Town of Palisade

City of Grand Junction

City of Fruita

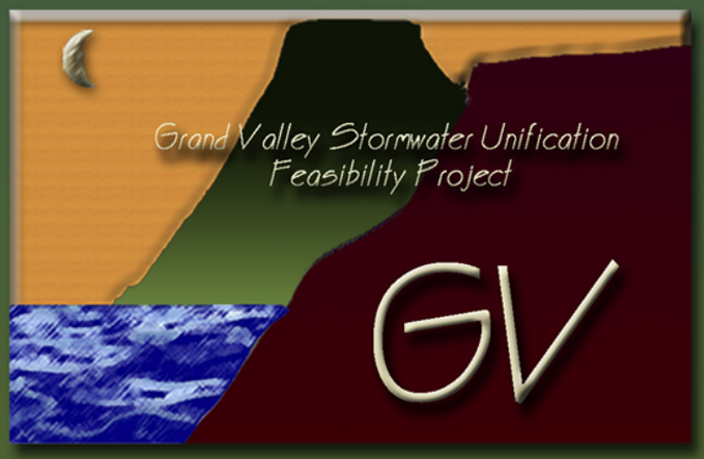
Mesa County

Grand Junction DrainageDistrict

Colorado Water Conservation Board

Grand Valley Stormwater Unification Feasibility Project

Final Report
July 25, 2003



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The federal Clean Water Act required Mesa County, Grand Junction, Palisade, the Grand Junction Drainage District, and the Orchard Mesa Irrigation District to submit permit applications on March 10, 2003. These entities will soon begin compliance with long term permits to manage the quality and quantity of stormwater as required by the United States Environmental Protection Agency and administered by the State of Colorado. This program, the Stormwater National Pollutant Discharge Elimination System (NPDES), is an un-funded mandate; local municipalities are expected to come up with the money for implementation and maintenance of the permit requirements. Without an additional source of funding for the permits, money will have to be taken from existing budgets.

Stormwater has been targeted by the EPA as the last large source of pollution threatening the health of our streams, rivers, lakes, and oceans. Stormwater carries such pollutants as sediment and chemicals from construction sites; fertilizers, pesticides, and herbicides applied to landscaped areas; vehicle discharges on roads and parking lots; and pollution from outdoor maintenance operations. Colorado permits cover all "Waters of the State," which include most irrigation and drainage ditches, both man-made and natural.

Permittes must:

- Conduct ongoing public education and involvement activities.
- Conduct ongoing programs to track down spills and unauthorized connections to the stormwater system.
- Require developers to add stormwater quality ponds and other facilities to construction sites to control water quality during construction activities and to add permanent ponds and other facilities to each site for long-term water quality control.
- Implement and maintain programs to review, permit, inspect, and enforce the use of all water quality facilities.
- Establish and maintain programs to cleanup stormwater pollution from municipal operations and projects.

Fines of up to $25,000 per day and/or jail are possible for not meeting the requirements of the new federal stormwater regulation.

These requirements brought the Grand Valley municipalities and districts together to jointly address the issues of the new federal regulations and the existing problems of an inadequate stormwater drainage system, which go hand-in-hand.

For over 100 years the Grand Valley has been developing at the bottom of 28 separate drainage basins traversed by 6 major irrigation supply ditches (see basin map on following page).

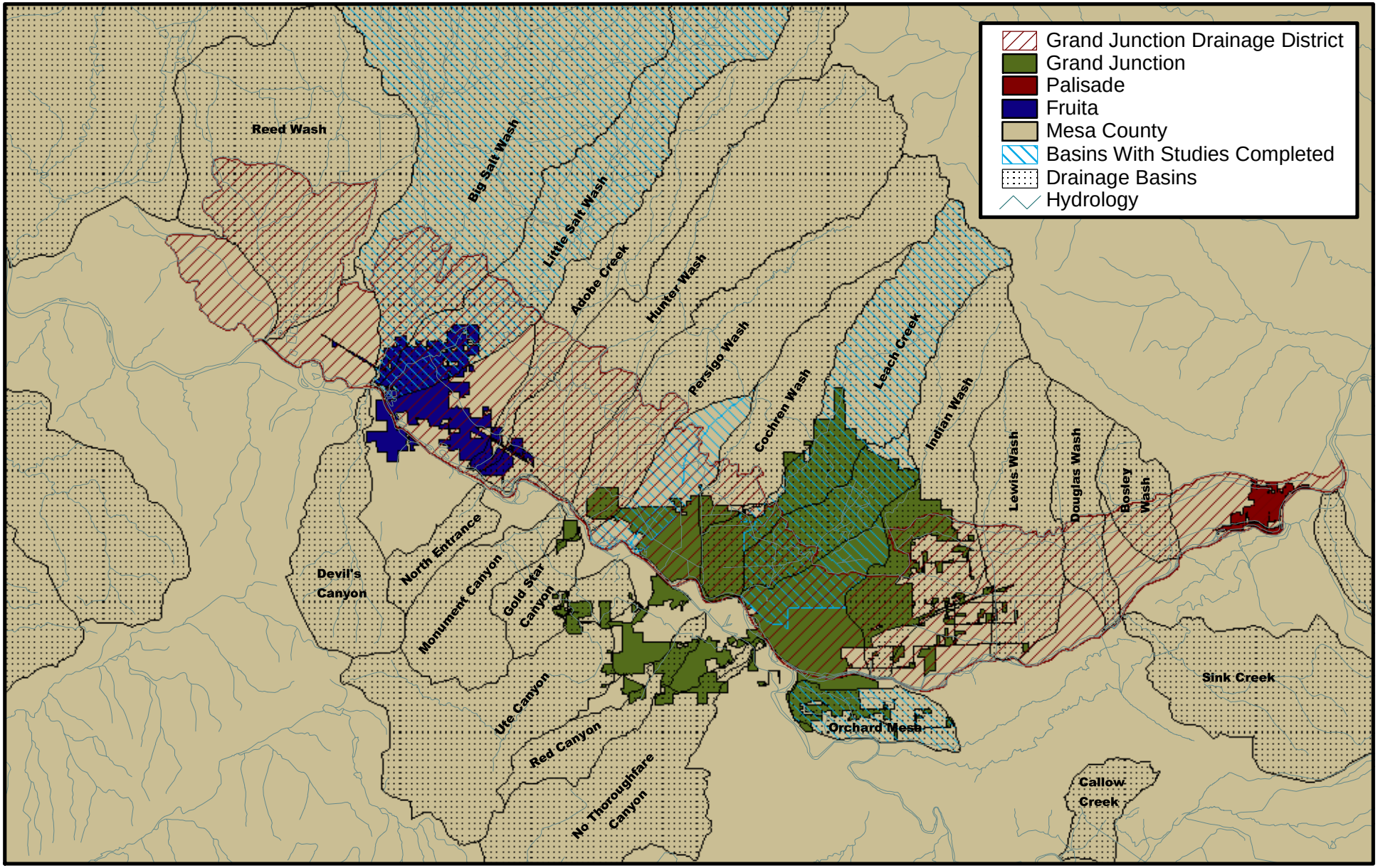
Flooding on 25 Road in Grand Junction
August 5, 1997

To compound the situation, the drainage basins generally run north and south while the jurisdictions run east and west. The cities, towns, county, and irrigation and drainage districts responsible for drainage services have not been able to keep pace with development in terms of providing adequate drainage and flood control systems. The services provided by the municipalities and districts have been provided as an "as needed" response to sudden problems. As a result, the current drainage system is undersized, has major gaps, and needs maintenance. Because the system is inadequate, there are many potential flood hazards to the residents and property in the Valley. Based on studies completed on 8 of the 28 drainage basins, there are over $40 million in capital project needs in those 8 basins that have been deferred. In addition, there are needs for maintenance, planning, and meeting the new federal regulations for stormwater.

It is the responsibility of the municipalities and districts to meet the federal regulations and to plan, construct, and maintain adequate drainage systems as part of the services provided to the community. Residential and commercial areas in all of the communities of the valley are dependent on adequate drainage systems that function properly, just like they are dependent on road, water, and sewer services. The construction and maintenance of these systems have been deferred for years in favor of other projects.

If nothing is done to address this problem, people and property in the Valley are subject to hazards, including personal injury and loss of life, as well as erosion of property, and damage to roads, water, sewer, and irrigation systems.

Studies and system-wide upgrades are required to minimize what could be catastrophic damages and loss of lives in a large storm such as happened in Fort Collins in 1997. In addition, significant cost savings are possible when a system is properly planned, designed, and constructed. The current practice often defers system construction until after development has occurred and performs maintenance only in response to critical needs. Without a dedicated program and funding source to address this problem, a continual drain will occur to city, town, and county budgets. If problems continue to be deferred, the price tag for upgrades that will have to be done someday will continue to escalate.



Grand Valley Basins and Jurisdictions

28 Separate Basins Affecting Urbanized Areas

In recognition of the problem described above, elected officials from Mesa County, the Grand Junction Drainage District, the City of Grand Junction, the City of Fruita, and the Town of Palisade passed resolutions authorizing a feasibility study of the potential for unification of common stormwater activities. The resolution also authorized formation of a Steering Committee to solicit citizen input and advisory recommendations on stormwater and drainage issues. The objective of the committee's work was to determine if there was a problem and, if so, a potential solution.

Flooding in Holly Park, Fruita

Since December 2002, the Steering Committee participated in monthly working meetings and studied the reports prepared by staff of the five entities and consultants. These reports describe stormwater management problems in the valley, stormwater activities and budgets of the entities and irrigations districts, and presented organizational and funding alternatives to improve service.

STEERING COMMITTEE CONSENSUS REACHED

Based on their work since December, the Steering Committee has come to consensus on two major points:

1. **There are significant problems with the stormwater system in the Grand Valley and with the coordination of the different responsible entities.**
2. **A valley-wide Drainage Authority is needed to coordinate the many problems associated with water flowing from one jurisdiction to another.**

The Daily Sentinel, 9-14-2001
I 70 Exit 42, Palisade

PROBLEMS AND NEEDS IDENTIFIED BY COMMITTEE

1. Additional funding to meet flooding problems and federal stormwater permit requirements.
    a. Capital improvement projects to move stormwater through the community with minimal flood risk.
    b. Compliance with federal regulations. Four of the five entities in the valley submitted permit applications for control of stormwater on March 10, 2003. This is the beginning of a long-term state and federal regulatory program that will require valley-wide coordination and management.
    c. Maintenance of overgrown channels to allow space for floodwaters and to reduce blocked bridges and culverts during floods, which can cause dangerous flooding on adjacent property and roads
    d. Coordinated floodplain mapping and drainage basin planning studies to identify and prioritize needs and projects.
    e. Determination of an appropriate Level of Service for street and other flooding. In many areas streets flood too frequently with very little rain.
2. Coordinated representation to involve federal and state agencies in problem solutions. This is aimed primarily at the federal agencies that control the upper portions of the basins that flow into the Valley.
3. Implementation priorities:
    a. Do not create another level of bureaucracy,
    b. Keep it simple (to implement), and
    c. Seek public acceptance.

