# A SUMMARY HISTORY OF AMAFCA

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This history tells the story of a remarkably well run, efficient, and successful public agency. Given the circumstances which led up to the creation of AMAFCA, it is all the more remarkable that the Authority has achieved the effectiveness for which it is known.

In 1900 Albuquerque had a population of about 12,000 and was heavily reliant on agriculture and animal husbandry for its economic well-being. The valley of the Rio Grande, however, was becoming less and less suitable for agriculture. Alkali deposits and a high water table were making the land unsuitable for crops, and urban development was being threatened by the perennial flooding of the river.

Construction of the AT&SF was a testament to the difficulties the river posed for modern development. Railroad track had to be built on a roadbed raised several feet above the floor of the floodplain. This roadbed, which generally parallels the river, also served the purpose of a levee. Frequent washouts during the Spring runoff often led to substantial property damage as flows were restrained and confined until some weak point in the railroad or another parallel levee was breached, and the valley flooded. Silt, once essential to the fertilization of the fields in the valley, was now viewed as a source of economic harm. Silt plugged irrigation ditches, and damaged houses and property.

The agricultural interests and the urban merchants of Albuquerque saw a common interest in getting the river under control. Ten years after statehood the federal government was petitioned, and a study was undertaken to assess the problems of maintaining profitable agriculture, guaranteeing water rights, resolving the flooding and siltation problems, and generally managing the big river to meet the needs of the increasing human population in the middle valley. Out of these efforts came the establishment of the Middle Rio Grande Conservancy District (MRGCD), the boundaries of which covered the floor of the Rio Grande Valley from roughly the present site of Cochiti Dam to a point south of Socorro, New Mexico. The MRGCD, in cooperation with the Bureau of Reclamation, and later the Army Corps of Engineers, addressed the problem of flooding with the construction of drains and levees parallel to the Rio Grande.

## The Growth of Modern Albuquerque

About the time that lowland water problems were becoming more than just irritants, another change was taking place which would profoundly affect the development of Albuquerque, and lead in part to the juxtaposition of a new set of flooding problems. Prior to 1930 human development had taken nearly three hundred years to interfere with the natural rhythm of the big river

sufficiently to cause a major economic and life threat. After 1930, new developments would take less than fifty years to create the problems which AMAFCA today works to resolve. The change was the discovery of New Mexico as a tourist attraction, and a destination for refugees from the damp lowlands of the East who suffered from respiratory ailments, particularly tuberculosis.

Albuquerque's population began to grow as a result of the "health seeker" migration. Between 1930 and 1940 the city grew from 20,000 to 35,000. It was not long before flooded cars in the AT&SF viaduct over Central Avenue began to provide photo opportunities for the local newspapers after Summer cloudbursts, as water would flow down from the newly developed areas in the Heights.

In the early 1950s Albuquerque was run by a Commission/Manager form of government. As he had since the 1920s, Clyde Tingley ran the City's government. By the early 1950s unrest with his style and the City's haphazard growth was increasing.

Flooding was becoming an all too frequent occurrence, and a prominent source of tension in the community. People who lived in the Valley came to view those living in the Heights as being responsible for an undeserved misery, and residents in the Heights viewed people living in the Valley as being foolhardy for living in harm's way. Merchants, who lived in the Heights, but owned stores downtown were concerned about their losses from flood damage. Health risks from flooded wells and privies (which were still common at that time) were obvious. Most of all, a city which could not get its flooding problem under control might not be the right place for the federal government to invest a fortune for nuclear research since the caliber of people required for such a project might not choose to live in such a place.

## The Sandia Conservancy District and Other Efforts

Albuquerque's increasing urbanization, and floods in the early 1940s, prompted studies of the situation to be undertaken by the U.S. Army Corps of Engineers. At the urging of Albuquerque leaders, amendments to the U.S. Flood Control Acts of 1948 and 1950 were sponsored by Senators Anderson and Chavez. In 1952 the Corps of Engineers released a preliminary report on the measures necessary to deal with arroyo flooding in the metro area. All signs seemed to be leading to an organized local approach. Corps involvement, however, required that a local sponsoring agency had to commit to acquire rights of way, raise the local cost share, agree to accept nominal title to the facilities, maintain them in perpetuity, and agree to work to prevent subsequent development problems which might aggravate future flood conditions.

