

Mount Werner Water and Sanitation District (MWWD)
Fire Flow Availability Improvements Committee

FIRE FLOW COMMITTEE REPORT

1. Creation of and charge to the Committee. Bob Stoddard brought the need to improve fire flow availability in certain areas of the District to the Mount Werner Water Board's ("Board") attention at its January 21, 2005 Board meeting. Although the issue affects several areas, it seemed to the Board to be most urgent along upper Ridge Road. Therefore, the Board directed Mr. Stoddard to schedule a meeting with the residents of upper Ridge Road to discuss several issues relating to fire flow availability along upper Ridge Road. A well-attended meeting was held on March 14, 2005. At the Board meeting on March 18, 2005, counsel to the District, Thomas R. Sharp, recommended that the Board consider adopting a fire flow availability improvement policy. Mr. Borden, Mr. Halverson and Mr. Stoddard agreed to try to have a draft policy ready for review at the May Board meeting. It quickly became apparent to them that the development of a uniform policy applicable to all low fire flow areas and also responsive to the recent and ongoing construction of large single and multiple-family structures would require careful research, analysis and professional legal and engineering advice. Therefore, a Fire Flow Availability Improvements Committee composed of Mr. Halverson, Mr. Borden and Ms. Mayer was created by Board action at the May 20, 2005 meeting. The Board also directed Mr. Borden, on behalf of the District, to enter into a letter of engagement with Matthew Dalton of Grimshaw & Haring to provide legal advice. Mr. Stoddard, Manager of the District, has provided engineering advice to the Committee. The District has employed Doug Bradfield of Civil Design Consultants, Inc. to provide technical input relating to possible fire flow improvement projects.

The Committee's charge is to:

- a. consult legal counsel concerning the District's responsibilities with respect to the low fire flow availability areas,
 - b. review the historical record relating to the design and construction of the water utility improvements in each low fire flow availability area,
 - c. develop and recommend to the Board policies to address:
 - i. whether to construct capital improvements in low fire flow availability areas, and, if so,
 - (a) what standards to meet, and
 - (b) how to pay for them
 - ii. whether and how to notify owners and potential purchasers of property in low flow areas of the situation, and
 - iii. how to address fire flow availability in areas where the city may grant permits for buildings that exceed fire flow availability based on existing utility facilities.
2. The District's legal responsibilities. The District has been advised by counsel that it has no liability for damages resulting from inadequate design of its water system.

This absence of liability applies either if the design did not meet standards at the time the facilities were constructed, or if the design fails to meet current standards. Thus, the District has no legal duty to upgrade the water utilities in the low flow areas. It does have the right to do so.

3. Low fire flow availability areas. Low fire flow occurs in the following areas within the District:
 - a. Timothy Drive (Whistler Meadows Filing No. 1)
 - b. Anthony Circle including upper Val D'Isere Circle (Ski Ranches Filing No. 6)
 - c. Laurel Lane (Ski Ranches Filing No. 4)
 - d. Ridge Road (Rendezvous Trails Filing No. 2, Burgess Creek Ridge, 3 lots of the Male Property)
 - e. Ski Trail Lane (Ski Trails Filing No. 3, Ski Ranches Filing No. 4)
 - f. Long Thong Road (Ski Ranches Filing No. 3, Valley View)
 - g. Burgess Creek Road (Rendezvous Trails Filing No. 1)

It should be understood that fire flow availability varies along several gradients. It is not a constant that can be achieved uniformly. There will always be areas where fire flow availability is lower than elsewhere.

4. Historical background information. The following is a history of the District with respect to the low fire flow availability areas:

The District was formed by order of the Routt County District Court on July 30, 1965 in Civil Action No. 3776. The Court in that Civil Action has approved all subsequent inclusions in the District. The first Board meeting at which operational decisions were made occurred on January 11, 1966. The District had a Board of five members (Merle W. Nash, John R. Fetcher, Henry A. Perry, John K. McCready and Mack L. Clayton) but no staff. At that meeting, and throughout the time period of interest here (until at least 1981), the Board was regularly advised by Jay Lutz, a Denver attorney, Kenneth R. Wright and other principals in the Denver engineering firm of Wright-McLaughlin Engineers, and Harry Lewis and other principals in the Denver bond underwriting firm of Boettcher & Co. All of these people were highly respected in their fields. The Board has always had five members, but a total of 15 different people served on the Board between 1966 and 1982. Don Valentine has the distinction of having served on the Board for 37 years, from October 7, 1967, until September 20, 2004. He was an officer of Sunray Land Corporation, the subdivider of Ski Ranches Filing No. 3, Rendezvous Trails Filing Nos. 1 and 2, and Ski Ranches Filing Nos. 5 and 6, and co-developer of Whistler Meadows Filing No. 1. He was the subdivider in his own name of Ski Ranches Filing No. 4.

John Fetcher was the most influential person in the organization and management of the District from the beginning until his retirement on December 31, 1996. A corporation of which he was the president installed 2487 feet of pipeline and related facilities at the base of the ski mountain and sold them to the District on January 11, 1966. In the absence of permanent staff, another corporation of which John Fetcher was president contracted with the District on January 11, 1966, to provide 24-hour

standby service to the District. Thereafter, he served as Manager until December 31, 1996. He also served on the Board of Directors until January 1, 1976, when he resigned after it was determined that he could not serve both as a director and an employee of the District. As a professional engineer, he was the principal contact with the District's consulting engineers, although he has advised the chairman of this committee that he relied on Wright-McLaughlin to make or confirm all decisions concerning engineering standards for District facilities. The relationship with Wright-McLaughlin began in May 1965. It maintained an office in Steamboat to serve the District from the early days until May 1981.

