

# CAPITAL FACILITIES PLAN & DEVELOPMENT IMPACT FEE ANALYSIS FOR THE

## Town of Apple Valley



- *Mayor*

Mary Reep

- *Town Council*

Dale Kingsley

Kathy Pugmire

Rick Moser

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- *Town Clerk*

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February 2008

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&  
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**FOR**

**TOWN OF APPLE VALLEY**

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## I. Executive Summary

This *Capital Facilities Plan and Development Impact Fee Analysis* has been prepared for the Town of Apple Valley, referred to in this report as Apple Valley, to aid in compliance with the *Utah Impact Fees Act* (Utah Code Chapter 36). The impacts directly attributable to new development have been quantified in accordance with the act's requirements.

The *impact fees act* allows impact fees for the following purposes.

- Public Safety (fire and police protection)
- Roadways
- Water
- Wastewater
- Storm Water
- Parks and Recreation / Open Space
- Power

Apple Valley provides all of the services listed above except for water, wastewater, and power services. Water and wastewater will be added to the services provided by the town in the future. This study will analyze all services except for power.

The following steps have been followed in preparing the *Capital Facilities Plan*.

- Establish a service standard
- Inventory existing facilities
- Determine method of financing existing facilities
- Determine excess Capacity
- Determine additional facilities needed at present
- Determine additional facilities needed at 2050
- Determine method of financing needed facilities

Using the capital facilities plan as a guide, the *Development Impact Fee Analysis* is completed using the following procedure.

- Establish service areas.
- Determine the proportionate share of costs directly attributable to new development.
- Calculate credits for past and future contributions.
- Calculate the maximum allowable impact fee.

The following pages contain a schedule of maximum allowable impact fees for Apple Valley.

## MAXIMUM ALLOWABLE IMPACT FEES JANUARY-2008

This schedule of *Maximum Allowable Development Impact Fees* is based on current conditions and anticipated conditions at 2050. Fees should be reviewed each year and supplemental studies should be completed when required to address changing conditions. If there are no significant changes, fees should be adjusted for inflation only.

According to Title 11 Chapter 36 Section 202 entitled Impact Fees – Enactment – Required Provisions, the cost of performing the capital facilities plan can be paid for through the impact fees. Adjustments have been made to the impact fees to include the cost of performing the capital facilities plan as shown in Section IX entitled *Impact Fee Adjustment*. The adjusted impact fees are as follows:

**TABLE 1 – CULINARY WATER MAXIMUM IMPACT FEES**

Land Use	Units	Demand	ERUs	Unadjusted Impact Fee	Adjusted Impact Fee
Residential	Dwelling	800	1.000	\$5,631	\$5,677
Multi-unit	Dwelling	800	1.000	\$5,631	\$5,677
High School	Person	15	0.0188	\$106	\$107
Middle School	Person	15	0.0188	\$106	\$107
Elementary School	Person	15	0.0188	\$106	\$107
Hotel	Room	150	0.1875	\$1,056	\$1,064
Service Station	Pump	250	0.3125	\$1,760	\$1,774
Restaurant	Seat	35	0.0438	\$247	\$249
RV Park	Vehicle	100	0.1250	\$704	\$710
Church	Seat	5	0.0063	\$35	\$36
Nursing Home	Bed	200	0.25	\$1,480	\$1,420
Doctor's Office	Patient	10	0.0125	\$70	\$71
	Staff	35	0.0438	\$247	\$249
Dentist Office	Chair	200	0.25	\$1,408	\$1,419
	Staff	35	0.044	\$248	\$250
Store	Toilet Rm	500	0.625	\$3,519	\$3,548
	Employee	11	0.014	\$79	\$79
Commercial	Building	1,600	2.000	\$11,262	\$11,354
Industrial	Building	3,200	4.000	\$22,524	\$22,708

