KEN MASITBURN

# DETENTION BASIN CRITERIA & POLICIES

SAN BERNARDINO COUNTY FLOOD CONTROL DISTRICT
1939
CALIFORNIA

# DETENTION BASIN DESIGN CRITERIA FOR SAN BERNARDINO COUNTY

The following design parameters and procedures are listed as guidelines to insure proper detention basin operation. When necessary, these guidelines may be modified if approved in writing by both the Flood Control District and Land Management Department.

## I. Definitions

### A. Regional Detention Basin

1. A basin which can be incorporated into the Flood Control District's existing or proposed drainage system,

2. Basin owned and operated by the Flood Control District, although it may be joint use, and

3. A basin which will reduce the downstream peak flow rate and the necessary downstream storm drain size.

### B. Local Detention Basin

1. A basin which will not be incorporated into the Flood Control District's existing or proposed drainage system,

2. A basin owned by an individual or organization other than the Flood Control District, and

3. A basin which will reduce the downstream peak flow rate, but will not be considered in downsizing future downstream storm drains.

C. Joint Use Detention Basin: A regional or local detention basin which has an additional use such as football field, parking lot, golf course, lake or etc.

### D. Temporary Detention Basin

1. A local detention basin used to reduce downstream peak flow rates until ultimate storm drain facilities can be constructed as part of a phased development, and

2. Generally the life of the basin shall not exceed 10 years.

C. Where downstream erosion is a concern the duration of erosive flow velocities for all frequency storms shall not be substantially increased unless other forms of mitigation are provided. This can be accomplished by reducing the peak flowrate further than that required above. Refer to "Handbook of Hydraulics" by Horace Williams King and Earnest F. Brater, and "Open-Channel Hydraulics" by Ven Te Chow, Ph.d. for erosive flow velocities.

D. When there exists a potential for debris entering the basin, the basin capacity shall be increased or a desilting basin provided to accomodate the debris production generated from a 100-year storm four years after a burn (over the entire watershed), plus 20% due to maintenance uncertainties.

1. For all basins where a significant amount of debris accumulation is anticipated, a debris disposal area or areas shall be provided within a reasonable hauling distance.

2. "A New Method of Estimating Debris-Storage Requirements for Debris Basins" by Fred E. Tatum of the U.S. Army Corps of Engineers shall be used for determining the 100-year debris volume.

3. Local basins shall not be located in desert areas where there exists the potential for debris entering the basin (i.e., locations where flows are directed to the basin by natural drainage courses or earth graded channels which handle flows from undeveloped watersheds). It is recommended that the flows from the development be conducted to the basin in a hardlined facility (i.e. street or concrete channel), then outletted into the natural drainage course or earth channel.

4. Local detention basins shall not be fed by natural drainage courses or earth channels with undeveloped watersheds greater than 0.5 square mile.

5. The basin capacity for local detention basins fed by natural drainage courses or earth channels with undeveloped watershed less than 0.5 square mile, shall be enlarged to handle an additional 5 years of accumulated annual debris based on the attached figure 1.

6. Generally regional detention basins with undeveloped watersheds shall be flow-by basins or have a separate debris basin upstream of the detention basin.

5. Anti-vortex devises shall be provided where warranted.

6. A depth gauge shall be provided on the basin outlet structure in order to monitor debris deposition and basin operation.

F. Analysis Methodology

1. Pre and post development peak flow rates shall be developed using the procedures outlined in the San Bernardino County's Hydrology Manual.

2. Basin inflow hydrographs shall be developed using the procedures outlined in the San Bernardino County's Hydrology Manual.

3. Basin outflow hydrographs shall be developed by the Modified Puls Method.

4. Channel hydrograph routing shall be calculated by the convex channel routing method or by moving the hydrograph utilizing travel time.

III. Water Surface Elevation and Depth

A. Local Basins

1. When feasible the 100 year design water surface elevation should be at or below existing natural ground. Generally no more than 50% of the basins 100 year storage depth should be above existing ground (i.e., 50% or more of the 100-year minimum storage depth must be below the lowest ground outside basin).

2. The necessary storage depth for debris plus the two year flow attenuation shall be below existing ground.

3. The basin's maximum water depth for 100-year design should be 6 feet or less.

4. When site conditions warrant and safety can be assured, the above depth requirements may be modified if the following conditions are met.

a) The detention basin is designed in accordance with the Los Angeles County Flood Control Distrit's "Design Manual - Debris Dams and Basins".

