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SECTION 400 DRAINAGE LAW

401 INTRODUCTION

The following text was obtained from the Urban Storm Drainage Criteria Manual, Volume 1, Section "Law", prepared by the DRCOG, dated January 15, 1980. For the most part the text was taken directly with modifications for format and current legislation. Some sections not dealing with the City of Longmont have been deleted.

The purpose of including a review of the drainage law in the MANUAL is twofold. First, the legal basis for the policy, presented in Section 300 is discussed, and second, a good understanding of drainage law will aid the user of the MANUAL in making decision on the drainage system design.

402 GENERAL PRINCIPLES OF LIABILITY

"Very little is gained if the same act which dries up one tract of land renders the adjoining tract twice as difficult to redeem." Livingston v. McDonald, 21 Iowa 160, 170 (1866).

402.1 Private Liability

Traditionally, courts have analyzed the legal relations between parties in drainage matters in terms of such property concepts as natural easements, rights, privileges, and servitudes, but have based liability for interfering with surface waters on tort principles. See Kenyon and McClure Interferences With Surface Waters, 24 Minn. L. Rev. 891 (1940). Drainage and flood control problems attendant with increased urbanization, the trend in tort law toward shifting the burden of loss to the best risk-bearer, and complete or partial abolition of governmental immunity by the judiciary or the legislature, will continue to change the traditional rules that have governed legal relations between parties in drainage matters. These changes are reflected in the three basic rules relating to drainage of surface waters that have been applied over a period of time in the United States: a common enemy rule, the civil law rule (later to be called a "modified civil law rule"), and the reasonable use rule.

1. Common Enemy Rule
   Under the common enemy rule, which is also referred to as the common law rule, surface water is regarded as a common enemy which each property owner may fight off or control as he will or is able, either by retention, diversion, repulsion, or altered transmission. Thus, there is no cause of action even if some injury occurs causing damage. All jurisdictions originally following this harsh rule have either modified the rule or adopted the civil law rule or reasonable use rule. 5 Water and Water Rights, 450.6, 451.2 (R.E. Clard ed. 1972).

2. Civil Law Rule
   The civil law rule, or natural flow rule, places a natural easement or servitude upon the lower land for the drainage of surface water in its natural course and the natural flow of the water cannot be obstructed by the servient owner to the detriment of the dominant owner. 5 Water and Water Rights, 452.2A (R.E. Clark ed. 1972). Most states following this

rule, including Colorado, have modified the rule. Under the modified rule, the owner of upper lands has an easement over lower lands for drainage of surface water and natural drainage conditions can be altered by an upper proprietor provided the water is not sent down in a manner or quantity to do more harm than formerly. Hankins v. Borland, 163 Colo. 575, 431 P.2d 1007 (1967); H. Gordon Howard v. Cactus Hill Ranch Company, 529 P.2d 660 (1974); Hoff v. Ehrlich, 511 P.2d 523 (1973); but see, Ambrosio v. Perl-Mack Construction Company, 143 Colo. 49, 351 P.2d 803 (1960).

3. Reasonable Use Rule

Under the reasonable use rule, each property owner can legally make reasonable use of his land, even though the flow or surface waters is altered thereby and causes some harm to others. However, liability attaches when his harmful interference with the flow of surface water is "unreasonable." Whether a landowner's use is unreasonable is determined by a nuisance-type balancing test. The analysis involves three inquiries: (1) Was there reasonable necessity for the actor to alter the drainage to make use of his land? (2) Was the alteration done in a reasonable manner? (3) Does the utility of the actor's conduct reasonably outweigh the gravity of harm to others? Restatement Torts, 822-831, 833 (1939); Restatement (Second) Torts, 158, Illustration 5. Alaska, Hawaii, Kentucky, Massachusetts, Minnesota, New Hampshire, New Jersey, North Carolina, North Dakota, Ohio and Utah have adopted this rule. Some states have restricted their application of the rule to urban areas (South Dakota and Texas). In Pendegast v. Aiken, 236 S.E.2d 787 (1977), the North Carolina Supreme Court traces the common law rule to the civil law rule to adoption by that court of the reasonable use rule, starting at page 793:

"It is no longer simply a matter of balancing the interests of individual landowners; the interests of society must be considered. On the whole the rigid solutions offered by the common enemy and civil law rules no longer provide an adequate vehicle by which drainage problems may be properly resolved."

402.2 Municipal Liability for its Own Acts

A municipality is generally treated like a private party in drainage matters. Harbison v. City of Hillsboro, 103 Ore. 257, 204 P.613, 618 (1922); City of Golden v. Western Lumber and Pole Company, 60 Colo. 382, 154 P.95 (1916) (a municipality undertaking a public improvement is liable like an individual for damage resulting from negligence or an omission of duty); City of Denver v. Rhodes, 9 Colo. 554, 13 P.729 (1887). In the case of municipalities, however, the distinction between unlawful collection, diversion, or concentration of surface waters and lawful improvement is not always clear particularly as the pace and extent of urbanization increases. City of Englewood v. Linkenheil, 146 Colo. 493, 362 P.2d 185 (1961); Aicher v. Denver, 10 Colo. App. 413, 52 P.86 (1897).

1. Planning Drainage Improvements

As a general rule, municipalities are under no legal duty to construct drainage improvements unless public improvements necessitate drainage as in those situations in which street grading and paving or construction of schools accelerate or alter storm runoff. Denver v. Mason, 88 Colo.