TABLE 2 – WASTEWATER MAXIMUM IMPACT FEE

Type	Units	ERUs	Adjusted Impact Fee / Unit
Permanent residence	Residence	1.0000	\$2,875
Hotels & motels	Room	0.3750	\$1,078
RV parks	Space	0.2500	\$719
Airports	Passenger	0.0075	\$22
	Employee	0.0375	\$108
Boarding houses	Residents	0.1250	\$359
	Nonresidents	0.0250	\$72
Bowling alleys w/snack bar	Alley	0.2500	\$719
Bowling alleys w/o snack bar	Alley	0.2125	\$611
Churches	Person	0.0125	\$36
Country clubs	Resident member	0.2500	\$719
	Non-resident member	0.0625	\$180
	Employee	0.0375	\$108
Dentist's office	Chair	0.5000	\$1,438
	Staff member	0.0875	\$252
Doctor's office	Patient	0.0250	\$72
	Staff member	0.0875	\$252
Fairgrounds	Person	0.0025	\$7
Fire station w/food preparation	Full-time employee	0.1750	\$503
Fire station w/o food preparation	Full-time employee	0.0125	\$36
Gyms	Participant	0.0625	\$180
	Spectator	0.0100	\$29
Hairdresser	Chair	0.1250	\$359
	Operator	0.0875	\$252
Hospitals	Bed	0.6250	\$1,797
Industrial buildings w/showers (exclusive of industrial waste)	Employee per shift	0.0875	\$252
Industrial buildings w/o showers (exclusive of industrial waste)	Employee per shift	0.0375	\$108
Jail facilities	Inmate	0.2875	\$827
	Employee	0.0250	\$72
Launderette	Washer	1.4500	\$4,169
Movie Theaters (auditorium)	Seat	0.0125	\$36
Movie Theaters (drive-in)	Car	0.0250	\$72
Nursing Homes	Bed	0.7000	\$2,013
Office buildings w/cafeteria	Employee	0.0625	\$180
Office buildings w/o cafeteria	Employee	0.0375	\$108
Picnic parks	Person	0.0125	\$36
Restaurants w/24 hour service	Seat	0.1250	\$359
Restaurants w/o 24 hour service	Seat	0.0875	\$252
Restaurants – single service utensils	Customer/day	0.0250	\$72
Rooming house	Person	0.1000	\$288
Schools – boarding	Person	0.1875	\$539
Schools w/o cafeteria & showers	Person	0.0375	\$108
Schools w/cafeteria w/o showers	Person	0.0500	\$144
Schools w/cafeteria & showers	Person	0.0625	\$180
Service stations	Vehicle/day	0.0250	\$72
Skating rinks & dance halls w/kitchen	Person	0.0325	\$93
Skating rinks & dance halls w/o kitchen	Person	0.0250	\$72
Ski areas w/o kitchen	Person	0.0250	\$72
Stores	Toilet stall	1.2500	\$3,594
	Employee	0.0275	\$79
Swimming pools & bath houses	Person	0.0250	\$72
Taverns, bars, cocktail lounges	Seat	0.0500	\$144
Visitor centers	Visitor day	0.0125	\$36

**TABLE 3 – STORM WATER MAXIMUM IMPACT FEE**

Zoning	Adj. Impact Fee
Residential	\$172/acre
Commercial	\$172/acre

**TABLE 4 – PARKS, TRAILS, AND OPEN SPACE MAXIMUM IMPACT FEE**

Zoning	Adj. Impact Fee
Residential	\$1,649/unit
Commercial	None

**TABLE 5 – PUBLIC SAFETY MAXIMUM IMPACT FEES**

FIRE	
Zoning	Adj. Impact Fee
Residential	\$59/unit
Commercial	\$852/acre
POLICE	
Zoning	Adj. Impact Fee
Residential	\$114/unit
Commercial	\$1,844/acre