Given fiscal constraints and constitutional limitations, neither the City of Albuquerque nor Bernalillo County could undertake such sponsorship. Because of the necessary size of the district (which would have to extend beyond the municipal boundaries), and in the absence of anything like joint powers agreements at that time, the logical approach was the formation of a special district. The operant model was the Conservancy District statute. The city and county each independently agreed that this represented the best approach, and so the day before Christmas in 1952 the Articles of Incorporation for the Sandia Conservancy District were filed with the State of New Mexico.

The Bernalillo County Commission initially voted against the formation of the district. The work of developing a methodology for apportioning the benefits and costs of the improvements made funds hard to raise in a timely fashion. The public was not completely convinced of the efficacy of the Corps' proposed design which seemed to many to require water to run uphill from the UNM campus to the North Channel Outlet at Alameda. This issue and the disclosure of the proposed assessments to support the district offered the dissident elements in the community a hoped for opportunity. When the Property Owners Protective Association (POPA) succeeded in organizing a public protest which resulted in an estimated 15,000 citizens assembling at City Hall to protest the assessment of their property for SCD purposes, the fate of the organization was obvious.

During the late 1950's the City government, now controlled by the "good government" reformers who had forced out Clyde Tingley, decided that something had to be done in the absence of effective action from the Sandia Conservancy District. The 'Bobtail Plan' was developed. At that time the City's financial resources were stretched to the limit. However, a plan was devised to use current budgetary resources, some state money, and money from the U.S. Soil Conservation Service to construct five detention dams on the east mesa and in the north valley to control the effects of a five year flood. It was all the City Commission felt it could do, and it represented the first tangible efforts toward building a system.

In November of 1958 the City of Albuquerque received the news that the funding authorized by Congress back in 1952, for metropolitan flood control, had been sequestered. The Corps of Engineers would have five years in which to come to terms with a capable local party, or the funding would be cancelled. In spite of this (and the fact that POPA was still on the warpath – it now controlled the SCD) Albuquerque still had no effective solution to its flooding problem. By 1960 Albuquerque had grown to 201,000 people.

Between 1958 and 1963 very little rain fell, and the incidence of flooding became almost inconsequential. The federal authorization would

expire in November, 1963. The new City Commission was expressing its concerns in the Spring of 1962. At the direction of the Commission, City Attorney Frank Horan talked to Bob Johnson, the City's bond counsel with the firm of Dawson, Nagel, Sherman, and Howard. The two of them determined that the New Mexico Constitution permitted the creation of special taxing authorities, and it was plain that the language of the conservancy district act was just not appropriate for metropolitan purposes. A new statute would need to be enacted. Since whatever was enacted would have to pass muster with bond counsel, it was decided that Johnson's firm should do the drafting. They did it on a pro bono basis.

Having learned from the POPA experience, the new entity's capacity for financing itself was to be statutorily limited. The initial limit was set at $10,000,000. The Board was to be non-partisan and popularly elected. In order to commence its activities following legislative enactment, both the Board appointed by the Governor and the proposed bonded indebtedness would have to face the electorate. It was on this last point that Horan's shrewdness shone through.

The decision to have the Board composed in a non-partisan fashion was in keeping with local practice, and as Horan pointed out during an interview in the Summer of 1991, "It was something where we thought Democrats and Republicans will both drown in a certain amount of water."

## The Board Starts – the Voters Get an Endorsement from Nature

HB 291 became Chapter 311 of the laws of the 1963 Legislature on March 26, 1963. Frank Horan recalls that there was only a single dissenting vote cast during the legislative consideration. Governor Jack Campbell appointed the first Board of Directors, and they were sworn into office at their organizational meeting on April 29, 1963 by City Attorney Horan. The Governor had specifically requested the appointment of local attorney Reginald Garcia as Chairman, and this was done. The Board appointments consisted of:

> Professor Marvin May, a member of the UNM Engineering faculty, had already been playing a role on the city's Planning Commission. The Albuquerque Journal reported that May had worked for the Bureau of Reclamation and the U.S. Corps of Engineers. The paper also noted, "Several years ago May and some other members of the New Mexico Society of Civil Engineers made a study of arroyo runoff here and reported the Corps of Engineers' twin ditch project was the most feasible for control of floods;"
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> Mrs. Frances McCoy, wife of labor union business manager and legislator J.B. McCoy, was the sole woman appointee, a member of the League of

Women Voters, and she represented an element of the community which had been somewhat excluded from previous discussions and decisions regarding Albuquerque's development – blue collar workers and their families. In addition she was the lone Board member residing in the Valley;

B.H. Swinburne represented the Concerned Citizens Committee's ongoing interest in flood control. An officer of First National Bank throughout his thirty-nine years of residence in Albuquerque, Bernie Swinburne represents that rare breed of non-political, selflessly public-spirited citizen. Swinburne had served on a Chamber of Commerce flood control committee when Chuck Lanier had been Chamber President. That service put him on the CCC dominated City Commission's short list of proposed appointees;

W.C. Scrivner represented one of the newest facets of Albuquerque's economic development, Sandia Corporation. But Scrivner also represented continuity in that he had lived here all his life, attended UNM, graduating with a degree in Civil Engineering, and at the time of his appointment was working as the Director of Personnel at Sandia. Scriver's father had been a City Commissioner some years before. Scrivner was asked to accept a position on the Board by City Commissioner Luther Heilman.