E. Generally the spillway crest shall be at, or above the basin's design 100 year high water line.

V. Freeboard to the Top of Embankment

A. Local and temporary basins shall have a minimum 1-foot of freeboard above the 1000-year HWL on the emergency spillway or 2-feet of freeboard above the 100-year HWL in the basin, whichever is more stringent.

B. Regional basins shall have a minimum 2-feet of freeboard above the 1000 year HWL on the emergency spillway. For basins with larger surface areas the freeboard shall be increased due to possible wave action. Also, a Seismic Seiche analysis shall be provided to determine necessary freeboard. Reference "Design of Small Dams" by the United States Department of Interior.

C. Joint use basins shall conform to the applicable local or regional freeboard requirements. For smaller basins such as parking lot and tennis court basins, the freeboard conditions may be reduced.

VI. Basin Embankment

A. Basin side slopes should be of 3H:1V or flatter on the wet side and 2H:1V or flatter on the dry side. Steeper slopes may be acceptable on a case by case basis if rock lined and recommended in the soils and geotechnical report. (See items C and D below for expanded requirements for report.)

B. Top Width of Levee

1. Regional and local basins - 15 feet minimum
2. Joint use - site specific
3. Refer to Section IX.C.

C. For design of the embankment abutments and adjacent slopes, a soils and geotechnical report shall be prepared by a soils and geotechnical engineer with a demonstrated expertise in earth fill dam design. The report shall be reviewed and approved by the Land Management Department and the San Bernardino County Flood Control District. The report shall include:

a) Site geology including bedding, foliation, fracture, joint, fault and land slide plane attitudes.

h) Special design and construction recommendations including, but not limited to the following:

1. Foundation preparation requirements

2. Suitability of materials for embankments (gradation, sand equivalent, etc.) and abutments

3. Compaction methods and minimum requirements

4. Seepage and piping control provisions

5. Potential for settlement

6. Seismic considerations

7. Minimum design factors of safety are:

| | Without Seismic | With Seismic |
|---|---|---|
| Embankment, Abutment and Adjacent Slope Stability | 1.5 | 1.1 |
| Seepage - Piping | 1.5 | --- |

8. Necessity of impervious core or shear key

9. Erosion control of abutments.

D. Regional basins and local basins not meeting the depth and side slope requirements setforth previously shall be designed in accordance with the Los Angeles County Flood Control District's "Design Manual - Debris Dams and Basins".

## VII. Basin Floor

A. A low flow channel shall be provided from the basin inlet(s) to the basin outlet.

1. Where basin slopes exceed 2% or produce erosive flow velocities the low flow channel should be protected from erosion with reinforced concrete, rock lining or other form of approved erosion protection.

C. A 15-foot wide roadway shall be provided along the top of embankment, across the spillway and around the basin. The intent of this criteria is to have continuous access around, and to, the basin for maintenance purposes. Under certain circumstances where it can be shown the recommended top width is not necessary for structural safety and maintenance, the criteria may be modified. Approval will be required by both the Land Management Department and the Flood Control District.

1. If access across the spillway is not provided minimum 40' X 60' turn arounds shall be provided on both sides of the spillway.

2. If there exists adequate access for maintenance, this requirement may be amended for local, temporary or joint use basins.

D. Access ramps shall be provided to the basin floor.

1. Minimum of one - 15 foot wide ramp for local basins.
2. Minimum of two - 15 foot wide ramps for regional basins.

E. The maximum roadway or access ramp slope shall be 10%.

F. The minimum access and roadway inside turning radius shall be 35 feet.

## X. Fencing

A. All basins shall be fenced with 6-foot chain link fencing per Cal Trans standards or other approved barrier unless otherwise approved by the Land Management Department and the Flood Control District. Joint use basin fencing will be site specific and must meet the needs of all agencies utilizing the basin.

B. All regional basin chain link fencing shall have a 1 foot wide painted horizontal orange stripe at the mid height of the fence.

C. Access to the basins shall be gated and locked.

## XI. Rights-of-Way

A. Sufficient rights-of-way shall be provided for the construction and economical maintenance of the basin(s), (including all fill and cut slopes) and shall include sufficient area to provide for an access road from a dedicated public street to the basin.