TABLE 6 – ROADWAYS MAXIMUM IMPACT FEE

Type	Units	Trips per day	ERUs	Adj. Impact Fee/ Unit
Residential: Single Family Detached Housing	Lot	9.57	1.00	\$514.00
Auto Parts Store	1,000 S.F.	61.91	6.47	\$3,325.16
Bank: Drive in	1,000 S.F.	265.21	27.71	\$14,244.30
Bank: Walk in	1,000 S.F.	156.48	16.35	\$8,404.46
Car Lot	1,000 S.F.	37.5	3.92	\$2,014.11
Church	1,000 S.F.	9.11	0.95	\$489.29
Elementary School	Student	1.02	0.11	\$54.78
Furniture Store	1,000 S.F.	5.06	0.53	\$271.77
Gas or Service Station	Pump	168.56	17.61	\$9,053.27
Gas or Service Station w/ Convenience Center	Pump	162.78	17.01	\$8,742.83
Hardware or Paint Store	1,000 S.F.	51.29	5.36	\$2,754.76
High School	Student	1.79	0.19	\$96.14
Hospital	1,000 S.F.	16.78	1.75	\$901.25
Hotel	Room	8.92	0.93	\$479.09
Industrial Park	1,000 S.F.	6.96	0.73	\$373.82
Industrial: General Light	1,000 S.F.	6.97	0.73	\$374.36
Library	1,000 S.F.	54	5.64	\$2,900.31
Lumber Store	1,000 S.F.	39.71	4.15	\$2,132.80
Manufacturing	1,000 S.F.	3.82	0.40	\$205.17
Middle School	Student	1.45	0.15	\$77.88
Mobile home park	Occupied Unit	4.81	0.50	\$258.34
Nursery (Garden Center)	1,000 S.F.	36.08	3.77	\$1,937.84
Nursing Home	Beds	2.61	0.27	\$140.18
Office: General	1,000 S.F.	11.01	1.15	\$591.34
Office: Government	1,000 S.F.	68.93	7.20	\$3,702.20
Office: Medical or Dental	1,000 S.F.	36.13	3.78	\$1,940.52
Pharmacy w/Drive Through Window	1,000 S.F.	88.16	9.21	\$4,735.03
Residential: Apartment	Unit	6.63	0.69	\$356.09
Residential: PUD	Lot	7.5	0.78	\$402.82
Residential: Townhome	Home	5.86	0.61	\$314.74
Restaurant: Fast-Food w/Drive Through	1,000 S.F.	496.12	51.84	\$26,646.36
Restaurant: Fast-Food w/out Drive through	1,000 S.F.	716	74.82	\$38,456.01
Restaurant: High-Turnover Sit Down	1,000 S.F.	130.34	13.62	\$7,000.50
Restaurant: Quality	1,000 S.F.	89.95	9.40	\$4,831.17
Specialty Retail Center	1,000 S.F.	40.67	4.25	\$2,184.37
Super Market	1,000 S.F.	111.51	11.65	\$5,989.15
Tire Store	1,000 S.F.	24.87	2.60	\$1,335.76
Video Rental Store	1,000 S.F.	31.54	3.30	\$1,694.00
Warehouse	1,000 S.F.	4.96	0.52	\$266.40

\*Units and Trips per day are found in the 6<sup>th</sup> edition of *Trip Generation* Published by the Institute of Transportation Engineers.

## II. Introduction

The 1995 Utah legislature passed the *Impact Fees Act* (Utah Code, Section 11-36) which stipulates the nature of fees that may be charged and how they must be determined. The act differentiates between public entities with populations above and below 5000 at the time of the last census. Those communities with populations above 5000 must prepare a *capital facilities plan* for each impact fee. The communities with populations below 5000 must base their impact fees on a *reasonable plan*. Although the *Impact Fees Act* is unclear about what kind of plan is required for communities with a population of less than 5000, communities of this size can use a *capital facilities plan* or a plan similar in nature to plan for orderly growth.

This *Capital Facilities Plan* and the *Development Impact Fee Analysis* have been prepared to help Apple Valley comply with the *Impact Fees Act*. The impacts directly attributable to new development have been quantified in accordance with the act's requirements.

The act allows impact fees for the following purposes.

- Public Safety (fire and police protection)
- Roadways
- Water
- Wastewater
- Storm Water
- Parks and Recreation / Open Space
- Power

Apple Valley currently provides Public Safety, Roadway, Parks and Recreation/Open Space services. However, Apple Valley is planning to establish a water utility and is in the process of acquiring two existing water systems that currently serve residents in Apple Valley. In addition, Apple Valley is planning to establish water, sewer and storm water utilities including new water, storm drain and sewer infrastructure. This study analyzes all of these services except power.

The following steps have been followed in preparing the *Capital Facilities Plan*.

- Establish a service standard
- Inventory existing facilities
- Determine method of financing existing facilities
- Determine excess Capacity
- Determine additional facilities needed at present
- Determine additional facilities needed at 2050
- Determine method of financing needed facilities

Using the capital facilities plan as a guide, the *Development Impact Fee Analysis* is completed using the following procedure.

- Establish service areas
- Determine the proportionate share of costs directly attributable to new development
- Calculate credits for past and future contributions
- Calculate the maximum allowable impact fee

The Capital Facilities Plan and the Development Impact Fee Analyses have been completed for the services indicated in the following sections.

