



**CITY OF LOVELAND**

BUDGET OFFICE

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**AGENDA ITEM:** 1  
**MEETING DATE:** 1/28/2014  
**TO:** City Council  
**FROM:** Brent Worthington, Finance Department  
**PRESENTER:** John Hartman, Budget Officer

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**TITLE:**

Orientation to Governmental Budgeting

**SUMMARY:**

Staff will provide a presentation on why and how governments develop and adopt a budget, how to evaluate and provide oversight on the budget, and budget control during the year. This will include the key assumptions and practices that have been used by the City for several years.

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**REVIEWED BY CITY MANAGER:**

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**LIST OF ATTACHMENTS:**

1. City of Loveland Charter Section Related to the Budget
2. Local Government Budget Law in the Colorado State Statutes
3. PowerPoint Slides

- (e) The removal of any judge during the term of office shall require the affirmative vote of two-thirds (2/3) of the entire Council. Any such removal shall only be for cause as specified in the statutes applicable to the removal of municipal judges, and for any other conduct which would constitute a violation of the Colorado Code of Judicial Conduct, as from time to time amended, if committed by a judge subject to such Code.

## **ARTICLE 10 BOARDS AND COMMISSIONS**

### **SECTION 10-1 – EXISTING BOARDS AND COMMISSIONS**

Each board and commission existing at the time this Charter is adopted shall continue, except as otherwise provided by ordinance. The City Council may, by ordinance, establish, consolidate or abolish any board or commission, except that the Planning Commission and the Board of Adjustment and Appeals may not be abolished.

### **SECTION 10-2 – BOARDS AND COMMISSIONS - GENERAL**

- (a) Except as otherwise provided by this Charter or by ordinance, each board and commission shall be advisory in character. The selection, term, and responsibilities concerning each board and commission shall be as established by ordinance. The policies and other matters concerning each board and commission shall be as established by resolution. **(Amended at the election held November 3, 1998)**
- (b) The appointment or removal of any board or commission member who is required by ordinance to be appointed by the City Council shall require the affirmative vote of a majority of the entire Council. A member appointed by the City Council shall serve at the pleasure of the Council.
- (c) The members of each board and commission shall serve without compensation, but may be paid authorized expenses actually incurred in the performance of the duties of office.
- (d) No board or commission shall hold any executive session except in accordance with procedures which shall be consistent with those established in Section 4-4, and only for the purposes specified in Section 4-4.

## **ARTICLE 11 FINANCE, BUDGET, AND AUDIT**

### **SECTION 11-1 – FISCAL YEAR**

The fiscal year shall be the same as the calendar year.

## **SECTION 11-2 – ANNUAL BUDGET ESTIMATES**

- (a) Unless a different date is set by the City Council, each department head shall submit to the City Manager, on or before the first day of August, the department's proposed budget for the next ensuing fiscal year.
- (b) Unless a different date is set by the City Council, the City Manager shall submit to the Council, on or before the first Tuesday in October of each year, a proposed budget for the City for the next ensuing fiscal year.
- (c) The proposed budget shall provide a complete financial plan for the City in a format acceptable to the City Council. Except as otherwise provided by this Charter, the proposed budget shall be prepared in accordance with the State statutes establishing the local government budget laws and the local government uniform accounting laws.

## **SECTION 11-3 – CAPITAL BUDGET ESTIMATES**

As a part of the proposed budget or as a separate report attached thereto, the City Manager shall also present a program of proposed capital projects for the ensuing fiscal year and the four (4) fiscal years thereafter. Estimates of the cost of such projects shall be submitted together with suggested methods of financing the same. The City Manager may recommend the omission or deferment of projects.

## **SECTION 11-4 – PUBLIC HEARINGS**

- (a) Within fourteen (14) days after it receives the proposed budget and the proposed capital projects program from the City Manager, the City Council shall set the date and time for at least one (1) public hearing on the same.
- (b) Notice of the public hearing shall be published at least once, and shall state that copies of the proposed budget and the proposed capital projects program are available for public inspection in the office of the City Clerk.

## **SECTION 11-5 – COUNCIL ACTION ON BUDGET**

- (a) Unless another date is provided by ordinance, the Council shall adopt the budget, by ordinance, on or before the date provided by law for certification of the ad valorem property tax levy.
- (b) If the Council fails to adopt the budget by the required date, the amounts budgeted and appropriated for the then-current fiscal year, together with any additional amounts necessary for payments of principal and interest on securities and other payment obligations, shall be deemed the budgeted and appropriated amounts for the next fiscal year on a month-to-month basis, with all items in it prorated accordingly, until such time as the Council adopts the budget for that fiscal year.



- (c) Adoption of the budget shall constitute appropriations of the amounts specified therein as expenditures from the funds indicated, and shall constitute a levy of the ad valorem property tax therein provided. The Council shall cause the ad valorem property tax levy to be certified as provided by law.
- (d) Notwithstanding any other provision of this Charter, an ordinance adopting or amending the budget, making any appropriation, or levying the ad valorem property tax, shall be effective upon final adoption.

#### **SECTION 11-6 – BUDGET CONTROL**

- (a) Except as otherwise provided in this Charter or by ordinance, procedures concerning supplemental appropriations, transfers, contingencies, and other matters pertaining to the budget, shall be as set forth in the State statutes concerning the budgets of local governments.
- (b) During the fiscal year, no City department or other spending unit shall expend or contract to expend any money, or incur any liability, or enter into any contract which, by its terms, involves the expenditure of money in excess of the amounts appropriated by the City Council. Any contract, verbal or written, made in violation of this subsection shall be void, and no moneys of the City shall be paid on such contract; except that the City Council may ratify such a contract if it determines that ratification would be in the best interest of the City, and if it first adopts an ordinance making the necessary appropriation.
- (c) Nothing in this section shall prevent the City from entering into a multiple-year contract in the manner provided by law.
- (d) The City Council, by resolution, may authorize a maximum amount which the City Manager may transfer from any unused balance of any general fund appropriation or portion thereof from one (1) department or other spending unit to another. Except as otherwise provided in this Charter, the transfer of monies from one (1) fund to another shall only be made by an ordinance amending the budget as adopted.
- (e) Monthly or more often if required by the Council, the City Manager shall submit to the Council data showing the relation between the estimated and actual revenues and expenditures to date.
- (f) The balance in any budget appropriation at the end of the fiscal year shall become a part of the same fund for the next fiscal year.
- (g) Each department head shall advise the City Manager of any financial irregularities in the department.

**PART 1**  
**LOCAL GOVERNMENT BUDGET LAW**  
**OF COLORADO**

- 29-1-101. Short title.
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- 29-1-110. Expenditures not to exceed appropriation.
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- 29-1-113. Filing of budget.
- 29-1-114. Record of expenditures.
- 29-1-115. Violation is malfeasance - removal.

**Editor's note:** This part 1 was originally enacted as article 1 of chapter 88 in C.R.S. 1963. The substantive provisions of this part 1 were repealed and reenacted in 1990, causing some addition, relocation, and elimination of sections as well as subject matter. For prior amendments, consult the red book table distributed with the session laws; the 1986 replacement volume and the original volume of C.R.S. 1973 and annual supplements to these volumes prior to 1990; the comparative table located in the back of the index; and C.R.S. 1963.

**Cross references:** For the constitutional provision that establishes limitations on spending, the imposition of taxes, and the incurring of debt, see section 20 of article X of the Colorado constitution; for standards of conduct for local government officials, see article 18 of title 24.

**PART 1**  
**LOCAL GOVERNMENT BUDGET LAW OF COLORADO**

**29-1-101. Short title.**

This part 1 shall be known and may be cited as the "Local Government Budget Law of Colorado".

**Source: L. 90:** Entire part R&RE, p. 1429, § 1, effective January 1, 1991.

**Law reviews.** For note, "The Effect of Land Use Legislation on the Common Law of Nuisance in Urban Areas", see 36 Dicta 414 (1959).