B. Regional basins shall be dedicated to the District in fee title.

C. Local basins shall be covered by an adequate San Bernardino County Drainage Easement.

XII. References to be Used in Design.

"A New Method of Estimating Debris - Storage Requirements for Debris Basins," Tatum, U.S. Army Engineer District, Los Angeles, CA, 1963

"Design of Small Dams", U.S. Bureau of Reclamation, 1977

"Handbook of Hydraulics", King and Brater, McGraw Hill Book Company, 1954

"Los Angeles County Flood Control Manual - Debris Dams and Basin", Los Angeles County Flood Control District

"Open-Channel Hydraulics", Ven Te Chow, Ph.d., 1959

"San Bernardino County Hydrology Manual", San Bernardino County, May 1983

"San Bernardino County Standards and Specification", San Bernardino County Department of Transmportation/Flood Control/Airports

# INTEROFFICE MEMO

DATE September 4, 1987 PHONE 2515

FROM ROBERT W. CORCHERO, Chief
Water Resources Division

TO CHARLES L. LAIRD, Acting Director
Transportation/Flood Control File: 1(FC)-53

1853
County of San Bernardino

SUBJECT SAN BERNARDINO COUNTY DETENTION BASIN DESIGN CRITERIA

As requested the subject criteria was reviewed with respect to the determination of pre-development peak flow rates. According to the existing criteria the County can be 85% confident that the calculated peak flow rate will equal or exceed the peak flow rate at a given concentration point if adequate streamflow data was available. Therefore, the County can only be about 15% confident a detention basin outflow will not adversely affect downstream properties (not considering erosion).

The County should be at least 50% confident a detention basin outflow will not adversely impact properties downstream of the basin. Based on the calibration study of the county's hydrology method the input parameters (procedures) described in the Manual should be modified as follows:

a) 10 year peak flow rates should be calculated using 5-year rainfall,

b) 25-year peak flow rates should be calculated using 10-year rainfall, and

c) 100-year peak flow rates should be calculated using 25-year rainfall and AMC II.

If these design parameters are used for determining the pre-development peak flow rates, the basin outflow metered to 90% of these calculated pre-development peak flow rates and the post-development peak flow rates to the basin calculated in accordance with County Hydrology Manual, the County will be over 50% confident the resulting basin design will not adversely affect adjacent or downstream properties (not considering erosion).

The desired confidence level for detention basin outflow is a policy decision. Once the desired confidence level is determined the required input rainfall amounts can be developed to calculate the peak flow rate at the corresponding confidence level. I have discussed this policy issue with John Pederson of the U.S. Army Corps of Engineers, Ron Moore of the Soil Conservation Service and Al Nessinger of Orange County. Al Nessinger pointed out by using basin inflow hydrographs based on a 85% confidence level

II. Basin Capacity and Outlet Drain

A. When a basin (regional, local, temporary or joint use) is to be used to mitigate downstream impacts due to increased flows generated by a development, the basin capacity and outlet size shall be such that the post-development peak flow rate generated by the site shall be less than or equal to 90% of the pre-development peak flow rate from the site for all frequency storms up to and including 100-year (i.e.) the peak 2 year post-development flow rate is equal to or less than 90% of the peak 2 year pre-development flow rate from the site and etc. for all frequency storm events through 100 year).

1. Only 2, 10, 25 and 100-year storms need to be analyzed.

2. Post-development peak flow rates shall be calculated in accordance with the "San Bernardino County Hydrology Manual".

3. Pre-development peak flow rates shall be calculated in accordance with the "San Bernardino County Hydrology Manual" with the following exceptions.

   a) 10-year peak flow rates shall be calculated using 5-year rainfall.

   b) 25-year peak flow rates shall be calculated using 10-year rainfall.

   c) 100-year peak flow rates shall be calculated using 25-year rainfall and AMC-II.

4. Additional studies shall be submitted where there exists more than one basin in the drainage area under review. The studies shall address the timing of the peak flow rates from the basins to ensure downstream flow rates are not increased.