Reginald 'Reggie' Garcia was the politician. An up and coming young attorney, life long resident of Albuquerque, partner of John Simms, and a frenetic campaign worker for Jack Campbell, Reggie Garcia was to be the Governor's man on the Board.

The Summer of 1963 was a busy time for the new Board. The opposition of the POPA group which had been so effective in thwarting the Sandia Conservancy District had been neutralized by Frank Horan before the legislature had convened by being promised that the new organization would be statutorily limited in the amount it could spend regardless of what the voters might be persuaded to approve. And the voters would have to approve – both the election of Board members and any indebtedness the authority intended to undertake. Nevertheless, it hadn't rained significantly in five years which was longer than a large number of the city's residents had been in the city. The only motivation seemed to be an effort to avoid losing the federal money which had been appropriated, and with the city growing at such a rate that seemed like a small matter. The newspapers, however, enthusiastically backed the plan. The City Commission, the Chamber of Commerce, and the League of Women Voters were all openly vocal in their support.

The election needed to be scheduled, public information meetings had to be held, and community support had to be developed. Frank Horan was called

upon as the Authority's de facto legal counsel to select the election date. The earliest possible date was the first Tuesday in August, 1963. However, the rain had been as parsimonious during this year as it had been for the preceding five years. Frank opted for the last possible date available before this special election ran afoul of other legal impediments. He selected August 27, 1963 as the date for the Authority's special election.

Ten days before the election, the heavens released a deluge. The Army Corps of Engineers and the local media reported the results of the rain in somber tones. 3.25 inches of rain were recorded the night of August 17, 1963, and the estimate of damage to the city was $1,875,000. No lives were lost or injuries reported. However, the devastation brought by that flood was the most substantial the city had experienced to that date. In succeeding days prior to and after the election additional storms compounded problems. One family in the Stronghurst Addition was reported to have been flooded out three separate times during August.

The bonds were approved by a margin of nearly 2:1 with 24,000 votes cast, and the entire appointed slate of Directors was elected by a margin of nearly 8,000 votes over the nearest competitor in a field of fifteen candidates.

During the last quarter of 1963 the Authority advertised for the position of Executive Engineer, reduced a large number of applications to a short list of five individuals, and ultimately settled on John B. Robert. John Robert was a civil engineering graduate of the University of New Mexico. Robert had been working for the past 11 years for the New Mexico Highway Department. At the time of his joining AMAFCA he was responsible for acquiring New Mexico Highway Department right-of-way for bridges. It was that right-of-way experience which made him so very valuable to the Authority from the outset. On the motion of Frances McCoy, John Robert was engaged as Engineer-Manager (soon changed to Executive Engineer) at the November 21, 1963 Board meeting at the annual salary of $13,000.

During the summer of 1965 Robert visited Denver, Colorado making an inspection tour following major floods there. He stated the view at the July, 1965 Board meeting that much of the damage done in those floods had to do with the debris picked up in the flood plain by the floodwater. "Much of such debris consisted of structures and equipment placed in the flood plain in violation of encroachment regulations." Robert expressed the view that valuable information had been obtained which would be important as Albuquerque developed flood control/land development regulations.

These discussions lead to the adoption at the July 21st Board Meeting of Resolution 1965-3 which urged the City government to undertake protection of

the major arroyos in the City. Noting that the Authority Board did not believe that it possessed the power to enact regulatory ordinances, and that the City's regulation of the problem "would have the widest circulation if the same were incorporated in the Zoning Ordinances of the City of Albuquerque," the Board adopted the resolution. In it the Board urged the Commission to define and map the boundaries of the major arroyos, and the resolution provided a draft of suggested regulations. The regulations were to affect all land within 125 feet of the centerline of the arroyo. The regulation provided that no construction or excavation in that defined area could take place without the approval of the "Enforcement Officer." Approval might entail the construction of dikes, barriers, or other structures necessary to protect the public. The resolution did not lead to an immediate positive response from the City.