### III. Demographics

Current and 2050 population estimates have been prepared to assist in the evaluation of development impacts on the existing infrastructure.

#### A. Current Population

Population for Apple Valley for 2000 was 442 persons based on the 2000 census as reported by the U.S. Census Bureau. Apple Valley population was reported to be 944 in 2007 by the Town of Apple Valley. Currently there are 429 residential units implying that there are approximately 2.20 people per residence in Apple Valley. The population estimates are summarized below. This report assumes the growth rate for Apple Valley fluctuates proportionate to that of Washington County.

**TABLE 7 – APPLE VALLEY ESTIMATED POPULATION 2000-2050**

Year	Apple Valley (GOPB)		Apple Valley (Estimate)	
	Estimated Population <sup>1</sup>	% Change	Estimated Population	% Change <sup>2</sup>
2000	442		442	
2005	617	6.69%	760	10.889%
2006	650	5.26%	847	10.889%
2007	685	5.26%	944*	10.889%
2008	722	5.26%	1,022	8.0%
2009	761	5.26%	1,103	7.5%
2010	802	5.26%	1,181	7.0%
2020	1,243	4.39%	2,259	6.5%
2030	1,747	3.41%	4,110	6.0%
2040	2,332	2.89%	7,115	5.5%
2050	2,998	2.51%	12,000	5.23%

<sup>1</sup>2005 Baseline city Population Projections, Associations of Government, Governor's Office of Planning and Budget

<sup>2</sup>The % change for 2007 to 2050 for Apple Valley assumes a population of 12,000 in 2050.

\*Reported population by Apple Valley.

#### B. Projected Land Use

Apple Valley prepared a *Future Land Use Plan* (Included in Appendix E) in 2007. The future land use plan has been updated to reflect land use and has been used to project the Apple Valley build-out population.

#### C. Projected 2050 Population

An estimate of the Apple Valley population at 2050 has been prepared. For the purposes of this study it is assumed that the town boundary will change to include anticipated annexations as shown on the *Future Land Use Plan* discussed above. The calculations along with the estimated 2050 population for Apple Valley are summarized in following table.

<sup>1</sup> Population estimates taken from the Utah Data Guide, Summer/Fall 2005 prepared by the Governors Office of Planning and Budget.

TABLE 8 – APPLE VALLEY ESTIMATED 2050 POPULATION

Type of Use <sup>1</sup>	Acres	Units/ Acre	Units at Buildout	Buildout Population <sup>2</sup>	Units at 2050	2050 Population <sup>3</sup>
R-1 ACRE	2,941	1	2,941	6,470	395	868
R-1/2 ACRE	6,831	2	13,662	30,056	1,834	4,034
R-MED	2,848	3	8,544	18,797	1,147	2,523
R-HD	1,862	6	11,172	24,578	1,500	3,299
R-PUD	1,439	3	4,317	9,497	579	1,275
<b>Total</b>	<b>15,921</b>		<b>40,636</b>	<b>89,399</b>	<b>5,455</b>	<b>12,000</b>

<sup>1</sup>Table includes only zones where dwellings are allowed.

<sup>2</sup> Persons per household assumed to be 2.20 based on data supplied by Apple Valley

<sup>3</sup> 2050 Population = Buildout Population x (12,000/89,399)

At present it is estimated that there are 944 residents and 429 homes in the Apple Valley. In 2050 it is estimated that there will be 11,056 additional residents (12,000-944) and 5,026 additional residential units (5,455-429) in Apple Valley.

#### IV. Tax Credits for Undeveloped Land

The general fund is used to fund existing infrastructure throughout the town. Therefore, properties that are undeveloped and have been paying taxes to the general fund will receive a credit towards their impact fees. Undeveloped property throughout the town contributed a total of \$15,428 in property tax toward the general fund in the 2007 tax year.

The percentage contribution (including *rollback* taxes) from undeveloped property to the Apple Valley *General Fund* is calculated as follows.

