

CHAPTER 2 LEGAL ASPECTS

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2.1 OVERVIEW

2.1.1 Introduction

Various drainage laws and rules applicable to highway facilities are discussed in this chapter. The intent of this chapter is to provide information and guidance on the designer's role with respect to legal issues associated with highway drainage. This chapter is not meant to summarize all existing laws and should not be treated as a substitute for obtaining an opinion from legal counsel.

The following generalizations can be made in reaching the proper conclusion regarding liability:

- A goal in highway drainage design should be to perpetuate natural drainage, insofar as practicable.
- The historic flow and path should be maintained as much as possible. For example, if a large borrow ditch is filled, the effects of the loss of detention storage should be considered.
- Courts generally look with disfavor upon infliction of injury or damage that could reasonably have been avoided by a prudent designer, even where some alteration in flow is legally permissible.
- There is a trend towards increased governmental liability, therefore, design is very important.

2.1.2 Order of Authority

There is an order of authority that is followed when applying various statutes, regulations, etc. In descending order they are as follows: Federal, State and local. Generally, the laws of the lower level do not bind the superior level. For example, the Federal government is not bound to follow a regulation established at the local level. However, the local level is required to follow not only local regulations but also those of the State and Federal governments.

Often, the State and local levels create regulations to ensure the requirements of the Federal laws are met. Occasionally there are conflicts. Many of these conflicts require constitutional interpretation and analysis. Such conflicts should be referred to the Colorado Attorney General's Office through CDOT's Chief Engineer.

2.1.3 Related Publications

There are numerous publications that discuss the legal aspects of drainage and water laws. The following publication provides guidance along with a glossary of legal definitions:

Highway Drainage Guidelines, American Association of State Highway and Transportation Officials, Washington, D.C., 1999. See Chapter V – The Legal Aspects of Highway Drainage.

2.2 FEDERAL LAWS

2.2.1 General

Federal law consists of the U.S. Constitution, Acts of Congress, regulations, Executive Orders and case law. Federal law does not address drainage directly. However, many laws have implications that affect drainage design. These include laws concerning:

- Flood insurance and construction in flood hazard areas, navigation and construction in navigable waters (of which there are few in Colorado);
- Water pollution control;
- Environmental protection; and

- Protection of fish and wildlife.

2.2.2 Significant Federal Law

For a listing of the significant Federal law affecting highway drainage please refer to: Highway Drainage Guidelines, American Association of State Highway and Transportation Officials, Washington, D.C., 1999. See Chapter V – The Legal Aspects of Highway Drainage.

2.2.3 Navigable Waters Regulations

The Congress of the United States asserts regulatory authority over certain waterways, which are deemed to be “navigable waters.” The only waters in Colorado defined as navigable are the Colorado River west of Grand Junction and the Navajo Reservoir.

If a designer becomes involved in a project that involves navigable waters, the designer must be aware that coordination and approval from the Coast Guard and the Corps of Engineers is required. Also, a National Pollutant Discharge Elimination System (NPDES) permit will be required from the Colorado Department of Public Health and Environment (CDPHE). NPDES requirements are covered in the State Laws section below. Designers need to recognize that such coordination and approval takes time and failure to seek approvals early can lead to delays.

2.3 FISH AND WILDLIFE SERVICE

2.3.1 Requirements

The Fish and Wildlife Coordination Act requires that “whenever the waters of any stream or body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatsoever, including navigation and drainage, by any department or agency of the United State, or by any public or private agency under Federal permit or license, such department or agency shall first consult with the US Fish and Wildlife Service, Department of the Interior and with the head of the agency exercising administration over the wildlife resources of the particular state with a view to the conservation of wildlife resources by preventing loss and damage to such resources as well as providing for the development and improvement thereof.”

2.3.2 Service’s Role

The Fish and Wildlife Service’s role in the permit review process is to review and comment on the effects of a proposal on fish and wildlife resources. It is the function of the regulatory agency (e.g. Corps of Engineers; US Coast Guard) to consider and balance all factors in deciding whether to issue a permit.

2.4 NATIONAL FLOOD INSURANCE PROGRAM

2.4.1 Flood Disaster Protection

Communities are required to adopt certain land use controls to qualify for flood insurance. Such land use requirements could impose restrictions on the construction of highways in floodplains and floodways in communities that have qualified for flood insurance.