Street flooding in Clifton Village South, July, 1999

RECOMMENDED APPROACH

1. To determine a true level of funding, and a timeframe required to address valley-wide drainage needs, flood plain mapping and drainage basin planning studies are needed to identify hazards, possible improvements and an acceptable level of service.
2. A valley-wide Drainage Authority, established by contract among the participating governmental entities, is a logical and legal organizational structure to address valley-wide problems and needs. Elected officials should define the contract terms of any proposed Drainage Authority such that adequate valley-wide representation is maintained and a Drainage Authority powers are limited. Possible limitations include the following:
   a. Fees and rates
   b. Powers and activities
   c. Initial and future activities
   d. Expansion and contraction of boundaries
3. A Water Activity Enterprise (i.e., a Stormwater Utility), established by a Drainage Authority and charging a drainage fee to all properties within the authority boundary, is the most equitable and stable source of potential funding for valley-wide stormwater activities. This would be a fee, not a tax, similar to a water or sewer utility fee. Because it is a fee, it is not

subject to TABOR, and does not have to go to a vote. All the proceeds of the fee would be dedicated to stormwater activities.

4. Leave local services and funding for those services at the local level where they are most efficient and responsive to the community. Local services include such activities as catch basin and inlet cleaning, repair of local storm sewers and channels, review and approval of subdivision drainage plans, and construction of local projects.
5. Use the Grand Junction Drainage District as the "operating arm" of a Drainage Authority. This will maintain the operational expertise that already exists, minimize the extent of new administrative staff, and prevent creation of a huge new bureaucracy.
6. Valley-wide stormwater management should include close coordination with the irrigation companies.
7. Engage federal agencies to address issues with federal land upstream of the Valley.

POSSIBLE IMPLEMENTATION EXAMPLE

Table ES-1 presents a Phase 1 budget for an example stormwater program. The budget was prepared by project staff and consultants. The Steering Committee did not make a recommendation on expenditure or funding levels.

The example is presented to inform elected officials and others of the approximate magnitude of the needs. The actual needs will not be known until the drainage basin planning studies are complete. The program below would cost the property owners in the Valley approximately $2.75 per month for the average household.

Phase 2 of the program would begin when the results of the drainage basin planning studies for the primary urbanized basins and the basins that are under the greatest development pressure are known, and when elected officials provide direction to the stormwater program based on these results.

Actual priorities would be established by elected officials and the board of the drainage authority.

Table ES-1
Example Budgetary Level Estimates for Phase 1

Activity	Total Estimated Cost	Phase 1 Annual Budget
Critical Capital Projects	$20,700,000	$1,200,000
Stormwater Permit (first 5 year permit)	$2,740,000	$600,000
Critical Maintenance Projects	$960,000	$350,000
Flood Plain Mapping	$860,000	$125,000
Drainage Basin Planning Studies	$2,650,000	$600,000
TOTAL	$27,910,000	$2,875,000
AVERAGE MONTHLY RESIDENTIAL FEE (if the fee were billed annually is would be $33.00 per year)		$2.75

Notes:

1. Capital project costs based on Gerald Williams Study.
2. Stormwater permit costs based on estimates of Grand Valley Stormwater Managers
3. Maintenance project costs based on estimates of Grand Valley Stormwater Managers
4. Flood plain mapping costs based on Federal Emergency Management Agency cost of $7,200 per stream mile.
5. Drainage basin planning study costs based on per square mile costs from Urban Drainage and Flood Control District in Denver.

Flood plain mapping and drainage basin planning studies will be completed in approximately 5 years. Following their completion, most of the funds used for these activities can be applied to other activities.

Important Note: Legal information in the document was taken from Technical Memorandum No. 3 and the document titled "Questions and Answers to Legal Questions," both prepared by the project's legal counsel. These documents can be found in Appendices B and C.

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Stormwater managers from five local governmental entities (Mesa County, the Grand Junction Drainage District, the City of Grand Junction, the City of Fruita, and the Town of Palisade, known as "the five entities") have been meeting for approximately three years to discuss common problems and identify potential solutions to stormwater and drainage management issues within the Grand Valley. In a broad sense, the general issues of concern include:

- How to fund, coordinate and complete regional projects that benefit multiple jurisdictions, or cross jurisdictional boundaries,
- How to achieve, and maintain compliance with new state and federal mandates for stormwater management contained in Clean Water Act Phase II regulations, effective March 2003, and
- How to prioritize, fund, and perform the maintenance and replacement of existing drainage infrastructure that is now undersized due to growth, or because maintenance has been ignored in the past.

Three of the most significant problems facing the five entities are:

- Lack of drainage basin planning studies which identify the problems and needs within specific basins and which present plans for improvements in the most cost-efficient and coordinated manner,
- Lack of a consistent, coordinated regional approach to stormwater management, and
- Lack of adequate funding for both local and regional projects.

During 2001 and 2002, numerous briefings were given by stormwater managers to elected officials and citizen groups. In June 2002, elected officials from the five entities individually passed resolutions authorizing a feasibility study of the potential for unification of certain stormwater activities, and authorizing formation of a Steering Committee to solicit citizen input and advisory recommendations on stormwater and drainage issues. Funding for the project was committed from the five entities, a $70,000 grant from the Colorado Water Conservation Board was solicited and received, a consultant was hired, and a Steering Committee was selected. The Steering Committee members covered a broad range of interests, including real estate development, insurance, farming, and business owners. Many of the members had experience with flooding issues. None of the Steering Committee members were elected officials during this process. Details of the selection of Steering Committee members are in Section 3.

Steering Committee meetings began in December 2002. The general purpose of this Unification Feasibility Study, and Steering Committee process, was to: "*... investigate the legal, administrative, operational, financial, physical, and political aspects of stormwater management, flood hazard mitigation and Clean Water Act Phase II Compliance services provided to the customers of the myriad of entities responsible for those functions within the Grand Valley, and determine if the cost of stormwater management and Phase II compliance services can be reduced, or the Level of Service increased through the use of common resources and unified management.*" It was expected that the Steering Committee would issue a set of findings on the current status of stormwater management in the Grand Valley, and provide advisory recommendations to the elected officials concerning goals and strategies for future activities.

Meetings were held monthly from December 2002 through July 2003 at which the various aspects of stormwater management were presented and discussed. Topics included:

- Problems and Needs,
- Managerial and Operational Aspects,
- Financial Aspects,
- Legal Aspects, and
- Alternatives Analysis.

A professional facilitator was used to keep the meetings on track, to ensure understanding, to elicit questions and discussion, and to survey the members on disagreement or consensus. This report contains the final findings, conclusions, and recommendations of the Steering Committee.

The study process (discussed in detail below) included research, analysis, and presentation of the information to the Steering Committee for consideration and evaluation. A web site was maintained and monthly press releases were made. In addition, information was distributed to individuals and managers from entities affected by stormwater management, including irrigation companies, the BLM, and CDOT. A comprehensive list of entities and individuals that received information is in Appendix G.

This section discusses the current operational conditions and financial mechanisms and includes a general discussion of the hydrology and drainage systems in the Grand Valley, as well as the problems and needs that have led to this report. The problems and needs include the significant gaps and overlaps of services provided by the five entities. Alternative methods to address these gaps and overlaps were a primary focus of the Steering Committee.

The concept of "Level of Service" (discussed in detail in Section 4.4) for stormwater infrastructure, defined as the rainfall event that the system can accommodate without significant hazards or problems, is discussed in detail in Section 4. In general, the Level of Service provided in the valley was determined to be inadequate. There is a need to provide protection of property, the safety of residents, and to address federal regulations.

2.1 HYDROLOGY AND DRAINAGE SYSTEM

The Grand Valley contains many basins that are tributaries to the Colorado River, and 28 of these basins effect the urban areas of the valley. Although the area only gets approximately eight inches of precipitation per year, flash flooding is common due to the meteorological and topographical conditions. The basins on the south side of the river experience the greatest flooding because they have relatively short basins with headwaters in the Colorado National Monument with its steep cliffs and impervious slick rock. In addition, 95 percent of the storms in the Grand Valley come from the southwest, and the storms start at the tops of the basins and continue down into the valley. Therefore, when the flows from rainfall at the headwaters reach the lower ends of the basins, the storm is over the lower end and peak flows are significantly increased.

Urban areas on the north side of the river see less flooding than the south side due to the distance of the BookCliffs and the storm pattern mentioned above; however, when they do flood, they affect a larger population base than south of the river.

Sediment Laden Flow from Colorado National Monument

Because the Grand Valley's land use was primarily agricultural and progressed to urban development, it relies on a system of agricultural drains and natural washes for a significant percentage of its stormwater conveyance. The agricultural drains were constructed by the Bureau of Reclamation to lower water tables and are now owned, managed and operated by the Grand Junction Drainage District (the District). When the Grand Valley's land use changed from agricultural land to urban land, the typical urban drainage systems of collection channels, conveyance pipes and defined outfalls to existing water bodies were either not constructed at all or were constructed in a piece-meal fashion without an overall plan. Irrigation ditches were relied upon for a significant percentage of the

stormwater handling system. These irrigation ditches pervade the valley, cross natural drainage paths, combining and mixing drainage water with irrigation water. In addition, the boundaries of cities and irrigation districts are inconsistent with the natural configuration of drainage basins and washes. The municipalities therefore need to coordinate many of their drainage activities with the District.

In addition to the District, six irrigation companies own and operate irrigation systems that cross many of the drainages within the municipalities. The US Army Corps of Engineers, Bureau of Reclamation, Bureau of Land Management, CDOT, and others are also involved in the drainage activities within the municipalities.

Not only do the municipalities have to deal with the drainage originating within their boundaries, they also have to deal with drainage from upstream areas , that include lands managed by other jurisdictions such as the National Park Service and Bureau of Land Management.

Figure 1 shows the major basins in the Grand Valley and the five jurisdictions participating in this study, and illustrates the eight basins that have planning studies.