**29-1-102. Definitions.**

As used in this part 1, unless the context otherwise requires:

- (1) "Appropriation" means the authorization by ordinance or resolution of a spending limit for expenditures and obligations for specific purposes.
- (2) "Basis of budgetary accounting" means any one of the following methods of measurement of timing when revenue and other financing sources and expenditures and other financing uses are recognized for budget purposes:
  - (a) Cash basis (when cash is received and disbursed);
  - (b) Modified accrual basis (when revenue and other financing sources are due and available and when obligations or liabilities are incurred for expenditures and other financing uses, except for certain stated items such as, but not limited to, prepaids, inventories of consumable goods, and interest payable in a future fiscal year); or
  - (c) Encumbrance basis (the modified accrual basis, but including the recognition of encumbrances).
- (3) "Budget" means the complete estimated financial plan of the local government.
- (4) "Budget year" means the ensuing fiscal year.
- (5) "Certified" means a written statement by a member of the governing body or a person appointed by the governing body that the document being filed is a true and accurate copy of the action taken by the governing body.
- (6) "Division" means the division of local government in the department of local affairs.
- (7) "Encumbrance" means a commitment related to unperformed contracts for goods or services.
- (8) "Expenditure" means any use of financial resources of the local government consistent with its basis of accounting for budget purposes for the provision or acquisition of goods and services for operations, debt service, capital outlay, transfers, or other financial uses.

(9) "Fiscal year" means the period commencing January 1 and ending December 31; except that "fiscal year" may mean the federal fiscal year for water conservancy districts which have contracts with the federal government.

(10) "Fund" means a fiscal and accounting entity with a self-balancing set of accounts in which cash and other financial resources, all related liabilities and residual equities or balances, and changes therein are recorded and segregated to carry on specific activities or to attain certain objectives in accordance with special regulations, restrictions, or limitations.

(11) "Fund balance" means the balance of total resources available for subsequent years' budgets consistent with the basis of accounting elected for budget purposes.

(12) "Governing body" means a board, council, or other elected or appointed body in which the legislative powers of the local government are vested.

(13) "Local government" means any authority, county, municipality, city and county, district, or other political subdivision of the state of Colorado; any institution, department, agency, or authority of any of the foregoing; and any other entity, organization, or corporation formed by intergovernmental agreement or other contract between or among any of the foregoing. The office of the county public trustee shall be deemed an agency of the county for the purposes of this part

1. "Local government" does not include the Colorado educational and cultural facilities authority, the university of Colorado hospital authority, the Colorado student obligation bond authority, the Colorado health facilities authority, the Colorado housing and finance authority, the Colorado agricultural development authority, the Colorado sheep and wool authority, the Colorado beef council authority, the Colorado horse development authority, the fire and police pension association, any public entity insurance or investment pool formed pursuant to state law, any county or municipal housing authority, any association of political subdivisions formed pursuant to section 29-1-401, or any home rule city or town, home rule city and county, cities and towns operating under a territorial charter, school district, or junior college district.

(14) "Object of expenditure" means the classification of fund data by character of expenditure. "Object of expenditure" includes, but is not limited to, personal services, purchased services, debt service, supplies, capital outlay, grants, and transfers.

(15) "Objection" means a written or oral protest filed by an elector of the local government.

(16) "Revenue" means all resources available to finance expenditures.

(17) "Spending agency", as designated by the local government, means any office, unit, department, board, commission, or institution which is responsible for any particular expenditures or revenues.

**Source: L. 90:** Entire part R&RE, p. 1429, § 1, effective January 1, 1991. L. 91: (13) amended, p. 588, § 11, effective October 1. L. 93: (13) amended, pp. 1846, 1855, § § 3, 4, effective July 1. L. 95: (13) amended, p. 1001, § 2, effective July 1. L. 98: (13) amended, p. 610, § 18, effective May 4; (13) amended, p. 1262, § 8, effective June 1.

**Editor's note:** (1) Amendments to subsection (13) by Senate Bill 93-240 and Senate Bill 93-243 were harmonized.

(2) Amendments to subsection (13) by Senate Bill 98-082 and Senate Bill 98-188 were harmonized.

**Cross references:** For the legislative declaration contained in the act amending subsection (13) in 1991, see section 1 of chapter 99, Session Laws of Colorado 1991.

### **29-1-103. Budgets required.**

(1) Each local government shall adopt an annual budget. To the extent that the financial activities of any local government are fully reported in the budget or budgets of a parent local government or governments, a separate budget is not required. Such budget shall present a complete financial plan by fund and by spending agency within each fund for the budget year and shall set forth the following:

- (a) All proposed expenditures for administration, operations, maintenance, debt service, and capital projects to be undertaken or executed by any spending agency during the budget year;
- (b) Anticipated revenues for the budget year;
- (c) Estimated beginning and ending fund balances;
- (d) The corresponding actual figures for the prior fiscal year and estimated figures projected through the end of the current fiscal year, including disclosure of all beginning and ending fund balances, consistent with the basis of accounting used to prepare the budget;
- (e) A written budget message describing the important features of the proposed budget, including a statement of the budgetary basis of accounting used and a description of the services to be delivered during the budget year; and
- (f) Explanatory schedules or statements classifying the expenditures by object and the revenues by source.

(2) No budget adopted pursuant to this section shall provide for expenditures in excess of available revenues and beginning fund balances.



(3) (a) The general assembly finds and declares that the use of lease-purchase agreements by local governments creates financial obligations of those governments and that the disclosure of such obligations is in the public interest and is a matter of statewide concern.

(b) In addition to the governmental entities included in the definition of "local government" in section 29-1-102, the provisions of this subsection (3) shall apply to every home rule city, home rule city and county, school district, and junior college district.

(c) As used in this subsection (3), "lease-purchase agreement" means any installment purchase agreement for the purchase of real or personal property which requires payments during more than one fiscal year or any agreement for the lease or rental of real or personal property which requires payments during more than one fiscal year and under which title to the property is transferred at the end of the term for nominal or no additional consideration.

(d) (I) The budget adopted by every local government shall separately set forth each of the following:

(A) The total amount to be expended during the ensuing fiscal year for payment obligations under all lease-purchase agreements involving real property;

(B) The total maximum payment liability of the local government under all lease-purchase agreements involving real property over the entire terms of such agreements, including all optional renewal terms;

(C) The total amount to be expended during the ensuing fiscal year for payment obligations under all lease-purchase agreements other than those involving real property;

(D) The total maximum payment liability of the local government under all lease-purchase agreements other than those involving real property over the entire terms of such agreements, including all optional renewal terms.

(II) Each budget required to be filed pursuant to section 29-1-113 shall include a supplemental schedule that contains the information described in this paragraph (d).

(e) (I) No local government shall enter into any lease-purchase agreement whose duration, including all optional renewal terms, exceeds the weighted average useful life of the assets being financed. In the case of a lease-purchase agreement involving both real property and other property, the lease-purchase agreement shall provide that the real property involved shall be amortized over a period not to exceed its weighted average useful life and the other property shall be separately amortized over a period not to exceed its weighted average useful life. This provision shall not prevent a local government from releasing property from a lease-purchase agreement pursuant to an amortization schedule reflecting the times when individual pieces of property have been amortized.

(II) Nothing contained in this paragraph (e) shall be construed to apply to any lease-purchase agreement entered into prior to April 9, 1990.

**Source: L. 90:** Entire part R&RE and (3) added, pp. 1431, 1289, § § 1, 4, effective January 1, 1991.

**Am. Jur.2d.** See 56 Am. Jur.2d, Municipal Corporations, Etc., § 581.

C.J.S. See 20 C.J.S., Counties, § 189; 64 C.J.S., Municipal Corporations, § 1885.

Law reviews. For article, "Lease-Purchase Financing: The Local Government Budget Law of Colorado", see 20 Colo. Law. 63 (1991).

#### **29-1-104. By whom budget prepared.**

The governing body of each local government shall designate or appoint a person to prepare the budget and submit the same to the governing body.

**Source: L. 90:** Entire part R&RE, p. 1431, § 1, effective January 1, 1991.

**Law reviews.** For article, "Lease-Purchase Financing: The Local Government Budget Law of Colorado", see 20 Colo. Law. 63 (1991).

Applied in *Tihonovich v. Williams*, 196 Colo. 144, 582 P.2d 1051 (1978) (decided under § 29-1-105 as it existed prior to the 1990 repeal and reenactment of this part 1).

#### **29-1-105. Budget estimates.**

On or before a date to be determined by the governing body of each local government, all spending agencies shall prepare and submit to the person appointed to prepare the budget estimates of their expenditure requirements and their estimated revenues for the budget year, and, in connection therewith, the spending agency shall submit the corresponding actual figures for the last completed fiscal year and the estimated figures projected through the end of the current fiscal year and an explanatory schedule or statement classifying the expenditures by object and the revenues by source. In addition to the other information required by this section, every office, department, board, commission, and other spending agency of any local government shall prepare and submit to the person appointed to prepare the budget the information required by section 29-1-103 (3) (d). No later than October 15 of each year, the person appointed to prepare the budget shall submit such budget to the governing body.