SAN BERNARDINO COUNTY DETENTION BASIN POLICY

ADOPTED BY THE SAN BERNARDINO COUNTY BOARD OF SUPERVISORS

MARCH 4, 1985

With the increase in land values and the reduction of available flood free land, the use of detention basins for flood protection as an interim measure or as part of the ultimate drainage facilities needs to be evaluated. To determine if detention basins could be an appropriate means of providing flood protection, the County hired a consultant engineer to study the problem and provide a report on which to base future policy.

The ultimate solution is to eliminate flooding through structural measures (e.g. channels, storm drains, dams, etc.). Additionally, since the County is a participant in the National Flood Insurance Program and has adopted floodplain regulations, new developments are required to provide adequate facilities for 100-year storm protection. Further, new development must be constructed in a manner which does not adversely affect adjacent or downstream properties. Since master plan facilities are usually expensive and time consuming to implement, interim techniques such as detention facilities need to be considered in order to mitigate new downstream impacts and to allow development to proceed.

1. * FINDING: New development may increase flood hazards to adjacent or downstream properties unless appropriate conditions have been required.

   + GOAL: Mitigate flood hazard downstream as part of development of a project.

   o ACTION: Mitigation measures shall be required if it is determined that there will be an adverse impact on adjacent or downstream properties as a result of development:

   a) The most desirable mitigation is construction of a portion of the ultimate drainage system.

   b) The next most desirable mitigation is construction of temporary structures or street improvements necessary to carry the increased flows.

   c) The next most desirable mitigation is the design and construction of a regional detention facility to limit flows to the standards of the "Basin Design Criteria of San Bernardino County" currently being developed, or the Gill & Pulver Report would be used as interim guidelines.

   d) The next most desirable mitigation is the design and construction of interim local detention facilities.



2. * FINDING: The use of permanent regional detention facilities is an accepted means of providing flood protection in other jurisdictions while reducing the size and cost of master plan drainage facilities.

   + GOAL: Integrate regional detention basins into the County's master plan of drainage facilities.

   o ACTION: a) Permit new development to occur when regional detention facilities meeting County criteria can be constructed in conjunction with the development.

   b) Such proposals must include sufficient detailed data to ensure their feasibility prior to Planning Commission approval of lot layout and/or structure locations.

   c) Basins shall meet design standards in report entitled "Basin Design Criteria for San Bernardino County", currently being developed, or the Gill & Pulver Report would be used as interim guidelines.

3. * FINDING: Regional detention facilities require extraordinary maintenance when high debris loading is expected and need an assured source of funding.

   + GOAL: Establish a funding mechanism for the maintenance of each new or modified County detention basin to ensure funding for the extended period when high debris loading is expected.

   o ACTION: Form drainage maintenance districts when approved by the property owners and/or collect monies from new developments on a fair share basis.

4. * FINDING: Regional detention basins serve dual purposes in other jurisdictions.

   + GOAL: Encourage joint use facilities in San Bernardino County to offset maintenance costs.

   o ACTION: Direct Special Districts Department (including Water Conservation), Regional Parks and the Transportation/Flood Control Department to develop recommendations for implementation of joint use within the County.

5. * FINDING: The use of local detention facilities can be difficult to monitor and expensive to maintain.

+ GOAL: Ensure proper maintenance and inspection of local detention basins.

o ACTION:

a) A maintenance and inspection program shall be established for each separate facility, the level of which shall be dependent on the type of facility to be used as stipulated in the "Basin Design Criteria of San Bernardino County", or the Gill & Pulver Report would be used as interim guidelines.

b) Local basins shall be incorporated into another feature of the development as a joint use as a means of providing a high level of maintenance. The joint use shall be compatible with the detention basin use and be acceptable to the County.

6. * FINDING: The use of local detention basins may be ineffective or even increase the downstream flood hazard.

+ GOAL: Ensure proper design of local detention basins.

o ACTION:

a) Approve only those projects proposing the use of local interim basins where such basins can be demonstrated to adequately mitigate downstream flows.

b) Such proposals must include sufficient detailed data to ensure their feasibility prior to Planning Commission approval of lot layout and/or structure locations.

c) Basins shall meet design standards in report entitled "Basin Design Criteria for San Bernardino County", or the Gill & Pulver Report would be used as interim guidelines.

7. * FINDING: Frequently, homeowner's associations and other private entities are unreliable for the purpose of assuring funding of basin maintenance.