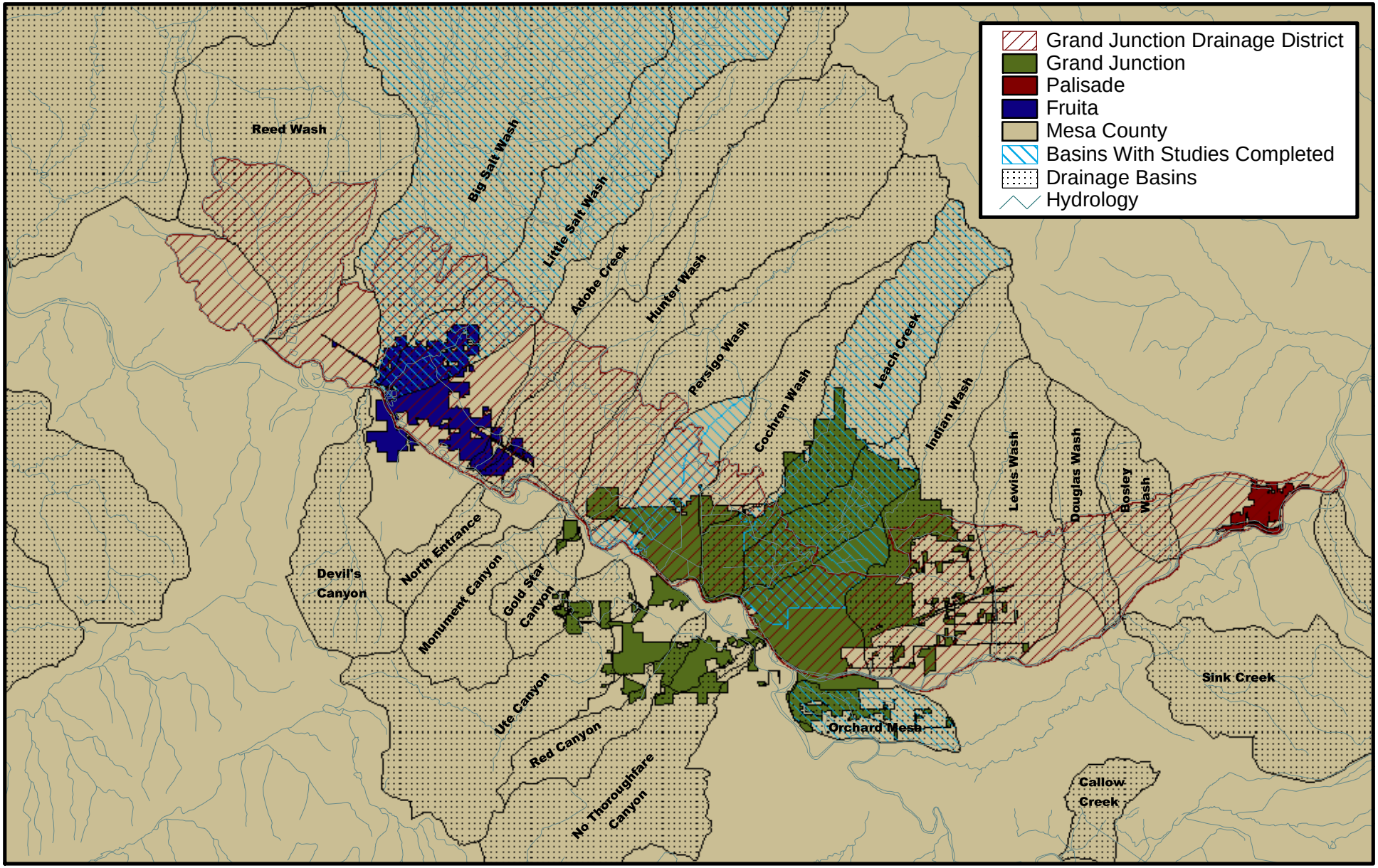


Figure 1. Grand Valley Basins and Jurisdictions

28 Separate Basins Affecting Urbanized Areas

2.2 OPERATIONAL CONDITIONS

Stormwater management includes addressing problems and potential problems at both local and regional levels. At the local level, smaller drainage areas such as subdivisions require conveyance and/or detention to prevent property damage, nuisance flooding, pollutant loading, and other flooding problems both within and downstream of the development. At a regional level, these local developments are all tributary to larger drains and washes, which transcend municipal boundaries. Planning must be coordinated between local entities for regional structures that may be required. For example, a regional detention pond may be the best solution to detain flows from multiple jurisdictions.

Ligrani Drain - Typical Open Drain Maintenance Activities

Table 1 is a summary of the "big picture" of stormwater operations in the Grand Valley. Table 1 illustrates that most activities are satisfactorily completed by a majority of the entities within their own jurisdictions. However, multi-jurisdictional (regional) projects are only completed to a limited extent by Mesa County and the District and are not completed at all by Grand Junction, Fruita, and Palisade. These significant gaps in regional services are one of the primary reasons for this study.

Table 1
Existing Operations of the Five Entities
(Adequacy of Current Programs to Perform Activities)

Activity	Jurisdiction				
	Mesa County	**Grand Junction**	**Fruita**	**Palisade**	**Grand Junction Drainage District**
Individual Jurisdiction	Most	Yes	Yes	Most	Yes
Multi-jurisdictional (Regional-throughout study area)	Limited	No	No	No	Limited

Table 1 was constructed with significantly more detail than shown in the summary presented above. The detailed analysis included four major groups of activities with a number of sub-activities under each of the four groups. The four major activity groups are listed below:

- Capital improvement planning and construction (9 subgroup activities),
- Operation and maintenance (9 subgroup activities),

- Planning and regulatory (13 subgroup activities), and
- Administration (5 subgroup activities).

The detailed analysis of activities, as prepared by staff and showing all 36 subgroup activities is included in Tech Memorandum 4 (in Appendix B).

2.3 CURRENT EXPENDITURES AND SOURCES OF FUNDS

Table 2 shows a budgetary level estimate of average historic expenditures for stormwater management related activities by the five entities in the Grand Valley. The costs in this table are averages of past years, but are believed to be representative of the "status quo" or current level of funding. These are budgetary level numbers (plus or minus 35%) for general comparison purposes.

(Note: level of funding should not be confused with Level of Services although they are both reflective of the ability of an entity to respond to stormwater related problems.)

Table 2
Summary of Historic Average Annual Expenditures
(in dollars)

	Mesa County	Grand Junction	Fruita	Palisade	Grand Junction Drainage District	Total
Capital Improvement Program[1]	250,000	360,000	79,000	20,000	240,000	1,029,000
Maintenance[2]	25,000	995,000	8,000	5,000	643,000	1,676,000
Planning & Administration[3]	50,000	126,000	4,500	3,500	125,000	305,500
Rounded Totals	325,000	1,481,000	91,500	28,500	1,008,000	3,010,500

Notes:

(1) **Capital Improvement Program** is for the design and construction of facilities such as drains, ditches, pipes, channels, and detention ponds. Budgets are for contractors, materials, labor, and equipment.

(2) **Maintenance** can include cleaning and repairing inlets and catch basins, sweeping streets, cleaning and repairing drains, ditches, channels, ponds and pipes, planting, mowing and trimming grass and other vegetation, and picking up debris. Budgets include costs for staff, equipment, and materials and supplies.

(3) **Planning and administration** includes subdivision review and inspection, floodplain administration, 404 permitting, capital project design administration and review. Budgets are mostly for staff. National Pollution Discharge Elimination System costs are not included in historic costs except for the City of Grand Junction, which has included partial National Pollution Discharge Elimination System costs.

The primary sources of funds for the five entities are shown in Table 3. It shows that general fund revenues are the primary sources of funds for the municipalities and property taxes for the District. In addition, several municipalities receive drainage impact fees and grants.

Table 3
Primary Sources of Funds

Revenue Source		Municipalities				Grand Junction Drainage District
		Mesa County	Grand Junction	Fruita	Palisade	
"General Fund Revenues"	Property Taxes	X	X	X	X	X
	City Sales Tax	X		X		X
	County Sales Tax	X	X	X		X
Drainage Impact Fees			X	X		
Grants		X	X	X	X	
Permit Fees		Not currently in use				
Stormwater Utility Fees						

Fruita and Grand Junction charge impact fees for new developments only. These impact fees must be dedicated to capital improvements and cannot be used for maintenance. In addition, some (but not all) properties within the study area are subject to the Grand Junction Drainage District mill levy. This tax funds all activities (capital, operations, and administration) of the District system, which (in all municipalities) includes most of the larger municipal storm drains but does not include most of the washes. All of the five entities cost share with the District on various projects.

3.1 INTRODUCTION

Recognizing a need for greater public input on future stormwater management decisions, the stormwater managers for the five entities designed a review process to involve a set of community stakeholders sitting as a Steering Committee through Phase A of the unification study. The Steering Committee was tasked with participation in seven meetings, held monthly from December 2002 through June 2003.

Project information was developed jointly by the staff of the five entities and the consultant, and packaged and presented to the Steering Committee in the form of Technical Memoranda and presentations. Steering Committee members were asked to review the project information and evaluate the system short-falls for valley-wide stormwater drainage and flood management. Steering Committee participants were asked to provide "system-overview guidance" regarding the needs that might dictate a unified stormwater and flood management system for the Grand Valley region. Individuals were counseled that their input would be advisory in nature and could be reshaped in the resulting political process once the unification study was completed.

The purpose of the Steering Committee review step was to gain an understanding of both the complexity of the issues and a sense of the community's willingness to support a change in the stormwater drainage and flood management processes. Managers from the five entities were interested in whether or not a group of affected citizens and community leaders felt a unified system would be beneficial and also the community's willingness to pay for added services.

3.2 COMPOSITION OF COMMITTEE

The Steering Committee was created to represent a wide spectrum of citizens in the Grand Valley who have an interest in stormwater management. The Steering Committee consisted of 14 members, 9 of which were jointly selected by the five entities, with 1 additional member selected by each of the individual sponsors. The committee members included:

- Business owners,
- Farmers who use water from irrigation companies,
- Representatives from the real estate and building industries,
- Former local politicians, and
- Other citizens.

The Steering Committee members included several property owners who have incurred flood damages. Managers and staff from the five entities, as well as the consultant team, supported the Steering Committee.

3.3 TECHNICAL MEMORANDUMS

To document the investigation and analysis of stormwater management in the valley and the decision-making process of the Steering Committee, the consultants have written four Technical Memorandums (in Appendix B):

- Managerial/Operational Aspects, Problems, Needs, and Initial Alternatives,

- Financial and Organizational Aspects of Alternatives,
- Legal Aspects of Alternatives, and
- Alternatives Analysis.

These documents provide a "road map" of the iterative process that led to the conclusions and recommendations described below.

Jon Sorensen Discusses the Pros and Cons of a Drainage Authority

Steering Committee Meeting on May 22, 2003

3.4 MEETINGS/PRESENTATIONS

The Steering Committee met monthly from December 2002 through June 2003 to view presentations by the consultant team and to discuss the important issues facing the Grand Valley. The stormwater managers of the five entities and the consultant team participated in additional meetings before and after the Steering Committee meetings ("compression" and "decompression" meetings), and the managers met separately to discuss and review each of the Technical Memorandums.

3.5 CONSENSUS BUILDING FOR ALTERNATIVES

During the scoping process for the Steering Committee process, it was recognized that it would be important for the Steering Committee to arrive at some level of consensus. The stormwater managers asked facilitator Molly Tayer to devise a method in which a consensus might be formed, given the process time constraints. Molly provided the Steering Committee with a consensus discussion process with a fallback option to a meta-decision making rule. In essence,

this process asks the group to work toward a consensus level of agreement on decisions before them. The meta-decision-making process allows that if there are still unresolved questions once the consensus discussion has run its course, the Steering Committee members could agree to acknowledge any areas of consensus reached and provide additional time to address unresolved issues.

To achieve a consensus in the Steering Committee recommendations, an iterative discussion process was needed, as many issues had to be addressed and re-addressed to build understanding of the complexity of the operational and financial aspects of stormwater management. Each meeting provided a new layer of information with which the Steering Committee needed to become familiar. In each meeting, the Steering Committee worked either in small group discussion or in plenary discussion to build their comfort and understanding of the components of the problem. From these conversations, the Steering Committee was able to both identify a set of guiding criteria to use to help evaluate acceptable alternatives and work with the consultants to build a set of viable alternatives for further investigation. During the seven months of conversation, these alternatives were challenged, evaluated, and winnowed down to the final recommended alternative.

The process is illustrated in Figure 2. The conclusions and recommendations that resulted from this process are discussed in the sections below.