The subdivisions in which low fire flow occurs were platted at various times between December 8, 1964 and October 9, 1980. The land included in those subdivisions was included in the District by many different inclusion orders. Some of the land was included in the District prior to its subdivision. Other land was included after subdivision and, frequently, after lots had been sold by the subdivider. Because all inclusions are by legal description, including section, township and range; metes and bounds; and lots in subdivisions, rather than by maps, we have not attempted to determine exactly when each parcel in each low flow area was included in the District. As an example, at a Board meeting on July 1, 1967, land was included by metes and bounds description, and certain (probably all) lots in Ski Ranches Filing No. 3 and Rendezvous Trails Filing No. 1 were included. Nineteen different landowners are identified. Therefore many of the lots had been previously sold by the developer of those subdivisions before water and sewer facilities had been installed. The purchasers of some of the lots had participated in the subdivision of the lots. For example, James Temple and Don Valentine were the principals of Sunray Land Corporation, the subdivider of Ski Ranches Filing No. 3 and Rendezvous Trails Filing No. 1. Sunray sold the "T" lots in Rendezvous Trails Filing No. 1 to James Temple and sold the "V" lots in Rendezvous Trails Filing No. 1 to Don Valentine. Some of the lots were sold to corporations. We have not investigated any possible relationship between the principals of the subdividers, the principals of those corporations and the members of the District board. Nor do we know whether those corporations constructed any improvements in any of the subdivisions. Thus, although it appears that the original subdividers were not involved in decisions concerning the installation of water and sewer facilities in their capacity as subdividers, some principals of the subdividers retained ownership of some of the property and also served on the Board of the District. That does not surprise us, since they were among the small group of people who would have been interested in serving on the Board. We intend no inference that they had a conflict of interest.

The City annexed the District on May 2, 1973. We have not tracked District inclusions after that date, and assume that the City also concurrently annexed all future inclusions. There have been a couple of "enclaves" (none of which are relevant to this report) which were in the City and surrounded by the District but not part of the District until they annexed later into the District, e.g., Quail Run)

5. Circumstances at the time the improvements were installed. As previously noted, the engineering designs for all improvements were made by Wright-McLaughlin. John

Fetcher worked closely with Wright-McLaughlin. The District was responsible for making all final decisions as to what to construct. Wright-McLaughlin also prepared all contract bidding documents. The District then contracted with third-party contractors to construct the improvements. Wright-McLaughlin supervised the construction. When they were completed, Wright-McLaughlin signed as-built drawings of the improvements. We believe that the design, construction and financing of water and sewer facilities was done by authority and under the supervision of the District, not any of the subdividers or developers. To the extent that there was any governmental regulation of the design or installation of the improvements, it would have been the county until May 2, 1973 and the city thereafter. District files also show that the Colorado Department of Health also had some regulatory authority, but the only references we found were to sewer service and therefore not relevant to the subject matter of this report. Although we have not researched city or county records from the 1970's, we are not aware of any governmental regulations, for fire flow or otherwise, applicable to the design and installation of the improvements during the 1970's. We have not found any city regulations concerning fire flow standards applicable to single-family residences until the City adopted the 1991 Uniform Fire Code in February 1993.

However, the Board minutes make it clear that the District addressed the need for adequate fire flow throughout the 1970's and thereafter, and relied on Wright-McLaughlin to design facilities which met professional engineering fire flow standards. (For example, on January 16, 1970, the Board asked Wright-McLaughlin to do an engineering study on a storage reservoir, primarily due to fire protection needs. On August 18, 1970, the Board discussed fire protection of the gondola building and tap fees for sprinkled buildings. At Board meetings on March 25, 1974 and May 28, 1975, it was noted that fire flows need to be up to the District standards so as not to jeopardize fire insurance rates for the whole District. A Master Planning Report dated May 1971 (the "1971 Report"), prepared by Wright-McLaughlin contains numerous fire flow criteria. The 1971 Report refers to standards of the National Board of Fire Underwriters, the Mountain States Inspection Bureau and the American Water Works Association. District files also contain references to decisions based on standards established by the Insurance Services Office, which is not mentioned in the Wright-McLaughlin Report. A guide for Determination of Required Fire Flow prepared by the Insurance Services Office (ISO) in December 1974 provides a formula for determining required fire flow for a building based on floor area and type of construction. It contains the following standard for districts of 1-family and small 2-family dwellings not exceeding two stories in height: 500 gpm if the distance between buildings is over 100 feet, 750-1000 gpm if the distance is 31-100 feet, 1000-1500 gpm if the distance is 11-30 feet, and 1500-2000 gpm if the distance is 10 feet or less. Distance between buildings is not a criteria mentioned by Wright-McLaughlin in its 1971 Report. Other factors, such as storage capacity, pump stations, pressure reducing valve settings (an ongoing maintenance item) and pressure and time limitations are also important in evaluating fire flow. Thus, we recognize that, during the 1970's and probably now, there were and are several approaches one could take in establishing adequate fire flow standards. We recognize that evaluating

the adequacy of fire flow is best left to experts, and that it is certainly far more complex than simply the size of pipe or gallons per minute.

The 1971 Report states that, in general, all mains and transmission lines should be ductile-iron pipe, 6-inch diameter and larger and that all fire hydrants laterals should be a minimum of 6-inch in diameter (page III-8). Specific criteria for sizing of feeders and water mains in various kinds of development are stated to be 3500 gpm at 20 psi from a hydrant or group of hydrants for major condominium clusters over 3 stories, 2500 gpm for major business areas, 2000 for multifamily residential areas, 1500 gpm for residential areas, and 1000 gpm for sparse residential areas of 1-2 units per acre (Table III-G). There are additional fire flow criteria contained in the 1971 Report. Please refer to the complete report for a full statement of applicable criteria. Below is a summary of the improvements that were constructed in each of the low fire flow availability areas and the engineering reasons for the low flow.

	<u>Area</u>	<u>Constructed Improvements</u>	<u>Reason(s) for Low Fire Flow</u>
a	Timothy Drive	Roughly 665 feet of 4" DIP	1. Long dead end main 2. Limited pipe diameter
b	Anthony Circle	Roughly 391' of 8" DIP Roughly 782' of 6" DIP	1. Area is geographically high in the high zone 2. Geographical area has no place to loop water line 3. Long dead end main
c	Laurel Lane	622' of 8" DIP 632' of 10" DIP	1. Area is geographically high in the high zone 2. Geographical area has no place to loop water line 3. Long dead end main
d	Ridge Road	Roughly 3,500 feet of 6" DIP	1. Area is geographically high in the pump zone 2. Geographical area has no place to loop water line 3. Long dead end main

			4. Limited pipe diameter
e	Ski Trail Lane	Roughly 4,000 feet of 6" DIP	1. Water source is from only one direction. 2. Limited pipe diameter
f	Long Thong/Valley View	Roughly 1,500 feet of 6" DIP	1. Area is geographically high in the middle zone 2. Long dead end main 3. Limited pipe diameter
g	Burgess Creek Road Below PRV	8" DIP	1. Area is geographically at the top of the high zone resulting in low pressure