A floodway is that portion of the floodplain required to pass a flood that has a one-percent chance of occurring in any one-year period without cumulatively increasing the water surface elevation more than one foot at any cross section.

2.4.2 Flood Insurance

Federal criteria have been developed to implement the requirement that communities adopt adequate land use and control measures to qualify for insurance. These federal criteria contain the following which can affect highway design:

In riverine situations, when the Administrator of the Federal Insurance Administration has identified the flood prone area, the community must require that, until a floodway has been designated, no use, including land fill, be permitted within the floodplain area having special flood hazards for which base flood elevations have been provided, unless it is demonstrated that the cumulative effect of the proposed use, when combined with all other existing and reasonably anticipated uses of a similar nature, will not increase the water surface elevation of the 100-year flood more than one foot at any point within the community.

After the floodplain area having special flood hazards has been identified and the water surface elevation for the 100-year flood and floodway data have been provided, the community must designate a floodway which will convey the 100-year flood without increasing the water surface elevation of the flood more than one foot at any point and prohibit, within the designated floodway, fill, encroachments, new constructions and substantial improvements of existing structures which would result in any increase in flood heights within the community during the occurrence of the 100-year flood discharge.

The participating cities and/or counties agree to regulate new development in the designated floodplain and floodway through regulations adopted in a floodplain ordinance. The ordinance requires that development in the designated floodplain be consistent with the intent, standards and criteria set by the National Flood Insurance Program.

2.4.3 Local Community

The local community with land use jurisdiction, whether it is a city, county or state, has the responsibility for enforcing the National Flood Insurance Program (NFIP) regulations. Consistency with NFIP standards is a requirement for federal-aid highways actions involving regulatory floodways. The community, by necessity, is the proper entity for submitting proposals to the Federal Emergency Management Agency (FEMA) for amendments to NFIP ordinances and maps in that community. CDOT should work directly with the community and, through them, work with FEMA. Determination of the status of a community's participation in the NFIP and review of applicable NFIP maps and ordinances are, therefore, essential first steps in conducting location hydraulic studies and preparing environmental documents.

2.4.4 NFIP Maps

Where NFIP maps are available, their use is mandatory in determining whether a highway location alternative will include an encroachment on the base floodplain. Three types of NFIP maps are published:

- Flood Hazard Boundary Map (FHBM);
- Flood Boundary and Floodway Map (FBFM); and
- Flood Insurance Rate Map (FIRM).

A FHBM is generally not based on a detailed hydraulic study and, therefore, the floodplain boundaries shown are approximate. A FBFM, on the other hand, is generally derived from a detailed hydraulic study and should provide reasonably accurate information. The hydraulic data from which the FBFM was derived are available through the regional office of FEMA. This is normally in the form of computer

input data records for calculating water surface profiles. The FIRM is generally produced at the same time using the same hydraulic model and has appropriate rate zones and base flood elevations added.

Communities may or may not have published one or more of the above maps depending on their level of participation in the NFIP. Information on community participation in the NFIP is provided in the “National Flood Insurance Program Community Status Book,” which is published semi-annually for each State.

2.4.5 Coordination With FEMA

CDOT or its representative should coordinate with FEMA in situations where administrative determinations are needed involving a regulatory floodway or where flood risks in NFIP communities are significantly impacted. Circumstances which require coordination with FEMA include the following:

- When a proposed crossing encroaches on a regulatory floodway and, as such, would require an amendment to the floodway map;
- When a proposed crossing encroaches on a floodplain where a detailed study has been performed but no floodway designated and the maximum one-foot increase in the base flood elevation would be exceeded;
- When a local community is expected to enter into the regular program within a reasonable period and detailed floodplain studies are underway; and
- When a local community is participating in the emergency program and base FEMA flood elevation in the vicinity of insurable buildings is increased by more than one foot. Where insurable buildings are not affected, it is sufficient to notify FEMA of changes to base flood elevations as a result of highway construction.