The next year saw the construction program on the North Diversion Channel go into high gear. At the same time the Authority began serious negotiation with the University of New Mexico for right-of-way and construction of a box culvert under the site of what is now the University Medical Center.

Several other events of some importance affected AMAFCA's activities in 1966. The $9.5 million bond issue approved by the voters in 1963 had proven insufficient to meet the needs for crossing construction and right-of-way acquisition, and so the Board decided to approve John Robert's recommendation and submitted an additional $3.5 million in bonds for voter approval in November, 1966.

Adapting to changing circumstances seems to have characterized the activities of AMAFCA during 1967. The need to connect the flow captured by the Embudo Arroyo, which now lay in the median between the east and west bound lanes of Interstate 40, with the North Channel became obvious to all parties. The connection to be made between the two structures dictated that AMAFCA undertake the construction of its first solely owned flood control structures. The connecting of the Embudo Arroyo with the North Diversion Channel had not been included in the Corps of Engineers' design. Similarly, the Highway Department and the Federal Bureau of Roads had not allocated funding or design effort to the problem. Thus the AMAFCA Board found itself engaging the civil engineering firm of Koogle & Pouls to present alternative approaches for bringing the flow from just west of the San Mateo overpass to the present junction approximately halfway between Carlisle and University just north of Interstate 40. When the project was completed the funding for the entire effort ($400,000) was accomplished through John Robert's preferred method – arbitrage of bond proceeds.

On September 6, 1968 a milestone event was noted by the AMAFCA Board and the community in the South Valley. Vice Chairman W.C. Scrivner presided at the ground breaking for the South Diversion Channel. At the time the estimate for the South Channel was set at $8 million with the Corps of Engineers picking up $5 million for the construction cost, and AMAFCA providing the remainder for right-of-way and the construction of bridges and other crossings. The channel commences north of Stadium Boulevard below the Albuquerque Public Schools' Milne Stadium, and proceeds south beyond Gibson Boulevard about a half mile. From that point the South Channel goes west to cross Broadway, then Rio Bravo. Beyond that point it joins the Tijeras Arroyo's channel and proceeds a mile west to its outflow at the Rio Grande. Groups representing South Valley residents were expressing pleasure that the long promised protection from flooding which had caused privation for the largely low-income residents of the area finally appeared to be at hand.

On March 26, 1969 the North Diversion Channel was dedicated with a dousing of five buckets of water. At a cost of $20.3 million the North Channel now provided drainage for the whole of the Northeast Heights from Campus Wash north. The threat of arroyo flooding for the east side of the Valley from Coal Avenue north due to runoff from the Heights was over.

On March 4, 1969 a much less noticed, but equally important event for AMAFCA had taken place. AMAFCA held a public hearing on the expansion of the Authority's program to enable it to acquire additional assets. The principal additional asset was the construction of a channel from the terminus of the Embudo Channel on the Coronado Freeway under the west bound lane of the freeway, and then parallel to the freeway from Washington to the North Diversion Channel near Menaul Boulevard. In addition to this project there were other assets to be added in the form of retained land which would house the Authority's equipment, and a new building to house the staff of AMAFCA at 2600 Prospect NE – right beside the Embudo Arroyo/North Channel junction.

In other areas of public safety, the Board's repeated entreaties to the City of Albuquerque to enact zoning ordinances aimed at controlling encroachments of the arroyos around the city by homebuilders and developers had been largely ignored. 1971 would see the beginning of a major effort by the Authority to control the problem.

## AMAFCA Drainage Regulation

The Authority's first Drainage Resolution, 1972-2, represented a real effort to make the city and the development community take notice of the need to protect the arroyos that fanned out across the mesas on either side of the valley, and to take into account their real significance to the community.

Few people realized that the construction of each additional house, the paving of each additional street, the construction of each new strip mall without proper concern for the storm water runoff from that construction meant more runoff headed downstream and less absorption into the soil at the point of impact or origin.

The good efforts of AMAFCA and the city in constructing the two big channels and the tributary water courses were in danger of being undone by uncontrolled development covering over arroyos, dumping fill into arroyos, and generally reshaping the surface contour to maximize the economic utility of the available land. Resolution 1972-2 dictated that no development of any significant size could be approved for construction without the submission of a surface water drainage plan to be approved by the Executive Engineer or his Designee. The regulation further required that each property owner would be responsible for not only the runoff originating from his property, but the runoff coming onto the property from upstream as well, releasing all of it downstream at no greater rate than the capacity of downstream facilities to accommodate the total flow.

