Financing Flood Protection in the Urban Drainage District

by James R. Quinn
Executive Director

Public officials and engineers who shape policies of the Urban Drainage District are evaluating the most desirable financing methods available to pay for construction expected to begin in Fiscal Year 1972.

Three methods of financing were provided by the enabling legislation which created the District. One way is to levy an ad valorem tax over the entire District. A second method is to establish special purpose sub-districts within the boundaries of the District itself. The third method of financing is to establish a service charge on the property within the protected area. Under any of the methods described, the District may be bonded to a maximum of three per cent (amounting to $75 million in 1970), and the increasing revenues raised by the adopted method would be pledged to repay the bonded indebtedness.

When the District was created, the General Assembly of the state of Colorado provided that the District would work under a 0.1 mill limit without referral to the people through a special election. In March, 1971, the General Assembly reviewed and reaffirmed this limit by rejecting a bill to raise it to 0.5 mills.

The Board of Directors for the District must adopt by October, 1971, a method of financing construction and other programs for Fiscal Year 1972.

House Kills Bill to Fund District

By a vote of 36 to 28 the House of Representatives of the Colorado General Assembly turned down a bill by Rep. George Fentress, R-Lakewood, ending the District’s chances of carrying on its program through ad valorem taxes without a special election, or some other financing method.

The bill would have allowed the Urban Drainage and Flood Control District to raise its property tax levy from one-tenth of a mill to one-half a mill.

The 1969 bill creating the District authorized a total levy up to 2.5 mills without further approval by voters within the District. Cost of an election would amount to about $100,000 without adding anything to safeguard life or property from floods, according to UDD Executive Director James R. Quinn.

Under existing legislation, the District can refer any question of revenues to the people through the presentation of a plan and projected facilities for flood control or urban drainage treatment. This holds true for a District-wide program, or for a program that would carve out special areas for specific projects. On these occasions, construction levies are limited to one mill. After favorable vote, the District then could proceed with the assessment and construction.

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Flood Insurance Shows Outstanding Progress

By mid-April, 1971, the cities of Denver, Boulder, Lakewood, and Wheat Ridge had been placed on the list for qualification for the emergency flood insurance program of HUD, and approval is expected before May 1.

When the residents of these populous communities are added to those of Englewood, already qualified, the total will be approximately 727,000 whose homes and businesses can be covered by the advantageous new insurance protection.

Perhaps more important in the long run is the fact that in qualifying for the insurance, the public officials of each of the qualified communities have taken necessary steps to initiate sound and far-sighted land-use controls. These restrictions will keep people from making unwise investments and developments in flood plain areas, and enlarge the areas available for park and recreation uses.

Property owners in the approved communities will buy their flood insurance through local insurance agents and brokers. Backing the program is the National Flood Insurers Association, the nationwide pool of insurance companies formed to work with the government in carrying out the flood coverage program. Insurance rates are surprisingly low, reflecting the very substantial subsidy provided by the federal government for the benefit of those who own property in flood-prone areas. Anyone seeking further information is urged to get in touch with the District office, if the local insurance agent or broker cannot provide the facts.

Dedicated to the safety and health of people in the Denver urban area, and to reducing property damage from floods.
TIMELY AND AVAILABLE

Some Current Publications

URBAN DRAINAGE IN A REGIONAL CONTEXT
(Proceedings of the Urban Drainage Symposium held in Denver, January, 1971)

This document is a collection of all of the papers plus
the question-and-answer sessions of the successful Sym-
posium held in Denver under sponsorship of the Urban
Drainage District. Although the report contains some
information which concerns only the Denver Metropolitan
Area, some of the presentations are also applicable to other
regions in the United States. It forms another part of
the available exchange of information between planners,
engineers and public officials concerning urban drainage
and flood control problems and their solutions.

Individual copies have been mailed to all those who
attended the Symposium. Additional copies are available
at a single copy price of $3. Five or more copies mailed
to a single address are available at $2.50 per copy.

Please mail your request to the District office.

