



CITY OF MARTINEZ

**CITY COUNCIL AGENDA
November 7, 2007**

TO: Mayor and City Council

FROM: Don Blubaugh, City Manager
Karen Majors, Assistant City Manager
Dave Scola, Public Works Director
Tim Tucker, City Engineer,
Don Salts, Assistant Public Works Director
Dave Cutaia, Chief of Police
Tom Simonetti, Police Commander

SUBJECT: Alhambra Creek Beaver Dam

DATE: October 29, 2007

RECOMMENDATION:

For reasons outlined below staff intends to humanely depredate the beavers associated with the Alhambra Creek dam just south of Marina Vista and to remove the dam and the other creek obstructions they have caused, all in compliance with California Department of Fish and Game approvals and guidelines.

OUR PERSPECTIVE

Staff members associated with this report have come to the conclusion we have in full recognition that there will be opposition to the proposed actions. Beavers certainly have a place in the ecological system but not in the middle of urban development and not in an area so prone to flooding where so much has been done in recent years to mitigate such impacts. It is not responsible, in our view, to live with the potential for property damage and the ongoing impacts on the nearby stream bed while the beaver population continues to grow.

We wish it were possible to remove the dam and find a new home for the beavers. We have been told by the State Department of Fish and Game that relocation will not be permitted. Contact has been made also with the Lindsay Museum. Lindsay harbors only injured animals.

Fish and Game stands ready to issue the permits to do so because of the merits of the existing situation.

BACKGROUND:

Prior to last winter the City was made aware of the existence of beavers in Alhambra Creek. The City received a report of a fallen tree that damaged a fence along the creek south of Susanna Street. Staff also discovered the unmistakable evidence of beaver gnawing on trees along this patch of Alhambra Creek. State Department of Fish and Game Warden, Nicole Kozicki, advised City staff of the habits of beavers in an urban area (see more on this below), and advised us of our right and responsibility under state depredation law, to remove the beavers. She also informed staff that the removal of the beaver dam would be authorized through a streambed alteration permit or under emergency conditions.

The beavers eventually constructed a small dam approximately three feet in height between Marina Vista and Escobar Street. Since last winter the beavers have increased the dam to its current height of six feet. The height of the dam continues to grow. The beavers have also built a lodge, approximately 15-foot in diameter, along the creek bank adjacent to Bertola's Restaurant.

The beavers have been an attraction in downtown and people have come to see these animals in action. Unfortunately, damming Alhambra Creek significantly increases the very strong potential for flooding in the downtown area. This is not good news to residents, property owners and businesses who along with the City and several other governmental agencies have worked hard to mitigate many, many years of flooding.

Over the last 10 years, the City of Martinez has been the lead agency in 3 major projects totaling \$9,700,000 to mitigate flooding problems in Downtown Martinez. Downtown property owners and the City jointly funded the Alhambra Creek Channel Improvement Project that was completed in October, 2002. This sum included channel improvement work of slightly more than \$3,700,000. Approximately one-third of the cost of this project was paid for by an assessment district that is made up of one hundred thirty two (132) downtown property owners collectively paying approximately \$110,000 per year until 2019 to pay off the \$1,250,000 bond (not including interest). Also included is a City investment of \$3,200,000 to install a new train bridge and that widened Alhambra Creek as part of the Intermodal Project and an additional \$2,800,000 was spent to widen Alhambra Creek and create new marshland north of Berrellesa St. These three projects combined have significantly reduced the potential for flooding in Downtown Martinez from a once every two year event to a one in an approximately ten year event. A recent hydrologic study indicates that most of the benefit of the flood improvements have been or will be negated by the existing beaver dam and the expected increase in height. (See attached summary of Hydrologic Study completed on October 16, 2007—full report available at www.cityofmartinez.org under the engineering department)

Concerns of flooding have resurfaced because of the beaver dam construction have proved to be well founded. During the first rain of the season which occurred on Friday, October 12th water came within two feet of bottom of the Escobar Bridge. Heavy rains over a period of several days will make the situation worse. Removal of the dam is essential if the City of Martinez is to be prepared for winter rains.