The draft Environmental Impact Statement or Environmental Assessment (EIS/EA) should indicate the NFIP status of affected communities, the encroachments anticipated and the need for floodway or floodplain ordinance amendments. Coordination means furnishing to FEMA, the draft EIS/EA and, upon selection of an alternative, furnishing to FEMA, through the community, a preliminary site plan and water surface elevation information and technical data in support of a floodway revision request as required. If a determination by FEMA would influence the selection of an alternative, a commitment from FEMA should be obtained prior to the Final Environmental Impact Statement (FEIS) or Finding Of No Significant Impact (FONSI) report. Otherwise this later coordination may be postponed until the design phase.

Consistent With Floodways

In many situations it is possible to design and construct highways in a cost-effective manner such that their components are excluded from the floodway. This is the simplest way to be consistent with the standards and should be the initial alternative evaluated. If a project element encroaches on the floodway but has a very minor effect on the floodway water surface elevation (such as piers in the floodway), the project may normally be considered as being consistent with the floodway standards provided hydraulic conditions can be improved so that no water surface elevation increase is reflected in the computer printout for the new conditions.

Revisions of Floodway

Where it is not cost effective to design a highway crossing to avoid encroachment on an established floodway, a second alternative would be a modification of the floodway itself. Often, the local community will be willing to accept an alternative floodway configuration to accommodate a proposed crossing provided NFIP limitations on increases in the base flood elevation are not exceeded. This approach is useful where the highway crossing does not cause more than a one-foot rise in the base flood

elevation. In some cases, it may be possible to enlarge the floodway or otherwise increase conveyance in the floodway above and below the crossing in order to allow greater encroachment. Such planning is best accomplished when the floodway is first established. However, where the community is willing to amend an established floodway to support this option, the floodway may be revised.

The responsibility for demonstrating that an alternative floodway configuration meets NFIP requirements rests with the community. However, this responsibility may be borne by the agency proposing to construct the highway crossing. Floodway revisions must be based on the hydraulic model that was used to develop the currently effective floodway but updated to reflect existing encroachment conditions. This will allow determination of the increase in the base flood elevation that has been caused by encroachments since the original floodway was established. Alternate floodway configurations may then be analyzed.

Base flood elevation increases are referenced to the profile obtained for existing conditions when the floodway was first established.

Data for Revisions

Data submitted to FEMA, through the local community, in support of a floodway revision request should include the following:

- Copy of current regulatory Flood Boundary Floodway Map, showing existing conditions, proposed highway crossing and revised floodway limits.
- Copy of water surface profile computer printouts (input, computation and output) for the current 100-year model and current 100-year floodway plan.
- Copy of water surface profile computer printouts (input, computation and output) for the revised 100-year floodway model. Any fill or development that has occurred in the existing flood fringe area must be incorporated into the revised 100-year floodway model.
- Copy of engineering certification is required for work performed by private contractors.

The revised and current computer data required above should extend far enough upstream and downstream of the floodway revision area to tie back into the original floodway and profiles using sound hydraulic engineering practices. This distance will vary depending on the magnitude of the requested floodway revisions and the hydraulic characteristics of the stream.

If input data representing the original hydraulic model are unavailable, an approximation should be developed. A new model should be established using the original cross-section topographic information, where possible, and the discharges contained in the Flood Insurance Study which established the original floodway. The model should then be run confining the effective flow area to the currently established floodway and calibrate to reproduce within 0.10 foot, the “with floodway” elevations provided in the Floodway Data Table, for the current floodway. Floodway revisions may then be evaluated using the procedures outlined above.

Allowable Floodway Encroachment

When it would be demonstrably inappropriate to design a highway crossing to avoid encroachment on the floodway and where the floodway cannot be modified such that the structure could be excluded, FEMA will approve an alternate floodway with backwater in excess of the one foot maximum only when the following conditions have been met:

- A location hydraulic study has been performed in accordance with the Federal Aid Policy Guide (23 CFR 650, subpart A) and FHWA finds the encroachment is the only practicable alternative.

- The constructing agency has made appropriate arrangements with affected property owners and the community to obtain flooding easements or otherwise compensate them for future flood losses due to the effects of backwater greater than one foot.
- The constructing agency has made appropriate arrangements to assure that the National Flood Insurance Program and Flood Insurance Fund will not incur any liability for additional future flood losses to existing structures which are insured under the Program and grandfathered in under the risk status existing prior to the construction of the structure.
- Prior to initiating construction, the construction agency provides FEMA with revised flood profiles, floodway and floodplain mapping, and background technical data necessary for FEMA to issue revised Flood Insurance Rate Maps and Flood Boundary and Floodway Maps for the affected area, upon completion of the structure.