+ GOAL: Ensure adequate funding for maintenance and inspection of local detention basins.

o ACTION:

a) Cash trusts shall be provided by development and held by a responsible public entity to ensure maintenance of interim local detention basins including its joint use.



b) A maintenance district using a Community Facilities District or other acceptable public financing shall be established to operate and maintain the joint use facility. Public financing shall be implemented only in the event the cash trust is exhausted due to unforeseen costs.

8. * FINDING: Many areas within the County are subject to flooding and do not have adequate drainage facilities to handle major flows. Detention basins are not considered as a substitute for adequate drainage facilities, but can supplement the drainage system by reducing the size and cost of facilities.

+ GOAL: Provide flood protection by the construction of an integrated flood system which can include detention basins.

o ACTION: Direct staff to develop recommendations for a countywide flood protection policy which would result in construction of an integrated flood system. The policy would include a comprehensive financial plan involving all possible available sources of funding and would encourage the development of new sources of funding. The financial plans would be tailored to fit individual major drainage areas.

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MINUTES OF THE BOARD OF SUPERVISORS
OF SAN BERNARDINO COUNTY, CALIFORNIA

February 24, 1986

FROM: MICHAEL G. WALKER, Director
Transportation/Flood Control/Airports

SUBJECT: DETENTION BASIN MAINTENANCE FINANCING POLICY

RECOMMENDATION: Adopt Detention Basin Maintenance Financing Policy

BACKGROUND INFORMATION: The Board of Supervisors adopted a San Bernardino County Detention Basin Policy on March 4, 1985. One element of that policy involved development of a maintenance financing policy. The proposed policy is as follows and is on file with the Clerk of the Board.

Local Basins - Private Ownership (Unincorporated Area)

- Those basins which are an integral part of a private development such as a tennis court, parking lot, or joint-use open space between buildings, shall be owned and maintained by the private property owner.
- The design of the private basin shall be done such that it will not be subject to catastrophic failure and the design shall be reviewed and approved by the County in accordance with its standards.
- It will be necessary for the County to inspect the construction and annually inspect the facility to ensure it is being properly maintained.
- The private property owner shall be responsible for constructing the basins and operating and maintaining them thereafter. Funding for the maintenance shall be ensured through a Homeowners Association or the owner of the property. This should include an annual inspection charge by the County which will require an ordinance adopted by the Board of Supervisors.

PRESENTER: Michael G. Walker

Continue . . .

cc: Flood Control-Walker
EPWA
Public Works
Land Development
County Counsel-Hanna
Special Districts
File

Action of the Board of Supervisors

APPROVED BOARD OF SUPERVISORS
COUNTY OF SAN BERNARDINO

MOTION X X M S ABS
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MARTHA M. SEKERAK, CLERK OF THE BOARD



Local Basins - Public Ownership (Unincorporated Area)

- Any local basin that is not an integral part of a private development will be owned and operated by the County. A Community Facility District shall be formed as a condition of approval of the development for the purpose of maintaining the basins and those districts will be administered by the Transportation Department. The property owners within the development shall pay for maintenance and operation of the basins.
- Any space within the basin which may be used for park or recreation purposes may be leased by a public agency (CSA Improvement Zone, CSD, etc) from the County. The public agency would then be utilized to operate and maintain the park or recreation facility.

  Approval or denial of a special tax by the voters shall be the basis for determination of park and recreation joint-use facilities unless another independent source of funds is identified.

Regional Basins (Unincorporated and Incorporated Areas)

- Regional flood control detention basins will be owned and operated by the Flood Control District.
- The cost of inspection, maintenance, and operation of new regional basins will be accomplished as listed above under public ownership of local basins.
- Any space within the basin which may be used for park and recreation purposes shall be leased from the County Flood Control District by a public agency. Funding for maintaining those facilities shall be subject to voter approval in unincorporated areas unless another independent source of funds is identified.

REASON FOR RECOMMENDATION: The Detention Basin Maintenance Financing Policy was prepared in response to the Detention Basin Policy adopted by the Board of Supervisors.

REVIEW BY OTHERS: The policy has been reviewed by Land Development staff, Special Districts staff, Deputy County Counsel Betsy Hanna, the Detention Basin Ad Hoc Committee, the County Development Advisory Committee (including representatives of the Building Industry Council, Land Surveyors, and Civil Engineers) and was recommended for approval by the County Planning Commission on September 11, 1985.