294 P.788 (1931); Denver v. Capelli, 4 Colo. 25, 34 Am.Rep. 62 (1877); Daniels v. City of Denver, 2 Colo. 669 (1875). This is because statutory provisions authorizing municipal drainage improvements and flood control are generally written in nonmandatory language. Thus, absent mandatory statutory language imposing a duty on municipalities or judicial imposition of an implied duty to avoid or abate injuries, municipalities are not liable for failing to provide drainage or flood control. Similarly, it is generally held that municipalities are not liable for adoption or selection of a defective plan of drainage. Malvernia v. City of Trinidad, 123 Colo. 394, 229 P.2d 945 (1951); City and County of Denver v. Mason, 88 Colo. 294, 295 P.788 (1931); Aicher v. City of Denver, 10 Colo. App. 413, 52 P.86 (1897); Denver v. Capelli, 4 Colo. 25, 34, Am. Rep. 62 (1877). These decisions, however, were based primarily on governmental immunity which protected municipalities from liability when exercising governmental or discretionary powers as opposed to proprietary or ministerial powers. In Colorado, governmental immunity has been partially waived and the governmental-proprietary distinction has been abolished. C.R.S. 24-10-101. As a result, Colorado municipalities may be exposed to liability in the future for adoption or selection of defective plans or design for drainage.

2. Construction, Maintenance, and Repair of Drainage Improvements

Municipalities can be held liable for negligent construction of drainage improvements. McCord v. City of Pueblo, 5 Colo. App. 48, 36 P.1109 (1894); Denver v. Rhodes, 9 Colo. 554, 13 P.729 (1887); Denver v. Capelli, 4 Colo. 25, 34 Am Rep. 62 (1877); (as well as for negligent maintenance and repair of drainage improvements) Malvernia v. City of Trinidad, 123 Colo. 394, 229 P.2d 945 (1951); Denver v. Mason, 88 Colo. 294, 295 P.788 (1931); Denver v. Capelli, 4 Colo. 25, 34 Am. Rep. 62 (1877).

In addition to negligence, other legal theories have been used to impose liability on municipalities for faulty construction and maintenance of drainage improvements. Thus, a municipality may incur liability for trespass, Barberton v. Miksch, 128 Ohio St. 169, 190 N.E. 387 (1934) (casting water upon the land of another by seepage or percolation resulting from the construction and maintenance of a reservoir was a trespass by municipality); an unconstitutional taking, Mosley v. City of Lorain, 48 Ohio St. 2d 334, 358 N.E. 2d 596 (1976), (city had effectively appropriated the plaintiff's property by constructing a storm sewer system which channelled a greater volume of water into the creek than the creek could reasonably be expected to handle without flooding); Lucas v. Carney, 167 Ohio St. 416, 149 N.E. 2d (1958) (construction of a public improvement on county property, which greatly increased the amount the force of surface water which flowed onto the plaintiff's property overflowing and inundating it, raised a claim of pro tanto appropriation); or nuisance, Mansfield v. Bollett, 65 Ohio St, 451, 63 N.E. 86 (1902) (municipality is liable if it causes drainage to be emptied into a natural watercourse and substantially damages a lower landowner). Even in the absence of negligence, nuisance, trespass or taking, the evolving doctrine of inverse condemnation is being used to permit landowners to obtain compensation from a municipality where storm runoff from municipal projects are diverted across another's land

on the theory that the city has taken a drainage easement. Thus, like an easement for noise emanating from the municipal airport, physical entry by the governmental entity or statutory allowance of compensatory damages is not required in order for landowners to recover.

In several Colorado cases, however, municipalities have not incurred liability for faulty construction where they are found to be upper proprietors with a natural easement for drainage - even when water is sent down in a manner or quantity to do more harm than formerly. City of Englewood v. Linkenheil, 362, P.2d 186 (1961) (city's action in channeling water by system of drains, catch basins, intakes, and pipes, from higher place to place contiguous to land of plaintiff which was a natural drainage area, so as to overflow onto the land of plaintiff did not constitute a taking of property without just compensation); City and County of Denver v. Stanley Aviation Corporation, 143 Colo. 182, 352 P.2d 291 (1960) (plaintiff could not recover from city for damage caused by flood waters which backed onto lower land on theory that city had been negligent or failed to use due care in installing a pipe adequate to carry the waters); Aicher v. Denver, 10 Colo. App. 413, 52 P.86 (1897) (city not liable for damage where street grade was changed, trolley tracks permitted in street, a culvert built too small, but landowner declared to be in the unfortunate position of having built below the grade of the street).

3. Summary

In general, in the absence of negligence a municipality will not be held liable for increased runoff occasioned by the necessary and desirable construction of drains and sewers. Denver v. Rhodes, 9 Colo. 554, 13 P.729 (1887). Nor will a municipality be held liable for damages caused by overflow of its sewers or drains occasioned by extraordinary, unforeseeable rains or floods. 18 McQuillan, Municipal Corporations, 53,124 (3rd ed. 1971).

Municipal liability will attach, however, where a municipality: (1) Collects surface water and casts it in a body onto private property where it did not formerly flow; (2) Diverts, by means of artificial drains, surface water from the course it would otherwise have taken, and casts it in a body large enough to do substantial injury on private land, where, but for the artificial drain, it would not go; or (3) Fills up, dams back, or otherwise diverts a stream of running water so that it overflows its banks and flows on the land of another. A municipality is also liable if it fails to provide a proper outlet for drainage improvements constructed to divert surface waters or if it fails to exercise ordinary care in the maintenance and repair of drainage improvements. This latter liability attaches when it is determined that a municipality has not exercised a reasonable degree of watchfulness in ascertaining the condition of a drainage system to prevent deterioration or obstruction. 13 McQuillan, Malvernia v. City of Trinidad, 123 Colo. 394, 229 P.2d (1951).

Thus, the best rule to follow in planning for the construction of drainage improvements, whether following the natural watercourse or artificially draining surface water, is that a municipality is liable if it actively injures private property as a result of improvements made to

handle surface water. A municipality, in Colorado, appears to be in a much stronger position if it can establish that the improvement followed natural drainage patterns. Drainage District v. Auckland, 83 Colo. 510, 267 P.605 (1928); City of Boulder v. Boulder and White Rock Ditch and Reservoir Company, 73 Colo. 426, 216 P.553 (1923). See July-August 1962, DICTA, P.197; Shoemaker, An Engineering - Legal Solution to Urban Drainage Problems, 45 Denver Law Journal 381 (1968).