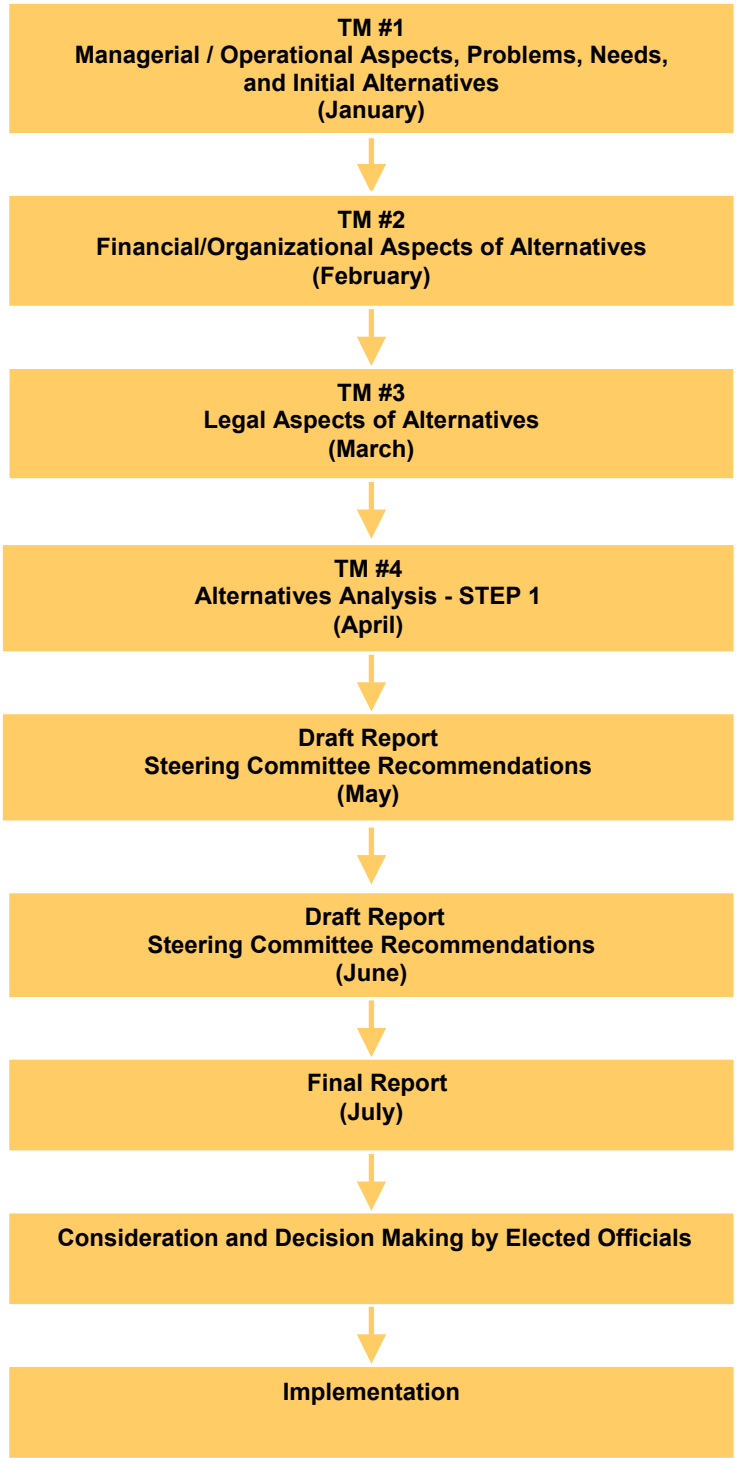


Figure 2. Process Flow Chart

4.1 STEERING COMMITTEE PRIORITIES

During the course of the project, the Steering Committee developed and refined a list of operational and implementation priority needs to address the issues at hand. The need for continued and improved efficiency was a theme throughout. The following operational priorities apply to activities within each jurisdiction and activities that involve coordination with the other jurisdictions:

Capital Project - Ligrani Drain at Rimrock Market Place

- Funding to meet planning, maintenance and Capital Improvement Program needs, in a timely manner
- Study drainage basins to identify and prioritize needs and projects (inside each jurisdiction and multi-jurisdictional studies across jurisdictional boundaries),
- Coordinate floodplain management, planning, Capital Improvement Program, and maintenance,
- Coordinate representation to engage federal/state agencies,
- Determine Level of Service,
- Maintain facilities to ensure proper function and to prevent more expensive replacement,
- Meet federal stormwater regulations.

An analysis of the Steering Committee operational priorities, as currently met by each of the five entities, is shown in Table 4. Table 4 shows that the individual entities only meet priorities 1 through 6 in a limited manner, or not at all. They are currently meeting the federal stormwater regulations. However, the table makes no attempt to differentiate between local and regional activities, the level of funding available, or to estimate the efficiency of the programs.

In addition to the operational priorities, the steering committee also developed the following implementation priorities:

- Gain public acceptance,
- Do not create another level of bureaucracy, and
- Keep implementation simple.

These priorities represent the status quo and are currently met by each of the entities.

Table 4
Summary of How Steering Committee Priorities are Currently Met by Each Entity

Activity	Jurisdictional Entity				
	Mesa County	Grand Junction	Fruita	Palisade	Grand Junction Drainage District
1. Develop funding to meet planning, maintenance and Capital Improvement Program needs	Limited	Limited	Limited	Limited	Limited
2. Perform studies to identify and prioritize needs and projects	Limited	Limited	Limited	Limited	Limited
3. Coordinate floodplain management, planning, Capital Improvement Program, and maintenance	Limited	Limited	Limited	Limited	Limited
4. Coordinate representation to involve federal/state agencies in solutions.	No	No	No	No	No
5. Determine Level of Service	No	No	No	No	No
6. Maintain facilities	Limited	Limited	Limited	Limited	Limited
7. Meet federal regulations	Yes	Yes	Limited	Yes	Yes

4.2 PROBLEMS WITH PLANNING, COORDINATION AND FUNDING

As illustrated in the discussion on Steering Committee priorities, three of the top priorities – planning, coordination, and funding – are only met to a limited degree by all of the five entities.

Due to the lack of drainage basin planning studies (which identify the problems and needs by basin and present plans for improvements in the most cost-efficient and coordinated manner) the five entities do not know the full extent of their capital and maintenance needs, particularly for regional and cross-jurisdictional problems. Completion of more of these plans in the valley would greatly improve the design and management of the overall drainage system. In addition, of the few existing drainage basin planning studies that do currently exist, many are based on outdated hydrology, and the studies need to be revised or re-done. Furthermore, one of the roles of the five entities is to review development plans for the proper location, design, and coordination of proposed drainage facilities with existing District and other drainage systems. When completing these reviews, the five entities are handicapped by the absence of drainage basin planning studies. The completion of more of these plans would greatly improve the efficiency and coordination of these reviews.

The need for planning studies can be summarized for different levels of development:

1. Developed areas - Serious flooding potential exists, and studies are needed to identify the locations and magnitude of hazards and determine the best solutions.
2. Areas under development pressure - Development is occurring in this area and floodplains and/or improvements need to be identified to alleviate future hazards that would be more expensive to fix after development occurs.

3. Planning needs in developed or undeveloped areas - Floodplains and/or improvements need to be identified to coordinate with other infrastructure improvements such as roads, adjacent drainage improvements, irrigation ditches, and/or to deal with multi-jurisdictional issues such as cost allocations.

There is little coordination or consistency among the four municipalities in terms of subdivision drainage plan review and review of plans for municipal projects such as street construction. Engineers review the plans to check for proper design and location of drainage facilities, and the municipalities also participate in some drainage basin planning studies. Coordination of the review of subdivision and municipal project plans with the drainage basin planning study is very important, however, the basin planning studies, capital programs, and maintenance programs all are quite different between the entities.

This jurisdictional fragmentation of the review process, combined with the lack of drainage basin planning studies, creates an inconsistent, poorly coordinated approach to stormwater management. An effective multi-jurisdictional approach necessarily requires:

- Coordination among the five entities and/or a broader, regional authority such as a Drainage Authority that can address basin-wide problems that transcend jurisdictional boundaries.
- Clarification of the roles of the municipalities, the District, the US Army Corps of Engineers, the Bureau of Reclamation, the Bureau of Land Management, irrigation companies and others. That is, identification of which entities are responsible for each of the many aspects of stormwater management in the valley including planning, construction, maintenance, and administration.

Another common problem of all of the entities is the lack of adequate funding for both construction of needed improvements and for completion of deferred maintenance on the natural washes. The washes are currently in need of attention, but only a small percentage of the necessary funding has been available. The lack of adequate funding is a problem for both local and regional projects.

4.3 LOCAL VERSUS REGIONAL SERVICES

The Steering Committee determined that the five entities are very good at providing services (even though they may be at a lower Level of Service than desired) that are limited to inside their jurisdictions. There is consensus among the Steering Committee that these activities remain the responsibility of local entities. However, it was also found that services that involve coordination with the other jurisdictions could be provided more efficiently by a valley-wide effort. That is, there is considerable overlap of services that could be eliminated (or at least limited) by a regional approach.

4.4 LEVEL OF SERVICE VERSUS LEVEL OF FUNDING

Following a review of all the services provided by the five entities, it was determined that the Level of Service provided in the valley was inadequate. A higher Level of Service is needed to provide better protection of property, to increase the safety of residents, or to address federal regulations.

The Level of Service provided by the current system is presented in Table 5. "Level of Service" for stormwater infrastructure is defined as the rainfall event that the system can accommodate without significant hazards or problems. This table illustrates hazards and problems with the Level of Service provided by the current system, in a generalized nature. Specific areas could be more hazardous and other areas less hazardous. The technical staff, using their best professional judgment and observations of recent flood events, developed this table.

Table 5
Hazard Ratings for Current Level of Services

Type of Hazard/Problem	Level of Service by "Rainfall Event in Years"(1)				
	1 year	2 year	10 year	50 year	100 year
Relative Degree of Hazard					
Pedestrian	Low	Low	Medium	High	High
Traffic	Medium	Medium	High	High	High
Property Damage	Low	Low	Medium	High	High
Structure Damage	Low	Low	Low	Medium	High

(1) Relation of "Rainfall Event in Years" to Percent Chance of Occurrence in One Year					
	Rainfall Event in "Years"				
	1	2	10	50	100
Chance of Occurrence in One Year	100% +/-	50%	10%	2%	1% +/-

It would be preferable to have a stormwater system represented by a table with nothing but "Low" values in every cell. However, that is prohibitively expensive, and stormwater managers need to balance Level of Service with available funding. That is, an optimum level must be determined. The optimum Level of Service and associated funding will be determined with drainage basin planning studies that include cost/benefit analyses.

4.5 PHOTOGRAPHIC ILLUSTRATION OF DRAINAGE PROBLEMS IN THE GRAND VALLEY

The following photographs illustrate the need for maintenance, planning, and improved infrastructure for drainage in the Grand Valley. These photographs were taken by managers from the five entities, consultants, and individuals affected by flooding problems.

Figures 3 through 6 illustrate maintenance needs varying from simple (trash removal) to more involved (utility relocation). Trash in a channel collects more trash and sediment and reduces the flow capacity of the channel. There is a need for systematic inspection and cleaning. Figure 6 illustrates overgrown vegetation as well as the potential problem of utility crossings. These crossings can be a hindrance to flow, and there may be issues with uncertain responsibilities for repairs or relocation.

Figures 7 through 13 illustrate flooding and other issues.

