples in her presentation to the CTF in May, 2005, and Riley (1998, pp. 358-360) provides a discussion, including:

> …If culverts are put in at an angle that deviates from the stream's equilibrium slope, they will create depositional and erosional reaches up and downstream of the culvert
>
> …Culverts often result in headward erosion or degrading of the slope upstream and creating an aggraded, steeper slope downstream. Erosion typically occurs immediately downstream of a culvert, but channel adjustments downstream of the erosion zone can include deposition. Sometimes culverts will create sedimentation zones upstream of a culvert because they become clogged or sediment fills in behind a culvert that is too high on the upstream end. Channel bed erosion occurs

> for some distance downstream of the culvert in such cases because discharges are increased in relation to the sediment transport.
>
> Upstream impacts of culverts can include the culvert acting as a dam in storms, flooding the areas behind it, and raising the water profile for floods behind it…They are frequently blamed for blocking fish passage.

Given this background, the CTF notes that:

(1) One of the CTF's "statements of agreement" is: "Creeks are part of an interconnected and integrated water management system and a holistic analysis is needed." Separating regulations of creek culverts from those of open creeks discourages, or at least does not promote, consideration of the entire system.
(2) The Creeks Ordinance is Berkeley's main ordinance for regulating activities that directly affect open creeks. Since creek culverts affect open creeks, it makes sense for them to be regulated in the Creeks Ordinance.
(3) Every street crossing of a creek has an associated culvert inlet and outfall, so there are many properties that have both an open creek and a creek culvert (many of these are City-installed culverts). Regulation of both open creeks and underground creek culverts within a single ordinance makes it easier for these property owners to understand how their property is regulated.
(4) If regulation of culverts is separated from the regulation and discussion of open creeks in the Creeks Ordinance, problems on open creeks that are caused by improperly designed or installed culverts may be more likely to "fall through the regulatory cracks."

CTF rationale for failing to preserve or identify opportunities for "daylighting" on private property

Culverts cause significant problems for both the City and property owners. Riley (1998) notes that "In most situations, for reasons of economic efficiency culverts are designed to carry at the maximum the one-in-10- or one-in-25-year flood. They guarantee a backup for flood flows and for flooding of streets, structures, neighborhoods, and business districts during larger storms." This condition was experienced in much of Berkeley in flooding in December 2005. Riley goes on to say that a Public Works administrator in an (un-named) California city reported that during floods in 1995 his department received 88 calls for flooding and water problems, and "86 were for culverts and two were for open creeks." Riley points out "it is much easier to locate and remove an obstruction in an open channel than it is to locate and correct a problem in a culvert." In a presentation to the CTF in May 2005, Riley mentioned that State money has been used in the past for "daylighting" (i.e. removal of underground culverts and restoration of the above-ground steam) and that money remains available that could be used for this purpose.

In spite of the potentially significant benefits of removing culverts, the CTF does not recommend City regulations to preserve daylighting opportunities on private property or even to identify them unless the property owner requests such identification. Most members of the CTF believe if is either unfair or politically infeasible (or both) to restrict use of private property in anticipation of daylighting that may or may not occur at some unspecified time in the future. Most also feel that even identifying daylighting opportunities (unless requested to do so by the property owner) is unwise or inappropriate.

Most CTF members agree that the Creek Ordinance should include an incentives program to encourage daylighting, that priority should be placed on daylighting creeks on public property, and that the City should identify potential daylighting opportunities on public property. These are “statements of agreement” of the CTF.

Concluding comments

This document has attempted to explain the background and reasoning behind some of the CTF’s decisions. The CTF learned a great deal that is not included in this document in spite of its relevance to regulations and policies in Berkeley. Of particular note are:

(1) Additional materials from the Balance Hydrologics (2005) presentation to the CTF, and a letter from Balance Hydrologics to City of Berkeley Deputy Planning Director Wendy Cosin on March 14, 2006, which was Item 7 in the document packet for the March 20, 2006 CTF meeting. These documents give important detail concerning conditions on Berkeley’s creeks, such as the extent of erosion problems, the extent (and lack) of aquatic habitat, and the generally degraded character of Berkeley’s creeks.

(2) The Creeks Task Force Background Report (Creeks Task Force, 2006) contains an extensive discussion of: the legal background and regulatory framework of the current Creeks Ordinance; comparison to regulatory schemes in other jurisdictions; discussion of shortcomings of various approaches to setbacks; outlines of pro and con arguments concerning regulation of land uses near Berkeley creeks; and discussion of the rationale for several CTF recommendations. The present document is essentially a companion to the Background Report.

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