The District files contain very little information as to the decision-making process leading to the construction of water and sewer facilities. We did find some records concerning Rendezvous Trails Nos. 1 and 2 that offer some insight into the complexity of the decision-making process. In 1969, Wright-McLaughlin evaluated two possible sites for a water treatment plant along Burgess Creek. One site was about a mile upstream from the bridge across Burgess Creek. The other was in the meadow northwest of the bridge where the existing facility is located. The upstream site was at a higher elevation (8,000'), but more expensive and difficult to access. Wright-McLaughlin recommended the lower site "based on present and future requirements". The decision to construct the Thunderhead Reservoir in 1973 was based on fire flow demands and cost considerations. One consideration was whether construction of the Viking Building at Scandinavian Lodge would go forward. In 1974, The District directed Wright-McLaughlin to engineer the water and sewer facilities for Rendezvous Trails No. 2 on a rural-type system with hydrant flows that would not meet the standards at the base of the mountain. The Directors agreed, subject to engineering approval, to install a 4" water line on upper Ridge Road. There is no discussion of how that decision was changed to a 6" line, although one could infer that the engineers recommended it. There is no mention of consideration of an 8" line. Mr. Fetcher wrote a letter to Rendezvous Trails No. 2 lot owners, advising them that the bond market was tight and that pre-paid tap fees were the logical way to finance construction. A 15% discount was offered, which suggests some interaction between the lot owners and the District as to how to finance the improvements for Rendezvous Trails No. 2. As part of this work, it was necessary to realign Burgess Creek Road and negotiate with the city as to which entity would pay for that work. In 1980 and 1981, a sewer line to serve the lots on the high side of Ridge Road was discussed. The cost was considered prohibitive unless prepaid tap

fees were advanced for all of the lots, together with the possibility of a surcharge on regular tap fees. A Special Improvement District was considered. Ultimately, on September 8, 1981, the District asked the owners of 11 lots on upper Ridge Road to prepay tap fees of \$2,000 per lot for sewer service, in return for which the District offered to pay \$53,000 of the \$75,000 cost of installing the sewer line. Some of the present owners of those lots may recall that letter. These fragments hint at the financial and engineering difficulties involved in serving Rendezvous Trails No. 2 and other high elevation subdivisions and suggest that payment for at least some of these improvements was achieved through negotiation rather than strictly following the rules and regulations. The principal sources of funds for the construction of facilities were proceeds from the issuance of bonds and tap fees, often prepaid. The District also received water and sewer service fees, which increased annually as construction progressed, property taxes from 1966 through 1993 (see appendix A which is a summary of the water and sewer user fees collected as well as the property taxes collected from the inception of the District through 2004), perhaps some availability of service charges for two or three years after they were authorized by the legislature in 1971, and some government grants. Most bonds were issued between 1967 and 1975, and were repaid by 1991. Tap fees were collected every year as early as 1967. They increased dramatically through the 1970's and into the early 1980's. Throughout this period of time, there was repeated discussion in Board meetings concerning District policy on payment of all or part of construction costs by prepayment of tap fees by developers, and concern about disproportionately high construction costs in certain areas and the need for developers in those areas to assume those costs. After the proceeds from the last bond issue were spent, the capital cost for construction of water utilities in subsequently developed areas was paid for by the developers. Lot-owners in those areas also paid tap fees at the time of construction of improvements.

We have been unable to reconstruct an exact allocation of the cost of construction in each low flow area between bond financing and tap fees. Bond financing would have been repayable by revenue from all sources., Proceeds from issuance of bonds and tap fees both increased over time. If the bond revenue increased proportionately to the increase in assessed valuation, then it seems logical to conclude that the costs of construction in each new subdivision were approximately borne by the lot owners in that subdivision, in part up front and in part over a period of as much as 15 or 20 years. More precision than that does not seem possible, as many factors affected the mix at any time: the bond market, interest rates, the economy, the ability and willingness of lot owners to advance tap fees, the complexity of the various elements of the utilities system, the need to stage development, and the fact that many parts of the system benefited several subdivisions or even the whole district.

6. History of District Fire Flow Studies. Dismuke & Dismuke Engineers made an Available Fire Flow Study for the District in 1981. Ryan Fisher compiled fire flow data in 1997 for Steamboat Springs Water that included the Mount Werner Water District area. Bob Stoddard updated the data in 2000 and has since kept it current. Section V of the Dismuke & Dismuke Available Fire Flow Study contains several

recommendations. Below is a summary of how the recommendations were addressed:

1. Conversion of key pressure reducing valves to pressure reducing – pressure sustaining valves – the PRV’s at the Burgess Creek Plant and below Trails Edge were converted per this recommendation so as to not drain the Thunderhead Tank. This work was completed and paid for by the District.
2. Reduce the downstream operating pressure of other pressure reducing valves – this work was completed and paid for by the District
3. Installation of a 12” water line from Ski Trail Lane to Columbine Drive – Completed in 1984. The District paid for the oversizing of the pipe.
4. Installation of a 12” water line from Mt. Werner Road to Walton Creek Road – Completed in 1986. The District paid for the oversizing of the pipe.
5. Installation of the Ski Trail Lane Tank and Supply Line – The South Tank was built in 1982. The Tank was paid for by the District. (We do not know why the South Tank was built and not the Ski Trail Lane Tank).