Figure 3. Example of Common Maintenance Needs

Figure 4. Example of Common Maintenance Needs

Figure 5. Example of Common Maintenance Need

Figure 6. Utility Crossing and Overgrown Channel

Figure 7. Hindrances to Maintenance Access

Figure 8. Major flooding along No Thoroughfare Canyon, July 1978

Figure 9. Cunningham Court, Redlands Mesa, July 2001
Drainage Channels Filled in by Property Owners

Figure 10. Sediment-Laden Flow from the Colorado National Monument

Figure 11. Bank Erosion in Leach Creek just North of F ¼ Road (North of Mesa Mall)

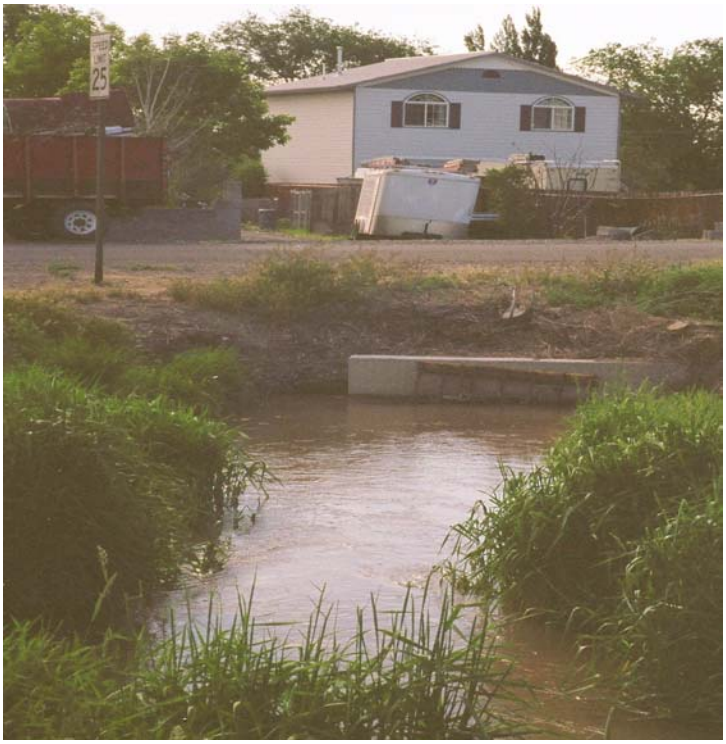


Figure 12. Orchard Mesa Drain Full of Irrigation Water, May 2003
Palisade Street South of Unaweep
(No available capacity for stormwater)

Figure 13. Horizon Drive Channel Shown Flowing Full of Irrigation Water Patterson Road at N. Westgate Avenue, May 2003 (Limited availability for storm water)

5.1 GENERAL ISSUES

The primary focus of this project has been to determine if an alternative stormwater management organization is needed and, if so, what kind of an organization would best fit the needs of the Grand Valley while being as consistent as possible with the Steering Committee priorities (discussed above in Section 4a). The Steering Committee process resulted in two primary conclusions:

- A unified valley-wide organization is needed to engage in activities that lend themselves to a multi-jurisdictional approach, and
- The existing entities should also continue providing local services within their jurisdictions.

This section discusses the kind of activities that a valley-wide solution should address, activities that are best left with the local jurisdictions, and discusses the alternative organizations that would meet the needs of the project.

5.1.1 What Activities Would a Valley-Wide Solution Address?

The activities needed for a valley-wide effort are those activities that include a regional scope and perspective. These activities range from planning and regulatory compliance to construction and maintenance of large capital improvements that handle major drainage flows from multiple jurisdictions. A limited amount of regional administration, including stormwater quality permit coordination, would also be advantageous.

Following is an outline of the major multi-jurisdictional activities that are proposed for inclusion in a valley-wide organization:

- Planning/Regulatory
  a) Floodplain mapping and management
  b) Drainage Basin Planning Studies
  c) Creation of a unified drainage criteria manual
  d) Stormwater quality National Pollution Discharge Elimination System permit requirements
- Construction of Large Multi-jurisdictional Projects
- Operations and Maintenance of Large Multi-jurisdictional Projects
- Administration
  a) Billing
  b) Customer service – 1 phone call
  c) Coordinated representation to State/Fed agencies

5.1.2 What activities would local communities give up or keep?

As discussed in Section 2, most of the services that the individual entities provide within their jurisdictions are of a non-regional nature. The Steering Committee agreed that the local jurisdictions were the logical and most efficient providers of these services and concluded that these services should remain with the local jurisdictions. Local services include routine items

such as storm drain flushing and street sweeping that are mostly for drainage confined within their jurisdictions, and not significantly impacted by drainage from upstream jurisdictions.

Regardless of whether or not a local jurisdiction is the most efficient method to provide an activity, the question of adequate funding for that activity still exists. Many of the services are not up to the Level of Service that they should be.

Services currently provided by the local jurisdictions that they should "give up" are limited to activities of a regional nature or activities that are better performed by a unified organization. For example, the local jurisdictions have jointly completed a limited amount of drainage basin planning which would be given to the new organization. The local jurisdictions also enter into agreements to construct capital projects and provide maintenance. Projects that qualify as multi-jurisdictional would be coordinated by the new organization.

5.1.3 Overall Theme for Valley-wide efforts

Several overall themes regarding a valley-wide effort emerged from the Steering Committee's work.

The Steering Committee determined that the valley-wide organization should:

- Be implemented and operated with the smallest possible amount of additional bureaucracy,
- Be as simple and efficient as possible,
- Primarily address multi-jurisdictional (regional) issues recognized by the Steering Committee as priorities,
- Not engage in activities that are better handled by the local jurisdictions,
- Have limitations placed on it including:
  - The level of fees and rates it can assess,
  - The powers it has and the activities it can engage in,
  - The initial activities it engages in, and
  - Future activities it engages in.
- Be funded by a sustainable, equitable, and fair revenue source, and
- Fill gaps and gain efficiencies through eliminating some overlaps.

5.2 PRELIMINARY ORGANIZATIONAL ALTERNATIVES

A number of organizational alternatives to improve valley-wide service were reviewed from a legal and financial standpoint and were tested against the Steering Committee's overall themes and priorities.

The following "long list" of alternatives was developed by the project team:

Alternatives not including an overall valley-wide organization:

- Alternative A – The Status Quo with and without more funding, and

- Alternative B – Municipalities takeover all drainage activities and the Grand Junction Drainage District is abolished.

Alternatives including a unified, valley-wide organization:

- Alternative C1 – New Drainage Authority based on legislation passed in 2001,
- Alternative C2 – Grand Junction Drainage District as an umbrella authority,
- Alternative C3 – Regional Service Authority (needs to contain at least one entire county),
- Alternative C4 – Organization under Mesa County, and
- Alternative C5 – Intergovernmental Agreements (IGA's).

A summary comparison of the differentiating factors of the alternatives is presented in Table 6.

Table 6
Comparison of Unified Valley-Wide Alternatives

Comparison Item	Alternative				
	C1 Drainage Authority (with Water Enterprise)	**C2 Grand Junction Drainage District (with Water Enterprise)**	**C3 Regional Service Authority (with Water Enterprise)**	**C4 Mesa County (with Water Enterprise)**	**C5 IGA (with Water Enterprise)**
Funding Issues	Water Activity Enterprise would work well, could include all entities if all agree	Water Activity Enterprise would work within existing boundaries, but area outside boundary would be an issue	Water Activity Enterprise would work well	Water Activity Enterprise could only be applied to Mesa County Jurisdiction, not the other entities (Water Activity Enterprise is limited to one jurisdiction)	Water Activity Enterprise would work well, could include all entities if all agree
Initial Boundary	Flexible, contract between entities defines boundary	Does not currently include entire study area	Must contain one or more entire counties	Flexible, county could specify	Flexible, could be defined in contract
Boundary Expansion	By contract amendment agreed to by participating entities	Two ways: 1. Property owners agreement 2. New state legislation	By addition of an entire county	Flexible, County could amend but must be in the County	By contract amendment agreed to by participating entities
Formation by:	By contract between all participants	All ready formed	Election	All ready Formed	By contract between all participants
Board Makeup	By contract between all participants	Existing 3 member elected board	To be Elected	Existing BOCC	By contract between all participants

When considering all the activities that are required to provide adequate stormwater service throughout the Grand Valley, the Steering Committee came to the conclusion that the five entities themselves are best suited to provide the services that are restricted to within their boundaries and abilities as discussed above. Therefore, it was recognized that the selection of just one of the above alternatives would not meet the needs of the project. Selection of Alternative A or B in conjunction with one of the C alternatives would be necessary.

Alternative B, "Municipalities takeover all drainage activities and the Grand Junction Drainage District is abolished", was eliminated because the Steering Committee felt that it would not be wise to lose the expertise and funding of the District. The District provides an efficient and valuable service within all of the other jurisdictions and is funded by a property tax that generates about $1.2 million per year. Following the elimination of Alternative B, and the recognition that the status quo was appropriate for local activities, the Steering Committee began to focus on the "C" alternatives for the unified valley-wide effort.

The five unified valley-wide alternatives listed above were presented in TM 3, Legal Analysis, and in a follow-up legal and organizational question and answer document.

The Water Activity Enterprise shown with each alternative is in essence a stormwater utility. It should be viewed as an additional layer of income-generating authority that can be added to the organization that is ultimately selected by the Steering Committee. A description of the Water Activity Enterprise is included in the Funding Alternatives section (Section 7.6) below.

Following study and discussion, the Steering Committee eliminated alternatives C3, C4, and C5 for the following reasons:

- C3, Regional Water Authority, was eliminated because it required inclusion of the entire county and the Steering Committee did not want to expand the scope of the project outside the valley.
- C4, Mesa County, was eliminated because Mesa County could, as a single entity, form a Water Activity Enterprise, however, the enterprise could only consist of Mesa County and none of the other four entities could be a part of such enterprise. The Steering Committee felt the required public support and resolution required to create a Water Activity Enterprise under Mesa County would be difficult to obtain.

C5, IGA was eliminated because alternative C1 was essentially an IGA created specifically to address drainage and flood control issues like the ones facing the Grand Valley and there was no need to have another IGA alternative.

With the elimination of alternatives C3, C4, and C5, an expanded evaluation of alternatives C1 and C2 is presented to determine which is the best alternative to meet the needs of the project. Both alternatives include Alternative A, Status Quo, for activities that are within the boundaries of each jurisdiction and not multi-jurisdictional in nature. As outlined above, the primary activities of the multi-jurisdictional organization are:

- Planning/Regulatory,
- Construction of Large Multi-jurisdictional Projects,
- Operations and Maintenance of Large Multi-jurisdictional Projects, and
- Administration.

Following is a discussion of examples of how specific activities would be performed by the new organization under Alternatives C1 and C2. Either C1 or C2 could perform the activities.