A. Highway Encroachment on a Floodplain with a Detailed Study (FIRM)

In communities where a detailed flood insurance study has been performed but no regulatory floodway designated, the highway crossing should be designed to allow no more than one foot increase in the base flood elevation based on technical data from the flood insurance study. Technical data supporting the increased flood elevation shall be submitted to the local community and through them to FEMA for their files.

B. Highway Encroachment on a Floodplain Indicated on a FHBM

In communities where detailed flood insurance studies have not been performed, CDOT or its engineering consultant must generate its own technical data to determine the base floodplain elevation and design encroachments. Base floodplain elevations shall be furnished to the community, and coordination carried out with FEMA as outlined previously where the increase in base flood elevations in the vicinity of insurable buildings exceeds one foot.

C. Highway Encroachment on Unidentified Floodplains

Encroachments which are outside of NFIP communities or NFIP identified flood hazard areas should be designed in accordance with the Federal Highway Administration guidelines.

2.4.6 Levee Systems

For the purposes of the National Flood Insurance Program (NFIP), FEMA will only recognize in its flood hazard and risk mapping effort those levee systems that meet, and continue to meet, minimum design operation, and maintenance standards that are consistent with the level of protection sought through the comprehensive floodplain management criteria as outlined in the NFIP. The levee system must provide adequate protection from the base flood. Information supporting this must be supplied to FEMA by the community or other party seeking recognition of such a levee system at the time a flood risk study or restudy is conducted, when a map revision is sought based on a levee system, and upon request by the Administrator during the review of previously recognized structures. The FEMA review will be for the sole purpose of establishing appropriate risk zone determinations for NFIP maps and shall not constitute a determination by FEMA as to how a structure or system will perform in a flood event.

For more information on the requirements related to levee systems see the following publication:

National Flood Insurance Program and Related Regulations, Federal Emergency Management Agency, Revised October 1, 1986 and amended June 30, 1987 (44 CFR 65.10).

2.5 COLORADO DRAINAGE LAW

2.5.1 Derivation of State Drainage Law

State drainage law is derived mainly from the common law and statutory law. *Common law* is a body of principles which developed from immemorial usage and custom and which receives judicial recognition and sanction through repeated application. These principles were developed without legislative action and are embodied in the decisions of the courts. *Statutory laws* are created by the legislature to enlarge, modify, clarify or change the common law applicable to particular drainage conditions. This type of law is derived from constitutions, statutes, ordinances and codes.

2.5.2 The Natural Flow Rule

Colorado has statutory law or the natural flow rule that places a natural easement or servitude upon the lower land for the drainage of surface water in its natural course. The natural flow of the water cannot be obstructed by the servient owner to the detriment of the dominant owner. The owner of the upper lands has an easement over lower lands for drainage of surface waters and natural drainage conditions can be altered by an upper land owner provided the water is not sent down in a manner or quantity to cause more harm than formerly. Hankins v. Borland, 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); Ambrosio v. Perl-Mack Construction Company, 351 P.2d 803 (1960).

2.5.3 Basic Water Rules

Two major rules have been developed by the courts regarding the disposition of surface waters. The first is known as the civil law rule of natural drainage. The second is referred to as the common enemy doctrine. Modification of both rules has tended to bring the concepts closer together, and in some cases the original rule has been replaced by a compromise rule known as the reasonable use rule.

Much of the law regarding stream waters is founded on a common law maxim that states “water runs and ought to run as it is by natural law accustomed to run.” Thus, as a general rule, any interference with the flow of a natural watercourse to the injury or damage of another will result in liability. This may involve augmentation, obstruction and detention, or diversion of a stream. However, there are qualifications.

In common law, floodwaters are treated as a “common enemy” of all people, lands and property attacked or threatened by them.

In ground water law, the “English Rule,” which is analogous to the common enemy rule in surface water law, is based on the doctrine of absolute ownership of water beneath the property by the landowner.

2.5.4 Classification of Waters

The first step in the evaluation of a drainage problem is to classify the water. There are four classifications, which are defined below. Once the classification has been established, that rule applies to the particular class of water determines responsibilities with respect to the disposition of the water.