As development has occurred in other areas that were identified with low fire flow availability, such as Trollhaugen/Montview, developers have been required to close loops to improve the fire flow availability. The completion of the Skyline Tank in 2001 improved the fire flow availability in the Aspenwood Drive area of the Sanctuary. No projects have been undertaken by the District to address low fire flow in any of the seven identified areas. Below is a list of capital projects paid for by the District since 1996:

Year	Project	Type of Improvement	Amount
1996	Burgess Creek Plant	Upgrade - General site improvements	\$6,267
1997	Running Bear Line Oversizing	Upgrade - Water Distribution – Improve Fire Flow	\$28,010
	Forest Service Building Loop	Upgrade - Water Distribution – Add system redundancy	\$15,377
1998	Yampa Well System Filtration	Upgrade - Improve treated water quality	\$700,654
	Sewer Main Pipebursting	Expansion - Wastewater Collection – Increase pipe capacity	\$22,854
1999	Yampa Well System Filtration	Upgrade - Improve treated water quality	\$32,532
	Fish Creek Plant Expansion	Expansion - Increase treated water capacity	\$34,016
2000	Fish Creek Plant Expansion	Expansion - Increase treated water capacity	\$1,354,501
	SCADA System	Upgrade - Improve water treatment and distribution system	\$22,961

		control	
	Yampa Well System Filtration	Upgrade - Improve treated water quality	\$15,148
	Miscellaneous Water & Sewer Extensions	Renewal/Replacement - Water Distribution – Relocate water line	\$44,132
2001	Skyline Tank	Expansion/Upgrade - System Storage/Water Distribution/Fire Flow Improvement	\$53,964
	SCADA System	Upgrade - Improve water treatment and distribution system control	\$221,209
	Fish Creek Plant Expansion	Expansion - Increase water treatment capacity	\$58,701
	Water Main Extension – Skyline Tank	Upgrade - Water Distribution – Extend water to FC Plant	\$58,701
	Sewer Main Extension	Renewal/Replacement - Waterwater Collection	\$4,663
2002	Sewer Main Slipline	Renewal/Replacement - Wastewater Collection – I&I	\$152,122
	Sewer Main Pipebursting – Natches Way	Renewal/Replacement - Wastewater Collection – Increase Capacity	\$13,288
	Skyline Tank	Expansion/Upgrade - System Storage/Water Distribution/Fire Flow Improvement	\$338
	Fish Creek Plant Chlorine Conversion	Upgrade - Improve plant safety	\$6,137
2003	Fish Creek Plant Chlorine Conversion	Upgrade - Improve plant safety	\$13,406
	The Pines Water Main Extension	Renewal/Replacement - Water Distribution – Share in cost to replace corroded pipe.	\$2,484
	The Willows Water Main Extension	Upgrade - Water Distribution – Close loop	\$8,258
	Skyline Tank	Expansion/Upgrade - System Storage/Water	\$1,130

		Distribution/Fire Flow Improvement	
2004	Central Park – South Retail Water Line Replacement	Renewal/Replacement - Water Distribution – Repair/Replace Tee	\$3,722
	Fire Flow Analysis	Upgrade - Improve fire flow	\$1,639
	Fish Creek Plant Chlorine Conversion	Upgrade - Improve plant safety	\$72,410

7. Recent fire experience in the community. Since the forest fires of 2002 there has been a heightened awareness of the danger of fire in the community. The Steamboat Springs Fire Department has implemented a Wildfire Hazard Assessment Program, a goal of which is to educate the public about the potential risks of wildland fire. (For more information on this program, see www.steamboatfire.com). It is NOT the responsibility of the District to address the risk of wildland fire.

8. Current building permit process. The Steamboat Springs Fire Code establishes the minimum fire flow required for buildings of various sizes and types. There has been a trend in recent years towards the construction of residences and other buildings that were not anticipated when the water utilities were installed, and which exceed, sometimes substantially, the maximum size allowed by the Uniform Fire Code adopted in February 1993 based on water availability for the site. However, the Fire Code allows mitigation measures to be taken where low fire flow availability would otherwise cause an application for a building permit to be denied. Although an existing subdivision may not meet current Fire Department standards for a new subdivision, the Fire Department recognizes that owners of lots in existing subdivisions bought the lots with the expectation that they could build on the lots. Therefore, in cases where an existing lot does not have adequate fire flow availability, the Fire Department may sign off on the building application if mitigation measures, such as an automatic sprinkler system, are required. This is intended as a practical, not ideal, response to the need to respect property values. It also gives greater emphasis to personal safety (providing adequate evacuation time) than to prevention of property damage. The owners of such buildings may not realize the increased risk such a policy entails and may have higher expectations of fire flow availability than is the case. This raises an issue as to what standard the Board should attempt to achieve in correcting low fire flow situations and in deciding whether to notify property owners of low fire flow availability.

9. The existing conditions and possible improvements in each low flow area.

See the appendix B which summarizes the existing conditions in the low fire flow availability areas, the possible improvements, the cost of the improvements and the affect on the fire flow availability of the possible improvements.

10. Funding alternatives. A memorandum from Grimshaw & Harring Re: Financing of System Rehabilitation is attached as Appendix C. Please refer to that document for a

discussion of alternative methods of funding improvements in low fire flow availability areas.

11. Conclusions:

The Mt. Werner water utility system was designed and constructed over a period of many years and frequently changing circumstances. With very few exceptions, we believe that it was constructed in accordance with established engineering standards at the time of construction. Since that time, two changes of circumstances have occurred which have caused low fire flow areas. First, the ISO fire flow standards have been replaced by the Uniform Fire Code, which requires a minimum fire flow of 1000 gpm for single-family homes of not over 3,600 square feet, and substantially higher fire flow for larger homes and other structures. Second, in the past ten or more years, many homes have been constructed in existing subdivisions that are greater than 3,600 square feet.

Steamboat Springs is considering the adoption of the International Fire Code, which contains the same fire flow standards as the Uniform Fire Code. Therefore, we believe that we can assume that the existing fire flow standards will remain in place for the foreseeable future. The pace of building construction in the District continues to accelerate, as does the average size of new homes. This pattern has now been in place for much longer than what used to be considered normal growth cycles. Predicting future growth patterns is risky, but we believe that we must plan on the assumption that current growth patterns will continue.

Construction of large single-family homes in old subdivisions and the construction of additions to existing homes in old subdivisions may necessitate the upgrading of existing utilities to meet fire flow standards for those structures. It is likely to be financially unfeasible to upgrade the water utilities in a particular area to meet the needs of a single new structure. However, when a pattern of new construction occurs or is reasonably anticipated in an old subdivision that requires increased fire flow, we believe that the District should consider the feasibility of upgrading the utilities in that area to meet the increased fire flow requirements.

Based on the foregoing circumstances, we recommend that the Board of Mt. Werner Water District adopt the following resolutions:

1. In-fill policy. When the District determines that the fire flow requirements in an old subdivision have increased as a result of the construction of new homes or the enlargement of existing homes, the District will consider the feasibility of upgrading the existing water facilities to meet the increased fire flow demand. Because the specific circumstances in each such situation are likely to be unique, and because we cannot anticipate the financial condition of the District at any time in the future, this policy is only a commitment to study each such situation

carefully. It is not a commitment to perform such work. It does not apply to the development of new subdivisions and it does not apply to multi-family or commercial structures.