COLORADO STATE WATER PLAN (Plan of Study —
March, 1971)

This document is prepared by Regions 4, 5, & 7 of
the U. S. Bureau of Reclamation, in cooperation with the
Colorado Water Conservation Board of the State of Colo-
rado. It represents the plan of study for the State of
Colorado which led to the formulation of a State Water
Plan. Primary responsibility for the plan rests with the
Bureau of Reclamation. Close coordination will be main-
tained with the Colorado Water Conservation Board as
well as other State and Federal Agencies. Reclamation's
work will be accomplished through its regional offices in
Salt Lake City, Denver and Amarillo, Texas.

The report on the Colorado State Water Plan is sched-
uled to be completed in Fiscal Year, 1974. A detailed
outline of the plan is included as an addendum.

Address inquiries to the Colorado Water Conservation
Board, 1845 Sherman Street, Denver, Colorado 80202.

INTERIM PLAN FOR WATER QUALITY MANAGE-
MENT (Denver Metropolitan Area)

This volume, published in April by the Denver
Regional Council of Governments under a HUD sponsored
program is a collection of existing information on affected
agencies, waste-water sources and water quality problems
of the five-county Denver area. The purpose of this
interim plan is to identify immediate needs and to begin
development of a long range program for regional waste-
water and water quality management. The booklet con-
tains a preliminary list of sixteen projected improvements
for which Federal Grant applications have not yet been
filed.

Address inquiries to the Denver Regional Council of
Governments, 1776 South Jackson Street, Denver, Colo-
rado 80210.
SOME PROGRAMS UNDER WAY

1. Field Trip Considered

Following the very successful Symposium in late January, the District has explored the demand for a field trip on urban drainage, which could be held in July, 1971. Response to the idea has been favorable and plans are being made for a field trip to be held before the third week in July.

As with the Symposium, enrollment would be limited to 100 in order to be able to provide for good interaction. The two-day trip would include conducted tours at the new Chatfield Dam site, the completed Cherry Creek dam and reservoir, and Harvard Gulch in Denver. Another portion of the field trip would include a trip to the Boulder area, to inspect the flood control program now being developed in that community.

The proposed July field trip would be in two one-day segments, and these would be preceded and followed by discussions of the current state of the art in flood control.

Detailed information and announcement of the tour will be made available as soon as the date is firmly fixed. Those desiring to be included are requested to notify the District office.

2. 1971 Work Program

The 1971 Work Program of the District was developed to include the more densely populated portions of the District. The plan is to identify the kinds of facilities that will be necessary and the approximate cost. On the basis of this information, the Board will consider and draft the 1972 Construction Program of the Urban Drainage District.

The District is cooperating with local Governments, and matching its dollars with those dollars and services provided by local Governments, to obtain the data necessary to complete the 1971 Work Program.

3. Flood Plain Information

The publication of Volume V of the Denver Metropolitan Region Flood Plain Information Series has caused a great deal of interest in communities situated to the west of Denver. The latest volume indicates the potential loss of several million dollars worth of commercial and residential properties in suburban Jefferson County, if and when there is flooding of some of the streams tributary to Clear Creek.

Action that is being taken following the publication of this volume indicates that the communities are willing to take significant strides to avoid the problems created by future flooding.

For the first time, the flood plain maps issued by the Omaha Corps of Engineers are made on mosaics of aerial photographs. This new procedure provides for rapid and easy identification of structures and lands confronted by flood hazards.

4. South Platte Channelization Considered

A considerable amount of interest has been shown in the program outlined by the Corps of Engineers for proposed channelization of the South Platte River immediately below the Chatfield Dam in Arapahoe County.

Possible alternatives to channelization have been asked for by some people in communities bordering the river. Members of conservation groups have joined in this discussion, along with parks and recreation units serving the suburban communities of Englewood, Littleton, Sheridan and certain other portions of Arapahoe County.

Meetings are being held to discuss the impact of channelization, and for the purpose of considering alternatives and further study before work is started on the channel program as proposed by the Corps of Engineers. It is expected that there will be some modification of the program because of the public reactions that are now being expressed.

5. Maps Outline Drainage Areas

The first products of Project REUSE are expected to be delivered to the Urban Drainage District offices by mid-April, 1971. These items will consist of 31 Quadrangle maps made by U.S.G.S.; these will contain the outlines of all of the drainage basins and sub-basins in the area comprising the Urban Drainage District.

These basin and sub-basin maps contain information that has been prepared with a coding system designed as part of a computer program. The computer will be able to provide the District with significant flood hazard data and other specific information concerning each of the basins studied.