402.3 Municipal Liability for Acts of Others

1. Acts or Omissions of Municipal Officers, Agents, or Employees
The general rule is that a municipality is not liable under the doctrine of respondeat superior for the acts of officers, agents, or employees that are governmental in nature, but is liable for negligent acts of its agents in the performance of duties relating to proprietary or private corporate purposes of the city. Denver v. Madison, 142 Colo. 1, 351 P.2d 826 (1960). The construction, maintenance and repair of drainage improvements have been regarded as proprietary or corporate functions. Denver v. Maurer, 47 Colo. 209, 106 P.875 (1910). Although the governmental-proprietary distinction has been abolished by statute in Colorado, the distinction apparently still obtains whenever "the injury arises from the act, or failure to act, of a public employee would be or heretofore has been personally immune from liability." C.R.S. 24-10-106. Thus, a municipality may be held liable for the acts of its officers, agents or employees for injuries resulting from negligent construction, maintenance, or dangerous conditions of a public facility. C.R.S. 24-10-106 (1) (e), (1) (f). However, it is not clear whether, in Colorado, liability attaches or, conversely, whether the defense of governmental immunity applies to the adoption, selection, or approval of a defective plan or design. The govermental immunity statute provides for a waiver of governmental immunity when injuries result from the operation and maintenance or dangerous condition of a public facility. C.R.S. 24-10-106 (1) (e), (1) (f). The statute also states that "a dangerous condition shall not exist solely because the design of any facility...is inadequate in relation to its present use." C.R.S. 24-10-103 (1). Since the distinction between construction and design is often vague, it is difficult to predict how the Colorado courts will approach municipal liability for injuries resulting from adoption, selection, or approval of a defective plan or design by municipal officers, agents, or employees.

Before an individual can recover from a public entity for injuries caused by the public entity or one of its employees, Colorado's governmental immunity statute requires written notice within ninety days after the date of discovery of the injury to the public entity involved. Otherwise, failure to notify is a complete defense to a personal injury action against a municipality. C.R.S. 24-10-109. Kristensen v. Jones, 575 P.2d 854 (1978).

2. Municipal Liability for Acts of Developers
Unless an ordinance or statute imposes a duty on a municipality to prevent or protect land from surface water drainage, a municipality will not incur liability for wrongfully issuing building permits, failing to enforce an ordinance, or approving defective subdivision plans. Breiner

v. C & P Homebuilder's, Inc., 536 F2d 27 (3rd Cir. 1976), reversing the District Court. (In suit by landowners in adjacent township against borough, its engineers, and subdivision developer for damages caused by increased flow of surface water from development where borough approved subdivision plan which did not provide drainage facilities and issued building permits, borough was not liable because it owned no duty to landowners outside its boundaries. However, the developer was held liable).

One state court, however, has held that a municipality is liable for damages where the municipality has furnished building permits to a contractor for development of an industrial complex which benefited the village financially, but also diminished surface area available for drainage of water causing flooding of neighboring servient estates. Myotte v. Village of Mayfield, 375 N.E.2d 816 (1977). In Myotte, the village's liability was based on the following reasoning:

"To require the developer to pick up the cost of flood prevention by requiring him to acquire land along stream margins for widening or deepening to accommodate accelerated flows, would subject him to possible overreaching by riparian owners. The developer has no power of eminent domain. Municipalities do have powers to condemnation. Accordingly, as an advantaged party with the power to protect itself from crisis pricing, it seems reasonable and just that the municipality should either enlarge the stream to accommodate water accelerated from permitted improvements which enrich it or pay the consequences." Myotte, supra at 820. (Day, J. concurring). See alsdo, Armstrong v. Francis Corporation, 20 N.J. 320, 120 A.2d 4 (1956); Sheffet v. County of Los Angeles, 3 Cal. App. 3d 720 (1970); Powers et al., v. County of Clark and Clark County Flood Control District, District County, State of Nevada (No. A 125197) (1978).

There is a trend toward imposing a greater burden or responsibility on municipalities for the drainage consequences of urban development. See Wood Brothers Homes, Inc. v. City of Colorado Springs, 568 P.2d 487 (1977) (City abused discretion by not granting variance and by assessing entire cost of major drainage channel on developer where area to be served by the major drainage channel already suffered from occasional flooding and needed expanded drainage facility whether the property was developed or not).

402.4 Personal Liability of Municipal Officers, Agents, and Employees

An injured person always has a remedy against the original tort-feasor even if no recovery may be had from the municipality for acts of its officers, agents, or employees in discharge of governmental functions. Denver v. Madison, 142 Colo. 1, 351 P.2d 826 (1960). Thus, public employees generally have been personally liable for injuries caused by their negligent actions within the scope of employment, even when the defense of sovereign immunity was available to their employers. Antonpoulos v. Town of Telluride, 187 Colo. 392, 532 P.2d 346 (1975); Liber v. Flor, 143 Colo. 205, 353 P.2d 590 (1960). Since an injured person's right to sue the negligent employee of an immune entity derives from the common law, the Colorado Supreme Court will not infer legislative abrogation of that right absent clear legislative intent. Thus, the Colorado governmental immunity act is only directed toward liability of public entities. Kristensen v. Jones,

574 P.2d 854 (1978) (bus driver for regional transportation district personally liable for injuries sustained in a collision with the district's bus and written notice not condition precedent to suit against public employee in his individual capacity).

403 DRAINAGE IMPROVEMENTS BY A LOCAL GOVERNMENT

"In an era of increasing urbanization and suburbanization, drainage of surface water most often becomes a subordinate feature of the more general problem of proper land use - a problem acutely sensitive to social change." Pendergast v. Arkin, 236 S.E. 2d 787, 796 (N. Carolina).