- A. Surface Water: Surface waters are those waters which have been precipitated on the land from the sky or forced to the surface in springs, and which have been spread over the surface of the ground without being collected into a definite body or channel.
- B. Stream Water: Stream waters are former surface or ground waters which have entered and now flow in a well-defined natural watercourse, together with other waters reaching the stream by direct precipitation or rising from springs in the bed or banks of the watercourse (a definite channel with bed and banks within which water flows either continuously or intermittently).

- C. Flood Water: Flood waters are former stream waters which have escaped from a watercourse and flow or stand over adjoining lands. They remain floodwaters until they disappear from the surface by infiltration or evaporation, or return to a natural watercourse.
- D. Ground Water: Ground waters are either percolating waters or underground streams. Percolating waters include all waters which pass through the ground beneath the surface of the earth without a definite channel. The general rule is that all underground waters are presumed to be percolating. To be considered an underground stream, the existence and course of an underground permanent channel must be clearly shown. Underground streams are waters passing through the ground beneath the surface in permanent, distinct, well-defined channels.

2.5.5 Surface Waters

The civil law rule is based upon the perpetuation of natural drainage. The 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. Most states following this rule have modified it to be similar to Colorado's version.

2.5.6 Stream Waters

Where natural watercourses are unquestioned in fact and in permanence and stability, there is little difficulty in application of the rule. Highways cross channels on bridges and culverts, usually with some constriction of the width of the channel and obstruction by substructure within the channel, both causing backwater upstream and acceleration of flow downstream. The changes in regime must be so small as to be tolerable by adjoining owners, or there may be liability of any injuries or damages suffered.

Surface waters from highways are often discharged into the most convenient watercourse. The right is unquestioned if those waters were naturally tributary to the watercourse and unchallenged if the watercourse has adequate capacity. However, if all or part of the surface waters have been diverted from another watershed to a small watercourse, any lower owner may complain and recover for resulting loss (a damage).

2.5.7 Flood Waters

Considering floodwaters as a common enemy permits all effected landowners including owners of highways, to act in any reasonable way to protect themselves and their property from the common enemy. They may obstruct its flow from entering their land, backing or diverting water onto lands of another without penalty, by gravity or pumping, by diverting dikes or ditches, or by any other reasonable means.

Again, the test of reasonableness has frequently been applied, and liability can result where unnecessary damage is caused. Ordinarily, the highway designer should make provisions for overflow in areas where it is feasible that it will occur. There is a definite risk of liability if such waters are impounded on an upper owner or, worse yet, are diverted into an area where they would not otherwise have gone. Merely to label waters as "flood waters" does not mean that they can be disregarded.

2.5.8 Ground Water

The "English Rule" has been modified by the "Reasonable Use Rule" which states in essence that each landowner is restricted to a reasonable exercise of his own right and a reasonable use of his property in view of the similar right of his neighbors.

The key word is reasonable. While this may be interpreted somewhat differently from case to case, it can generally be taken to mean that a landowner can utilize subsurface water on his property for the benefit of agriculture, manufacturing, irrigation, etc. pursuant to the reasonable development of his property although such action may interfere with the underground waters of neighboring property. However, it

does generally preclude the withdrawal of underground waters for distribution or sale for uses not connected with any beneficial ownership or enjoyment of the land from whence they were taken.

A further interpretation of reasonable in relation to highway construction would view the excavation of a deep cut section that intercepts or diverts underground water to the detriment of adjacent property owners as unreasonable. There are also cases where highway construction has permitted the introduction of surface contamination into subsurface waters and thus incurred liability for resulting damages.



Figure 2.1 Groundwater problem in a highway (I-70 at Floyd Hill).



Figure 2.2 Mitigating groundwater problems.



Figure 2.3 Mitigating groundwater problems.

2.5.9 C.R.S. § 33-5-101 to 107

This law requires all state agencies to get Colorado Division of Wildlife (DOW) certification before construction in any stream or its banks or its tributaries. The primary emphasis is on fishing waters. A Memorandum of Agreement (MOA) between CDOT and DOW was signed in November 1990 allowing limited programmatic certification.