It is expected that these maps will prove valuable to the District, enabling it to provide more timely information to public officials, developers and others concerned with runoff and drainage characteristics of the 31 basins and sub-basins so mapped. Blue line copies can be produced from these maps and will be made available at cost to anyone interested. All inquiries should be addressed to the Urban Drainage District Office, 181 East 56th Avenue, Denver, Colorado 80216.

6. Ponding Resolution Considered

The Advisory Committee of the Urban Drainage District is reviewing a proposed Ponding Resolution presented to the District Board at its March meeting. It is expected that some kind of ponding resolution will be presented for action by the Board at its May meeting.

The proposed resolution is modeled after a similar measure now in effect in the Chicago area in Illinois; it limits and specifies the allowable runoffs that can be added to the regular stream channels by developers or other land users.

Like all resolutions of the District, this measure will be a model to provide practical guidelines which may be used by local political entities in drafting and adopting their own planning and zoning regulations.

NOTE: Items mentioned here are portions of the continuing program of the District. For more detailed information, please write to the Urban Drainage District, Lucas Bldg., 181 East 56th Ave., Denver, Colo. 80216.
Symposium:

URBAN DRAINAGE
... a Regional Context

January 29-30, 1971
Regency Rodney Inn Denver

Nearly 100 technical specialists and administrators concerned with flood hazards and related problems attended the two-day Symposium in January under the sponsorship of the Urban Drainage and Flood Control District. Theme of the conference was: "Urban Drainage in a Regional Context."

Keynote speaker was Dr. John R. Sheaffer of Washington, D.C., Trans the Program Planning Office, Secretary of the Army. Calling for "a complex management strategy" with planning methodology based on an organizing concept, Dr. Sheaffer stressed the gains to be made by upzoning. This term was defined to represent the total effect achieved through maximum cooperative action of several agencies, an effect greater than that which could be accomplished by the component agencies working individually or in smaller groups.

"Urban Services," was the theme of a session conducted by Henry Kischner, UDD Board Member. A featured speaker was J. L. Ozolvis, Manager of the Denver Water Board, on "Water Resources Development." Rex Faulcon, Martin Marietta Corp., spoke on "Project REUSE: A System Approach."

"Drainage and Flood Control," was the topic of the afternoon session the first day. Büddker's Robert W. Koechel, UDB Board, presiding. Executive Director James R. Quinn was moderator. The District's Attorney, Senator Joe Shoemaker, spoke on Legislation; Consulting Engineer Ken Wright spoke on Flood Plain Mapping; Bob Trenas, Planner, spoke on Zoning, and Horace Smith, Engineer, spoke on Construction.

"Urbanization — Blessing or Blight?" was the topic of a symposium conducted by Robert E. Rosenfeld, Regional Director, Dept. of Housing and Urban Development (HUD). He outlined new government funding programs and the services of new regional offices located in Denver, with suggestions as to types of applications HUD officials are seeking, particularly innovative approaches to common problems.

The technical sessions on Friday were opened with a panel discussion, "Planning for Drainage." Dr. John Schaeffer, the keynote speaker, spoke on behalf of the planners. Ken Wright represented the engineers, and Jim Quinn spoke for the administrators. The "feed back" discussion session following these presentations produced lively reactions and contributions from the floor.

"Local Approaches and Solution," was the theme of a general session in which Fred Diefenderfer of Boulder described his community's "Cooperative Program." Jim Meier of Wheat Ridge spoke on "The New Approach." "Industry Has a Plan," was the topic of Arlen Fatts, Public Service Company, UDD Board member. Ronnie Bocken of Adams County spoke on the topic, "Zone Early — Improve Often."

In a final general session based on "One More Look at the Problem." Ken Wright spoke on, "Improving Urban Environment Through Drainage." Senator Joe Shoemaker discussed "Flood Plain and Other Regulations." Bob Trenas spoke on "Implementation of Zoning," and Dr. Charles S. Robinson's topic was, "A Consultant's Viewpoint."

The display model of the Chatfield Dam, prepared by the U.S. Army Corps of Engineers, attracted much attention during the Symposium sessions. This scale-model shows at a glance the entire dam, reservoir and parks development now under construction on the South Platte River between Littleton and the Martin Marietta plant.