2/24/85

# ALTERNATIVE MAINTENANCE FINANCING MECHANISMS FOR DETENTION BASINS INCLUDING JOINT USE FACILITIES FOR PARK AND RECREATION

## GENERAL

Maintenance responsibilities and related financing mechanism for detention basins including park and recreation or other joint use facilities must be contained in the conditions of approval of each development. Detailed requirements must be included which would indicate the procedure to be followed, identification of responsible entity, and funding requirements for facilities construction, operation and maintenance. Following is a list of funding alternatives and concerns and a recommendation which will provide the highest degree of certainty for continued funding. However, it is important to recognize that the approval of any joint use activity within detention basin must be contingent upon obtaining funding for ongoing operation and maintenance.

## Detention Basins - Regional and Local

A. Developer Cash Deposit

The developer would establish a maintenance fund with a lump sum cash deposit. The maintenance fund to be established should be based on the rate of return on investment and the rate of inflation as established annually. The fund would be equal to the present worth of the annual maintenance cost for the economic life of the facilities. The present worth of the inflated cost of each annual maintenance cost will be treated as a single payment in determining the amount of the fund. The following presents the procedure for establishing the detention basins maintenance fund.

(1) Estimate average annual maintenance costs at current year value.

(2) Determine maintenance cost for each year in the future for the fifty year economic life of the project. Maintenance cost will be increased each year by the adopted rate of inflation.

(3) Determine the present worth of each year's maintenance cost at the established rate for return on investment.

(4) The value of the maintenance fund will equal the sum of the present worth of each of the maintenance costs. The maintenance fund to be established for drainage should be based on the rate of return on investment and the rate of inflation as established annually by the State of California, Department of Water Resources in the preparation of their annual project update bulletin titled "Management of the California State Water Project"



This recommendation places the cost of operation and maintenance on the new development and does not increase cost to other developed areas. Funds should be collected as a condition of approval and received prior to acceptance of any final subdivision by County.

An additional option exists for park and recreation fees (or dedication of land) under the existing County ordinance based on the Subdivision Map Act Government Code § 66447 (which has not been used previously). The amount of the fee or land to be dedicated is determined on the basis of the ratio of population to park space already existing in the area. The fee for land can be used for the "development of neighborhood or community" parks. The fee or land can be turned over to another local agency (such as a CSA or zone) which will operate the park. Any fees collected where the community ultimately decides not to have a park are returned to the property owners on a pro-rata basis.

B. Assessment District

Assessment district financing utilizing 1911/1913/1915 processes can be used to construct the detention basin and also to operate and maintain the basin through the life of the bond payoff which is limited to 20 years. Maintenance can only be paid for by this method if an assessment district is formed to fund the cost of construction. The formation of the district is approved by the Board of Supervisors. The district will be denied if there is a majority protest of the property owners to be assessed at a public hearing. The cost of constructing and maintaining the basin is added as an annual charge to the owner's property tax bill. This method will not increase the initial price of the single family home, commercial building, etc. An alternative method would have to be established to take affect after payoff of the bonds. There is no administrative agency (such as with a County Service Area or Improvement Zone) to deal with the operation and maintenance of facilities constructed by the assessment district process. The maintenance process would have to be established at the time of selling the bonds by a contractual agreement to ensure maintenance of the facilities for the bonding period. There would be limited flexibility to accommodate changes in conditions over the length of the bond payoff. An assessment district cannot be used to finance the maintenance and operation of parks and recreation facilities.

C. County Service Area or Improvement Zone

Drainage Powers - Service Charge

A County Service Area (CSA) is established through an application and approval process of the Local Agency Formation Commission. An Improvement Zone of a CSA is established by approval of the County Board of Supervisors.

Both of these mechanisms can be used to levy and collect a service charge for maintenance of drainage facilities. An annual service charge may be approved by the Board of Supervisors and placed on the tax roll to be collected with the property tax. The service charge is only set once, although it can be increased or decreased from time to time.

Placement on the tax roll must be done yearly. If the property taxes, including service charges, are not paid by the property owner, foreclosure action would be taken against the property in order to collect. Foreclosure action is a lengthy process and therefore, a contingency fund is set up in the service charge to cover any anticipated shortfall due to lack of payment of taxes.