2.5.10 Clean Water Act

In Colorado, the Department of Public Health and Environment, Water Quality Control Divisions (“Division”) has been delegated the NPDES program with the Environmental Protection Agency retaining oversight. Therefore, a CDPS (Colorado Discharge Permit System) permit is obtained in Colorado. The permits are designed to limit the amount of pollutants entering streams, lakes, rivers and groundwater in order to protect established beneficial uses and water quality standards. The permit program covers the following categories:

- stormwater discharges;
- industrial waste discharges;
- sanitary sewage/domestic wastewater discharges; and
- discharges to ground water.

2.6 STATUTORY LAW

2.6.1 Introduction

Statutes have been enacted that affect drainage in one way or another. Statutes may have been enacted in areas previously covered by the common law. In the event of applicable rules from both, statutes prevail. If there is no statute, the common law rules developed by State courts apply.

2.6.2 Eminent Domain

Eminent domain is the power of the government to take private property for public use. CDOT often uses the power of eminent domain to acquire property for highway purposes, including the right to discharge highway drainage across adjoining lands.

Title 38 of Colorado Revised Statutes codifies the State's right of eminent domain. If the State exercises its power of eminent domain, the private landowner must be fairly compensated for his loss. The landowner may dispute the taking of property or the amount of compensation offered. Therefore, the designer must be prepared to testify in court regarding the design, the design's effect on the property taken and the need for the taking.

2.6.3 Water Rights

The water right, which attaches to a watercourse is a right to the use of the flow, not ownership of the water itself. This is true under both the riparian doctrine and the appropriation doctrine. This right of use is a property right, entitled to protection to the same extent as other forms of property, and is regarded as real property. After the water has been diverted from the stream flow and reduced to possession, the water itself becomes the personal property of the riparian owner or the appropriator.

- A. Riparian Doctrine: Under the riparian doctrine, lands contiguous to watercourses have prior claim to waters of the stream solely by reason of location and regardless of the relative productive capacities of riparian and nonriparian lands.
- B. Doctrine of Prior Appropriation: The essence of this doctrine is the exclusive right to divert water from a source when the water supply naturally available is not sufficient for the needs of all those holding rights to its use. Such exclusive right depends upon the effective date of the appropriation, the first in time being the first in right. This is the doctrine that is used in Colorado. See Comstock, 145 P. 700 (1914); C.R.S. § 37-82-101.

Generally, the important thing for designers to keep in mind in the matter of water rights is that the proposed work in the vicinity of a stream or irrigation ditch should not impair either the quality or quantity of flow of any water rights. A ditch agreement is needed when work is proposed on a multiple user irrigation system. A ROW agreement is used for single user irrigation systems.

2.6.4 Urban Drainage and Flood Control District

The Urban Drainage and Flood Control District was created by the state legislature in 1969 (Senate Bill 202). The boundaries are generally the metro area (1360+ square miles) around Denver and Boulder. They have the authority to review and approve all major drainage work. Normally, the Urban Drainage and Flood Control District restricts itself to multi-jurisdictional drainage ways.

Other jurisdictions can be obtained from the Department of Local Affairs to check if the drainage design would affect others.

2.6.5 The Colorado Department of Transportation Access Code

The State Highway Access Code is located at 2 CCR 601-1. This code was developed pursuant to the authority granted in C.R.S. § 43-2-147. The State Highway Access Code requires anyone applying for an access permit to have his or her drainage reviewed by CDOT. Specifically, 2 CCR 601-1 § 4.1 addresses drainage requirements for new accesses.

2.6.6 Colorado Statutes

Specifically, title 37 of the Colorado Revised Statutes discusses water issues. It may be helpful for the designer to be familiar with these laws. Some of the laws include the following:

- § 37-84-106 provides that all bridges constructed over any ditch, race, drain or flume crossing any public highway, street or alley, after construction shall be maintained by and at the expense of the county or municipality.
- § 37-84-119 states that the owners or persons in control of any ditch or canal used for irrigating purposes shall maintain it in good order and repair and ready to receive water by April 1 each year.
- § 37-84-101 states that the owner of any ditch shall carefully maintain the embankment thereof so that the waters of such ditch do not flood or damage the premises of others.
- § 37-84-103(1) provides that any bridge constructed on a public highway to accommodate the crossing of any ditch or otherwise must be constructed in accordance with applicable standards established by the State.
- § 37-86-106 provides that whenever it is necessary to convey water through the land of another, the shortest and most direct route practicable should be selected.
- § 37-96-103(2) states that when a public entity responsible for landscaping and maintaining any public project or facility builds or makes changes, the plan for such building or changes shall seek to conserve water. Standards and considerations are located in the statute.