**Source: L. 90:** Entire part R&RE and entire section amended, pp. 1431, 1290, § § 1, 5, effective January 1, 1991.

**29-1-106. Notice of budget.**

(1) Upon receipt of the proposed budget, the governing body shall cause to be published a notice containing the following information:

(a) The date and time of the hearing at which the adoption of the proposed budget will be considered;

(b) A statement that the proposed budget is available for inspection by the public at a designated public office located within the boundaries of the local government, or, if no public office is located within such boundaries, the nearest public office where the budget is available; and

(c) A statement that any interested elector of the local government may file any objections to the proposed budget at any time prior to the final adoption of the budget by the governing body.

(2) If the governing body has submitted or intends to submit a request for increased property tax revenues to the division pursuant to section 29-1-302 (1), the amount of the increased property tax revenues resulting from such request shall be stated in such notice or in a subsequent notice in the manner provided in subsection (3) of this section.

(3) (a) For any local government whose proposed budget is more than fifty thousand dollars, the notice required by subsection (1) of this section shall be published one time in a newspaper having general circulation in the local government.

(b) Any local government whose proposed budget is fifty thousand dollars or less shall cause copies of the notice required by subsection (1) of this section to be posted in three public places within the jurisdiction of such local government in lieu of such publication.

**Source: L. 90:** Entire part R&RE, p. 1432, § 1, effective January 1, 1991.

**29-1-107. Objections to budget.**

Any elector of the local government has the right to file or register his protest with the governing body prior to the time of the adoption of the budget.

**Source: L. 90:** Entire part R&RE, p. 1432, § 1, effective January 1, 1991.



**29-1-108. Adoption of budget - appropriations - failure to adopt.**

- (1) The governing body of the local government shall hold a hearing to consider the adoption of the proposed budget, at which time objections of the electors of the local government shall be considered. The governing body shall revise, alter, increase, or decrease the items as it deems necessary in view of the needs of the various spending agencies and the anticipated revenue of the local government. Adoption of the proposed budget shall be effective only upon an affirmative vote of a majority of the members of the governing body.
- (2) Before the mill levy is certified pursuant to section 39-1-111 or 39-5-128, C.R.S., the governing body shall enact an ordinance or resolution adopting the budget and making appropriations for the budget year. The amounts appropriated shall not exceed the expenditures specified in the budget. Appropriations shall be made by fund or by spending agencies within a fund, as determined by the governing body. Changes to the adopted budget or appropriation shall be made in accordance with the provisions of section 29-1-109.
- (3) If the governing body fails to adopt a budget before certification of the mill levy as provided for in subsection (2) of this section, then ninety percent of the amounts appropriated in the current fiscal year for operation and maintenance expenses shall be deemed reappropriated for the purposes specified in such last appropriation ordinance or resolution.
- (4) If the appropriations for the budget year have not been made by December 31 of the current fiscal year, then ninety percent of the amount appropriated in the current fiscal year for operation and maintenance expenses shall be deemed reappropriated for the budget year.
- (5) Notwithstanding any other provision of law, the adoption of the budget, the appropriation of funds, and the certification of the mill levy shall be effective upon adoption.
- (6) All unexpended appropriations, or unencumbered appropriations if the encumbrance basis of budgetary accounting is adopted, expire at the end of the fiscal year.

**Source: L. 90:** Entire part R&RE, p. 1432, § 1, effective January 1, 1991.

**C.J.S.** See 64 C.J.S., Municipal Corporations, § 1886.

**Annotator's note.** Since § 29-1-108 is similar to § § 29-1-110 and 29-1-111 as they existed prior to the 1990 repeal and reenactment of this part 1, relevant cases construing those provisions have been included in the annotations to this section. This section requires the governing body of such subdivisions to enact an appropriation resolution for each fiscal year and further states that the amounts appropriated shall not exceed the amounts established by the budget as adopted. *Shannon Water & San. Dist. v. Norris & Sons Drilling Co.*, 29 Colo. App. 48, 477 P.2d 476 (1970).

**Taxpayers may demand refund of excess school taxation.** If school directors, although proceeding in form as required by law, certify an amount to be raised by taxation greatly beyond the school requirements, they thereby supply a basis for a demand by taxpayers for a refund of the excess. *Lowden v. Board of County Comm'rs*, 101 Colo. 52, 69 P.2d 779 (1937).

**Circumstances to be considered by governing body in determining reasonableness of salaries** include the amount of revenue available, the needs of other county departments, and the ability of the county's taxpayers to fund additional requests, as well as the requesting department's need for the expenditures. *Tihonovich v. Williams*, 196 Colo. 144, 582 P.2d 1051 (1978).

**Purpose of subsections (3) and (4) is to prevent collapse of governmental subdivision.** These provisions were designed to insure that various governmental subdivisions regulated by the budget law would not collapse through failure to adopt a budget or to appropriate moneys; rather, under it, subdivisions failing to budget or appropriate are at least allowed to maintain themselves and to carry out essential functions of public service until such time as a proper budget is adopted and appropriations made. *Shannon Water & San. Dist. v. Norris & Sons Drilling Co.*, 29 Colo. App. 48, 477 P.2d 476 (1970).

**Certification of tax levy no substitute.** Certification of the tax levy to the board of county commissioners does not correct a water and sanitation district's failure to adopt a budget and pass an appropriation resolution. *Shannon Water & San. Dist. v. Norris & Sons Drilling Co.*, 29 Colo. App. 48, 477 P.2d 476 (1970).

This section does not permit initiation of new projects or capital expenditures. *Shannon Water & San. Dist. v. Norris & Sons Drilling Co.*, 29 Colo. App. 48, 477 P.2d 476 (1970).

**Applied** in *City of Englewood v. Ripple & Howe, Inc.*, 150 Colo. 434, 374 P.2d 360 (1962); *Gude v. City of Lakewood*, 636 P.2d 691 (Colo. 1981).

**29-1-109. Changes to budget - transfers - supplemental appropriations.**

(1) (a) If, after adopting the budget and making appropriations, the governing body of a local government deems it necessary, it may transfer appropriated moneys between funds or between spending agencies within a fund, as determined by the original appropriation level, in accordance with the procedures established in subsection (2) of this section.

(b) If, after adoption of the budget, the local government receives unanticipated revenues or revenues not assured at the time of the adoption of the budget from any source other than the local government's property tax mill levy, the governing body may authorize the expenditure of such funds by enacting a supplemental budget and appropriation.

(c) In the event that revenues are lower than anticipated in the adopted budget, the governing body may adopt a revised appropriation ordinance or resolution as provided in section 29-1-108.

(2) (a) Any transfer, supplemental appropriation, or revised appropriation made pursuant to this section shall be made only by ordinance or resolution which complies with the notice provisions of section 29-1-106.

(b) For transfers, such ordinance or resolution shall set forth in full the amounts to be transferred and shall be documented in detail in the minutes of the meeting of the governing body. A certified copy of such ordinance or resolution shall be transmitted immediately to the affected spending agencies and the officer or employee of the local government whose duty it is to draw warrants or orders for the payment of money and to keep the record of expenditures as required by section 29-1-114. A certified copy of such ordinance or resolution shall be filed with the division.

(c) For supplemental budgets and appropriations, such ordinance or resolution shall set forth in full the source and amount of such revenue, the purpose for which such revenues are being budgeted and appropriated, and the fund or spending agency which shall make such supplemental expenditure. A certified copy of such ordinance or resolution shall be filed with the division.

**Source: L. 90:** Entire part R&RE, p. 1433, § 1, effective January 1, 1991.

**29-1-110. Expenditures not to exceed appropriation.**

(1) During the fiscal year, no officer, employee, or other spending agency shall expend or contract to expend any money, or incur any liability, or enter into any contract which, by its terms, involves the expenditures of money in excess of the amounts appropriated. Any contract, verbal or written, made in violation of this section shall be void, and no moneys belonging to a local government shall be paid on such contract.

(2) Multiple-year contracts may be entered into where allowed by law or if subject to annual appropriation.

**Source:** L. 90: Entire part R&RE, p. 1434, § 1, effective January 1, 1991.

**C.J.S.** See 20 C.J.S., Counties, § § 150, 181.

**Annotator's note.** Since § 29-1-110 is similar to § 29-1-113 as it existed prior to the 1990 repeal and reenactment of this part 1, relevant cases construing that provision have been included in the annotations to this section.