2. Fire flow improvements in existing low fire flow areas (letters below correlate to the rows of Appendix B):
 - a. Timothy Circle. Construct the improvement described in the Appendix B referred to in paragraph 9. The rationale for this recommendation is (a) this is one of the few areas where we believe that the water utilities constructed at the time of the original development may not have met the applicable standards at the time, (b) the District accepted such improvements, and (c) it is in the best interests of the residents of Timothy Drive, the surrounding neighborhood and the District as a whole to construct such improvements.
 - b. Anthony's Circle – Construct the improvement described in the table as Option 2. The rationale for is recommendation is: (a) this option is the most cost effective option, (b) it brings all existing homes in those areas into compliance with fire flow standards, with the exception of one home on Anthony's Circle, for which we have found no financially feasible solution, (c) it benefits all of the High zone and portions of the Middle zone, (d) the new storage tank would create a reservoir that would increase flow duration, (e) the new storage tank would give the District increased flexibility in operating its water system and (f) it is in the best interests of the residents of Anthony's Circle, Laurel Lane, Upper Val D'Isere Circle, Ski Trail Lane, the surrounding neighborhood and the District as a whole to construct such improvements.
 - c. Upper Val D'Isere Circle – Construct the improvement described in the table as Option 2. The rationale for is recommendation is: (a) this option is the most cost effective option, (b) it brings all existing homes in those areas into compliance with fire flow standards (c) it benefits all of the High zone and portions of the Middle zone, (d) the new storage tank would create a reservoir that would increase flow duration, (e) the new storage tank would give the District increased flexibility in operating its water system and (f) it is in the best interests of the residents of Anthony's Circle, Laurel Lane, Upper Val D'Isere Circle, Ski Trail Lane, the surrounding neighborhood and the District as a whole to construct such improvements.
 - d. Laurel Lane – Construct the improvement described in the table as Option 2. The rationale for is recommendation is: (a) this option is the most cost effective option, (b) it brings all existing homes in those areas into

compliance with fire flow standards (c) it benefits all of the High zone and portions of the Middle zone, (d) the new storage tank would create a reservoir that would increase flow duration, (e) the new storage tank would give the District increased flexibility in operating its water system and (f) it is in the best interests of the residents of Anthony's Circle, Laurel Lane, Upper Val D'Isere Circle, Ski Trail Lane, the surrounding neighborhood and the District as a whole to construct such improvements.

- e. Ski Trail Lane - Construct the improvement described in the table as Option 2. The rationale for is recommendation is: (a) this option is the most cost effective option, (b) it brings all existing homes in those areas into compliance with fire flow standards (c) it benefits all of the High zone and portions of the Middle zone, (d) the new storage tank would create a reservoir that would increase flow duration, (e) the new storage tank would give the District increased flexibility in operating its water system and (f) it is in the best interests of the residents of Anthony's Circle, Laurel Lane, Upper Val D'Isere Circle, Ski Trail Lane, the surrounding neighborhood and the District as a whole to construct such improvements.
- f. Long Thong. Construct the improvement described in Appendix B as Option 2. The rationale for this recommendation is: (a) this option is the most cost effective option, (b) it is necessary to bring the Yampa View condominiums, which were constructed several years after the water utilities in this area were installed, into fire flow compliance, (c) it is in the best interests of the residents of the Valley View Condominiums, the residents of the surrounding neighborhood and the District as a whole to construct such improvements.
- d. Ridge Road - Construct the improvements described in the table as Ridge Road Option 3. The rationale for this recommendation is: (a) this is the most cost effective option, (b) it brings all existing homes in those areas into compliance with fire flow standards, with the possible exception of one home in the middle section of Ridge Road for which we have found no financially feasible solution, (c) it benefits all of the Pump Zone and Scandinavian Lodge in particular, (d) the new storage tank would create a reservoir that would increase flow duration, (e) the new storage tank would give the District increased flexibility in operating its water system and (f) it is in the best interests of the residents of Ridge Road, Scandinavian Lodge, the surrounding neighborhood and the District as a whole to construct such improvements. Currently, the fire department will not access Lift Line Way and thus no improvements are planned for this road. If the access is changed such that the Fire Department will be able to access Lift Line Way, this option does not preclude the extension of a water main at that time and the installation of fire hydrants along the road.
- g. Burgess Creek Road Below the BC Plant - Construct the improvements described in the table as Ridge Road Option 3. The rationale for this

recommendation is: (a) this is the most cost effective option, (b) it brings all existing homes in this area with the fire flow standards, (c) it benefits all of the Pump Zone and Scandinavian Lodge in particular, (d) the new storage tank would create a reservoir that would increase flow duration, (e) the new storage tank would give the District increased flexibility in operating its water system and (f) it is in the best interests of the residents of Ridge Road, Scandinavian Lodge, the surrounding neighborhood and the District as a whole to construct such improvements.

3. The resolution in paragraph 2 is subject to the following conditions:
 - a. The Manager of the District shall cause a final engineering design and cost estimate to be developed for each improvement and shall submit that design and cost estimate to the Board for its review and approval.
 - b. Funding for such improvements shall be as provided in the District Budget for FY 2006 and the 10-year pro forma budget in accord with the Board's decision on contribution and/or financing alternatives.
 - c. Timothy Lane and the storage tank described in paragraph 2.b. will be given priority. The Committee hopes that the foregoing improvements will be constructed in FY2006 or 2007. The next priority will be the improvement described in paragraph 2.c and the Ridge Road Option 2 pipe and PRV. The last priority will be the storage tank described in paragraph 2.d. The Committee hopes that such improvements will be constructed in FY 2007 or 2008.
4. The Manager of the District shall post this report on the District's web site and shall send out the following notices:
 - a. A general notice to all District customers illustrating the general areas of low fire flow availability with, (a) web site location at which customers can read this report to gain further information, (b) the action proposed to be taken by the District to address such low fire flow areas, and (c) a method by which such person may be kept informed as to the progress in correcting such situation.
 - b. Fire Flow Availability is to be recorded on each Plant Investment Fee form at the time of application.
 - c. Develop a memorandum of understanding with the City of Steamboat Springs Fire Department with regard to the responsibilities of each organization pertaining to fire flow availability.