2.7 LOCAL LAWS AND APPLICATIONS

2.7.1 Local Laws

Local governments usually have ordinances and codes that require consideration during design. For example, zoning ordinances can have a substantial effect on the design of a highway and future drainage from an area. On occasion, a question may arise as to whether the State must comply with local ordinances. Generally, the State is not legally required to comply with local ordinances except where compliance is required by specific State statute. Quite often, however, CDOT attempts to conform to local ordinances as a matter of courtesy especially when it can be done without imposing a burden on the State.

2.7.2 Municipal Liability

A municipality is generally treated like a private party in State drainage matters. A municipality undertaking a public improvement is liable like an individual for damage resulting from negligence or an omission of duty. 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 accelerate or alter storm runoff. In addition, it is generally held that municipalities are not liable for adoption or selection of a defective plan of drainage.

Municipalities can be held liable for negligent construction of drainage improvements, for negligent maintenance, for repair of drainage improvements and, if it fails to provide a proper outlet, for drainage improvements.

2.7.3 Acts of Others

The general rule is that a municipality is not liable 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. If the construction, maintenance and repair of drainage improvements is regarded as proprietary or corporation functions, then 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.

2.7.4 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. However, there is a trend toward imposing a greater burden or responsibility on municipalities for the drainage consequences of urban development.

2.7.5 Personal Liability

Public employees generally have been personally liable for injuries caused by their negligent actions within the scope of their employment, even when the defense of sovereign immunity was available to their employers.

2.7.6 Drainage Improvements

A municipality's inherent police powers enable it to enact ordinances that serve the public health, safety, morals or general welfare. Ordinances addresses drainage problems are clearly a proper exercise of a municipality's police powers.

2.7.7 Special Matters

- A. 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 tile drain. However, the surface drainage must be accepted if the irrigation ditch is constructed in a way into which surface water would naturally flow. Irrigation ditch owners have reluctantly accepted historic peak and volume runoff.
- B. Dams and Detention Facilities: The Dam Inspection Unit of the State Engineers Office is responsible for reviewing all permanent impoundments in Colorado. Generally, if a dam permanent pool level is less than 25 acres and less than 10 feet high, the dam will not fall under the State Engineer's jurisdiction.

2.8 ROLE OF THE DESIGNER

2.8.1 Responsibility

The designer has a two-fold responsibility relating to legal issues associated with highway drainage. First, the designer should be aware of the legal principles involved and apply that knowledge to their designs. Second, the designer should be prepared to consult CDOT's legal staff, as necessary, in the preparation and trial of cases involving drainage issues. The duties of a designer include direct legal involvement in the following areas:

- Conduct investigations, advise and provide expert testimony on the technical aspects of drainage claims involving existing highways.
- Provide drainage design information during right-of-way acquisitions to assist appraisers in evaluating damages.
- Provide testimony in condemnation proceedings when necessary.

2.8.2 Investigating a Complaint

When a designer is requested to investigate a complaint, the following guidelines are recommended.

- Show on a map the location of the problem on which the complaint is based;
- Clearly determine the basis for the complaint;
- Briefly relate the history of any other grievances that were expressed prior to the claim presently being investigated;
- Obtain the approximate dates that the damaged property and/or improvements were acquired by those claiming damages;
- Collect facts about the specific flood event(s) involved;
- State facts about the highway crossing involved;
- Document possible effects by others;
- Analyze the facts; and
- Make conclusions and recommendations.

2.8.3 Legal Matters

Drainage matters range from the simple to the complicated. If the facts are ascertained and plan developed before initiating a proposed improvement, the likelihood of an injury to a landowner is remote and CDOT or developer should be able to undertake such improvements relatively assured of no legal complications.

A designer may require a legal opinion on a particular drainage problem or improvement. In order to obtain an opinion, the designer must clearly and concisely relay all of the information and be prepared to answer questions.

The designer may also be called upon to act as an expert or factual witness in a legal proceeding. Testimony often involves preparation time before a court hearing, the ability to present technical information in layman's terms and the ability to describe the issues at hand.