The purposes of this section are to protect the taxpayer against improvident use of tax revenue, to encourage citizen participation and debate prior to the institution of public projects, to insure public disclosure of proposed spending, and to encourage prudence and thrift by those elected to direct expenditures of public funds.

Shannon Water & San. Dist. v. Norris & Sons Drilling Co., 29 Colo. App. 48, 477 P.2d 476 (1970).

**Effect of no appropriation.** Since there is an absolute prohibition against spending in excess of an appropriation, there can be no sum spent when there is no appropriation. Shannon Water & San. Dist. v. Norris & Sons Drilling Co., 29 Colo. App. 48, 477 P.2d 476 (1970).

**Specific project allocations not deemed appropriations.** A contractor was allowed to collect for change orders over and above his original bid because the appropriation ordinance to the sewer fund by the town board prevailed over later specific allocations to projects by town officials which were not deemed appropriations. R.L. Atkins, Inc. v. ARIX, 675 P.2d 336 (Colo. App. 1983).

**Required formalities.** This section requires that certain formalities, such as public hearings and formal adoption of budgets, be complied with before public funds can be spent. Shannon Water & San. Dist. v. Norris & Sons Drilling Co., 29 Colo. App. 48, 477 P.2d 476 (1970).

**Recovery in specie where property furnished under unenforceable contract.**

Where property is furnished to a municipal corporation under an unenforceable contract and the municipality has not paid for the property, then the seller or person supplying the property may, upon equitable terms, recover it in specie. F.J. Kent Corp. v. Town of Dillon, 648 P.2d 669 (Colo. App. 1982).

**But no recovery where property no longer in existence.** There can be no recovery where the property is no longer in existence or identifiable, or where it cannot be restored to the plaintiff without serious damage to other property of the municipality. *F.J. Kent Corp. v. Town of Dillon*, 648 P.2d 669 (Colo. App. 1982).

**Representations sheriff made to his deputies and clerks regarding cash compensation** for overtime were made without approval of the board and, thus, are not binding on the county or the board. *Johnson v. Board of County Comm'rs*, 676 P.2d 1263 (Colo. App. 1984).

**Applied** in *City of Englewood v. Ripple & Howe, Inc.*, 150 Colo. 434, 374 P.2d 360 (1962); *People v. Losavio*, 199 Colo. 212, 606 P.2d 856 (1980); *Gude v. City of Lakewood*, 636 P.2d 691 (Colo. 1981); *Groditsky v. Pinckney*, 661 P.2d 279 (Colo. 1983).

### **29-1-111. Contingencies.**

In cases of emergency which could not have been reasonably foreseen at the time of adoption of the budget, the governing body may authorize the expenditure of funds in excess of the appropriation by ordinance or resolution duly adopted by a majority vote of such governing body at a public meeting. Such ordinance or resolution shall set forth the facts concerning such emergency and shall be documented in detail in the minutes of the meeting of such governing body at which such ordinance or resolution was adopted. A certified copy of such ordinance or resolution shall be filed with the division.

**Source: L. 90:** Entire part R&RE, p. 1434, § 1, effective January 1, 1991.

**Annotator's note.** Since § 29-1-111 is similar to § 29-1-114 as it existed prior to the 1990 repeal and reenactment of this part 1, relevant cases construing that provision have been included in the annotations to this section.

**Absent a contingency, contract in excess of appropriations void.** A contract by a city for a survey and detailed study for a sewer system is void where no appropriation had been made, where there was no casualty, accident, or unforeseen contingency. *City of Englewood v. Ripple & Howe, Inc.*, 150 Colo. 434, 374 P.2d 360 (1962).

**Failure to set forth facts is technical deficiency.** A city resolution authorizing an unforeseeable expenditure which fails to set forth in full the facts necessitating a departure from the normal budgeting and appropriations process is a technical deficiency and does not justify striking down a contract. *Gude v. City of Lakewood*, 636 P.2d 691 (Colo. 1981).



**29-1-112. Payment for contingencies.**

In case of an emergency and the passage of an ordinance or resolution authorizing additional expenditures in excess of the appropriation as provided in section 29-1-111 and if there is money available for such excess expenditure in some other fund or spending agency which will not be needed for expenditures during the balance of the fiscal year, the governing body shall transfer the available money from such fund to the fund from which the excess expenditures are to be paid. If available money which can be so transferred is not sufficient to meet the authorized excess expenditure, then the governing body may obtain a temporary loan to provide for such excess expenditures. The total amount of the temporary loan shall not exceed the amount which can be raised by a two-mill levy on the total assessed valuation of the taxable property within the limits of the local government of such governing body.

**Source: L. 90:** Entire part R&RE, p. 1434, § 1, effective January 1, 1991.

**Annotator's note.** Since § 29-1-112 is similar to § 29-1-115 as it existed prior to the 1990 repeal and reenactment of this part 1, relevant cases construing that provision have been included in the annotations to this section.

**Counties may use contingency funds for aid to dependent children.** The counties must produce their 20 percent of aid to dependent children whether it be from contingency funds, an excess levy, registered warrants, sales tax or otherwise. Colorado State Bd. of Social Serv. v. Billings, 175 Colo. 380, 487 P.2d 1110 (1971) (decided under § 29-1-115 as it existed prior to the 1990 repeal and reenactment of this part 1).

**Transfer to road and bridge fund not authorized.** This section does not authorize the transfer of general fund revenue to the road and bridge fund to avoid the requirement of a mill levy pursuant to §§ 43-2-202 and 43-2-203. City of Greeley v. Board of County Comm'rs, 644 P.2d 76 (Colo. App. 1981). Section 30-25-106 (1) specifically prohibits the transfer of county general fund money for expenditures for roads and bridges. City of Colorado Springs v. Board of County Comm'rs, 648 P.2d 671 (Colo. App. 1982).

**29-1-113. Filing of budget.**

- (1) No later than thirty days following the beginning of the fiscal year of the budget adopted pursuant to section 29-1-108, the governing body shall cause a certified copy of such budget, including the budget message, to be filed in the office of the division. Copies of such budget and of ordinances or resolutions authorizing expenditures or the transfer of funds shall be filed with the officer or employee of the local government whose duty it is to disburse moneys or issue orders for the payment of money.
- (2) Notwithstanding the provisions of section 29-1-102 (13), budgets shall be filed with the division by home rule cities, cities and counties, and towns and cities operating under a territorial charter for the purpose of information and research.
- (3) If the governing body of a local government fails to file a certified copy of the budget with the division as required by this section, the division, after notice to the affected local government, may notify any county treasurer holding moneys of the local government generated pursuant to the taxing authority of such local government and authorize the county treasurer to prohibit release of any such moneys until the local government complies with the provisions of this section.

**Source: L. 90:** Entire part R&RE, p. 1434, § 1, effective January 1, 1991.

**29-1-114. Record of expenditures.**

The officer or employee of the local government whose duty it is to disburse moneys or issue orders for the payment of money shall keep in his office a record showing the amounts authorized by the appropriation and the expenditures drawn against the same and also a record of the transfer of moneys from one fund to another and of any authorized additional expenditures as provided in section 29-1-111. Such record shall be kept so that it will show at all times the unexpended balance in each of the appropriated funds or spending agencies. Such officer or employee shall report on such record as may be required by the governing body. No such officer or employee shall disburse any moneys or issue orders for the payment of money in excess of the amount available as shown by said record or report.

**Source: L. 90:** Entire part R&RE, p. 1435, § 1, effective January 1, 1991.

**29-1-115. Violation is malfeasance - removal.**

Any member of the governing body of any local government or any officer, employee, or agent of any spending agency who knowingly or willfully fails to perform any of the duties imposed upon him by this part 1 or who knowingly and willfully violates any of its provisions is guilty of malfeasance in office, and, upon conviction thereof, the court shall enter judgment that such officer so convicted shall be removed from office. Any elector of the local government may file an affidavit regarding suspected malfeasance with the district attorney, who shall investigate the allegations and prosecute the violation if sufficient cause is found. It is the duty of the court rendering any such judgment to cause immediate notice of such removal to be given to the proper officer of the local government so that the vacancy thus caused may be filled.

**Source: L. 90:** Entire part R&RE, p. 1435, § 1, effective January 1, 1991.

**Am. Jur.2d.** See 63C Am. Jur.2d, Public Officers and Employees, § 191. C.J.S. See 67 C.J.S., Officers, § 122.

**Annotator's note.** Since § 29-1-115 is similar to § 29-1-118 as it existed prior to the 1990 repeal and reenactment of this part 1, relevant cases construing that provision have been included in the annotations to this section.