A complete report of the Symposium proceedings will be mailed to each of the persons who registered. Additional copies may be obtained at $1.00 each, while they last, from the office of the Urban Drainage District, 181 East 50th Avenue, Denver, Colorado 80216.

TOP—Symposium scene at coffee break time. Left to right: Leonard Rice, Consulting Water Engineer; Fred K. Wouder, Mountain States Concrete Pipe Assn., and John J. Nicholl, UDD Chairman.

NEXT ABOVE—At registration table, Jim Quinn's secretary, Mrs. Barbara Elghorn, checks in Lloyd Waggoner, Engineer, Deltah County Drainage Dept.; Atlanta, Georgia; and Dick Morris, Engineer, City of Aurora.

BELOW—Glenn W. Dockery, National Corrugated Steel Pipe Assn., holds the attention of Dr. John Sheaffer, Symposium keynote, and Alan G. Foster of DRCOG, Project Director REUSE.

Relaying between sessions, those identified are Bill Miller, back to post, and Bob McWhinnie, both with the Denver Board of Water Commissioners.

Denver's Mayor William H. McNichols, Jr., speaks to the Symposium. Seated and presiding at the session is UDD Chairman John J. Nicholl of Arapahoe County.

Seated is Dr. Rex Faulcon, Martin Marietta Corp., while the Symposium hour talk by J. L. Ozolvis, Manager for the Denver Water Board, on "Water Resources Development."

TOP—Left to right: Jesse C. Robinson, Arco Steel Corps; Jack Owen, Gannett Steel Pipe Assn. of Rocky Mountain States; and Glenn W. Dockery, National Corrugated Steel Pipe Assn., talk about flood hazards with Jim Quinn, UDD Executive Director.

NEXT ABOVE—Chatfield Dam model displayed by U.S. Army Corps of Engineers attracted much attention. Shown with the model are several Symposium exhibitors who were not identified.

BELOW—Among technical people, public administrators, planners, and other drainage specialists were Larry Berger, City of Littleton, and Col. Norman R. Lavine, Area Engineer, U. S. Army Corps of Engineers.
Financing Flood Protection

(Continued from Page 1)

Service Charge Concept

A service charge concept is also open to the District. The enabling legislation states that such charge will be “equitable and reasonable.” Such a charge could be assessed following a vote by the Board of Directors.

Development of the service charge concept will involve serious consideration of the following questions concerned with drainage and runoff contributing to flood hazards:

1. What is the relationship in runoff between the various classifications of land use?

2. Is there a significant variance in runoff between several geographical locations within the District area?

3. What variations in charges should be made to reward those property owners who provide for retention or detention of stream water, thus helping to minimize flood damage?

4. What are the methods of collecting the service charge, and what costs are involved in the collection process?

5. Under the service charge concept, what magnitude of program should be undertaken on a year-by-year basis?

The answers to these questions would provide an objective evaluation of a service charge, and help to insure a uniform application (from a contribution standpoint) of a service charge. Several municipalities have considered this idea and have applied service charges based upon differing criteria analyses.

It appears likely that the Regional Service Authority will not take effect from an operational standpoint until after January, 1973. Urban drainage may or may not be included. For this reason, the District must face the hard decision of the magnitude of consideration and equitable financing arrangements for 1972 and 1973, in order to avoid faltering actions while awaiting the outcome of the Regional Service concept for the Denver Metropolitan Area.

The outcome of engineering studies being undertaken during 1971 should identify a minimum of $10 - $15 million of top priority consideration within the 1,363-square mile area of the District. This will be in addition to the programs already identified or undertaken by local governments and by the U. S. Army Corps of Engineers. Coordination of all these activities is essential in order to avoid building obsolescence into 1972 construction programs.

Westerly Creek Study Started by Engineers

As requested by the UDD office, the U.S. Army Corps of Engineers has initiated a reconnaissance investigation of the flood and drainage problems along Westerly Creek, a major tributary of Sand Creek in the Denver area. Westerly Creek drains portions of Arapahoe County, Lowry Air Force Base, Denver, and Aurora.