403.1 Constitutional Power

A municipality's inherent police powers enable it to enact ordinances that serve the public health, safety, morals, or general welfare. Ordinances addressing drainage problems are clearly a proper exercise of a municipality's police powers. Wood Brother's Homes, Inc. v. City of Colorado Springs, 568 P.2d 487, 490 (1977). Hutchinson v. Valdosta, 227 U.S. 303, 308 (1913).

403.2 Statutory Power

1. Statutes - Municipalities

a. Municipal Powers - Public Property and Improvements. C.R.S. 31-15-701, 31-15-714.
The act grants municipalities the power to establish, improve, and regulate such improvements as streets and sidewalks, water and water works, sewers and sewer systems, and water pollution controls. In addition, a municipality may, among other powers, "deepen, widen, cover, wall, alter or change the channel of watercourses." C.R.S. 31-15-711 (1) (a).

b. Public Improvements - Special Improvement Districts in Municipalities. C.R.S. 31-25-501, 31-25-540.
The statute authorizes municipalities to construct local improvements and assess the cost of the improvements wholly or in part upon property specially benefited by such improvements. By ordinance, a municipality may order construction of district sewers for storm drainage in districts called storm sewer districts.

c. Public Improvements - Improvement Districts in Municipalities. C.R.S. 31-25-601, 31-25-630.
The statute authorizes municipalities to establish improvement districts as taxing units for the purpose of constructing or installing public improvements. The organization of districts is initiated by a petition filed by a majority of registered electors of the municipality who own real or personal property in the district.

d. Sewer and Water Systems - Municipalities. C.R.S. 31-35-401, 31-35-417.
The statute authorizes municipalities to operate, maintain, and finance water and sewage facilities for the benefit of users within and without their territorial boundaries. Sewerage facilities are defined as:

"...any one or more of the various devices used in the collection, treatment, or disposition of sewage or industrial waters of a liquid nature or storm, flood, or surface drainage waters..." C.R.S. 31-35-401(6).

2. Statutes - County

a. Powers of the Board - Drainage Facility Funding. C.R.S. 30-11-107.
The statute authorizes the Board of County Commissioners "to expend moneys for the construction, reconstruction, improvement, or extension of drainage facilities..."

b. Public Improvements - Sewer and Water Systems. C.R.S. 30-20-401, 30-20-422.
The statute authorizes county construction, maintenance, improvement and financing of water and sewerage facilities for the county's own use and for the use of the public and private consumers and users within and without the county's territorial limits.

c. County Public Improvement Districts. C.R.S. 30-20-501, 30-20-531.
The statute authorizes creation of public improvement districts within any county as taxing units for purposes of constructing, installing, or acquiring any public improvement. C.R.S. 30-20-513 lists special benefits for purposes of assessing improvements within a public improvement district, particularly with respect to storm sewer drainage and drainage improvements to carry off surface waters.

d. Public Improvements - Local Improvement Districts - Counties. C.R.S. 30-20-601, 30-20-603, 30-20-626.
The statute authorizes a county by resolution to construct and provide for maintenance of local improvements and assess costs thereof wholly or in part upon property specially benefited by such improvements.

e. Master Planning. C.R.S. 30-28-106, 30-28-133.
These statutes authorize the county to include drainage planning as part of the regional planning and to pay for the planning and drainage facilities through drainage fees collected, when fees are required.

f. Flood Control - Control of Stream Flow. C.R.S. 30-30-101, 30-28-105.
The statute authorizes the board of county commissioners for each county for flood control purposes only:

"...to remove or cause to be removed any obstruction to the channel of any natural stream which causes a flood hazard, and for such purpose only the board of county commissioners shall have a right of access to any such natural stream, which access shall be accomplished through existing gates and lanes, if possible. Such authority includes the right to modify existing diversion or storage facilities at no expense to the diverter of a water right, but shall

in no way alter or diminish the quality or quantity of water entitled to be received under any vested water rights. C.R.S. 30-30-102 (1).

g. Conservancy Law - Flood Control. C.R.S. 37-1-101, 37-8-101.
The statute authorizes the district court for any county to establish conservancy districts for any of the following purposes:

"Preventing floods; regulating stream channels by changing, widening, and deepening the same; regulating the flow of streams; diverting, controlling, or in whole or in part eliminating watercourses; protecting public and private property from inundation..."

h. Drainage Districts. C.R.S. 37-20-101, 37-33-109.
The statute authorizes owners of agricultural lands susceptible of drainage by the same general system of works to petition the board of county commissioners for the organization of a drainage district.

3. Statutes - State

a. Colorado Land Use Act. C.R.S. 24-65-101, 24-65-105, 24-65.1-101 et seq.
The statute establishes a nine-member Colorado land use commission. Among other powers, the commission has authority to "assist counties and municipalities in developing guidelines for developing land uses and construction controls within designated floodways..." Included in the areas and activities of state interest are floodplains, as a natural hazard. The Colorado Water Conservation Board is the agency designated to administer natural hazards by developing model floodplain regulations, and standards for floodplain studies. Prior to adopting designated floodplains by local governments, all such designations shall first be approved by the Colorado Water Conservation Board.

b. Drainage of State Lands. C.R.S. 37-30-101, 37-30-105.
The statute authorizes the state board of land commissioners to make contracts with any person, corporation, association, or drainage districts to provide drainage of state lands.

c. Water Conservation Board of Colorado. C.R.S. 37-60-101, 37-60-123.
The statute creates a thirteen-member state water conservation board for purposes of water conservation and flood prevention. An important duty of this board is to "designate and approve storm or floodwater runoff channels or basins, and to make such designations available to legislative bodies of cities and incorporated towns, ...and counties of this state." C.R.S. 30-60-123.

d. State Canals and Reservoirs. C.R.S. 37-88-101. 37-88-109.
The statute authorizes the Department of Corrections to locate, acquire, and construct ditches, canals, reservoirs, and feeders for irrigating and domestic purposes for the use of the State of Colorado. The board of county commissioners have charge and control of any state reservoir in their county and are liable for any damages resulting from the breakage of the dams and water discharges.