- Total *General Fund* revenue for 2007: \$267,080,
- General Fund revenue from property taxes: \$40,000.
- Percentage of general fund revenue from property taxes funded by undeveloped property ( $15,428/267,080$ ): 5.8%
- Percentage of general fund revenue from property taxes ( $40,000/267,080$ ): 15.0%
- Percentage of general fund revenue from undeveloped property (5.8% of 15.0%): 0.87%

Based on the calculations above it is assumed that *0.87% of general fund revenues within the town boundary are derived from unimproved property*. Credits for tax contributions from undeveloped property will be considered when calculating impact fees for services for which the *general fund* has been used to finance existing facilities.

## V. Culinary Water System

### A. Capital Facilities Plan

#### 1. SERVICE STANDARD

Apple Valley has chosen to use the service standard set forth in the *Public Drinking Water Design and Operation Rules* (Revised 2007) published by the *Department of Environmental Quality, Division of Drinking Water*. The service standard consists of three parts: source, storage, and distribution (Utah Gov, 2007).

The rules contain provisions for both culinary and irrigation (secondary) water. The service standard is briefly summarized below.

**Source:** Available water sources must be able to legally (water rights) and physically provide a *peak day demand* of 800 GPD/ERU and an *average yearly demand* of 146,000 gallons/ERU for indoor use. For outdoor use, the requirement for this area (Irrigated Crop Consumptive Use Zone 5) for *peak day demand* is 4.52 gpm per irrigated acre and the *average yearly demand* is 2.69 acre-feet per year per irrigated acre. These requirements may be modified to reflect actual demand if adequate records are available. Apple Valley has no records of culinary water use (indoor and outdoor) to establish source requirements.

**Storage:** Includes *equalization storage*, *fire suppression storage*, and *emergency storage*.

- Equalization storage: A Minimum 400 gallons/ERU for indoor use and 4,081 gallons per irrigated acre for outdoor use. The State standard will be used to determine the combined indoor and outdoor use requirement.
- Fire suppression storage: Minimum 180,000 gallons (1,500 gpm for 2 hours), or quantity determined by the local fire suppression authority, whichever is greater.
- Emergency storage: May be required by the *Executive Secretary* of the *Drinking Water Board*. Emergency storage is mentioned but will not be fully evaluated in this analysis.

**Distribution:** The distribution system shall be designed to insure that a minimum of 20 psi exists at all points within the system during simultaneous fire flow and peak day demand; 40 psi during peak day demand; and 30 psi during instantaneous peak demand. The fire flow includes 750 gpm at any two points in the system for a total of 1,500 gpm simultaneous flow.

#### 2. INVENTORY OF EXISTING FACILITIES

**Water Rights:** Apple Valley does not own any water rights. The City is evaluating the possibility of acquiring water rights currently owned by private water companies.

**Source – Delivery:** Apple Valley does not own or operate any wells or springs. All wells and springs are owned by private water companies. Apple Valley may acquire the wells and springs owned by one or more of the private water systems now serving the town.

**Storage:** Apple Valley does not own any water tanks. Apple Valley may acquire the water tanks that are currently owned by the private water companies in the future.

**Distribution:** Apple Valley does not own any distribution facilities. Existing facilities including water lines and fire hydrants are also owned by private water companies. The existing distribution systems need to be evaluated to determine if they meet the established *service standard prior to acquisition*. This evaluation is not included in the scope of this report.

### 3. METHOD OF FINANCING OF EXISTING FACILITIES

Existing Facilities have been financed through private water companies.

### 4. EXCESS CAPACITY

This report assumes that the existing water systems meet the current demand with no excess capacity.

### 5. ADDITIONAL FACILITIES NEEDED AT PRESENT

Since the existing water systems are supplying Apple Valley's current needs it is assumed that no additional facilities are needed at present.

### 6. ADDITIONAL FACILITIES NEEDED AT 2050

**Equivalent Residential Units:** In order to determine what Facilities will be required at 2050, it is necessary to estimate the approximate number of *equivalent residential connections* (ERCs) at 2050. Calculations for ERCs at 2050 are summarized below.

**TABLE 9 – APPLE VALLEY ESTIMATED 2050 ERCs**

Type of Use	Acres	ERCs/ Acre	ERCs at Buildout	Buildout Population	ERCs at 2050	2050 Population
R-1 ACRE	2,941	1	2,941	6,470	395	868
R-1/2 ACRE	6,831	2	13,662	30,056	1,834	4,034
R-MED	2,848	3	8,544	18,797	1,147	2,523
R-HD	1,862	6	11,172	24,578	1,500	3,299
R-PUD	1,439	3	4,317	9,497	579	1,275
Existing Development					-430	
School	69	0.91	63		8	
Commercial <sup>1</sup>	1,280	6	7,680		1,031	
Manufacturing <sup>2</sup>	40	4	160		21	
<b>Total</b>	<b>17,310</b>		<b>48,539</b>	<b>89,399</b>	<b>6,085</b>	<b>12,000</b>

<sup>1</sup>A multiplier of 6.0 was given based on 2 commercial units per acre and 3 ERUs per unit.