Word of the new study was sent to the Colorado Congressional delegation by Col. B. P. Pendergrass, in response to the request from UDD Executive Director James R. Quinn. Col. Pendergrass described the condition of the stream channel and its drainage basin, pointing out that the study will define the problems, evaluate alternative solutions, and determine a future course of action.

The City of Aurora has already undertaken some activities in the Westerly Creek channel, in order to avoid flooding in portions of that community.

Denver Flood Insurance Now Being Written

Owners of property located in flood hazard areas of Denver now can buy the new low-cost flood insurance. As of April 16, 1971, the application of the City and County of Denver was approved by HUD (U.S. Dept. of Housing and Urban Development).

Other cities in the Urban Drainage District approved at the same time were Wheat Ridge, Lakewood and Boulder. Englewood had won its approval earlier, and applications are pending for the new flood insurance in Littleton and certain unincorporated areas in Arapahoe County.

Denver is one of the first of America’s major cities to qualify for the flood insurance, which covers mud slides and certain other hazards to property as well as damage from overflowing streams and rivers. Other large cities now having access to the new insurance program include Los Angeles, San Diego, Honolulu, Atlanta and Miami.

James R. Quinn, Executive Director of the Urban Drainage and Flood Control District, said efforts are continuing to bring all flood hazard areas within the District under the helpful insurance program.

“For about $100 a year,” Mr. Quinn said, “the average resident can insure his home to an amount of $17,500 and his furnishings to $5,000.” He pointed out that the insurance is being written by local underwriters and brokers, not by HUD. He stressed that the monetary protection is only part of the benefits being gained from the new federally-subsidized program, and that even more important may be the controls adopted by participating communities to prevent further encroachment on flood plains with residential developments, shopping centers and other structures. The proper use for flood plains includes ponding reservoirs, parks, golf courses and other recreational facilities.
Quinn-Tessence

By Jim Quinn

Plain Talk from the District's Executive Director

- Project REUSE is beginning to show some spinoffs of value. The Martin-Marietta engineer responsible for the drainage element of REUSE has developed preliminary data that will provide figures to be inserted in the drainage and runoff equations outlined in the Criteria Manual for the Denver Metropolitan Area. In addition the District will have for its own use 31 USGS quadrangle maps showing outlines of drainage basins in all parts of the Urban Drainage District. As described elsewhere in this issue (see Some Programs Under Way), these maps are coded for computer printout of significant flood hazard data, plus other valuable information.

- The District is assuming a greater role as a clearinghouse for facts on urban drainage and flood control. Because of the efforts of the District in pushing the qualifications of local Governments for the HUD sponsored National Flood Insurance program, we have been called on by municipalities outside the District in Colorado to assist them in obtaining this advantageous flood insurance. In addition, we have been involved on a number of occasions with local Governments in meetings with public officials to describe types of data and service they can obtain from or through the District.

- The 1971 Work Program is proving that a great deal can come through cooperative efforts. No sooner had the District announced an interest in specific areas for research and study than several local Governments expressed their willingness to move into cooperative programs. Through this kind of effort, limited funds of the District can be used along with limited funds of local Governments; this results in accomplishments which could not be attained by either the District or the local entities if limited by their own resources.

- Response to the initial issue of Flood Hazard News has been gratifying. It is good to know that the publication of information is something more than an addition to the plethora of "word pollution." The District is publishing Flood Hazard News on a bi-monthly basis, rather than every month. This makes it possible to develop more good data for public dissemination, rather than merely issuing a routine newsletter with monthly deadlines.

- At some stage in the life of every organization there must be an evaluation of where we are. In looking at the Urban Drainage and Flood Control equation, it is safe to assume that the traditional methods of treating the subject require constant revision. The posture of a District organization of this type should be flexible as well as responsible, recognizing the consequences of each specific step taken. Placing pipe in the ground is a costly operation; the building of expensive dams to retain or detain water may be even more so. The officials and engineers who make up the District's Board are involved in a constant reassessment of the many types of operations and activities that will best solve drainage problems. It appears that a combination of legislative action and the development of facilities will result in the greatest benefit to the residents. This will involve the adoption of land use regulations by cities and counties to prevent further encroachment upon existing flood plains. Working from this point, the District will then seek to develop the protective facilities that will prevent the loss of life and property. It is quite likely that this combination approach will consume much of the early years of activity as we work, somewhat belatedly, toward the practical solution of the flood control equation. It is possible that such a District could become another layer of Government between the local entity and the state. Such a proposal finds little support on either the state or local level. For this reason, the District is assuming a posture of taking leadership in preparing policy guidelines and "model" resolutions, which may be used by local governments as they may see fit. The District's facilities and support in these matters have been well received, and are credited as valuable resources to local governments in their planning, zoning and regulatory activities. Such action on the local level, supported by the District, provides a liaison between the local entity and its state government, often leading on to closer relationships with Federal service agencies. Recent activity within the 1,363-square mile area of the District indicates that this approach is resulting in the most significant efforts to control and maintain the integrity of the streams that course through the area served by the Urban Drainage and Flood Control District.