6.1 MAJOR ACTIVITIES

Floodplain Mapping and Management

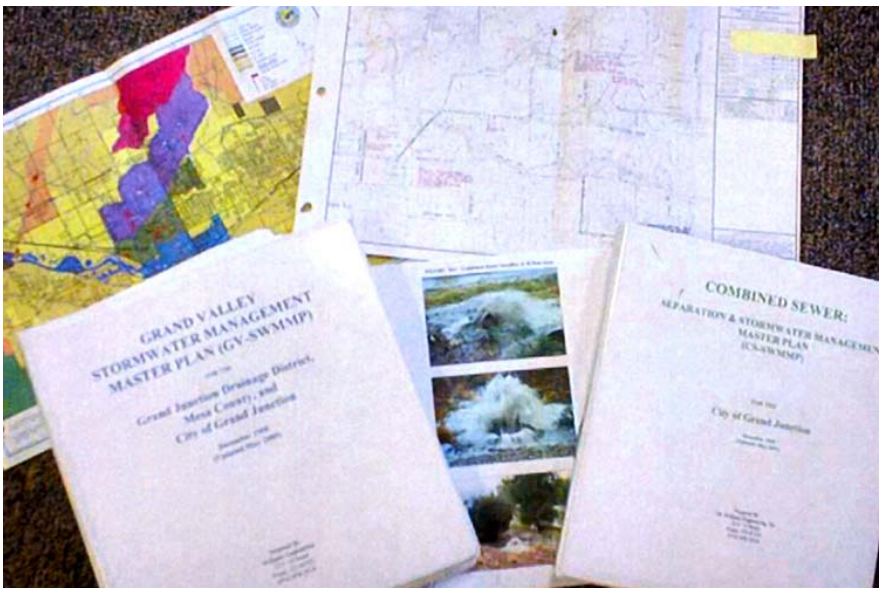
The primary concept for each of the two alternatives is the completion of multi-jurisdictional activities for and in each of the jurisdictions. For example, the floodplain mapping and management activity would be completed on washes that extend through a number of jurisdictions and on major washes that may only be located in one jurisdiction. The activity would be funded by the selected organization for the benefit of all jurisdictions and for all residents of the valley that benefit from the mapping and regulation of floodplains. It would be an efficient way to complete mapping and management, and all participating jurisdictions would receive the same mapping studies and be advised in a consistent manner on the management aspects, including where and how development should be controlled in the floodplain areas.

Flood Insurance Rate Maps

Drainage Basin Planning Studies

The completion of drainage basin planning studies would work in a similar manner. The studies would be focused on multi-jurisdictional drainage and flood control issues including major drainages that pass through a number of jurisdictions and drainages that are large enough to warrant regional attention. The selected organization would fund, manage and complete the

studies with input from the affected jurisdictions. The studies would be available to all jurisdictions. Included in this effort would be development of a consistent set of adoption guidance, Best Management Practices (BMPs), and design criteria for drainage and flood control projects throughout the valley. All jurisdictions, land developers, and residents of the valley will benefit from these studies. Appendix F provides recommendations for a drainage criteria manual to be used by developers and stormwater managers throughout the Grand Valley. These are preliminary recommendations that shall be updated when the Colorado Water Conservation Board completes its "Statewide Drainage and Floodplain Management Criteria Manual" in 2004.



Drainage Basin Planning Studies

Operations and Maintenance

Burning Vegetation to Reduce Fire Danger, Maintain Capacity and Clean Ditch

Operations and maintenance of drainage and flood control facilities would similarly be targeted at large and/or multi-jurisdictional facilities. An example of this kind of maintenance is on the large washes that traverse several jurisdictions. Many of these washes have fences, fallen trees, debris, and other things that need to be kept out of the washes to prevent blockage of downstream culverts and bridges during floods. In other communities, blocked culverts have been responsible for roadway overtopping with consequences of property damage and loss of life and injury during flooding. Therefore, the maintenance of major channels and washes benefits all of

the people of the valley that use the roadways over these washes as well as the adjacent property owners.

Capital Design and Construction

Capital design and construction would be another function of the selected organization. Again, the program would be targeted at large, multi-jurisdictional projects that have a valley-wide impact. Unlike the three previous types of activities, the capital program involves the creation of infrastructure, which will have to be owned and maintained by a public entity. There are basically two choices here: the new organization can own and maintain the facility, or the facility can be transferred to the jurisdiction where it is constructed. If the facility is not transferred, the new organization becomes a land and facility owner with all the attendant responsibilities, including, but not limited to, obligation to maintain facilities. (Facilities include ponds, culverts, storm sewer pipes, and other infrastructure used for stormwater conveyance or detention.)

Orchard Avenue Major Storm Sewer Construction, Summer 1999

6.2 TABOR ISSUES

The 1992 Taxpayers' Bill of Rights (TABOR) amendment to the Colorado constitution sharply limits the amount of money the state government can collect from taxpayers and spend each year. The limit, which applies to each Colorado local government, holds the maximum annual percentage change in fiscal year spending to inflation in the prior calendar year plus annual local growth. "Local growth" is defined as the net percentage change in actual value of all real property in a local government from construction of taxable property improvements minus destruction of similar improvements, and additions to, minus deletions from, taxable real property.

The completion of the activities described above by a unified valley-wide organization for the benefit of the local entities does not impact the TABOR requirements for each entity. In the case of transferal, the transfer does not impact the jurisdiction's TABOR limitations, because TABOR only applies to funding, not property. TABOR is only impacted if **funds, not property,** are transferred. Therefore the benefits of providing services such as studies, management, regulatory review, operations and maintenance and capital projects would not impact the TABOR limits of the jurisdictions receiving the benefits.

Another possible activity or role for the new organization is the transfer of funds to the other entities for support in carrying out their local drainage and flood control programs. This transfer of funds does impact the TABOR limitations of an entity. If the entities do not want the TABOR impacts associated with the fund transfers, they would need to create Water Activity Enterprises

to accept the funds. A Water Activity Enterprise formed by a local jurisdiction can accept funds from a Water Activity Enterprise formed by the District or Drainage Authority without triggering TABOR. Whether or not the transfer of funds from the valley-wide organization to the local entities is included needs to be addressed by the five entities.

6.3 COMPARISON OF TWO FINAL ORGANIZATIONAL ALTERNATIVES

Both alternatives include the Grand Junction Drainage District, as it is integral to both alternatives. Under Alternative C1, the District is an operating arm of a Drainage Authority and as such completes the capital design and construction activities and the operation and maintenance activities. The remaining activities could be completed by separate staff at a Drainage Authority or by staff at the District. Under alternative C2, the District is the valley-wide authority and completes all of the above-described activities.

Table 7 compares the two remaining alternatives.

Table 7
Comparison of Stand Alone Grand Junction Drainage District and Drainage Authority with the Grand Junction Drainage District as an Operational Arm

Issue	C1 Drainage Authority with Grand Junction Drainage District	C2 Grand Junction Drainage District	Comments
1. Additional Funding	The Drainage Authority would implement a water activity enterprise and a service fee on all properties within an area agreed upon by the 5 entities in a formal contract.	The District would implement a water activity enterprise and a service fee on all properties within its current boundaries by action of the Board of Directors.	If the District implemented a Water Activity Enterprise service fee within its boundaries, it may not be politically acceptable to the other jurisdictions. Implementation of a Water Activity Enterprise service fee by a Drainage Authority may be more politically acceptable because the 5 entities would have to agree by contract on the fee.
2. Allocation of portion of additional funding back to each of 5 jurisdictions for use on local activities (if desired)	This would be accomplished by having each jurisdiction set-up a Water Activity Enterprise. The Drainage Authority's Water Activity Enterprise could then allocate funds back to each Water Activity Enterprise without impacting TABOR.	This would be accomplished by having each jurisdiction set-up a Water Activity Enterprise. The District's Water Activity Enterprise could then allocate funds back to each Water Activity Enterprise without impacting TABOR.	Similar except that the study area outside the District would be difficult to obtain funding from under C2.
3. Board of Directors Composition	Composition would be decided by the 5 entities and stated in a Drainage Authority Contract.	Current board of three elected people from within the District boundaries or create new board by legislation.	A better representation of the interests of the 5 entities would be under a Drainage Authority board as it could be designed in the contract to provide such representation.
4. Control of Funding Decisions	The board of a Drainage Authority would have control of the funds collected within its boundaries.	The existing District board would have control of the funds collected within its boundaries.	See answer to Issue 1.

Table 7 (cont'd)
Comparison of Stand Alone Grand Junction Drainage District and Drainage Authority with the Grand Junction Drainage District as an Operational Arm

Issue	C1 Drainage Authority with Grand Junction Drainage District	C2 Grand Junction Drainage District	Comments
5. Initial Boundaries	The initial boundaries would be established in the contract establishing a Drainage Authority.	Existing boundaries include about 90% of the study area. Boundary expansion would require: 1. Property owners agreement, or 2. New state legislation	The new organization could be limited to the boundaries of the District.
6. Boundary Expansion	Boundary Expansion would be accomplished by amending the contract between the 5 entities. This would require agreement of the elected officials of the entities.	Same as above.	
7. Operations outside of boundary	Not necessary, but could be done if the enabling contract grants a Drainage Authority the authority to work outside its boundaries.	Not allowed in the existing statute.	
8. Collection of funds from areas outside boundary	Not as necessary because boundaries are greater than District, but could only do so if agreed to by local jurisdiction.	No authority to do so unless collected by local jurisdiction.	
9. What limitations can be placed on the organization	The Drainage Authority contract can specify limitations, subject to statutory requirements.	*Only those stated in the* District *statute.*	The limitations for the District can only be those in the existing statute unless the statute is changed by state legislation. Limitations can be customized to fit what the five entities want in a Drainage Authority contract.

Based on the analysis shown in Table 7, Alternative C1, a Drainage Authority with the District as an operating arm is recommended by the Steering Committee, representatives of the five entities, and consultant for the following reasons:

- The primary reason for this recommendation is that the board of a Drainage Authority could be more representative than the current board of the District (unless statute changes are requested of the state legislature). This is an important consideration because the District would need to implement a service fee throughout its boundaries, which includes most of the property within the other jurisdictions. The residents of the other jurisdictions will most likely want adequate voice via more elected representation in regards to the collection and expenditures of their funds.
- Another important consideration of the Steering Committee is the need for limitations on the selected organization. Under alternative C1, limitations can be written into the contract setting up a Drainage Authority. However, under alternative C2 the limitations will primarily be those within the District statute, unless the statute is changed by the state legislature.
- The final reason for selecting Alternative C1 is that the area that a Drainage Authority will include can be the entire study area, whereas the current area of the District does not include the entire study area.

While the District would be a simpler organization with less additional government, the limitations of the existing District statute put it at a disadvantage in meeting the requirements of the Steering Committee. The District statute could be changed at the State Legislature, but this possibility takes control away from the Grand Valley and is not as desirable as setting up a new Drainage Authority.

7.1 INTRODUCTION

Existing and potential sources of funding were evaluated as part of this project. Section 2 of this report summarized the existing sources and amounts of funding for stormwater management for the five entities included in the project. Existing funding for Fruita, Grand Junction, Mesa County, and Palisade is primarily out of the "general funds," which are funded primarily by sales and property taxes. Funding from the general funds is allocated year by year and can vary depending on other needs in each municipality. Existing funding for the Grand Junction Drainage District is from a dedicated property tax, and is therefore relatively constant from year to year.

Possible additional funding sources for stormwater include sales and property taxes as well as stormwater enterprise fees, development impact fees, permit fees, and grants.

The organizational structures considered in the previous sections can only implement certain funding mechanisms under state law. Some organizations can levy taxes and some can only levy enterprise fees. The funding options available to each alternative organization were part of the evaluation process.

7.2 FUNDING IN OTHER COMMUNITIES

While many municipalities are still funding stormwater programs out of general fund revenues, there has been a recent state and nationwide trend to provide a dedicated funding source for stormwater program needs. A primary driver behind this movement is the ever increasing costs for mandated NPDES stormwater permitting and environmental compliance programs, and the resulting need for a consistent, dedicated funding source. Dedicated funding sources include:

- Funding for projects in areas of existing development (can also fund operation expenses)
  - dedicated portions of property taxes and sales taxes,
  - stormwater utility enterprise fees.
- Activity specific funding for projects required because of new development
  - drainage impact fees,
  - permit fees,
  - plan review fees.