APPENDIX A - Summary of User Charges and Property Taxes Collected

Year	Water Chgs per month	Sewer Chgs per month	Total Revenue	Mill Levy	Tax Receipts
1965					
1966	6.00	4.00	2,455		
1967	6.00	4.00	1,529	6.00	912
1968	6.00	4.00	3,579	9.00	2,232
1969	6.00	4.00	10,675	10.00	3,318
1970	6.00	4.00	25,377	10.00	10,194
1971	8.00	6.00	46,148	10.00	15,122
1972	8.00	6.00	93,655	15.00	46,344
1973	8.00	6.00	138,349	15.00	92,915
1974	8.00	6.00	222,337	15.00	124,611
1975	8.00	6.00	238,414	12.00	155,252
1976	8.00	6.00	242,431	12.00	185,410
1977	8.00	6.00	255,013	12.00	214,379
1978	8.00	6.00	269,042	12.00	211,780
1979	8.00	6.00	298,017	10.00	208,605
1980	8.00	8.00	449,310	10.00	223,320
1981	8.00	8.00	572,589	10.00	272,240
1982	8.00	8.00	661,866	10.00	381,132
1983	8.00	8.00	706,144	9.00	404,330
1984	8.00	8.00	722,508	8.50	421,056
1985	8.00	8.00	745,183	8.50	456,464
1986	8.00	8.00	772,529	8.00	446,572
1987	8.00	8.00	765,806	7.50	428,631
1988	8.00	8.00	763,999	3.91	403,937
1989	8.00	8.00	763,851	3.50	320,126
1990	8.00	8.00	777,618	5.51	447,157
1991	8.00	8.00	793,711	5.39	442,269
1992	8.00	8.00	812,547	3.67	331,661
1993	10.00	10.00	1,126,608	2.23	209,098
1994	10.00	10.00	1,177,221		
1995	10.00	10.00	1,201,328		
1996	10.00	10.00	1,257,524		
1997	10.00	10.00	1,287,549		
1998	10.00	10.00	1,350,588		
1999	10.00	10.00	1,393,684		
2000	10.00	10.00	1,539,779		
2001	10.00	10.00	1,622,741		
2002	10.00	10.00	1,695,093		

APPENDIX B - Mount Werner Water Fire Flow Availability Existing Conditions and Proposed Solutions

Area	General Area	Subdivision	Existing House Size Range	Required Fire Flow (gpm)	Available Fire Flow (gpm)	House Size Limit	Year Installed	Estimated Cost to Improve & Category of Improvement	Possible Improvement	Improved Fire Flow
a	Timothy Drive	Whistler Meadows Filing 1	1,688 ft ² Smallest, 2,908 ft ² Largest, 2,230 ft ² Average	1,000 gpm 1,000 gpm 1,000 gpm	575 gpm at end of Timothy >3,500 gpm at entry to Timothy	0 ft ² at end of Timothy 18,000 ft ² at entry to Timothy	Approx. 1979	\$83,428 Upgrade	Close the loop from the cul-de-sac on Timothy down to Whistler Drive.	>3,500 gpm at the entrance to Timothy and at the cul-de-sac. 1,575 gpm at the middle of Timothy.
b	Anthony Circle/Upper Val D'Isere Circle	Ski Ranches Filing 5 & 6	1,814 ft ² Smallest, 4,506 ft ² Largest, 3,042 ft ² Average	1,000 gpm 1,750 gpm 1,000 gpm	615 gpm at top of Anthony Circle, 750 gpm near lot 11, 880 gpm at entrance to Anthony's	0 ft ² – does not meet the minimum	1977	OPTION 1: \$601,500 Upgrade	OPTION 1: Install 1,000 gpm pump station near the cul-de-sac from the South Tank line over to the subdivision line. This area will see significant improvement with the replacement/upsizing of the 6" main in Ski Trail Lane.	OPTION 1: 2,462 gpm at the end of Anthony's Circle.
								OPTION 2: \$600,000 not including the land Upgrade	OPTION 2: Install a 250,000 gallon water storage tank above Laurel Lane providing a second water source and reservoir to the high zone.	OPTION 2: 1,305 gpm at the end of Anthony's Circle.
								OPTION 3: \$600,000 not including the land for Tank \$180,000 for 10" pipe replacement Upgrade	OPTION 3: Install a 250,000 gallon water storage tank above Laurel Lane providing a second water source and reservoir to the high zone. Replace the existing 6" pipe in Anthony Circle with 10" pipe.	OPTION 3: 1,867 gpm at the end of Anthony's Circle
c	Laurel Lane	Ski Ranches Filing 4	1,440 ft ² Smallest, 4,187 ft ² Largest, 2,767 ft ² Average	1,000 gpm 1,750 gpm 1,000 gpm	800 gpm at bottom of Laurel Lane 360 gpm at top of Laurel Lane	0 ft ² – does not meet the minimum	June 1971, July 1976, August 1978	OPTION 1: \$596,000 Upgrade	OPTION 1: Install pump station near the entrance to Laurel Lane. This area will see significant improvement with the replacement/upsizing of 6" main in Ski Trail Lane.	OPTION 1: The fire flow increases from 360 gpm to 987 gpm with the Ski Trail Lane pipe upsizing (10"). A pump station would be designed to deliver 1,750 gpm at the top of Laurel Lane.
								OPTION 2: \$600,000 not including the land Upgrade	OPTION 2: Install a 250,000 gallon water storage tank above Laurel Lane providing a second water source and reservoir to the high zone.	OPTION 2: The fire flow for all of Laurel Lane increases to >3,500 gpm. The fire flow on Val D'Isere ranges from >3,500 near Laurel Lane to 2,850 gpm at the far south end
d	Ridge Road	Rendezvous Trail Filing 2, Burgess Creek Ridge, 3 lots of the Male Property	1,996 ft ² Smallest, 7,498 ft ² Largest, 3,852 ft ² Average	1,000 gpm 2,250 gpm 1,750 gpm	644 gpm below lot 23 780 gpm west end (875 gpm w/ pump) 734 gpm middle (892 gpm w/ pump) 906 gpm east end (1,250 gpm w/ pump)	0 ft ² – does not meet the minimum	1974	OPTION 1 Pump Station – \$371,358 Upgrade	OPTION 1: Install 1,000 gpm pump station near lot 27.	OPTION 1: 2,558 gpm below lot 23 2,026 gpm west end 1,684 gpm middle 2,004 gpm east end
								OPTION 2: Pipe: \$428,000 PRV: \$35,000 Extension	OPTION 2: Connect 10" Pipe from BC Plant to entrance to Ridge Road. Close Loop for Ridge Road. Install PRV at lot 27. Consider installing pump	OPTION 2: 1,723 gpm below lot 23 (2,075 gpm w/pump) 1,046 gpm west end (1,332 gpm w/pump)