<sup>2</sup>A multiplier of 4.0 was given based on 2 commercial units per acre and 2 ERUs per unit.

**Water Rights:** As shown in Table 10 below Apple Valley will need water rights for both indoor and outdoor use equal to 3,717 acre-feet per year of water rights at 2050.



TABLE 10 – SOURCE REQUIREMENT

Indoor		
Demand (af/ERC)	ERC's	Demand(af)
.45	6085	2,738
Outdoor		
Demand (af/irr acre)	Irrigated Acres	Demand (af)
2.69	364 <sup>1</sup>	979
<b>TOTAL ACRE FEET</b>		<b>3,717</b>

<sup>1</sup>6085 ERC x 0.05 acres/ERC + 60 acres parks

Apple Valley is limited to only two sources to meet this requirement; underground water rights and Washington County Water Conservancy District (WCWCD).

The water companies that provide water to the existing development in Apple Valley own their own underground water rights. At such time that Apple Valley acquires any of the existing water companies their water rights are considered adequate for only the existing development and would not be used for future development. Additional underground water rights will be needed by future development.

Additional water rights would also come with WCWCD water. Initially WCWCD water would be supplied through a 20-inch pipeline from Virgin. Ultimately the Lake Powell Pipeline has been proposed to bring water to Kane, Iron, and Washington Counties from the Colorado River. It is anticipated that this project will be a State Project. The Division of Water Resources will work together with the Iron County Water Conservancy District, the Kane County Water Conservancy District, and the Washington County Water Conservancy District to complete the pipeline. Preliminary alignment studies indicate the pipeline is planned to be routed through Apple Valley. Preliminary design for the pipeline began in 2006 and is expected to be completed in three to five years. Construction of the pipeline is projected to begin in approximately 2020, depending on growth and need of the counties involved in the project. The addition of this resource to the Apple Valley area will provide additional water that could be utilized as the Apple Valley area continues to grow. *This report assumes that the water right costs will not be included in the Culinary Water impact fee.*

**Source – Delivery:** Underground water will require new wells and pipelines to connect to the future distribution system. WCWCD water will be pumped through over fifteen miles of 20 inch pipe from Virgin.

At 2050 there will be an estimated 6,085 equivalent residential connections with a peak day demand of 0.56 gpm (800 gallons per day) per ERU. This will result in a peak daily requirement of approximately 3,381 gpm of indoor use. There are 364 irrigated acres with a required flow of 4.52 gpm/irrigated acre for a total of 1,645 gpm of outdoor use. The total peak day demand is 5,026 gpm.

The WCWCD can deliver 3,500 gpm with a 20-inch pipeline as shown in Fig. 8, Appendix E. The cost of pump and pipe facilities to deliver water from Virgin to Apple Valley is \$7,474,163 as shown in Table 11 below.



Wells will need to deliver 1,526 (5,026-3,500) gpm (2,197,843 gallons per day). The cost of facilities required to deliver underground water (including wells and pipelines) to a distribution system is estimated at approximately \$0.91 per gallon per day of capacity. At an estimated cost of \$0.91 per gallon per day of capacity, the total estimated cost of facilities to deliver 6.198 million gallons of underground water would be \$2,000,180.

**TABLE 11 – 20-INCH PIPELINE, VIRGIN TO APPLE VALLEY**

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE Dollars & Cents	ITEM PRICE Dollars &
<b>GENERAL</b>					
1	Mobilization @5%	1	L.S.	\$283,230.00	\$284,730
2	Traffic Control	1	L.S.	\$20,000.00	\$20,000
3	Erosion Control	1	L.S.	\$10,000.00	\$10,000
<b>WATER</b>					
4	20" Water Pipe	71,280	L.F.	\$70.00	\$4,989,600
<b>PUMP STATION</b>					
5	Pump Station Complete	3	Ea.	\$225,000.00	\$675,000
Total					\$5,979,330

10% Contingency            \$597,933  
 15% Engineering, Legal, Fiscal    \$896,900  
 Total Amount                        \$7,474,163

The total Source-Delivery cost is \$9,474,343 (\$2,000,180 + 7,474,163).