Park and Recreation Powers

The park and recreation maintenance at the present time must be financed by a Mello-Roos or a special tax election. In both cases, the voters themselves approve "joint-use", i.e., charges on property for park and recreation. This concept is validated by a recent amendment to Mello-Roos which requires that a tax to finance the operation and maintenance of park and recreation services may be imposed only after at least 100 voters have moved into the area. This concept would prevent creation of parks which County revenues ultimately could be required to maintain.

1. Service Charge

A County Service Area (CSA) is established through an application and approval process of the Local Agency Formation Commission. An Improvement Zone of a CSA is established by approval of the Board of Supervisors. Park and recreation powers could be given at the time of formation, but no joint use would be initiated until property owners moving into the development approved such use and financing for it. For example, a survey could be conducted to determine if the community wanted a park and would support it through a special tax.

While a CSA or zone can levy a user charge, it cannot impose a service charge for park and recreation services. Generally, such services cannot be supported with user charges and a special tax is necessary.

2. Gate Fees

An additional method of charging user fees for the maintenance of park and recreation facilities is available with a CSA or Improvement Zone. These would be gate fees or rental charges. Since using the facilities is a voluntary process, this method will not guarantee sufficient funding to operate and maintain park and recreation facilities.

3. Special Tax

A special tax election can be held to establish a service charge for park and recreation facilities with a 2/3 approval of the registered voters. The appropriations limitation must be re-established every four years which would require subsequent voter approval. The elections can be done by mail ballot.



4. Liability Considerations

A CSA or zone which operates a detention basin (whether or not with joint use) will be subjected to liability should the basin become a "dangerous condition"; certain affirmative steps must be taken to prevent that occurrence.

Under California tort law, a public entity is liable only when statutes so provide; Government Code § 835 provides for public entity liability for a dangerous condition of property of which the entity was aware, but which it did nothing to remedy or did not remedy adequately.

CSA's and zones currently are not insured through the County system, but through a separate joint powers agency for all special districts. Absent some change, a major verdict against a CSA operating a detention basin could endanger insurance protection for all special districts, including fire districts, raising health and safety issues. At a minimum, the basin zone will owe an insurance premium commensurate with the risk.

The detention basins could create a dangerous condition when filled with water if not fenced, signed, or otherwise restricted. The CSA would need to monitor these protections to be sure they remain effective. For example, Flood Control District utilizes a "storm patrol" to lock fences, etc. when storms occur. Even if the CSA contracts for maintenance with the Flood Control District, liability will not necessarily be shifted to Flood Control, which itself is part of a separate insurance system. The joint use of a detention basin as a park and recreation area increases the liability problems outlined above by inviting use of a facility which during a storm could constitute a dangerous condition. Joint use emphasizes the need for continuous staffing which must be considered in determining any fee. These problems of liability could lead to financial unfeasibility in some cases.

D. Mello-Roos

For drainage a Mello-Roos Special Tax District can be established by 2/3 vote of the landowners (when there are 12 or fewer registered voters) to construct and maintain detention basins. The annual tax rate is established for a given period of time necessary to pay off bonded indebtedness for the cost of constructing the detention basin and maintaining it for the life of the tax/bonds. The life of the tax is usually no more than 20-25 years. The tax rate can be reduced, but not increased.

For maintenance of park and recreation facilities, there must be at least 100 registered voters in order to hold the special tax election and it required a 2/3 approval. This delays implementation well beyond initial development. Park and recreation facilities cannot be approved by vote of landowners only. Both construction and maintenance of park and recreation facilities are allowed utilizing a Mello-Roos. There is no assurance that the 100 voters would support a new special tax to build and maintain park and recreation facilities.

E. Homeowners Associations - Local Basins Only

Homeowners Associations and other private ownerships are methods often used to maintain facilities after initial construction. This technique is used often for large open space areas or recreational facilities for residential development where the common areas of the facilities are owned and maintained by the Association. Local governments, however, often express dissatisfaction with the level of expenditures and effort set forth by Homeowners Associations. Other flood control districts were negative to varying degrees about the usefulness of Homeowners Associations. The concern over the performance of a Homeowners Association to adequately provide required maintenance is especially true in the maintenance of detention basins. The basins are generally not a prominent feature of the common areas and the maintenance is capital intensive and technically complicated.