7.3 STORMWATER UTILITY (ENTERPRISE) FEES

A stormwater enterprise is the most popular funding source to meet stormwater needs. In the state of Colorado the statutory authority for a governmental entity to implement a stormwater enterprise is called the "Water Activity Enterprise." A description of the WAE statute is provided below.

The most equitable and by far the most common dedicated funding source for municipal stormwater needs utilizes a stormwater (enterprise) utility fee on each property. (During implementation, a policy decision will be made regarding charges on undeveloped property.) The reason the fee is the most equitable funding source is because it is based on and is

proportional to the contribution of runoff from each property. Revenues are also dependable from year to year and can be used for CIP, maintenance, NPDES, planning, and administration of stormwater programs.

Stormwater management fees are typically monthly "utility" fees (fees for service), which are added to water or sewer bills, and cover all developed properties. The advantages of utility fees are that they are a consistent revenue source, they are equitably applied to all properties, and the monies may be used for capital projects as well as day-to-day operations and administration. The only major drawback of utility fees is that they generally aren't set high enough to fully fund capital improvement programs. Examples of enterprise funds in the Grand Valley include Ute Water Conservancy District, Grand Junction Water Utility, City of Grand Junction Wastewater Utility, and City of Fruita Sewer Utility.

Stormwater fees are based on the amount of impervious area on each property. Impervious area includes hard surfaces such as rooftops, driveways, and parking lots, which prevent precipitation from infiltrating into the ground. The generated funds should be used primarily for projects that are necessary because of runoff from areas of existing development and/or projects that benefit existing property owners.

Stormwater utility fee levels in Colorado and across the United States are presented in Figures 14 and 15. The graphs show that the average monthly single family residential fees are in the $3.00 to $4.00 range in Colorado and across the United States.

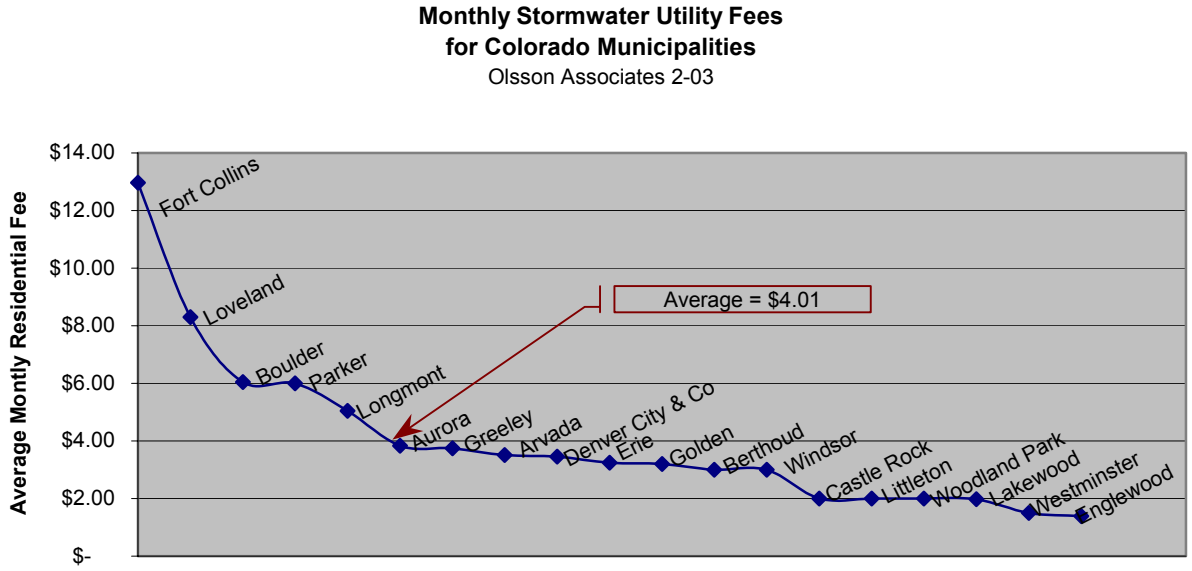


Figure 14

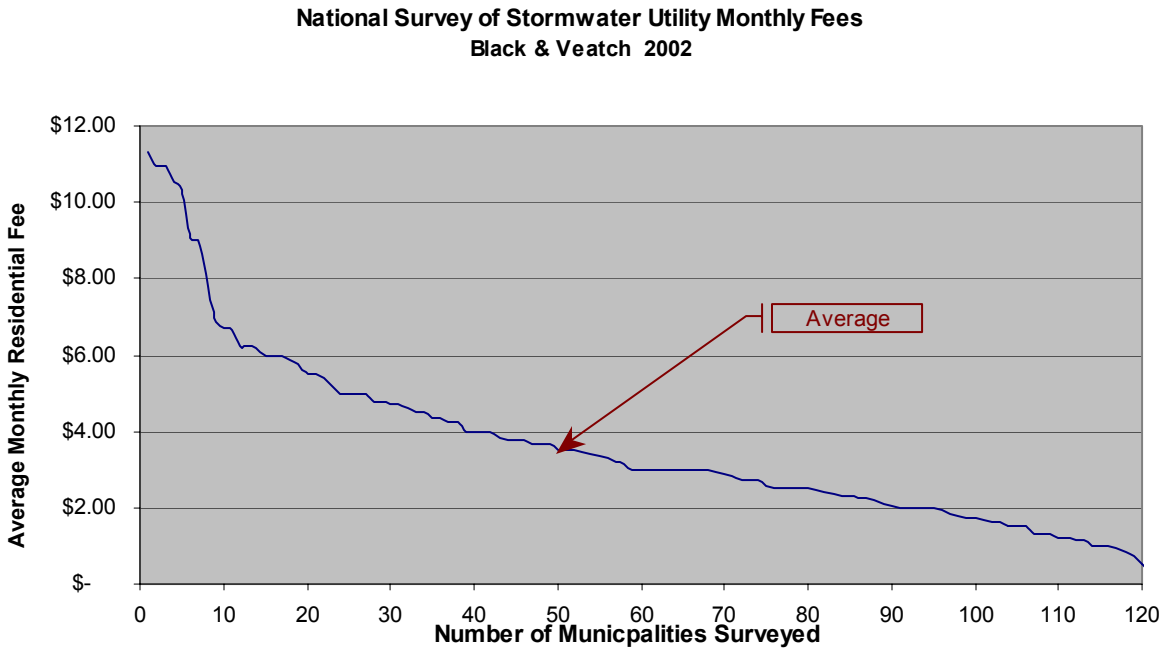


Figure 15

7.4 DRAINAGE IMPACT (DEVELOPMENT) FEES, PERMIT FEES, AND PLAN REVIEW FEES

Impact fees associated with drainage or stormwater management are variously known as drainage impact fees, drainage improvement participation fees, stormwater impact fees, and/or stormwater capital fees. In all cases, impact fees are one-time fees, assessed on new developments at the time of platting or building permit, and dedicated solely to capital improvements. The major drawback to impact fees is that these monies are specified (typically by code language) for capital improvements.

The general concept of development fees is that development "pays its own way." This is a notion popular with taxpayers in Colorado and considered fair by most developers. Exactly how much a developer contributes to a municipality for stormwater infrastructure is not always easy to compute or agree on. To make this determination as equitable as reasonably possible, a combination of engineering and legal considerations is used.

The cost paid by new land development for stormwater infrastructure should be reasonably proportional to the costs of providing the additional infrastructure. The new infrastructure should also be necessary because of the increased discharges created by the land development. If land development does not create an additional need, it should not be charged. These are important tests that apply to all types of "system development charges" or "development impact fees" and have been established by case law, which is referred to as the "rational nexus" test.

New land development should not have to pay for the costs of improvements serving previously developed areas unless the improvements are necessary to accommodate increased flows generated by new development. In many cases stormwater infrastructure serves both new and

previously developed areas and the relative impacts of both sources of stormwater must be computed to justifiably proportion the costs.

Permit and plan review fees can be used to offset the costs of specific functions within a stormwater management program. Typically, they are used to fund staff to conduct plan reviews, issue permits, and conduct field inspection and enforcement activities.

7.5 WATER ACTIVITY ENTERPRISE STATUTE

In 1993 the Colorado Legislature, in a reaction to TABOR, passed the water activity enterprise statute at 37-45.1-101 C.R.S. The statute pertains to districts, which are in part defined as any state or local governmental entity which has authority to provide stormwater services as well as those entities created under Title 29 of the Colorado statutes which would include authorities as well as IGAs. Stormwater services are included in the definition of water activity. A water project or facility includes a dam, storage reservoir, compensatory or replacement reservoir, canal, conduit, pipeline, tunnel, power plant, water or wastewater treatment plant, and any and all works, facilities, improvements, and property necessary or convenient for the purposes of conducting a water activity.

The statute clearly states that any water activity enterprise established or maintained pursuant to the statute is excluded from the provisions of TABOR. However, the statute limits certain revenue activities that a water activity enterprise may participate in. Those limitations include that the enterprise may not levy a tax, which is subject to TABOR, and it may not receive more than ten percent of its annual revenues in grants from all Colorado state and local governments combined.

The statute does however limit the composition of an enterprise to one governmental entity and does not permit one enterprise to be combined with any other water activity enterprise owned by another district.

Each water activity enterprise shall be governed by either:

- The governing body of the district that owns the enterprise, or
- A different governing body as prescribed by applicable laws, city and county, county, or municipal charters, county resolutions, municipal ordinances, or intergovernmental agreements.

In addition to its ability to collect revenues from the fees that it collects based upon impervious area (for example), a water activity enterprise has the ability to issue revenue bonds.

A water activity enterprise should be considered not as the main independent legal entity that could be formed by the Project's participants, but should be viewed as an additional layer of income generating authority that can be added to the vehicle that is ultimately selected by the Project's participants.

The advantage of a water activity enterprise, as perceived by those governmental entities that have created them to date, is that they are considered non-tax generating entities and thus do not require an election of the public to impose a fee to support drainage activities of a water activity enterprise.

As noted earlier, most of the entities that have been discussed in this memorandum would qualify to form a water activity enterprise. In a situation where it was determined that an IGA was the optimal vehicle to carry out the purposes of the Project, that IGA would have the ability to assess a service fee on real property within the area covered by the IGA.

A disadvantage of a water activity enterprise is that it can consist of only one entity. Therefore, certain alternatives would not work if multiple governmental entities wished to participate. However, if those multiple entities are able to form one governmental entity, such as a Drainage Authority, that problem would be overcome.

8.1 RECOMMENDED ORGANIZATION- A DRAINAGE AUTHORITY

One of the primary conclusions of the Steering Committee was the need for some type of valley-wide organization to address the multi-jurisdictional drainage issues. And the individual municipalities and districts could not adequately deal with these multi-jurisdictional issues without such an organization.