This last element required the construction of impoundments on each piece of property developed after the adoption of the regulation which would hold the surface runoff, and permit its gradual release or absorption. Since this approach relied primarily on a volunteer willingness on the part of the original and successive owners to maintain the presence and integrity of the impoundments, this element was bound to fail. In housing subdivisions, instead of planning catch basins capable of serving the entire development, which would require the developer's ongoing maintenance, developers designed swales and ponds into each residential lot. The housing industry in Albuquerque was initially vigorously opposed to this regulation.

Acceptance of the proposed change by the homebuilding community came about as a result of the extensive hearings held by the AMAFCA Board, and quiet conversation behind the scenes which made it clear to representatives of the homebuilders association that the Authority was prepared to litigate the question of its statutory ability to impose such a regulation. Since the real estate development game, more than almost any other commercial endeavor, proves the adage that "Time is money," the Authority's intentions were persuasive.

In April of 1974 the first components of master drainage plans for the Northeast Heights and the West Mesa were presented to the AMAFCA Board. The needs these preliminary reports outlined were substantial. Matotan & Associates estimated that $32 million in 1974 dollars would be required for the West Mesa with the biggest share being spent on projects south of Interstate 40 and extending to the Isleta Pueblo boundary. The Northeast

Heights study anticipated about $7 million in treatment costs primarily involving the Bear Arroyo east of Juan Tabo Boulevard, and the northern arroyos east of Tramway Boulevard.

Severe flooding in the South Valley, west of the river in late July, 1974 drove home the point that significant remedies had to be found to alleviate the effects of extensive urban development occurring in that part of the City. The flooding came about as a result of a rather modest storm which dropped a little over one inch in a localized area on the west side, and substantially smaller amounts elsewhere in the City. Nevertheless, the flow of runoff washed out Coors Boulevard at its intersection with Arenal, and left thick deposits of silt over a wide area.

AMAFCA Drainage Policy Resolution 1975-8 was under discussion by other political subdivisions in early 1976. The time for a closer and more integrated approach to the whole context of development issues seemed to be developing. In mid-January the City Council began serious deliberation of a new parks dedication policy for developers seeking approval of residential subdivision plats. The new policy required the dedication of 170 square feet of land for parks for each single-family dwelling unit and the payment of a $78 park development fee. The imposition of a land dedication policy based on density rather than property valuation meant that developers would become increasingly motivated to dedicate arroyo floodplains for park space as this was a suitable utilization of land, which under the AMAFCA Drainage Regulation 1972-2 was likely to be wasted space for the developer anyway. The park land dedication policy would be a significant factor in the shift from site retention of surface water incorporated in 1972-2, to the area wide treatment approach incorporated in successor regulations to be adopted in a few years.

On March 1, 1977 John B. Robert retired as Executive Engineer of AMAFCA. Having served as the Executive Engineer from the beginning, Robert had a unique perspective on the problems of flood control in the metropolitan area. In a news article just before his last day he commented,

> I feel content .... I think the biggest accomplishment AMAFCA can be credited with is getting the people of this city oriented to thinking about flood prevention and flood control planning. I hope we've made people think about preventing flooding rather than dealing with it afterward.

The City Council in what must be considered a remarkable display of candor for a laudatory proclamation found that,

> ... Under John B. Roberts' (sic) stewardship at the Albuquerque Metropolitan Arroyo Flood Control Authority, the community was

> provided substantial flood protection through the construction of flood control facilities; and
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> ... John B. Robert, conceived and inspired the preparation and adoption of drainage master plans to protect future development against flooding. plus requiring engineering review of subdivisions;

James Smith, Mr. Robert's handpicked successor, worked as a traffic engineer for a consulting firm hired by the New Mexico Highway Department to study long-term highway transportation needs. Smith soon joined Scanlon & Associates, to direct the Albuquerque office as vice president. While there Scanlon & Associates received the contract to design the Juan Tabo Dam. It was during this time that Smith began to work with Robert. Within a year after joining AMAFCA as its second Executive Engineer, James Smith resigned to join the design team for the Tanoan Communities.

Colonel Richard E. Leonard, U.S. Army (Ret.) became the third Executive Engineer of the Albuquerque Metropolitan Arroyo Flood Control Authority on August 1, 1978. A former District Engineer for the Army Corps of Engineers in the Albuquerque office from February, 1976 until his retirement May 31, 1978, Col. Leonard was very familiar with AMAFCA's history. A West Point graduate with advanced degrees in civil engineering and public administration, Col. Leonard was ideally suited to the maturing flood control authority.