4. Urban Drainage and Flood Control Act

C.R.S. 32-11-101, et. seq., established the Urban Drainage and Flood Control District, including all of the City and County of Denver and the urbanized and urbanizing portions of Adams, Arapahoe, Boulder, Douglas, and Jefferson Counties. A fifteen person Board, comprised of thirteen elected officials and two professional engineers, is given the power to (1) plan solutions to drainage and flood control problems (with an authorized mill levy of .1 mill); (2) construct drainage and flood control improvements (with an authorized mill levy of .4 mill); (3) and maintain such improvements and other natural drainageways within the District (with an authorized mill levy of .4 mill). The Board also has the power to adopt and enforce a floodplain regulation.

404 FINANCING DRAINAGE IMPROVEMENTS

"The ability of one owner to develop land, install impervious surfaces, alter drainage paths, and accelerate runoff onto other properties involves more than issues of what rights and relief should be accorded neighboring property owners. Urbanization can double or triple the peak flows of 5- and 10-year floods. Lands far downstream may be severely affected by the cumulative impact of unplanned and unregulated changes in drainage patterns due to urban clearance, grading, and development. Increasingly, the costs of uncontrolled drainage modifications and storm water management have fallen on the state and federal budgets."

Westen, Gone With the Water - Drainage Rights and Storm Water Management in Pennsylvania, 22 Vill. L. Rev. 901, 902 (1976-77).

404.1 Capital Improvement

Resources from the current budget usually derived from sales, property, and income taxes, can be used to finance drainage improvements. Since the cost is paid from the "general fund" or "capital improvement fund" and no specific property tax is levied, the financing is relatively simple.

404.2 Local Improvement

Financing for drainage improvements through local improvements or as part of a general bond issue require that all property be assessed on a valuation basis. Since a majority of all taxpaying electors must approve, the success of this method usually turns on how well the facts (needs) have been prepared and how good a plan has been developed.

404.3 Special Improvement

When drainage improvements are financed as special improvements, the property assessed must be specially benefited. In Colorado, benefits, for purposes of special assessments, are defined in several statutory sections. (See C.R.S. 30-20-513, 30-20-606, 31-25-507, and 37-23-101.5). For example, 37-23-101.5 provides:

"Determination of special benefits - factors considered. (1) The term benefit, for the purposes of assessing a particular property within a drainage system improvement district, includes, but is not limited to, the following:

a. Any increase in the market value of the property;

b. The provision for accepting the burden from specific dominant property for discharging surface water onto servient property in a manner or quantity greater than would naturally flow because the dominant owner made some of his property impermeable;

c. Any adaptability of property to a superior or more profitable use;

d. Any alleviation of health and sanitation hazards accruing to particular property or accruing to public property in the improvement district, if the provision of health and sanitation is paid for wholly or partially out of funds derived from taxation of property owners of the improvement district;

e. Any reduction in the maintenance costs of particular property or of public property in the improvement district, if the maintenance of the public property is paid for wholly or partially out of funds derived from taxation of property owners of the improvement district;

f. Any increase in convenience or reduction in inconvenience accruing to particular property owners, including the facilitation of access to and travel over streets, roads, and highways;

g. Recreational improvements accruing to particular property owners as a direct result of drainage improvement."

This statute was adopted by the Colorado Legislature to define "benefits", a term previously defined only by courts. See Shoemaker, What Constitutes "Benefits" for Urban Drainage Projects, 51 Denver L. Journal 551 (1974).

Although a benefit to the premises assessed must at least be equal to the burden imposed, the standard of apportionment of local improvement costs to benefits is not one of absolute equality, but one of reasonable approximation. Satter v. City of Littleton, 185 Colo. 90, 522 P.2d 95 (1974). And, a presumption of validity inheres in a city council's determination that benefits specifically accruing to properties equal or exceed assessments thereon. Satter, supra. Further, a determination of special benefits and assessments is left to the discretion of municipal authorities and their determination is conclusive in the courts unless it is fraudulent or unreasonable. Orchard Court Development Co. v. City of Boulder, 182 Colo. 361, 513 P.2d 199 (1973). A determination of no benefit in an eminent domain proceeding does not preclude a subsequent special assessment providing a landowner's property benefited from construction of the improvement. City of Englewood v. Weist, 184 Colo. 325, 520 P.2d 120 (1974). See, also, Denver v. Greenspoon, 140 Colo. 402, 344 P.2d 679 (1959); Town of Fort Lupton v. Union Pacific R.R. Co., 156 Colo. 352, 399, P.2d 248 (1965); Houch v. Little River District, 239 U.S. 254 (1915); Miller and Lux v. Sacremento Drainage District, 256 U.S. 129 (1921).

404.4 Service Charge

Storm and flood control facilities fall within the definition of "sewerage facilities" defined in C.R.S. 30-35-401 (5), C.R.S. 31-35-402 (1) states:

In addition to the powers which it may now have, any municipality, without any election of the taxpaying or qualified electors thereof, has power under this part for (emphasis added):

f. "To prescribe, revise and collect in advance or otherwise, from any consumer or any owner or occupant of any real property connected therewith or receiving service therefrom rates, fees, tolls, and charges or any combination thereof for the service furnished by, or the direct or indirect connection with, or the use of, or any commodity from such water facilities or sewerage facilities or both,..."