Based on the analysis presented in the previous sections, a Drainage Authority with the Grand Junction Drainage District as an operating arm is recommended by the consultants, managers of the five entities, and the Steering Committee as the best alternative to meet the needs of the Grand Valley. Expansion of the Grand Junction Drainage District presented a number of significant legal issues with the state statute that governs its powers. The state statute could be amended by the state legislature, but not without certain risks of getting undesirable amendments. Following are the reasons for the recommendation:

1. The primary reason for recommending a Drainage Authority is that its governing board would be larger and more representative than the current three-member board of the Grand Junction Drainage District. A larger board is necessary to govern an organization that has valley-wide responsibilities and powers. The Grand Junction Drainage District Statute specifies a three-member board, the statute would therefore need to be amended by the State Legislature.

2. An important consideration of the Steering Committee is the need for limitations on the selected organization. Limitations can include such things as the types of activities the organization can engage in; powers, funding and spending limitations; and expansion and contraction agreements. The limitations currently applicable to the Grand Junction Drainage District are determined only by its board or state statute. These current limitations are not adequate to meet the Steering Committee requirements, therefore the statute would therefore need to be amended by the state legislature. However, the desired limitations for a Drainage Authority can be written into the contract setting up a Drainage Authority. The contract is drafted by the five entities forming a Drainage Authority.

3. The final reason for selecting a Drainage Authority is that it can include the entire study area, whereas the current area of the Grand Junction Drainage District does not include the entire study area. A Drainage Authority can also expand or contract by amendment of the contract between the five entities or operate outside the District boundary. Again, the Grand Junction Drainage District Statute could be amended by the state legislature, but that would be a cumbersome method to expand and contract boundaries.

It was recognized that the Grand Junction Drainage District would be a simpler organization with less additional government, however, the limitations of its existing statute put it at a disadvantage in meeting the requirements of the Steering Committee. The Grand Junction Drainage District Statute could be changed by the state legislature, but this possibility involves a degree of risk in what the legislature may or may not do and takes control away from the valley.

8.2 SETTING UP A DRAINAGE AUTHORITY

To set-up a Drainage Authority, the entities included need to follow the general provisions of the state statute pertaining to drainage authorities. The requirements of the statute are presented below with key requirements underlined by the authors of this report:

29-1-204.2 (2) C.R.S. sets forth certain provisions that must be in the contract forming a Drainage Authority and 29-1-204.2 (3) C.R.S. of the statute sets forth the powers of a Drainage Authority.

The applicable portion of the statute follows:

29-1-204.2 (2) C.R.S.:

"(2) Any contract establishing such separate governmental entity shall specify:

(a) The name and purpose of such entity and the functions or services to be provided by such entity;

(b) The establishment and organization of a governing body of the entity, which shall be a board of directors in which all legislative power of the entity is vested, including:

(i) The number of directors, their manner of appointment, their terms of office, their compensation, if any, and the procedure for filling vacancies on the board;

(ii) The officers of the entity, the manner of their selection, and their duties;

(iii) The voting requirements for action by the board; except that, unless specifically provided otherwise, a majority of directors shall constitute a quorum, and a majority of the quorum shall be necessary for any action taken by the board;

(iv) The duties of the board, which shall include the obligation to comply with the provisions of parts 1, 5, and 6 of this article;

(c) Provisions for the disposition, division, or distribution of any property or assets of the entity;

(d) The term of the contract, which may be continued for a definite term or until rescinded or terminated, and the method, if any, by which it may be rescinded or terminated; except that such contract may not be rescinded or terminated so long as the entity has bonds, notes, or other obligations outstanding, unless provision for full payment of such obligations, by escrow or otherwise, has been made pursuant to the terms of such obligations;

(e) The conditions or requirements to be fulfilled for adding or deleting parties to the contract in the future or for providing water services and drainage facilities to others outside the boundaries of the contracting parties.

29-1-204.2 (3) C.R.S. The general powers of such entity shall include the following powers:

(a) To develop water resources, systems, or facilities or drainage facilities in whole or in part for the benefit of the inhabitants of the contracting parties or others, at the discretion of the board of directors, subject to fulfilling any conditions or requirements set forth in the contract establishing the entity;

(b) To make and enter into contracts;

(c) To employ agents and employees;

(d) To acquire, construct, manage, maintain, or operate water systems, facilities, works, or improvements, or drainage facilities, or any interest therein;

(e) To acquire, hold, lease (as lessor or lessee), sell, or otherwise dispose of any real or personal property utilized only for the purposes of water treatment, distribution, and waste water disposal, or of drainage;

(f) To condemn property for use as rights-of-way only if such property is not owned by any public utility and devoted to such public use pursuant to state authority;

(g) To incur debts, liabilities, or obligations;

(h) To sue and be sued in its own name;

(i) To have and use a corporate seal;

(j) To fix, maintain, and revise fees, rates, and charges for functions, services, or facilities provided by the entity;

(k) To adopt, by resolution, regulations respecting the exercise of its powers and the carrying out of its purpose;

(l) To exercise any other powers which are essential to the provision of functions, services, or facilities by the entity and which are specified in the contract;

(m) To do and perform any acts and things authorized by this section under, through, or by means of an agent or by contracts with any person, firm, or corporation;

(n) To permit other municipalities, special districts, or political subdivisions of this state that are authorized to supply water or to provide drainage facilities to enter the contract at the discretion of the board of directors, subject to fulfilling any and all conditions or requirements of the contract establishing the entity; except that rates need not be uniform between the authority and the contracting parties;

(o) To provide for the rehabilitation of any surfaces adversely affected by the construction of water pipelines, facilities, or systems or of drainage facilities through the rehabilitation of plant cover, soil stability, and other measures appropriate to the subsequent beneficial use of such lands;

(p) To justly indemnify property owners or others affected for any losses or damages incurred, including reasonable attorney fees, or that may subsequently be caused by or which result from actions of such corporations."

8.3 RECOMMENDED FUNDING SOURCE- A STORMWATER UTILITY

Elected officials have several choices on how to fund a stormwater program, including the use of funds from the individual entities or establishing a dedicated funding source with and under a Drainage Authority. The allowable funding sources for a Drainage Authority include: "the ability to fix, maintain, and revise fees, rates, and charges for functions, services, or facilities provided by the entity" but do not include the ability to levy sales or property taxes.

Funding with a stormwater activity enterprise (a stormwater utility) is the fairest, most equitable, and most dependable funding source as described in the funding section above. The stormwater fee would be charged to all properties within the Drainage Authority boundary, and would be based on the number of square feet of impervious area on each property. Impervious area is area where the works of man have made the ground surface "impervious" to the infiltration of rain and include such surfaces as parking lots, sidewalks, structures, streets, and other "hard" surfaces.

The stormwater fee would not be a tax, but a fee similar to a water or wastewater utility fee. Because it is a fee, it is not subject to TABOR and does not have to go to a vote. All the proceeds would be dedicated to stormwater activities.

AN EXAMPLE PHASE 1 PROGRAM

Funding needs are not yet clearly known. In order to fund the studies to determine funding needs, as well as critical capital, maintenance, and water quality permitting activities an example of a Phase 1 program is set forth in Table 8 for consideration by elected officials.

Table 8
Example Budgetary Level Estimate for Phase 1

Activity	Total Estimated Cost	Phase 1 Annual Budget
Critical Capital Projects	$20,700,000	$1,200,000
Critical Maintenance Projects	$960,000	$350,000
Stormwater Permit (first 5 year permit)	$2,740,000	$600,000
Flood Plain Mapping	$860,000	$125,000
Drainage Basin Planning Studies	$2,650,000	$600,000
TOTAL	**$27,910,000**	**$2,875,000**

Notes:
1. Capital project costs based on Gerald Williams Study
2. Stormwater permit costs based on estimates of Grand Valley Stormwater Managers
3. Maintenance project costs based on estimates of Grand Valley Stormwater Managers
4. Flood plain mapping costs based on Federal Emergency Management Agency cost of $7,200 per mile.
5. Drainage basin planning study costs based on per square mile costs from Urban Drainage and Flood Control District in Denver

Flood plain mapping and drainage basin planning studies will be completed in approximately 5 years. Following their completion, most of the funds used for these activities can be applied to other activities.

The specific projects comprising each line item in Table 8 can be found in Appendix G.

Funding the Phase 1 program with a stormwater utility fee would require the following approximate fee levels:

Table 9
Approximate Monthly Fee Levels for Stormwater Utility

Type of Property by County Assessor	Approximate Monthly Fee Level
Single Family Residential	$2.75
Commercial- Merchandising	$18.50
Manufacturing	$66.33
Tax Exempt	$146.00

The following table shows estimates of historic expenditures, approximate 100-year upper limit program expenditures and example Phase 1 expenditures. The "maximum stormwater program" for the Grand Valley approximates 100-year protection for major facilities and would help meet local criteria for minor facilities. However, until more basin planning studies are completed in Phase 1, it is unknown exactly what problems and needs will require attention and the amount of funding required. The estimate was made to bracket the probable range of costs involved in

upgrading the stormwater program in the Grand Valley and to see where Phase 1 fits in terms of the bracketed needs.

Table 10
Comparison of Maximum, Historic, and Example Phase 1 Programs
Average Annual Budgets
(all numbers are rounded)

	Maximum Program (order of magnitude estimate)	Example Phase 1 Program (in addition to Historic Program- to be used for multi-jurisdictional needs)	Historic Program (continued by local entities for local activities)
CIP	**$ 5,000,000**	**$ 1,200,000**	**$ 1,000,000**
Maintenance	**$ 3,000,000**	**$ 350,000**	**$ 1,700,000**
NPDES, Planning, Administration	**$ 1,000,000**	**$1,325,000**	**$ 300,000**
TOTALS	**$ 9,000,000**	**$ 2,875,000**	**$ 3,000,000**

CIP includes costs for eight of 28 basins that have been studied and costs for 20 basins that have not been studied. The costs for the studied basins are approximately $45,000,000 from engineering estimates completed in the basin studies and the costs for the unstudied basins are projected to be in the range of $50,000,000 based on the best engineering judgment of the Grand Valley Stormwater Managers. It is therefore projected that total CIP needs could be about $100,000,000. CIP projects are assumed to be built out over a 20 year period, but could be accelerated if bonding was undertaken.

9.1 NEAR-TERM TASKS

Stormwater managers in the Grand Valley, as well as consultants and elected officials should perform the following in the next 6- to 12-month period.

- The five entities should sponsor a public education campaign including:
  - Presentations to elected officials at joint and individual meetings,
  - Presentations to public groups, and
  - A telephone survey.
- The recommended organizational and funding alternatives (Drainage Authority and Water Activity Enterprise) must be proposed to the elected officials of each of the five entities. In addition, direction must be requested from public officials.

9.2 INTERMEDIATE-TERM TASKS

Pending approval of a Drainage Authority and Water Activity Enterprise, elected officials should define the contract terms of any proposed Drainage Authority such that adequate valley-wide representation is maintained. Also, the contract should include other details and limitations, including the process by which the boundary can be either expanded or contracted. To ensure valley-wide coordination, staff will coordinate with irrigation companies, as well as the federal agencies that control most of the land area to the north and south of the urbanized valley area.

Stormwater managers should develop a fair and simple rate structure using input from elected officials, technical staff, and the public.

9.3 LONG-TERM TASKS

This process is aimed at significantly improving stormwater management in the Grand Valley. A significant amount of future work will be needed to convert this aim into a reality, including production of studies, performance of maintenance activities, and construction of capital improvements. These activities, performed in a systematic, coordinated, and timely manner, will possibly save lives and certainly will save property and improve the efficiency of the drainage system.