Applied in *People v. Pile*, 197 Colo. 146, 595 P.2d 222 (1979); *People ex rel. Losavio v. Gentry*, 199 Colo. 153, 606 P.2d 57 (1980); *People v. Losavio*, 199 Colo. 212, 606 P.2d 856 (1980); *Groditsky v. Pinckney*, 661 P.2d 279 (Colo. 1983).

**Editor's note:** This part 2 was originally enacted as article 2 of chapter 88 in C.R.S. 1963. The substantive provisions of this part 2 were repealed and reenacted in 1971, causing some addition, relocation, and elimination of sections as well as subject matter. For prior amendments, consult the red book table distributed with the session laws; the comparative table located in the back of the index; and C.R.S. 1963.



# Governmental Budgeting, Accounting, and Purchasing Orientation

Finance Department/Budget Division

1/28/2013

# What is a Budget

- \* Policy Document
- \* Financial Plan
- \* Operations Guide
- \* Communication Device

# What is a Budget

- \* Forward Looking Document
  - Provides a view of the financial picture in the future
  - Based on assumptions
  - Based on policy goals
  
- \* A Living Document
  - Will change during the year as priorities and economic realities change
  - Serves a guiding document for policy decision in a changing environment
  
- \* A Resource Allocation tool
  - Provides guidance for service provision within available resources
  
- \* A Management Tool
  - Serves as an internal control for managing service delivery during the year.

# Legal Requirements

## City Charter – Article 11

- ❖ Establishes the deadline for submission to council
- ❖ Requires a Capital Budget
- ❖ Establishes deadline for adoption of the budget
- ❖ Provides for Budget Control
- ❖ Section 11-6(a) – provides that procedures and other matters concerning the budget not addressed in the Charter are governed by State Statutes.

# Local Government Budget Law

## Part 1, Section 29-1-101 through 115

- \* Requires the adoption of a budget
- \* Provides Notice requirement
- \* Provides for operations when the governing body fails to adopt
- \* Provides for ability to change the budget during year
- \* Establishes budget control

# What is an Appropriation

## Section 29-1-102 (1)

“Appropriation” means the authorization by ordinance or resolution of a spending limit for expenditures and obligations for specific purposes.

# How is an Appropriation Different from a Budget

- \* Case law has further defined the spending limit to be on the **fund basis**. Projects within a fund do not have a specific appropriation.
- \* The budget provides the internal control for management of projects and services within a fund to stay within the appropriated amount.
- \* There is flexibility for management to change project or services budgets as long as the fund appropriation limit is maintained.

How we do Budgets

# Budget Development



# Type of Budget

- \* Modified Program-Incremental Budget

- Identifies costs on a Fund/Department basis

- Developed based on the prior year Adopted Budget with changes up or down based on available revenue and policy direction.

# Steps to Budget Development

- \* Council Planning Session
  - Provides management with Policy Direction
- \* Staff Develops “Core” Expense budget
- \* Staff Develops Revenue Forecast
- \* Determination of Reserve Needs
- \* Develop Budget instructions to Departments based on available revenue

# Budget Oversight

What should Council look for in approving a Budget:

- \* Is there appropriate funding to meet service delivery requirements and major policy initiatives?
- \* For Operating Funds – Does on-going (annually recurring) revenue equal or exceed on-going operating expense?
- \* Are reserves/fund balances declining? Is this a planned spend down or a revenue issue?
- \* Projection Assumptions: developed by staff based on data and Profession Judgment – Do they seem reasonable?

# Key Components

- \* What is a fund
  - \* Revenues, Expenses, Assets, and Liabilities grouped together to carry out certain activities
    - \* “Pots” of Money
    - \* Tracked independently
  
- \* Why do Governments use Fund Accounting
  - \* Different Fund types have different accounting rules
  - \* Separation into Funds makes it easier to track large, significant, and interesting activities
  
- \* Fund Categories
  1. General Government Funds
  2. Enterprise Funds
  3. Fiduciary Funds

# Key Components

- \* City Funds: 53 Total
  - \* 7 General Government
  - \* 13 Enterprise
  - \* 4 Internal Service
  - \* 3 Fiduciary

# Key Components

- \* Fund Balance Types
  1. Non-spendable
  2. Restricted – Federal or State law
  3. Committed- by Ordinance to a specific purpose
  4. Assigned – balance set-aside by management for a future purpose
  5. Unassigned – balance in a fund for any purpose
  
- \* City Reserve Policy
  - Unassigned reserves will be at least 15% of operating fund expenditures.
  - Purpose: to reserve resources to provide a bridge for funding services in deteriorating economic environment

# Key Components

## Relationship of CAFR to Budget

- \* CAFR reports actual financial positions at the end of the year: A look backward based on actual results
- \* Budget shows potential financial positions: A forward looking document based on assumptions of what will occur
- \* The Fund reporting may be different: Management Funds vs. GAAP required Funds
- \* Fund Balances will be different: CAFR uses all assets and liabilities; Budget closely related to cash basis

# Key Components

## Other Key Assumptions

- \* Costs for all Authorized Personnel included
- \* Total Cost of a Capital Project included in the first year, unless there is planned, identifiable, phasing of components
- \* Capital Budgets based on “Pay-as You-Go” philosophy
- \* Timing of including a capital project in the budget should take into account the impact of operating costs associated with it on the Operating Budget.



Budget Control

# Budget Administration

# Changes to the Budget

## Supplemental Budgets

- ❖ Reappropriation prior Projects or initiatives (Rollover)
  - Necessary for projects that cross the fiscal year
  
- ❖ Unanticipated Revenue: Grants or other revenue not anticipated needs appropriated to give staff authority to spend
  
- ❖ New Priorities or Initiatives that arise mid-year
  - May have reserved funds for the purpose
  - Unassigned fund balance may be available as funding source

# Budget Control

- ❖ Flexibility is needed for changes that occur mid-year:  
Departments accountable to allocated fund amount
- ❖ Directors have the ability to move budget between  
operating line items to meet unexpected needs
- ❖ City Manager can reallocate between Departments to  
meet unexpected needs.

# Evaluating the Budget

- \* Actual Spending and Budget amounts will never be the same
  - Is the variation significant?
  - What is the cause of the variation?
  
- \* Budget Division Performance Goals
  - Adopted General Fund revenues budgets will be below actual collections, but by no more than 5%
  - Adopted General Fund expense budget will be below budget, but within 5% of actual costs

# Budget-Year End

- \* Appropriations expire at end of year
  - Early in new year, Rollover Ordinance brought to Council
    - \* Projects that began but weren't completed in prior year
    - \* Projects that were expected to begin in prior year but were delayed
    - \* Some Operating Budget *MAY* be rolled over
    - \* No new appropriations

# TABOR

- \* City can retain excess revenues due to voter approval
  - Excess revenue is restricted to specific uses
- \* City may not enter into multi-year General Obligation debt without voter approval
  - Ent Funds may issue debt secured by operating revenues
- \* City may not raise taxes or enact new taxes without voter approval

# Purchasing and Contracting

- \* Governed by Chapter 3.12 of the Loveland Municipal Code
- \* Bid Requirements
  - For services and supplies estimated to cost between \$5,000 and \$9,999, the city shall solicit at least three verbal quotes
  - For services or supplies estimated to cost between \$10,000 and \$29,999, the city shall solicit at least three written quotes
  - For services or supplies estimated to cost \$30,000 or more, the city shall solicit formal bids
- \* Contracts up to \$500,000 may be approved by the City Manager or designee
- \* Contracts \$500,000 or more must be approved by City Council or Loveland Utilities Commission



**CITY OF LOVELAND**  
FINANCE DEPARTMENT

Civic Center • 500 East Third • Loveland, Colorado 80537  
(970) 962-2695 • FAX (970) 962-2900 • TDD (970) 962-2620

**AGENDA ITEM:** 2  
**MEETING DATE:** 1/28/2014  
**TO:** City Council  
**FROM:** Brent Worthington, Finance Department  
**PRESENTERS:** Rod Wensing, Assistant City Manager  
 Brent Worthington, Finance Director  
 Chris Carlson, Civil Engineer

**TITLE:**  
Flood Update; River Corridor Presentation

**SUMMARY:**

This is an informational presentation summarizing the City's flood recovery efforts including:

1. Flood recovery costs, reimbursements, and pending reimbursement applications;
2. Presentation of the river corridor status;
3. Status of the flood recovery efforts.