1979 was a year of increased tension between the real estate development community, AMAFCA, and its ally the city's Department of Public Works. As a result of that tension, the City of Albuquerque and AMAFCA entered into a Memorandum of Agreement in January which called for: (a)better coordination between the Designee and the Executive Engineer; (b)official recognition that compromises between the Drainage Management Plans and the on-the-ground conditions were to be accommodated; (c)clearing the backlog of unresolved drainage plans; (d)permitting the construction of subdivision arroyo treatments in stages; (e)creating a policy that arroyos with substantial pre-existing flood control improvements were to be considered as having adequate capacity to accommodate subsequent upstream development; (f)and committing both organizations to the creation of what ultimately became the Development Process Manual.

Drainage regulation was not the only matter that AMAFCA had on its plate in 1979. Responding to the flooding problems in the southwest valley, the Hubbell Lake/Amole Arroyo Detention project was delivered in 1979 at a cost of $4.8 million. The South Domingo Baca Dam and Diversion Channels were also completed at a cost of $3.1 million. With a combined total cost in excess of $7 million these were the largest projects completed since the original

diversion channels. They also represented just about the last time that AMAFCA would do a project entirely from its own resources without the joint participation of other public agencies.

By 1980 it was clear that the AMAFCA Board was responsive to the sentiment in the community seeking to constrain some of the more severe impacts of rapid growth. This last point was also borne out by the Board's response to public requests to incorporate bicycle paths in the rights-of-way of the Authority's channels. Initially, the board was firmly opposed to the notion, in spite of the request coming both from city hall and the general public. Board member Vernon Doak recalled that the board was concerned on several counts. First, the board was as always concerned with the issue of liability – motorcycle accidents in the past had cost the Authority. The thought of young children on bicycles alongside the North Diversion Channel in a storm caused grave apprehension. Second, the city had originally contemplated using the rights-of-way as a venue for concessions of various types to make the pathways more appealing. The thought of potential liability in the event a section failed and someone's livelihood went in the drink also concerned Doak. A resolution permitting the use of the rights-of-way as pedestrian and bike paths was presented at the April board meeting and failed with only Laws and Hereford voting in favor. After considerable quiet discussion and lobbying the matter was reconsidered at the May meeting, and this time Director Swinburne joined Laws and Hereford, and the resolution passed.

1980 also saw the repeal of AMAFCA's old drainage policy 1972-2. There were fundamental differences inherent in the new drainage policy. Resolution 1980-15, dealt with several concerns of the development and engineering communities. The foremost change was to dispense with the notion of runoff retention as the principal form of flood control within the Authority. The new regulation was an effective resolution to the problems of the development community. It did not necessarily sacrifice the desires of the environmentally conscious elements of the community, although it was perceived by them as having done so. It did not represent the conventional bureaucratic solution to resolving controversy, i.e. "splitting the baby in half." Instead it represented a reasoned effort to resolve a difficult problem which needed a balance between public safety and economic cost. As with most well-intentioned efforts it brought to light other problems. In spite of serious effort to answer the concerns of the development community, it also was apparently not wholly successful as those interests continued over the next few years to derail or repeal the Authority in the legislature.

Then in November, 1981 both the city and the county adopted Flood Damage Prevention Ordinances. The ordinances were required by the federal Flood

Insurance Administration in order for homeowners to be able to obtain flood insurance on their residences. The ordinances dealt with flood proofing properties, building main flood occupancy space above the elevations shown on the flood hazard maps for the Albuquerque metropolitan area, and the prevention of encroachments on natural drainage ways. By the end of 1981 all local governments in Bernalillo County were on board, and AMAFCA's role as the lone enforcer of sensible precautions against flooding was over.

## The Last 10 Years

Approximately $5.7 million in new projects were completed and accepted by the Authority in 1982. These included work on the North La Cueva Channel west of I-25, the North Domingo Baca Dam, and completion of two sub-phases of the Mariposa Arroyo in the area of what is now Taylor Ranch and the La Luz subdivision east of Coors and adjacent to the San Antonio Arroyo.

The Authority had another productive year in 1984. A detention Dam protecting the Piedras Marcadas area, and the North La Cueva Channel west of the Interstate were both accepted by the Authority. Combined these assets had a construction value of $3.4 million. Planning and contracting for numerous other improvements throughout the Authority's territory continued with increasing emphasis being given to the area along Coors Northwest north of the San Antonio Arroyo. Joint ventures became more the norm than the exception. AMAFCA also continued its practice of spending on studies and other forms of R&D including a joint funding with Bernalillo County and the state Land Office of the mapping of the Mesa del Sol area near the airport, a safety study to examine potential public safety hazards associated with the AMAFCA system, an experimental revegetation assessment to determine the best way to revegetate construction sites, and an ongoing effort to establish reliable volunteer rain gauging throughout the city.