A service charge is neither a tax nor a special assessment but is a fee whose sole purpose is to defray the cost of establishing and maintaining a storm drainage and flood control utility. Western Heights Land Corp. v. City of Fort Collins, 146 Colo. 464, 362 P.2d 155 (1961). See, also, City of Aurora v. Bogue, 176 Colo. 198, 489 P.2d 1295 (1971); Brownbriar Enterprises v. City and County of Denver, 177 Colo. 198, 493 P.2d 352 (1972); and City of Boulder v. Arnold, CA 75-1871-1 (1976) which upheld City of Boulder's flood control fee. Counties in Colorado have similar powers pursuant to C.R.S. 30-20-402 (1).

404.5 Developer's Cost

A county planning commission or the board of adjustment of any county may condition any portion of a zoning resolution, or any amendments or exceptions thereto, upon "the preservation, improvement, or construction of any storm or floodwater runoff channel designated and approved by the Colorado Water Conservation Board." C.R.S. 30-28-111 (2).

Every Colorado county is required to have a planning commission to develop, adopt and enforce subdivision regulations. Among the provisions that the board of county commissioners must include in the county's regulations are those requiring developers to submit:

"A plat and other documentation showing the layout or plan of development, including where applicable, the following information: ..."

"Estimated construction cost and proposed method of financing of the streets and related facilities, water distribution system, sewage collection system, storm drainage facilities, and such other utilities as may be required of the developer by the county;

Maps and plans for facilities to prevent storm waters in excess of historic runoff, caused by the proposed subdivision, from entering, damaging, or being carried by conduits, water supply ditches and appurtenant structures, and other storm drainage facilities:" C.R.S. 30-28-133 (3)(c).

In addition, subdivision regulations must include provisions governing:

"Standards and technical procedures applicable to storm drainage plans and related designs, in order to ensure proper drainageways, which may require, in the opinion of the board of county commissioners, detention facilities which may be dedicated to the county or the public, as are deemed necessary to control, as nearly as possible, storm waters generated exclusively within a subdivision from a one-hundred year storm which are in excess of the historic runoff volume of storm water from the same land area in its undeveloped and unimproved condition;" C.R.S. 30-28-133 (4)(b).

405 FLOODPLAIN MANAGEMENT

Floodplain management includes both structural and non-structural techniques with the present trend towards the latter. See e.g., C.R.S. 24-65.1-202 (2)(a)(I). Such techniques include: (1) Floodplain zoning and building code ordinances to regulate flood area construction; (2) Flood insurance programs; (3) Flood warning systems, including notification to occupants of floodplains. See Western, Gone With the Water - Drainage Rights and Storm Water Management in Pennsylvania, 22 Vill. L. Rev., 901, 972 (1976-77).

405.1 Floodplain Regulations

1. Constitutional Considerations

The general principles of zoning were established in Village of Euclid v. Amber Realty Co., 272 U.S. 365 (1926), in which the U.S. Supreme Court stated:

"While the meaning of constitutional guarantees never varies, the scope of their application must expand or contract to meet new and different conditions which are constantly coming within the field of their operation."

The court in Colorado has determined the zoning is justified as a valid exercise of police power, and that this legal basis for zoning legislation must be reconciled with the legitimate use of private property, in harmony with constitutional guarantees. Westwood Meat Market, Inc. v. McLucas, 146 Colo. 435, 361 P.2d 776 (1961); People ex rel. Grommon v. Hedgcock, 106 Colo. 300, 104 P.2d 607 (1940).

2. Statutory Grants of Power

Specific legislative action has given local governments authority to proceed in floodplain regulation. In Colorado, cities, counties, and The Urban Drainage and Flood Control District all have plenary grants to power.

The governing body of each municipality has the following authority:

"...to establish, regulate, restrict and limit such uses on or along any storm or floodwater runoff channel or basin, as such storm or floodwater runoff channel or basin has been designated and approved by the Colorado Water Conservation Board, in order to lessen or avoid the hazards to persons and damage to property resulting from the accumulation of storm or floodwaters." C.R.S. 31-23-301 (1).

Counties in Colorado are directly authorized by statute to adopt zoning plans concerned with regulating use in a floodplain area through the provisions of C.R.S. 30-28-111 (1):

"... the county planning commission may include in said zoning plan or plans provisions establishing, regulating, and limiting such uses upon or along any storm or water runoff channel or basin as such storm or runoff channel or basin has been designated and approved by the Colorado Water Conservation Board in order to lessen or avoid the hazards to persons and damage to property resulting from the accumulation of storm or flood waters."

3. Court Review of Floodplain Regulations

The leading Colorado case is Famularo v. Adams County, 180 Colo. 333, 505 P.2d 958 (1973), in which the Colorado Supreme Court upheld the District Court's findings that (1) the Adams County Commissioners had authority to regulate, by resolution, the uses of land in unincorporated areas for "trade, industry, recreation, or other purposes, and for flood control"; and (2) the regulation in questions did not so limit the uses of plaintiff's land so as to violate the Colorado Constitution, Article II, 25 or the U.S. Constitution, Amendment XIV.

In Colorado, the legislature has taken the lead in granting local governments power to regulate flood hazard areas. Usually, courts interpret such regulation that follows on a case by case basis, depending on what is "reasonable" under the circumstances.

Some guidelines that have emerged in anticipating "reasonableness" are:

a. Restriction of Uses

The restriction of uses on property which would prevent a public harm, as opposed to the creation of a public benefit, removes the requirement of compensation to property owners who are restricted from the full use of their property. Duham, A Legal and Economic Basis for City Planning, 58 Colum, L. Rev. 650 (1958).

The restrictions on the uses must not be so severe as to deny the owners a constitutional right to make "beneficial use" of their land, as such restrictions would be confiscatory and void. Francis v. City and County of Denver, 160 Colo. 440, 418 P.2d 45 (1966). However, a zoning ordinance is proper which may prohibit the landowner from using or developing his land in the "most profitable" manner. Baum v. City and County of Denver, 147 Colo. 104, 363 P.2d 688 (1961).

b. Health Regulations

The relationship of the zoning restrictions to the public health, safety, morals, and general walfare must be considered. Whether the zoning provisions are reasonable and for the promotion of the public welfare must be determined by the court from the facts, circumstances, and locality in a particular case. DiSalle v. Giggal, 128 Colo. 208, 261 P.2d 499 (1953).