In addition to the flooding potential, staff has researched beaver activity in urban environments and has learned the following:

1. Beavers are a member of the rodent family. A mature adult beaver weighs approximately 60 pounds, lives approximately 12 years, and are primarily nocturnal animals.
2. Beavers are burrowers that have powerful curved claws on all four feet. They are equipped with a number of features that help in underwater construction; valves that close off their nose and ears; thin membranes that cover their eyes acting like goggles; and skin flaps behind their front teeth that allow them to tow tree branches through the water without swallowing water.
3. Beavers choose dam sites where the stream is not too deep and the bottom is firm. They begin their dam construction by cutting down saplings and then move on to larger trees. Working at night, beavers often work together to fell trees by making deep bites in a tree with their teeth, chewing away wood wedges until the tree falls down. Beavers then cut the trees into manageable lengths and float them into position to create a dam. They hold the trees in place by piling mud and stones around them.
4. The dam grows higher, the water slows, and the beavers weave branches in and pat on more mud to complete the barrier. The dams are continuously maintained. A family of beavers can build a 35-foot dam in about one week.
5. Beavers are somewhat communal in nature and work together to create and maintain their dams. They live in lodges which are often constructed into the side of a stream bank. Beaver lodges have at least two entrances and some (up to five). The entire lodge can include a room of up to five feet high and is plastered with mud.
6. In an urban setting, adult beavers do not have natural predators. Raccoons are, however, a predator to kitten (baby) beavers.

Unfortunately, beaver dams create conflicts with surrounding land uses in urban areas. Staff has spoken with experts from the California Department of Fish and Game and the USDA Wildlife Services regarding beavers in an urban environment. These experts have told us that the beavers will continue to increase the height of the dam until the elevation is at or near the top of the creek bank. Beavers also burrow into the banks of the creeks to create lodges. This can create large voids up to 60 feet from the water's edge. Currently, there is a beaver lodge at the water's edge adjacent to Bertola's Restaurant. Castro Street and the two buildings to the east of the dam are within 60 feet of the water's edge.

The City of Elk Grove, California has tried for several years to manage the beaver problem in its city. They removed several dams and obstructions in waterways and drainage systems, but the beavers quickly replaced them. If the dams were not removed, the beavers would continue to make them higher, which would result in more serious flood hazards. Five of Elk Grove's detention basins are active beaver sites requiring a larger amount of maintenance staff time to keep clear and deal with the trees that were cut down. All efforts to control the problem and

discourage the beavers failed. Elk Grove received a depredation permit from the State Department of Fish and Game to eliminate the beavers and contracted with the U.S. Department of Agriculture to reduce its beaver population. In recent months, 51 have been humanly depredated. In addition, Elk Grove is currently spending \$80,000 to repair the damage caused by the beavers.

Experts have informed us that the beaver population will likely increase resulting in additional dams and property damage similar to what the City of Elk Grove has experienced. The mitigation tree planting that was part of the Alhambra Creek Channel Improvement Project has and continues to be damaged by beaver activity. Without these trees, the soil will erode at a much faster rate from the stream bank silting up the creek at a much faster rate.

Down retailers and property owners have called and one has written (see attached communication from Jonathan Daniel Adams, Esq.) expressing concerns about the potential for flooding

The California Department of Fish and Game enforces regulations pertaining to beavers. Staff has researched options to relocate the beavers and found that this is not an option. **Simply put, the California Department of Fish and Game will not allow the beavers to be relocated.**

Conclusion:

Staff has concluded the only method to address the beaver situation in Alhambra Creek is depredation. Should the beaver community be allowed to remain and increase in population, they will migrate upstream where the creek capacity is limited. Even small obstructions in Alhambra Creek upstream from the downtown improvements will create flooding affecting a much larger portion of Martinez.