									control on low pressure.	954 gpm middle (1,200 gpm w/pump) 1,370 gpm east end (1,650 gpm w/pump) 2,200 gpm entry to RR (2,650 gpm w/ pump) 1,905 gpm across from Winterwood (2,400 gpm w/pump)	
									OPTION 3: Tank with Option 2 pipe & PRV Tank: \$600,000 + land Pipe: \$428,000 PRV: \$35,000 Upgrade/Extension	OPTION 3: Install tank at the same elevation as the Thunderhead Tank either on the Ridge or on Forest Service Property. Close loop on Burgess Creek Road. Install PRV.	OPTION 3: 3,240 gpm below lot 23 2,325 gpm west end 1,705 gpm middle 2,425 gpm east end >3,500 gpm entry to RR >3,500 gpm across from Winterwood >3,500 gpm at Scandanavian Lodge
									OPTION 4: Pipe: \$428,000 Pump Station: \$371,358 Upgrade/Extension	OPTION 4: Close the loop on Burgess Creek Road. Install 1,000 gpm pump station near lot 27.	OPTION 4: 2,884 gpm below lot 23 2,050 gpm west end 1,433 gpm middle 1,622 gpm east end >3,500 gpm entry to RR >3,275 gpm across from Winterwood >3,335 gpm at Scandanavian Lodge
e	Along Ski Trail Lane	Ski Trail Filing 3, Ski Ranches Filing 3	2,268 ft ² Smallest, 8,139 ft ² Largest (Duplex), 3,963 ft ² Average	1,000 gpm 2,500 gpm 1,750 gpm	1,550 gpm near lot 14 1,250 gpm near lot 15 1,050 gpm near lot 21 865 gpm near lot 37	3,600 ft ² near lot 14 3,600 ft ² near lot 15 3,600 ft ² near lot 21 0 ft ² near lot 37	1968	OPTION 1: 10" Pipe - \$1,143,000 Renewal/Replacement & upgrade	OPTION 1: Replace existing 6" DIP with 10" DIP (possibly 12" DIP)	OPTION 1: >3,500 gpm near lot 14 >3,500 gpm near lot 15 3,350 gpm near lot 21 3,000 gpm near lot 37	
									OPTION 2: \$600,000 not including the land Upgrade	OPTION 2: Install a 250,000 gallon water storage tank above Laurel Lane providing a second water source and reservoir to the high zone.	OPTION 2: 2,350 gpm near lot 14 2,050 gpm near lot 15 2,260 gpm near lot 21 >3,500 gpm near lot 37
f	Long Thong	Ski Ranches Filing 3, Valley View	Yampa View Condo (Largest) estimated at 12,000 ft ² Yampa View Subdivision 3,018 ft ² Smallest, 6,089 ft ² Largest (Duplex), 4,119 ft ² Average	3,000 gpm for Yampa View Condos 1,000 gpm smallest 2,000 gpm largest 1,750 gpm average	2,500 gpm at bottom of Long Thong 776 gpm at end of Valley View	9,400 ft ² at the bottom of Long Thong 0 ft ² at end of Valley View – does not meet the minimum	1968	OPTION 1: \$179,893 Upgrade	OPTION 1: Close the loop from the cul-de-sac on Valley View down to Apres Ski Way.	OPTION 1: 2,046 gpm in cul-de-sac of Yampa View, 1,681 gpm near Yampa View Condo driveway, 3,050 gpm at entrance to Long Thong.	
									OPTION 2 \$160,000 Upgrade	OPTION 2: Install PRV and pipe down from Ski Trail Lane to near Yampa View.	OPTION 2: Without new Tank At Yampa View 2,217 gpm At end of Long Thong 1,040 gpm With new Tank At Yampa View 3,440 gpm At end of Long Thong 1,040 gpm
g	Burgess Creek	Rendezvous Trails Filing 1	1,708 ft ² Smallest,	1,000 gpm	320 gpm in main just below BC	Just under 4,800 ft ² based on	1970	\$259,241	Extend 10" parallel main down	1,900 gpm just below BC	

	Road Below the BC Plant		4,306 ft ² Largest, 2,753 ft ² Average 5,000 ft ² TH's	1,750 gpm 1,000 gpm 2,000 gpm	Plant 1,700 gpm at Winterwood TH's 3,120 gpm 1,120 feet below BC Plant	flow from Winterwood FH's Over 13,000 ft ² 1,120 feet below BC Plant		Upgrade	Burgess Creek Road fed from the Pump Zone. This project may be able to be combined with a "Ridge Road" solution. This would be completed as part of option 2 above for Ridge Road.	Plant.
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Note: All cost data is based upon a preliminary design concept and subject to change

Note: All improved fire flow data is based upon a selected concept and modeling. Other options may exist which are better and less expensive.

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MEMORANDUM

To: Board of Directors
Mt. Werner Water District

From: Matthew R. Dalton

Date: August 16, 2005

Re: Financing of System Rehabilitation

You requested a memorandum discussing various alternatives for financing improvements for localized infrastructure needs. Those needs are to improve, replace or supplement what we have been told are "substandard" portions of the District's water system. They are "substandard" in the sense that they have flow rates that may be inadequate for the purpose of fighting fires. We are told that this condition may be rectified in several ways, including the addition of booster pumps, the construction of new water tanks, or the replacement of the systems in question.

The first question, which is more of a policy issue, is who should pay for the desired upgrades? Then, assuming that the decision is made to "localize" the financial burden, the legal question is how does the District do that and under what authority?

We represent many districts with water and sewer powers, and the issue facing the Board has reared it ugly head on many occasions, and it nearly always generates philosophical discussions. These discussions usually boil down to whether the costs of operating the system are viewed as "overall system-wide cost" without isolation, or whether areas of special need should bear a special burden.