- Notices announcing a field trip on urban drainage are expected to be mailed soon. This two-day program is scheduled for July 12-13, and will feature on-the-spot inspection and description of drainage facilities. The inspections will range from the multi-million dollar Chaffee Project on the South Platte River in Arapahoe County, to an advanced system for intermittent stream control in flood-prone areas of Boulder County.

- Part of the success of the recent Symposium was due to the support of the following organizations: Corrugated Steel Pipe Association, Jack Owen, Managing Engineer; Mountain States Concrete Pipe Association, Fred K. Woolley, Executive Secretary; and the Rocky Mountain No-Joint Company. Rse Hahn, General Manager. These organizations assisted in the sponsorship of activities at the Symposium and contributed to its overwhelming acceptence.
MEET THE MEMBERS
Working to Protect You and Your Property from Floods

JOHN F. KELLY
Representing City and County of Denver

Councilman John Kelly was born in Denver and is a graduate of Annunciation High School. After working as a photo engraver for 14 years he became a real estate salesman. Four years later he opened his own business, Kelly Realty, located in the Bear Valley Shopping Center, 3100 S. Sheridan Blvd. He is also a partner in an insurance firm, the Kelly-Haggerty Insurance Co. He was elected to the Denver City Council in 1967 and in 1970 became President of that body. He is an active member of the Bear Valley Improvement Assn., the Notre Dame Catholic Church, and the Knights of Columbus.

CHARLES S. ROBINSON
Engineer Member of the Board

One of the Board's two engineer members, Dr. Robinson is a consulting geologist and engineer who has headed his own firm since 1965. Before that time he spent 17 years with the U.S. Geological Survey. He took his B.S. in chemistry from Michigan College of Mines and Technology in 1942. After four years with the U.S. Navy he did graduate work at the University of Colorado, getting Ph.D. in Geology in 1956. Among his many scientific affiliations and honors he has been a visiting scientific lecturer in engineering geology for the American Geological Institute, a lecturer in engineering geology at Colorado School of Mines, president of the Colorado Section, American Institute of Professional Geologists, and chairman of the Denver section of the Association of Engineering Geologists.

ARLEN E. PATTON
Engineer Member of the Board

Mr. Patton, one of the two engineer members of the Board, was born and raised in Denver and spent two years with the U.S. Navy in World War II. He is a graduate of the University of Denver in Civil Engineering. After college he worked in Grand Junction, Colo., as a division engineer for the Denver & Rio Grande Railway Co., for three years, and another year for Corn Construction Co., in Grand Junction before returning to Denver. He has been with Public Service Co., of Colorado for 17 years and is now Superintendent Gas Operations — Divisions. He is a registered professional engineer and land surveyor, and a member of the Arapahoe County Planning Commission. He is a former member and National Director of the American Right-of-Way Assn. The Pattons live in Littleton and have three children.

IRVING S. HOOK
Representing City and County of Denver

Councilman Irving Hook is both an Attorney and a Certified Public Accountant. For the past 12 years he has been a member of the City Council of Denver, and served two terms as its president. He is now the Council president pro tem. "Irv" also serves on the Denver Planning Board and is a member of the board of directors of the Denver Regional Council of Governments. Born in 1924, he is a graduate of Denver University School of Business, and of Westminster Law School. He is a member of the Steering Committee of the National League of Cities. His firm is Hook, Reed & Italiano, 830 Equitable Bldg., Denver. He is married, has two children, and lives at 1470 S. Navajo St., in Denver.