**BACKGROUND:**

For flood recovery purposes, the City is operating under a Recovery Management structure, which is based on the Incident Command Structure used for emergency incident management. Departments are working on various recovery, repair and restoration projects throughout the City. The Flood Recovery Team continues to meet each week to update members and coordinate various projects and financial aspects of the recovery.

**City Financial Position Regarding Flood Costs**

Flood response and restoration capital costs are estimated to be approximately \$25 million. A large portion of this cost will be recovered through:

- Insurance payments (from CIRSA, the City's carrier);
- Federal Emergency Management Agency (FEMA) reimbursements;
- Other federal reimbursements, such as programs through the Department of Agriculture and the Natural Resources Conservation Service;
- The State of Colorado.

The City has submitted 11 Project Worksheets to FEMA, with total costs (estimated and actual) of \$9,536,800. To date, the City has received \$800,000 from CIRSA.

About 80% of the capital cost will occur in 2014 or later. Staff will submit a Supplemental Appropriation increasing the 2014 Budget to the February 18, 2014, regular meeting for City Council consideration.



**River Corridor**

The river update presentation will use an on-line tool called Google Earth to provide an overview of the Big Thompson River conditions after the 2013 Flood. The presentation will essentially walk Council down the river starting at the Highway 34 Bridge at Glade Road and going downstream to County Road 9E. Staff will highlight critical areas and identify projects to address impacts created by the Flood.

An update will be provided on the Big Thompson River Restoration Coalition, of which the City has an important strategic role. The Coalition is actively moving forward with public outreach, data sharing, agency coordination, and undertaking a river restoration master plan, beginning in February. For additional information, please visit: [www.bigthompsonriver.org](http://www.bigthompsonriver.org)

**Community Recovery**

The assistance made available to flood survivors through the Disaster Assistance Center was transitioned to local offices of service providers such as; the Housing Authority and the Small Business Administration. The Donations and Distribution Center was moved from the RMCIT property to the Outlet Malls and continues to provide food, clothing, and other needed items.

Overall recovery efforts for impacted businesses and property owners are moving forward with the majority of the properties on South Lincoln Avenue open for business. Several mitigation projects are identified for future grant funding and applications are currently under development.

**Critical Infrastructure**

Staff will be available to answer questions.

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**REVIEWED BY CITY MANAGER:**



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**LIST OF ATTACHMENTS:**

1. Financial Update Presentation
2. Recovery Command Structure
3. River Corridor Protection and Management Fact Sheet



# Study Session

## Flood Update

**Brent Worthington**  
Finance Director

**Presented**  
January 28, 2014

# Estimated Flood Costs

➤ Emergency Response	\$2.78 million
➤ Business Assistance	\$1.20 million
➤ Capital Costs	\$21.02 million
<b>Total Costs</b>	<b>\$25.00 million</b>

# Expenditures, Receipts, and Pending Reimbursements

Actual Expenditures (12/31/13)	6,623,258
Actual Reimbursements (12/31/13)	(800,000)
FEMA Project Worksheets	9,563,800
CIRSA Claims	2,614,744

# 2013 Sales & Use Tax Impacts

	<u>2013</u>	<u>2012</u>	<u>% change</u>
September	3,379,303	3,225,155	4.6 %
October	3,452,052	3,421,098	0.9 %
November.	3,280,666	3,092,095	5.7 %
December	3,259,189	3,142,793	3.6 %

# 2013 Sales Tax Impacts

	<u>2013</u>	<u>2012</u>	<u>% change</u>
September	3,051,797	2,909,008	4.7 %
October	3,125,566	2,991,033	4.3 %
November.	2,892,986	2,757,932	4.7 %
December	2,946,709	2,841,9859	3.6 %

# 2013 Lodging Tax Impacts

	<u>2013</u>	<u>2012</u>	<u>% change</u>
September	80,107	79,3890	0.9 %
October	80,089	64,500	19.5 %
November.	67,233	54,700	18.6 %
December	52,733	42,945	18.6 %

# Recovery Command

## Operational Period

### January 10 – February 7, 2014

**IC**  
**Wensing**

- Fire / Em. Services (Ward/ Mirowski)
- Information Management (Hacker)
- Liaison- River Corridor (Carlson/Dewey)
- Liaison – Community / Political (Cahill)
- Liaison – City Legal (Garcia)

**Community Recovery**  
**Mialy**  
(Group Supervisor)

- Economic and Business Recovery
- Mitigation
- Long Term Recovery

**Critical Infrastructure**  
**Reester**  
(Group Supervisor)

- Public Works
- Water & Power
- Parks & Recreation
- Environmental

**Finance/Admin**  
**Worthington**  
(Group Supervisor)

- Accounting and Reporting
- Long Range Planning and Budgeting
- Insurance and Claims- CIRSA/ FEMA





# River Corridor Protection and Management

## FACT SHEET

Colorado Water Conservation Board

### Overview

For most early settlements in the arid west, the benefits of locating along a river as a source of irrigation, power, and transport outweighed the risks of occasional flooding. Over the past century, small outposts alongside Colorado's waterways have grown into large towns and cities with millions of dollars in investment. Despite warnings from periodic floods<sup>1</sup>, development in the corridor of Colorado's waterways continued to flourish. In addition to thousands of highway and utility structures, the Colorado Water Conservation Board (CWCB) estimates that approximately 65,000 homes and 15,000 commercial and industrial business structures are located in Colorado's floodplains.<sup>2</sup>

Colorado residents are well aware of the ability of the Rocky Mountains to capture moisture and create localized weather patterns. The Rockies provide residents a reason and ability to live here – sunshine, snow, forests, and water. Yet the water that flows from higher terrain into the life-providing valley streams does not arrive in regular increments. While spring snowmelt is the typical cause of rising creeks and rivers, significant rain events have frequently been associated with destructive flooding. When heavy rainfall is combined with development practices that have increased the rate and volume of runoff (i.e., stormwater) and intense wildfires which can strip away the ability of forests to retain water, flooding becomes a question not of if, but when.

The reaction to historic floods has typically been to straighten, dredge, armor, and levee streams in an attempt to protect infrastructure. In interim periods, docile creeks create a sense of security, and new development creeps further into river corridors. As recent events in September of 2013 demonstrated, however, our current methods of relying solely on FEMA-generated flood maps to reduce flood risk offers limited protection as even properties located far away or high above creeks were affected. As a matter of physics, streams can become highly energetic during a flood event, and those years of floodplain alteration have destabilized rivers and increased the potential for catastrophic flood damage. Meanwhile, water quality and riverine ecosystem health have declined during periods of low water.

### Fundamental Principles of River Systems

Until recently, river management has largely focused on water and how to withhold, contain, or withstand the force of its flow within a stream channel. Streams, however, are complex systems that do complicated work. In their natural state, streams gather, store, and move water. However, it is important for understanding stream processes to realize that streams and rivers are not only moving water - streams also move sediment and woody debris from mountain peaks to the sea.

<sup>1</sup> Historic floods include but are not limited to Boulder (1894), Pueblo (1921), Denver (1912 and 1965), Big Thompson Canyon (1976), and Fort Collins (1997).

<sup>2</sup> <http://www.coemergency.com/2010/01/historical-colorado-flood-events.html>

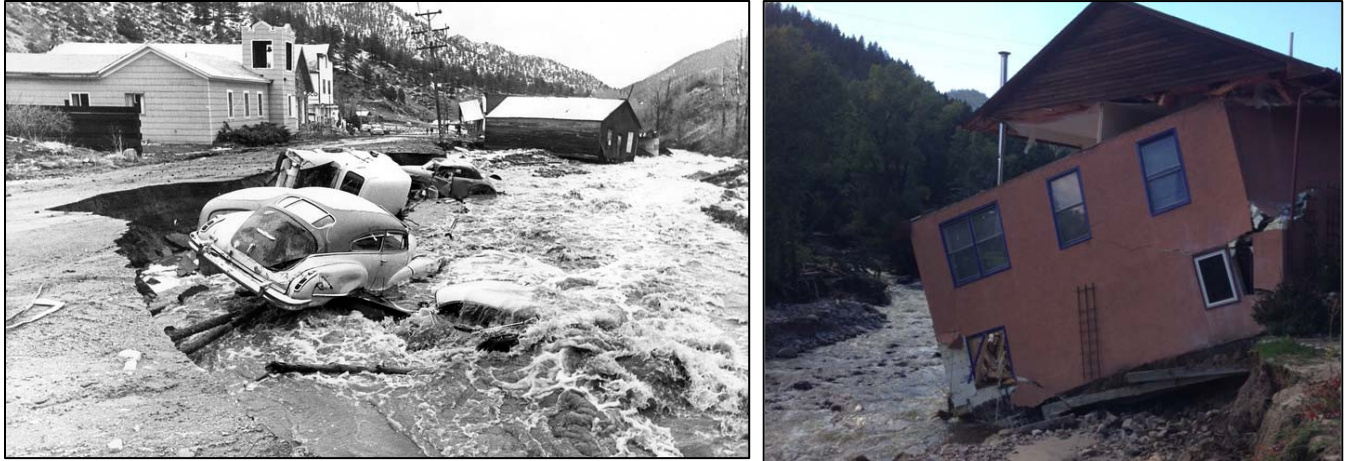


Figure 1: Flood damage in Jamestown from 1913 (not shown) 1969 (left image courtesy of the Carnegie Branch Library) and 2013 (right image courtesy of Tom Browning) indicate channel migration hazards inherent to a high gradient waterway.