One basic way to look at the case at hand is to ask, should those who happened to purchase property in an area with a substandard water system bear the burden of that mistake, or should the district, as a whole, have a responsibility to make the system, as a whole, right? You may add to the

discussion the fact that some of those people in the substandard areas have already borne a burden by being required by the City to install sprinkler systems in their properties.

You may also turn the discussion around and ask why someone who happened to buy in an area with a “good” water system should have to pay the cost to fix something they are not using? But the true question is, what are they using; the line in front of their house or a complete, integrated water system?

We also think it important to emphasize that the problem is fire flows, not quality issues or whether a shower runs properly at the Ridge. If a fire starts in a “substandard” area and the fire cannot be extinguished, it may not matter where you live.

Nevertheless, the financial powers for special districts are subdivided into common and district-specific sets of powers. Common general powers, including some basic financial powers are enumerated in §32-1-1001 of the Colorado statutes, while powers specific to water and sanitation districts are contained in §32-1-1006. There are additional financial powers enumerated in §32-1-1101, which sets forth in more detail what steps any special district may take to finance infrastructure improvements. Finally, there is the “Water Activity Law,” which addresses the use of “enterprises” to fund water improvements and services.

The following are the basic financial powers of a special district:

- a. To fix, charge and collect fees, rates, tolls, penalties or charges for services, programs or facilities furnished by the special district. Until paid, all such fees, rates, tolls, penalties or charges shall constitute a perpetual lien on and against the property served;
- b. To levy and collect ad valorem taxes on and against all taxable property within the special district;
- c. To levy taxes and collect revenue, whenever any indebtedness has been incurred by a special district, for the purpose of creating one or more reserve funds in such amounts as the board may determine, which may be used to meet the obligations of the special district for bond interest repayment and for maintenance and operating costs;
- d. To issue negotiable coupon bonds of the special district;
- e. To issue revenue bonds;
- f. To simply borrow money from a bank or other source;

In addition to these powers, water and sanitation districts have the additional power:

“[t]o divide such district into areas according to the water or sanitation services furnished or to be furnished therein. The board has the power to fix

different rates, fees, tolls, or charges ... within the several areas of such district according to the services and facilities furnished or to be furnished therein within a reasonable time.”

(The statute also says the district may fix different rates of levy, but it may not do so under the State Constitution, except as described below in the discussion of subdistricts.) Using this financial power the Board could resolve to upgrade each of the substandard systems and bill the cost of doing so back to those that will benefit directly, either on a neighborhood by neighborhood basis, or against all of the substandard areas as a group.

The Board could also create one or more “subdistricts,” which are areas within the overall district boundaries that have separate, additional tax levies, or fees and charges, that are imposed to pay for isolated projects. The Board has to identify a project, create the area to be taxed by simple resolution, give the County (in which it was organized originally) 30 days to object, and hold an election in the area in question to authorize the debt and taxes that will be paid only by that area. But given the statutory authority discussed above, the only reasons to do that is (1) you have decided to isolate the costs, and (2) so that taxes, rather than fees and charges would be available. You may wish to do that because the taxes may be deductible to the property owner and are thus a more palatable chew. Or, a bond underwriter may be able to more readily sell tax supported debt to fix the problems, rather than fee revenue supported debt. But it can be an expensive way to go; the result is a separate political subdivision (same Board though) with additional budgets, more complicated audits, and the like. You also must hold the elections on “TABOR” dates.

The last general question is whether the District wishes to front the costs of the projects out of reserves or issue new debt. We are informed in this regard that the District has no outstanding general obligation debt authorization. Whenever a board of directors determines on behalf of a district to enter into a contract or to issue bonds, notes or other instruments creating a "debt," it is necessary for the board to seek and obtain the authorization of the electors before creating such indebtedness. This definition has been complicated by the passage of TABOR which requires an election to approve any "multi-fiscal year obligation" which is generally agreed to mean any contract, lease, note or bond which pledges any future revenues to payment for a current benefit to the district. TABOR elections must be held either in November of any year, or at the District's regular May elections in even numbered years.

The requirement for an election may be avoided, however, if the Board chooses to create a “water enterprise” under the statutes. Under Title 37, Article 45.1, of the Colorado Revised Statutes (the "Water Activity Law"), state and local governmental entities which have their own bonding capacity under applicable law are authorized: (i) to establish or continue to maintain water activity enterprises for the purpose of pursuing or continuing water activities, which includes the diversion, storage, carriage, delivery, distribution, collection, treatment, use, reuse, augmentation, exchange, or discharge of water; and (ii) to issue or reissue bonds, notes, or other obligations payable from the revenues derived or to be derived from the function, service, benefits, or facility or from any other available funds of the enterprise. In order to qualify as an enterprise under the Water Activity Law (and TABOR), the enterprise must consist of a government water activity business

owned by a governmental entity (such as the District), which enterprise receives under 10% of its annual revenues in grants from all Colorado state and local governments combined, and which is authorized to issue its own revenue bonds. Essentially, the Board would pass a resolution designating the enterprise, giving it all of the water assets of the District, and authorizing it to issue revenue bonds, and then make sure that any District tax revenues or state grants diverted to the water side of the budget are less than 10% of the overall water revenues. The enterprise then issues its own revenue bonds, perhaps through the Colorado Power and Water Authority if it is eligible, and pays to upgrade the overall system. The debt of the enterprise is not considered debt of the District and thus it requires no electoral authority.

We note, however, from a review of the District's 2005 budget that the District has already established significant cash reserves, and issuing bonds or other debt may be unnecessary. In that case, the Board may choose to use reserves and replenish them either through District-wide revenues, or localized added fees, or the use of subdistricts. In the latter case the "mother" district could actually "loan" the money to the subdistrict (or spend it on its behalf) and recoup the advance from the separate tax levy.

If you do wish us to explore debt sources we are prepared to do so. We have coordinated many bond issues and loans in the open market and with the Colorado Power and Water Authority for just these kinds of projects.

None of the above should be taken to be our opinion that the District has to do anything. Under separate cover we have provided our conclusions as to the District's responsibilities and potential liability. This is just an introduction to what financial abilities the District has under the statutes. The course the District takes needs further discussion once the direction is chosen.

Thank you.