On the matter of public safety, repeated drownings in MRGCD drains, and occasionally in concrete channels owned by the city and AMAFCA had heightened public concern. A specific incident in August, 1984 in which an 8 year old child was swept to his death in a Northeast Heights was a seminal event. From that tragedy came the effort to advertise the fact that "Ditches are Deadly – Stay Away!" with the picture of La Llorona (Weeping Woman in Spanish) used as the symbol for the program. The multi-agency program provides informational films, and other informational media, to teach children throughout the city about the dangers of flashfloods in the city's arroyos. It has also prompted the development of sophisticated rescue systems used by the metro area's public safety organizations. The program has had the active and ongoing support of AMAFCA since its inception.

1986 proved to be a very busy year for the Authority from a construction standpoint. $10 million in completed AMAFCA projects were accepted from contractors. Chief among these projects were the Don Felipe Dam and the Raymac Dam in the Southwest Valley. Neither of these projects were without controversy. Both had been delayed innumerable times in deference to city and county planning efforts, concerns of the MRGCD, and apprehensiveness and concerns on the part of South Valley residents. Property owners, the Middle Rio Grande Conservancy District, the Isleta Pueblo, and "public interest" groups had all expressed disagreement with the size, locations, and impact of the dams.

AMAFCA's Board had deferred the decision to build for two years pending the publication of the Southwest Area Plan. When the plan was published, its contents supported the concept of the dams. With its release local officials urged the AMAFCA Board to proceed with design and construction.

In addition to the Raymac and Don Felipe projects a $2.3 million drainage and transportation project involving the North and South La Cueva Arroyos was completed west of I-25 near the Honeywell plant, and a $730,000 project, the Borrega Diversion was completed in the southwest valley. The Borrega Diversion is north of the Don Felipe Dam and drains to the Hubbell Lake detention facility.

The impact of these and other improvements to the South Valley was summarized in a document prepared by Larry Blair, the Authority's current Executive Engineer in 1990. That document asserts that in excess of 1,100 acres of land south of Central west of the river are protected and removed from the 100 year floodplain. In addition the Gun Club Lateral, Arenal Canal, and Isleta Drain all receive protection from possible breaching from the Authority's assets.

Several matters of significance occurred during 1987 which impacted AMAFCA. First, after almost 25 years of service, Frances McCoy, an original Board member first appointed by Governor Jack Campbell in 1963, resigned from the Board for personal and family reasons. Her replacement, appointed by Governor Garrey Carruthers, was Albuquerque auto dealer Sheila Garcia.

The second significant event was the completion and acceptance of the $1.3 million Cabezon Channel project. Soon to be recognized for its excellence of design, the Cabezon Channel demonstrated an innovative, efficient, and environmentally sensitive approach to carrying both irrigation and flood flows safely through a mixed urban and rural context.

The third event of significance was the acceptance by AMAFCA of title to the La Cueva Arroyo treatment through Presley Construction's Nor Este development, adjacent to La Cueva High School. The significance of the

project was that it was built, supervised, and financed completely by the private sector according to a privately developed and financed sector plan which followed the Rank One Comprehensive Plan and the Rank Two Arroyo Facilities Plan.

The 1987 AMAFCA election also brought profound change. In spite of editorial endorsement, and presumably broader community awareness of the two incumbents, Bernie Swinburne and Bill Hereford, they lost. The race was rather close. However, Pat Higdon with 26,100 votes, and Daniel Cook with 25,855 bested Swinburne and Hereford. The defeats of the two incumbents, coupled with Mrs. McCoy's recent retirement, meant that much of the institutional background of the organization was gone, as was the influence of the downtown, good-government, service club type of representation personified by Bernie Swinburne. The new men represented fundamentally more fiscally conservative approaches.

## Today and Tomorrow

On the regulatory side of AMAFCA's activity there have been some interesting recent developments. As a result of the Facilities Plan for Arroyos, and an earlier erosion risk assessment on the Calabacillas Arroyo by a consultant prominent in the sediment transport field, the Authority board considered a resolution endorsing a "prudent line policy" for natural or naturalistic arroyos. The term "prudent line" was coined to label a line along an arroyo inside which it would not be prudent to build, because of an arroyo's erosive power over a period of time and under certain flood events. On those arroyos which had been targeted for preservation in near natural conditions, the prudent line concept would limit development to the prudent line boundary, and was seized upon by many as a way to preserve a "naturalistic" arroyo – at least for a period of time. Because the prudent line characteristically extended beyond the usual floodplain boundaries the concept seemed bound to draw comment from the development community, and others. However, remarkably little opposition has surfaced. Although AMAFCA has not yet adopted such a resolution, Bernalillo County has adopted the concept into its drainage ordinance.