Human land uses that significantly alter the ability of a creek to transport *water and sediment* will likely cause a stream to become unstable and increase the likelihood that catastrophic erosion or sedimentation may occur during a flood event. The relationship between water in a stream and its ability to transport sediment is shown as a balancing scale (Figure 2). When any one or more of the variables of this scale change, the system is no longer in balance, and aggradation or degradation of the bed and banks may occur. Given time and freedom to make adjustments, a stream will adjust its slope and sediment transport capability toward an equilibrium condition.

Throughout North America, river scientists and managers are now bringing this principle of river “stability” into the management of river channels by recognizing that stable rivers carry water, sediment and debris, even during high water, without drastic changes occurring in the depth, width, length, or slope of the channel. The term “dynamic equilibrium” is often used to describe a naturally stable stream channel. The channel may shift its location over time but ultimately will maintain consistent dimensions and habitat values. Channels remain stable when they are not impeded by unnatural constrictions like undersized bridges and culverts and have excellent access to a vegetated floodplain. When development changes the relationship of the river with its floodplain or alters the ability of a channel to transport its water and sediment load, it becomes increasingly difficult to protect that development.

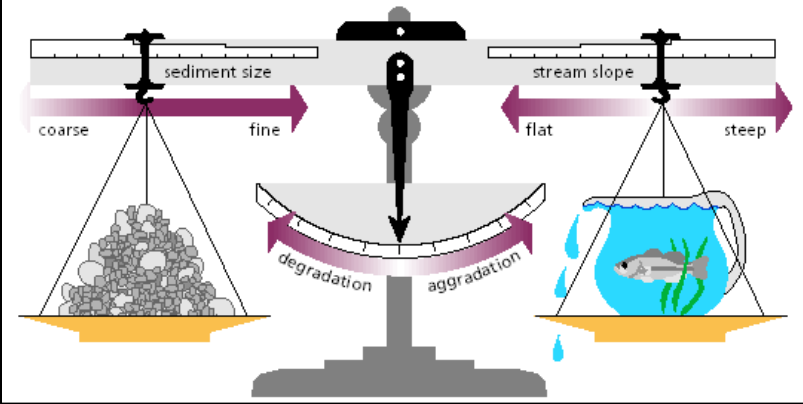


Figure 2: Lane’s Balance of Sediment Supply & Sediment Size with Slope (energy grade) & Discharge (Lane, E.W. 1955. “The Importance of Fluvial Morphology in Hydraulic Engineering.” In Proceedings of the American Society of Civil Engineers 81(745): 1-17.)

## Flood Damage

Unbalanced rivers increase the risk of damage from flooding to our communities—and it's an expensive risk. Flash flooding represents the most frequent type of natural disaster in Colorado, resulting in significant property and infrastructure damage. Average **annual** flood losses in Colorado are estimated to be \$83,000,000 in property damage based on data from 1911 to 2013 (inflation-adjusted 2013 dollars).<sup>3</sup> While inundation-related flood loss is a significant component of flood disasters, the predominant mode of damage in mountain communities is fluvial erosion.

Fluvial (river-related) erosion refers to streambed and streambank erosion associated with the sudden and catastrophic physical adjustment of stream channel dimensions (width and depth) and location that can occur during flooding. Much of this damage occurs where rivers have been separated from their floodplains by some kind of development thus containing erosive energy in the channel. Other examples are where rivers are unable to transport their sediment due to a constriction in the channel (e.g. culvert, weir, road embankment) which creates a sediment deficit downstream, or where excessive inputs (e.g. massive soil erosion from a burn scar) build up the river bed and exacerbate overbank flows. In these instances, a stream is likely to become destabilized and is more prone to sudden lateral or vertical shifting which may produce unexpected consequences for surrounding landowners. The dollar cost of such damage may well be equaled by other economic losses including diminished recreation opportunities, impaired ecological functions, and long-term channel instability.

## Floodplain Access and Channel Evolution

Cutting a river off from its floodplain by building levees, berms and roadways, armoring with stone, or dredging a channel will cause a river to adjust through physical change. The result of containing greater flows in the channel (i.e., preventing access to the floodplain) is to increase the erosive power (friction) that must be resisted by the channel boundary materials; i.e., the rocks, soil, vegetation, or manmade structures that make up the bed and banks of the river. Figure 3 shows a common scenario of channel evolution process as described by Stanley Schumm (1984). It is important to note that this diagram only illustrates channel response at one location. There are equally profound physical adjustments that occur upstream and downstream from the site of a river corridor alteration as bed degradation (head cuts) migrate up through the system and aggradation in the form of sedimentation occurs downstream. Similarly another common form of channel evolution may occur where a stream starts in a stable condition but is overloaded with sediment from upstream sources and quickly aggrades (i.e. fills in) its channel spilling out onto the surrounding floodplain with significant destructive potential.

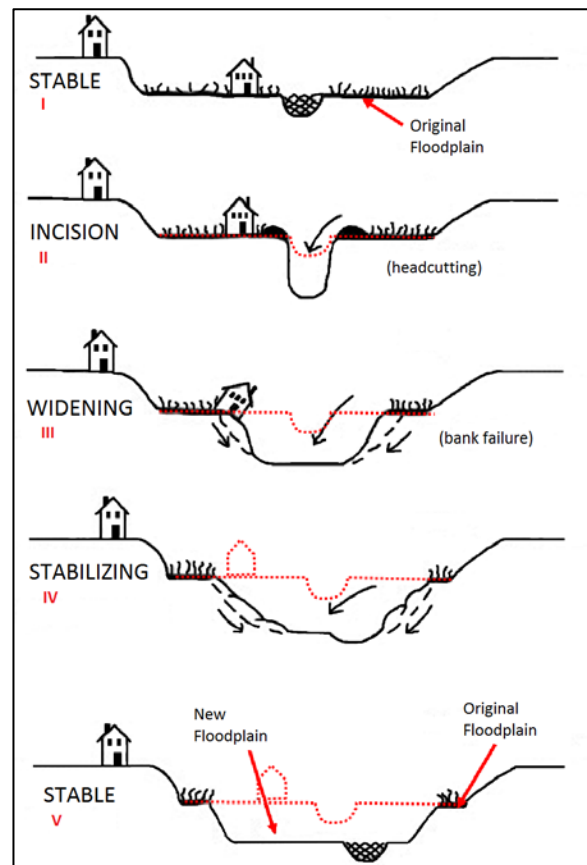


Figure 3: Schumm Model of Channel Evolution

<sup>3</sup> <http://cwcb.state.co.us/water-management/flood/Documents/ColoradoFloodMitigationPlanUpdate2013.pdf>

It is important to recognize the temporal aspect of channel response to change. Fluvial systems are energized by episodic events. Channel adjustment in response to management practices or encroachments may take effect immediately but may also persist for decades depending on the sensitivity and morphology of the stream channel, the magnitude of alteration, and the frequency of high flow events.

## Flood Hazard Mapping

Historically, landowners and local government have determined areas within river corridors susceptible to flood damage by relying on the standards and the flood hazard boundary maps provided by the Federal Emergency Management Agency (FEMA) through the National Flood Insurance Program (NFIP). More recently, the State of Colorado, through the CWCB, has established more stringent floodplain management standards that all communities are required to adopt. For inundation-related flood damage, these maps provide a good starting point to guide communities but are not without their limitations. For starters, communities need only adopt FEMA and the State of Colorado's minimum standards for flood hazard area regulation in order for their residents to be eligible to purchase flood insurance. The risk depicted in these maps is always uncertain because of limited data and the high spatial and temporal variability associated with hydrologic cycle, sediment load, and river mechanics. Moreover, the process of developing flood elevations assumes clear water conditions, ignoring sediment, ice, and debris transport. Colorado's narrow, steep valleys do not lend themselves to precise water surface elevation modeling exercises. Even with these challenges, FEMA's and the State of Colorado's minimal standards still allow for new development into mapped flood hazard areas without full regard for the river channel and floodplain dynamics, possibly further exacerbating flood loss, degrading river conditions, and increasing costs associated with flood recovery.