A similar matter in zoning restrictions was determined by the U.S. Supreme Court, in upholding the validity of the police power in a zoning ordinance which prohibited excavation below a certain water table, which in effect deprived the property of its most beneficial use, stated:

"The ordinance in question was passed as a safety measure, and the town is attempting to uphold it on that basis. To evaluate its reasonableness, we therefore need to know such things as to the nature of the menace against which it will protect, the availability and effectiveness of other less drastic protective steps, and the loss which the appellants will suffer from the imposition of the ordinance."

Goldblatt v. Town of Hempstead, (N.Y.) 369 U.S. 590 (1962).

This holding appears to coincide with the Colorado cases on the requirements for the determination by the court from facts, circumstances and locality in a particular case as to the reasonableness of the zoning ordinances in their promotion of the general welfare, and to prove that the restrictive use would bear a substantial relation to the public health, safety, morals, or general welfare. Di Salle v. Giggal, supra; Westwood Meat Market, Inc. v. McLucas, supra.

c. Flood Boundaries

The boundaries of the floodplain should be accuratley determined and based on a reasonable standard. Mallett v. Mamaroneck, 1313 N.Y. 821, 125 N.E. 2d 875 (1955).

The setting of the boundaries of the floodplain zone to properly determine the hydraulic reach of a potential flood should be determined accurately. The extent of the accuracy will be affected by terrain, river course, and other factors which will necessarily cause some variation from the initially adopted boundary. Floodplain boundaries are a horizontal interpretation of the vertical water surface profiles. The Colorado Water Conservation Board designates water surface profiles and not flooded areas and therefore disputes are governed by elevations. The Colorado Water Conservation Board has set guidelines for floodplain studies and developed engineering standards.

The U.S. Army Corps of Engineers, the Urban Drainage and Flood Control District, Soils Conservation District, Colorado Water Conservation Board, and other local governments, have conducted extensive stream surveys throughout Boulder County. The surveys have been completed upon reasonable scientific standards and have often become an integral part of the floodplain zoning ordinances and resolutions adopted by Colorado's cities and counties.

The Colorado Water Conservation Board participates in the funding of floodplain studies and approves such areas as delineated as a storm or "flood water runoff channel or basin." The Colorado Water Conservation Board requires local governments to submit the

floodplain boundary maps for formal designation and approval. Such approval is required by statute prior to any action by a local government to set the boundaries on proposed floodplain zoning resolutions.

405.2 Flood Insurance

The National Flood Insurance Act of 1968, as amended in 1973, provides for a federally subsidized flood insurance program conditioned on active management and regulation of floodplain development by states and local governments. 42 U.S.C., 4001-4128; 24 C.F.R., 1979.1-1925.14 (2975). Communities designated as flood prone by the Federal Emergency Management Agency (FEMA) can obtain flood insurance eligibility for structures within the community upon meeting the qualifications of the Act by developing a floodplain management system. Development of a floodplain management system requires that community to promulgate a land use and building permit system which restricts development in flood hazard areas. FEMA publishes a list, updated monthly, of the status of communities. Flood insurance is provided on a subsidized basis through all licensed insurance agents. The Colorado Water Conservation Board is the state coordinating agency for the National Flood Insurance Program (NFIP).

Federally regulated lending institutions (FDIC, FSLIC, NCUA) must require flood insurance for loans made on structures in FEMA identified flood hazard areas in communities where flood insurance is available. The lender is required to give notice to the borrower ten days in advance that the property securing the loan is located in a flood hazard area and written acknowledgement of the borrower's knowledge of the flood hazard must be obtained. If flood insurance is not available in the community the lender may still make the loan but he must notify the borrower that Federal disaster assistance may not be available in the event of a flood disaster. Federally insured loans (SBA, VA, FHA) have the same requirements with the exception that they cannot be made on property located in a FEMA identified flood hazard area if flood insurance is not available in the community.

The area of greatest concern is the question of whether to base flood hazard boundaries on current development in the drainage basin or on future development. The FEMA uses current development as its criteria. The Urban Drainage and Flood Control District uses future development which results in the regulation of a larger floodplain area in most instances. Although the basin may take time to develop in accordance with the local government's master land use plan, and land use requirements may call for upstream detention, it is the Colorado Water Conservation Board's position that "future condition" criteria is preferable because existing floodplain users are put on notice that this is what the future brings, and potential users of the floodplain are also put on notice of the potential hazard. The net result is a more restrictive regulation which, under C.R.S. 32-11-218 (1)(f), is controlling.

406 SPECIAL MATTERS

406.1 Irrigation Ditches

In situations in which an irrigation ditch intersects a drainage basin, the irrigation ditch does not have to take underground waters diverted by a title-drain. However, the surface drainage must be accepted if the irrigation ditch is constructed in a natural way into which surface water would naturally flow. Clark v. Beauprez, 151 Colo. 119, 377 P.2d 105 (1962) (between private parties,

the owner of an irrigation ditch can prevent an upper landowner from diverting waters from their natural course into the irrigation ditch); City of Boulder v. Boulder & White Rock Ditch & Reservoir Company, 73 Colo. 426, 216 P.553 (1923) (where an irrigation ditch was constructed in a natural drainageway into which surface water would naturally flow, the ditch owners could not complain merely on the ground that the city, in building storm sewers, collected the surface water and accelerated its flow and precipitated or discharged it at some particular point in the line of the ditch instead of spreading it out at different places of entrance).