ACTION:

Discuss the material contained in this report, hear from the Department of Fish and Game, the USDA, County Flood Control, and receive public input, and offer comments to staff and to the community on this matter.

Attachments:

1. Hydrology Summary
2. Flood Control District Peer Review Comments
3. Pictures
4. Letter from an Attorney representing several properties downtown

Attachment 1, Hydrology Summary

The consulting firm of Philip Williams and Associates (PWA) was hired to complete a hydrology study for the downtown section of Alhambra Creek. The study evaluates the impacts of a beaver dam to the capacity of Alhambra Creek. At the request of the City, the Contra Costa County Flood Control District (FCD) peer reviewed the dam assessment. The FCD concluded that the PWA study approach and presented results followed industry standards. They also indicated the conclusions in the study appeared “sound and reasonable.”

The dam is located between Marina Vista and Escobar Streets. The study evaluates the creek. 1) as improved in 2002, 2) with the dam at its heights, 3) with a one foot increase, 4) PWA was selected to complete the study because of its familiarity with the downtown section of creek. PWA completed the original hydrology studies for the downtown channel projects, have been monitoring the creek for the last seven years as part of the project mitigation requirements and have hydraulic computer models of this stretch of Alhambra Creek.

At this location the creek runs parallel to and just east of Castro Street. Nearby business include the new County Election/Recorder building, Bertola’s Restaurant and other offices, businesses and residential housing. Should the creek leave its banks in the downtown area, the flood overflow will travel along the street network and affect more than just the adjoining businesses including the Intermodal facility.

Flow area calculations based on the height of the dam provided by the City and the original design cross-section in the vicinity of the dam indicate that the beaver dam occupies about 40% of the original design cross section. A rough estimate of the impact on channel capacity based on cross sectional area indicates that capacity has decreased from about 2000 cfs (10- year storm capacity) to about 1170 cfs (5-year storm capacity). If the dam increases in height by one foot, flow area would be reduced by about 55% with capacity dropping to about 900 cfs. If the dam increases in height by two feet, flow area drops by about 70% with capacity dropping to about 615 cfs (about a 2-year storm). Prior to the Alhambra Creek Channel Improvement project the creek capacity was approximately equivalent to the two year storm. Allowing the dam to remain, with the eventual increase in height expected, will essentially eliminate the benefits created with the project in the vicinity of Escobar Street.

With beaver dam 2-feet higher than the existing one, the 2-year storm would produce water levels approximately 4 feet higher than design conditions, and water would be at top of bank in the vicinity of the dam. For storms at or above the 5-year event, resulting water levels go out of bank upstream of the dam 1-foot and 2-feet higher than the current dam.

The following chart summarizes flooding that was observed during the 2005 storm and the flooding results expected based on the hydrology models developed by PWA for various scenarios.

Table 1

Year Storm	% Chance per year	Channel without dam	Channel w/dam as it was 10/1/07	Channel if dam one foot higher	Channel if dam two foot higher
2-Year	50%	OK	OK	OK	Top of Bank ¹
5-Year	20%	OK	Flood near dam	Flood	Flood
7-Year	14%	OK	Flood up-stream of Escobar	Flood	Flood
10-Year	10%	Top of Bank ¹	Flood up-stream of Escobar	Flood	Flood
25-Year	4%	Flood	Flood	Flood	Flood

Year of Storm – Level of flood protection is often related to Year of Storm. Flood insurance carriers refer to the 100-year storm. Although some people believe this refers to how often this size storm occurs, such as once every one hundred year, it is actually a storm that has a one percent chance of occurring in any one year. Although unlikely, a 100-year storm could occur in two consecutive years. For the Alhambra Creek Watershed PWA has determined the increasing volumes of runoff as the Year Storm increases.

¹ Top of Bank – Flows indicated as “Top of Bank” are at or near the verge of flooding stage. Siltration levels, debris, tides or other factors occurring at the time of the storm will could have significant affects whether flooding occurs.