Of particular concern for Colorado's mountain valleys is that FEMA's NFIP maps are elevation-based, delineating **only inundation** hazards by applying a water surface elevation based standard (i.e. the 100- and 500-year base flood elevation). The maps do not consider fluvial erosion hazards or the dynamic nature of river systems which are prone to natural lateral movement due to fluvial erosion – particularly during a flood event. The NFIP maps represent a static impression of a dynamic system. In the Rocky Mountain region of Colorado where the landscape is often defined by steep, relatively narrow valleys, and highway infrastructure, private residences, and commercial properties located in close proximity to stream channels, the potential for catastrophic channel movement due to flooding is a particular concern. During 2008, one-third of all flood insurance claims nationwide were from areas outside of the 100-year floodplain.<sup>4</sup> This percentage has been observed to increase in mountainous areas where fluvial erosion may account for more flood damage than inundation. For this reason the NFIP maps are often inadequate as a sole indicator of flood hazards for mountain and Front Range communities. The “no encroachment” limits defined by the NFIP floodway do not necessarily provide for the river corridor width necessary for the channel to maintain a stable balance with its watershed inputs. In fact, FEMA's and the State of Colorado's regulations recognize that the NFIP standards offer *minimal* protection against inundation and erosion hazards, and they explicitly encourage communities to adopt more protective standards.

## Fluvial Erosion Hazard Mapping

Fluvial erosion becomes a hazard when the stream channel that is undergoing adjustment due to its instability threatens public infrastructure, houses, businesses, and other private investments. Fluvial erosion hazard (FEH) areas include the stream and land adjacent to the stream. A fluvial erosion map (or channel migration zone map) identifies an area where stream processes may occur that enable the stream to reestablish and maintain a

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<sup>4</sup> [http://www.floodsmart.gov/floodsmart/pages/flood\\_facts.jsp](http://www.floodsmart.gov/floodsmart/pages/flood_facts.jsp)

stable slope and dimensions over time. The fluvial erosion hazard area is a calculated belt width-based corridor where erosion is minimized when the least-erosive or stream equilibrium conditions are achieved. FEH area boundaries attempt to capture lands most vulnerable to fluvial erosion in the near term and indicate the type, magnitude, and frequency of fluvial adjustments anticipated during flood events. The area can be mapped based on quality-assured fluvial geomorphic data (i.e., data that describe the physical form and process of a riverine system).

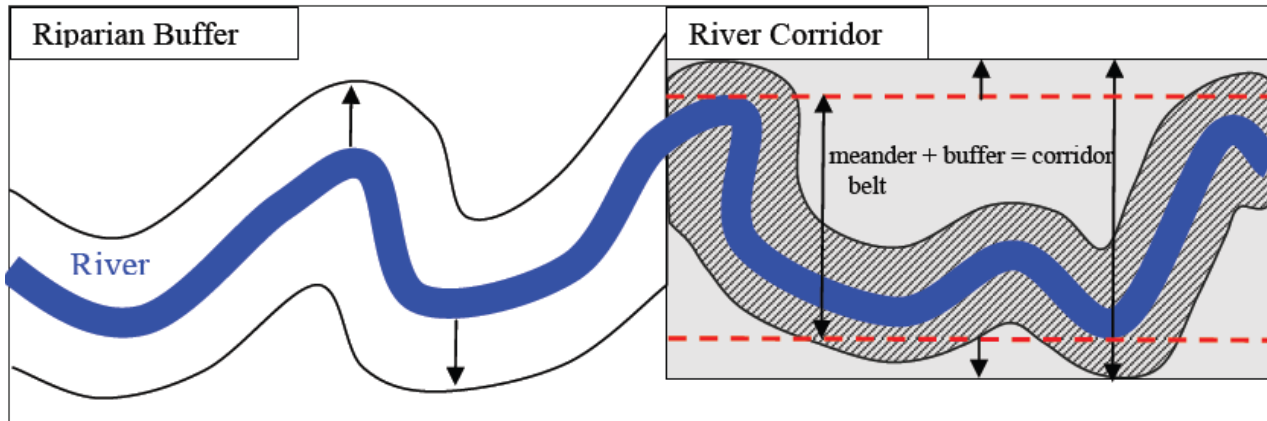


Figure 4: Comparing a buffer setback to a river corridor (Kline and Dolan, 2008).

## River Corridor Protection

A stream stability assessment is an essential component of river corridor planning efforts proposed by CWCB in partnership with local governments, landowners, watershed associations, and regional planning commissions. Watershed plans, hazard mapping, and stream geomorphic assessments will support adoption and implementation of river corridor plans, thereby accounting for fluvial erosion hazards and maintaining stability of the stream system.

Ultimately the most effective method of long-term flood hazard reduction may be the establishment of a Fluvial Erosion Hazard Area Zone or Overlay District under municipal zoning by-laws. A more direct, but less effective option would be to adopt standard set-backs from streams. The selection of the set-back dimension may be guided by the width of the river corridor delineation.

## Conclusion

River management success and flood hazard reduction, in the long term, will primarily be measured by our ability to solve problems at the watershed and river corridor scale, and secondarily, by how we resolve conflicts at individual erosion sites. From a physical standpoint, this means recognizing that rivers transport and deposit water **AND** sediment, and that natural stability and balance in the river system will depend on the river's opportunity to build and access a floodplain and create depositional features such as point bars, steps, and riffles to evenly distribute its water energy and sediment load in a sustainable manner (Kline and Cahoon, 2006).

Because rivers and waterways don't follow state and town boundaries, the approach to fixing these problems needs to cross political boundaries. The solution requires an individual, local, regional, State and Federal partnership that can work in watersheds to protect river corridors.

## Sources of Additional Information

This document can be found at:

<http://cwcb.state.co.us/environment/watershed-protection-restoration/Pages/main.aspx> (Right side of page under “Additional Information”)

CWCB Flood Info Website: <http://cwcb.state.co.us/water-management/flood/Pages/main.aspx>

Colorado Risk Map: <http://coloradofloodrisk.state.co.us/PublicOutreach/Pages/Homeowners.aspx>

Vermont River Management Program’s Fluvial Erosion Documents: [www.vtwaterquality.org/rivers.htm](http://www.vtwaterquality.org/rivers.htm)

### **Stream Assessment Protocols:**

- Vermont Geomorphic Assessment Protocols  
[http://www.vtwaterquality.org/rivers/htm/rv\\_geoassesspro.htm](http://www.vtwaterquality.org/rivers/htm/rv_geoassesspro.htm)
- Watershed Assessment of River Stability and Sediment Supply  
<http://water.epa.gov/scitech/datait/tools/warsss/>  
[http://www.wildlandhydrology.com/assets/CHANNEL\\_STABILITY\\_.pdf](http://www.wildlandhydrology.com/assets/CHANNEL_STABILITY_.pdf)
- Framework for delineating channel migration zones: Washington State  
<https://fortress.wa.gov/ecy/publications/summarypages/0306027.html>
- Bridge and Culvert Assessment Protocol example  
[http://www.vtwaterquality.org/rivers/docs/rv\\_SGAB&CProtocols.pdf](http://www.vtwaterquality.org/rivers/docs/rv_SGAB&CProtocols.pdf)

## References

1. Kline, M. and B. Cahoon. 2006. Alternatives for River Corridor Management: Toward resolving river and land use conflicts in an economically and ecologically sustainable manner. Vermont Agency of Natural Resources. Montpelier, VT.
2. Kline, M and K. Dolan. 2008. River Corridor Protection Guide: A Fluvial Geomorphic-Based Methodology to Reduce Flood Hazards and Protect Water Quality. Vermont Agency of Natural Resources. Montpelier, VT.
3. Lane, E.W. 1955. The Importance of Fluvial Morphology in Hydraulic Engineering. Proceedings of the American Society of Civil Engineers, Journal of the Hydraulics Division, vol. 81, paper no. 745.
4. Schumm, S.A. 1984. The Fluvial System. John Wiley and Sons, New York.

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