In urbanizing areas, the conflict between the natural flow of surface water and irrigation ditches which bisect many drainage basins, is yet to be generally resolved by Colorado's Appellate courts. Innumerable natural drainageways have been blocked by irrigation ditches, although they were constructed long before the basin became urbanized. This special area of urban drainage points up the need for good land use requirements as well as identification of potential problem areas.

406.2 Subdivision Regulations

Subdivision regulations adopted by the Board of County Commissioners must include provisions requiring subdivisions to submit:

"maps and plans for facilities to prevent storm waters in excess of historic runoff, caused by the proposed subdivision, from entering, damaging, or being carried by conduits, water supply ditches and appurtenant structures, and other storm drainage facilities." C.R.S. 30-28-133 (3) (c) (VII).

In addition, the regulations must include provisions governing:

"Standards and technical procedures applicable to storm drainage plans and related designs, in order to ensure proper drainageways, which may require, in the opinion of the board of county commissioners, detention facilities which may be dedicated to the county or the public, as are deemed necessary to control as nearly as possible, storm sewers generated exclusively within a subdivision from a 100-year storm which are in excess of the historic runoff volume of storm water from the same land area in its undeveloped and unimproved condition." C.R.S. 30-28-133 (4)(b). See Shoptaugh v. Board of County Commissioners, 543 P.2d 524 (1975).

406.3 Dams and Detention Facilities

In Colorado, strict liability is imposed on owners of reservoirs for damages resulting from leakage, overflow, or floods.

"The owners of the reservoirs shall be liable for all damages arising from leakage or overflow of the waters therefrom, or by floods caused by breaking of the embankments of such reservoirs." C.R.S. 37-87-104.

The criteria for the construction of a dam is to safely pass the probable maximum precipitation (PMP). Barr v. Game, Fish and Parks Commission, 30 C.A. 482, 497 P.2d 340 (1972). In Barr, the Colorado Court of Appeals found that since modern meteorological techniques provide a method of predicting the probable maximum storm and flood, liability should be imposed for injuries

resulting from a failure to determine the probable maximum flood and to design and construct a dam with a spillway having the capacity to handle that storm. The court stated:

"the maximum probable storm, by definition, is both maximum and probable. It can and may occur ...Thus being both predictable and foreseeable to the defendant in the design and construction of the dam, the defense of act of God is not available to them."

The dam did not fail but the spillway was inadequate and the flood water was forced into another basin. See also, Garnet Ditch and Reservoir Company v. Sampson, 48 Colo. 285, 110 P.79 (1910) (owners of reservoirs are liable absolutely for all damages from leakage or overflow of the water, or by floods caused by the breaking of an embankment, and they are not relieved from such liability by the fact that they have omitted nothing that human skill and foresight could suggest in the construction and maintenance of the reservoir to render it absolutely safe, and their liability is the same, even if they have used a natural hillside as a part of the restraining wall and it washes out, as the words "embankment" and "dam" must be construed as including barriers).

A question arises, however, regarding the proper criteria to use in determining the size of the floodplain or channel below the dam - the 100-year flood, before the dam was constructed, or after construction? This special area has not been resolved by either the legislature or the courts in Colorado. However, since dams and reservoirs are required by law to safely pass the PMP (storms greater than the 100-year storm) it might be argued that the watercourse below the dam should be constructed to at least carry the same water as before construction of the dam. Assuming the dam safely passes a 500-year flood, for example, the 100-year floodplain would obviously be inadequate. But with no dam in place, the same floodplain would also be inadequate. And if the dams fails, the owner is strictly liable for damages resulting. Preserving the 100-year floodplain before the dam was constructed will prevent damage below the newly constructed dam in the larger than 100-year storm, although not for the PMP.

406.4 Water Quality

"Storm water runoff is a major non-point source of water pollution. In urbanizing areas, where land-disturbing activities are numerous, stormwater washes soil and sediment into surface waters causing increased levels of turbidity and eutrophication, threatening fish and wildlife, and blocking drainage. In developed areas, runoff carries with it the pollutants from surfaces over which it runs, including oil, litter, chemicals, nutrients and biological wastes, together with soils eroded from downstream channels of the flow." U.S. Environmental Protection Agency, Legal and Institutional Approaches to Water Quality Management Planning and Implementation. VI-I (1977).

It is reasoned that water quality control should be an integral part of any drainage or storm water management program, since stormwater management techniques are often consistent with water quality objectives. However, this special area, as related to urban drainage, has not been researched adequately so as to provide the facts upon which a cost-effective approach to integrating water quality objectives with plans for surface drainage improvements. See City of Boulder v. Boulder & White Rock Ditch & Reservoir Company, 73 Colo. 426, 216 P.553, 555 (1923).

407 CONCLUSION

"The force of gravity which causes all waters flowing on the earth to seek the lowest level creates natural drainage, and provides for the distribution of all water, whether surface or otherwise. This natural drainage is necessary to render the land fit for the use of man. The streams are the great natural sewers through which the surface water escapes to the sea, and the depressions in the land are the drains leading to the streams. These natural drains are ordained by nature to be used, and so long as they are used without exceeding their natural capacity the owner of the land through which they run cannot complain that the water is made to flow in them faster than it does in a state of nature." 2 Farnham, Water and Water Rights, P.968.

Drainage is both simple and complicated. If the FACTS are ascertained and a PLAN developed before initiating a proposed improvement, the likelihood of an injury to a landowner is remote and the municipality or developer should be able to undertake such improvements relatively assured of no legal complications, and be able to use several different means of financing the improvement.

A legal opinion on proposed drainage improvements should state as a minimum whether:

1. The watercourse under study has been walked.
2. There are problems involved, and what causes them (obstructions, topography, development, present or future).
3. The proposed improvements to make the situation better.
4. The proposal requires that the natural drainage be modified.
5. There is potential liability for doing something v. doing nothing.
6. Someone will benefit from the proposed improvements.
7. In general, what is proposed is "reasonable", using the criteria set forth in Paragraph 402.1 (c).