Contra Costa County
Flood Control
& Water Conservation District

Maurice M. Shiu,
ex officio Chief Engineer

R. Mitch Avalon,
Deputy Chief Engineer

October 29, 2007

Mr. Timothy Tucker
City Engineer
525 Henrietta Street
Martinez, CA 94553

RE: Draft Alhambra Creek Beaver Dam Assessment (1823.02)

Dear Tim:

Per the City's request, we have peer reviewed the October 9, 2007 memorandum from Philip Williams & Associate, LTD (PWA). This memo presents a draft of the assessment of the beaver dam impact on the capacity of Alhambra Creek.

We found that the PWA study approach and presented results followed the industry standard of care. The conclusions appear sound and reasonable. We marked up the draft document where some minor wording may provide some clarifications to the memo, but did not find any glaring omissions or errors. We are enclosing a copy of our mark up for your use.

We only reviewed the memorandum text and graphics. We did not have access to the creek models used in the PWA analysis and would be happy to review those upon request under our Fee for Service program.

Should you have any questions, please contact Mark Boucher at (925) 313-2274 or myself at (925) 313-2203.

Sincerely,

R. Mitch Avalon
Deputy Chief Engineer

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C: Mark Boucher, Flood Control









TURNER, HUGUET & ADAMS

ATTORNEYS AT LAW

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1907-1997**

**OF COUNSEL:
ANTHONY B. VARNI**

October 31, 2007

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Mr. Don Blubaugh, City Manager
City of Martinez
525 Henrietta Street
Martinez, CA 94553



Re: 610 Marina Vista, 611, 628 and 630 Escobar Street
and 649 Main Street

Dear Mr. Blubaugh:

I have been retained by owners of the above referenced properties with regard to the existing condition in Alhambra Creek and its potential impact on these properties. I understand that in order to facilitate the completion of the Alhambra Creek Channel Improvement Project, my clients voluntarily granted a storm drain easement to the City. Although my clients enjoy watching the beavers, they are concerned that the construction of the dam by the beavers in the creek between Marina Vista and Escobar may have adverse impacts upon their property. Accordingly, they have asked me to write you to encourage the City to take all appropriate action to protect their property and those of their fellow citizens by conducting appropriate maintenance activities in the creek. We understand that the creek improvement project was funded by a FEMA grant and also by the formation of an Assessment District. Based upon our review of City documents, the City Council adopted a Resolution to maintain the creek improvements. We believe that a maintenance agreement was entered into by the City with FEMA in conjunction with the FEMA grant. We would like to receive a copy of that Agreement and request that it be forwarded to us pursuant to the provisions of the California Public Records Act (Government Code Section 6254 et seq.).

Our clients understand that beavers are commonly known to tunnel and build dens in subsurface areas adjacent to their dams. Accordingly, we are concerned that the current condition in the creek may give rise to risks to our client's property including the loss of lateral and subjacent support resulting in significant building damage, and perhaps personal injury to the occupants. Accordingly, we are requesting the City promptly take all appropriate action to insure that property owners in the downtown area are protected from both personal injury and property damage.

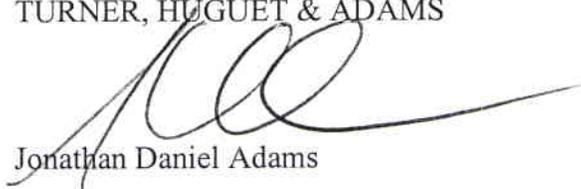
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Mr. Don Blubaugh, City Manager
October 31, 2007
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We would appreciate your advice as to the City's intentions with regard to our client's request.

Very truly yours,

TURNER, HUGUET & ADAMS



Jonathan Daniel Adams

JDA:lac

cc: Karen Majors, Community Development ✓
Jeff Walter, City Attorney, via email
Client

Dunivan/610 Marina Vista:Ltr City Mtz 071031