Recommendation - By Transportation/Flood Control/Airports Department for Detention Basin Drainage

Maintenance Responsibilities

Local Basins

Private Ownership - Detention basins which are an integral part of a private development such as a tennis court, parking lot, or joint use open space between buildings, shall be owned and maintained by the private property owner. The design of the private basin shall be done such that it will not be subject to catastrophic failure. The design of the basins shall be reviewed and approved by the County in accordance with its standards. It will be necessary for the County to review the design, inspect the construction, and annually inspect the facility to ensure it's being properly maintained. The private property owner will be responsible for the maintenance of the facility.

Public Ownership - Any local basin that is not an integral part of a private development will be owned and operated by the County. A Community Facilities District will be formed for the purpose of maintaining the basins and those districts will be administered by the Transportation Department.

Regional Basins

Regional flood control detention basins will be owned and operated by the Flood Control District.



Funding Responsibility and Source

Local Basins

Private Ownership - It will be the responsibility of the private property owner (developer) to fund the cost of the construction of private local basins. The funding shall be guaranteed by a home owners association or the owner of the property. The funding for the basin shall also include an annual inspection charge by the County which must be adopted by the Board of Supervisors by ordinance.

Public Ownership - The County shall establish a Community Facilities District as a condition of approval for developments which require detention basins. The annual cost to inspect and maintain these basins shall be in accordance with the State Code, Community Facilities Act, Article 4, Division 2, Section 53342, whereby the Board of Supervisors may fix and collect charges in the same manner as for miscellaneous extended services in County Service Areas. These service charges must be re-established annually by resolution of the Board of Supervisors through a public hearing process which would put the charges on the property tax rolls.

Regional Basins

The cost of inspection and maintenance of regional basins will be accomplished as indicated above in the Public Ownership, Local Basins. Once the County has established the Community Facilities District, it will contract with the Flood Control District to operate and maintain the facilities.

Recommendation - By Special Districts Department for Park and Recreation Joint Use

Maintenance Responsibilities

Local Basin

Private Ownership - Joint use facilities (tennis court, parking lot, open space between building, etc.) associated with detention basins which are an integral part of a private development shall be owned and maintained by the private property owner or a home owners association.

Public Ownership - Any local basin which is not an integral part of a private development will be owned and operated by the County. Any space which may be used for park and recreation purposes within these detention basins shall be leased by a public agency from the County, subject to voter approved funding. The public agency (CSA, Improvement Zone, CSD, etc.) shall then be utilized to operate and maintain the park and recreation facilities.

Regional Detention Basins

Regional flood control detention basins will be owned and operated by the Flood Control District. Any space which may be used for park and recreation purposes shall be leased from the Flood Control District. Park and recreation facilities to be operated under the Regional Park system shall be maintained by the Regional Parks department subject to Board of Supervisor inclusion of the facility into the Regional Park system. Facilities to be operated by other public agencies (CSA, Improvement Zone, CSD, etc.) shall be maintained by that agency subject to voter approved funding.

Funding Responsibilities and Source

Local Basins

Private Ownership - It will be the responsibility of the private property owner to fund the cost of construction, operation and maintenance of any joint use facility within private local basins. The funding for such joint use facilities shall be guaranteed through an appropriate mechanism such as a home owners association.

Public Ownership - The County shall require, as a condition of approval for developments, the identification or formation of a public agency which shall call for an election to approve a special tax for the purpose of funding operation and maintenance costs of parks and recreation facilities. Approval or denial of the special tax by the voters shall be the basis for determination of park and recreation joint use facilities in public ownership local detention basins. If the resident voters of the proposed benefit area do not approve the special tax levy, then the park and recreation facilities will not be developed. The levy of a special tax shall be determined through provisions of County Service Area or Community Facilities District Law. It is the intent of this provision that the resident voters of the benefit area decide whether they want to fund park and recreation facilities.

Regional Basins

Regional flood control detention basins shall be owned and operated by the Flood Control District. If it is determined by the Board of Supervisors that space within a regional detention basin is to be developed as part of the Regional Park system, then operation and maintenance funding shall be through authorized mechanism of the Regional Parks Department. If it is determined that space will be leased to a public agency other than Regional Parks, then funding responsibilities outlined in "Public Ownership - Local Basins" shown above shall apply.