At the time this is being written the last $5 million in unsold bonds authorized by the voters in 1986 have just been sold. Further capital investment for AMAFCA will be contingent upon the voters' approval of whatever quantity of bonds the Board elects to submit for the 1992 General Election Ballot. That decision is constrained by the long standing $20 million limitation on debt the Authority may issue. Recent discussions suggest that efforts will be made to change these constraints.

There is a recognition among technicians and lay people alike that there is a finite limit to the extent of the drainage system. Nature shaped the land, and laid out the water courses. In spite of our best and worst efforts, little can be done to change that basic topographic structure, and within some not too distant future all the watersheds that exist in the Albuquerque area will have been treated to the extent feasible given the public's level of willingness to invest, and the standard set by the 100-year flood requirement.

With well in excess of $70 million invested (project dollars summed at the time of investment, and not adjusted for inflation) in flood control amenities, maintenance is becoming the major day to day activity of AMAFCA. Folks like Board Member Pat Higdon see that as an activity to be increasingly subcontracted to private concerns.[1] In addition, there are presently $80 million in future projects on the drawing board. Even if maintenance were the authority's only responsibility, the fact remains that both the agreement with the U.S. Army Corps of Engineers, and the Authority's own legislation prevent its unilateral cessation of operations.

There is also a near universal recognition of AMAFCA's considerable efficiency at a time when many people's favorite pastime is lamenting the bloat and inefficiency of government. Current Board Member Ron Brown paid a high compliment to the Authority when he compared it favorably to private, for-profit businesses in terms of its decision-making, use of resources, and dedication to small size. In the ten years 1981 to 1990 AMAFCA's total expenditures grew less than 4.5% per year. The Authority has virtually the same number of full time equivalent employees today as during John Robert's time.

In an interview last Summer, Chairman Ward Hunnicutt expressed the opinion that one of this chief decision-making tools was to constantly ask himself, and the board, "What does this request, or project have to do with arroyos?" If the relationship is not clear then he feels that the Authority should resist getting involved. The maintenance of that attitude has kept AMAFCA in good favor with the New Mexico Legislature. Whether that remains true waits to be proven. In recent years AMAFCA, which relies exclusively on real estate property taxes, has been constrained by legislative enactments which were not specifically aimed at it. Similarly, the state's attempts at constraints on voter approved bonds may affect AMAFCA to an extent largely unrealized by legislators or the Authority's constituents. And the

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[1] In counterpoint, it should be noted that when John Robert took over AMAFCA the second time, much of the maintenance and repair work was being contracted out. His assessment was that paying the contractor's overhead was too expensive.

Authority's low profile has led to confusion with some legislators from areas outside the Albuquerque metropolitan area over the differences between the troubled MRGCD and AMAFCA.

Finally, future developments and the crosscutting nature of drainage problems suggests that AMAFCA has a future at least as big as its past. In 1972 the AMAFCA Board perceived the risks of uncontrolled development, and its impact on flooding hazards. They moved then to implement the flood hazard prevention element of the original agreement with the U.S. government by adopting the first drainage regulations. Today the city, the county, and AMAFCA have developed a body of ordinances and regulations which is comprehensive, comprehensible, cost conscious, and environmentally sensitive. But the past 30 years have demonstrated that the conditions of urban development and the desires of the various interests involved are fluid – subject to review and revision.

The next 30 years will doubtless see AMAFCA involved in the considerations surrounding the development of the West Mesa beyond and around the Petroglyph National Monument. The U.S. Environmental Protection Agency in its ineluctable style has determined that urban surface water runoff represents an area of serious pollution hazard. AMAFCA, as owner of the main discharging elements of the city's drainage system may almost certainly expect to be embroiled in that issue. The fate of North Albuquerque Acres will certainly involve AMAFCA. Beyond the current limits of development there is all that land west of the Double Eagle Airport stretching to the Rio Puerco, land which even today is being surveyed and worked on in preparation for development beyond the turn of the century. The continued utility of this compact, efficient, public authority assures future residents of the Duke City that their property will be protected, and unsafe drainage practices will be thwarted with diligence and integrity.