**Storage:** Storage needs at 2050 are as follows:

**TABLE 12 – STORAGE REQUIREMENT**

<b>Indoor</b>		
Gal/ERU	ERU	Storage (gal)
400	6085	2,434,000
<b>Residential/Commercial/Park</b>		
Gal/Irrigated Acre	Irrigated Acre	Storage (gal)
4,081	364	1,485,484
<b>Fire Suppression</b>		
GPM	Hours	Storage (gal)
1,500	2	900,000
TOTAL		<b>4,819,484</b>

- Fire Suppression storage: 900,000 gallons (180,000 gal/tank x 5 tanks)
- Equalization storage: 4,819,484 gallons (2,434,000 gal. indoor + 1,485,484 gal outdoor)
- Total required storage: 4,819,484 gallons.

At an estimated cost of \$0.85 per gallon of storage capacity (including construction cost, engineering, contingencies, and legal fees), the estimated construction cost of storage facilities needed at 2050 is \$4,096,561.

**Distribution:** This study assumes that property owners will supply and install all required culinary water facilities within their respective developments including water lines, fire hydrants, pressure reducing valves, valves, and fittings. However, there will also be upgrades required to the system outside of new developments which will need to be furnished and installed by the City. Additional distribution facilities expected to be required at 2050 outside of new developments are summarized below along with the estimated costs.

**TABLE 13 – PRELIMINARY COST ESTIMATE FOR WCWCD FACILITIES NEEDED AT 2050<sup>1</sup>**

Item	Description	Quantity	Units	Unit Price	Item Cost
1	14" Ductile Iron Waterline	13,595	LF	\$53.00	\$720,535
2	12" Ductile Iron Waterline	116,496	LF	\$44.00	\$5,125,824
3	Appurtenances	1	Each	\$250,000	\$250,000
<b>Subtotal</b>					<b>\$6,096,359</b>
Engineering (12%)					\$731,563
Legal & Fiscal (3%)					\$182,891
Contingency (10%)					\$609,636
<b>Total</b>					<b>\$7,620,449</b>

<sup>1</sup>Fig. 8, Appendix A

The costs of additional facilities needed at 2050 are as follows.

- Water rights: \$0.00
- Delivery of underground water: \$2,000,180
- Delivery of WCWCD water: \$7,474,163
- Storage: \$4,096,561
- Distribution: \$7,620,449
- Total: \$21,191,353

The total cost of additional facilities needed at 2050 is expected to be \$21,191,353 or \$3,483 (\$21,191,353/6,085 ERCs) per ERC. *The cost of purchasing the existing water compiles is not included in this report but warrants a thorough review at the time of purchase.*

## 7. METHOD OF FINANCING NEEDED FACILITIES

Additional Facilities included in the *Capital Facilities Plan* (CFP) are as follows.

- Additional Facilities needed at present: \$0.00
- Additional distribution facilities needed at 2050: \$21,191,353
- Total additional Facilities included in CFP: \$21,191,353

The proportionate share directly attributable to additional facilities is \$21,191,353. As a result it is anticipated that the entire cost of additional facilities needed will be financed through development impact fees.

## B. Development Impact Fee Analysis

### 1. SERVICE AREA

Although three separate pressure zones are planned, all portions of the culinary water system will be closely tied together. Most of the key facilities requiring upgrading at 2050 will benefit the entire system. As a result, the entire culinary water system will be included in a single service area.

### 2. PROPORTIONATE SHARE OF COSTS

To determine the proportionate share of required improvements that are the direct result of new development; additional facilities needed at present, excess capacity, and additional facilities needed at 2050 need to be considered.

- Additional Facilities Needed at Present: \$0.00
- Excess Capacity: \$0.00
- Additional Facilities Needed at 2050: \$21,191,353

**Additional Facilities Needed at Present:** No additional facilities are needed at present as discussed in section V-A-5 above.

**Excess Capacity:** It is assumed that there is no excess capacity as discussed in section V-A-4.

**Additional Facilities Required at 2050:** The estimated cost of additional Facilities required at 2050 is \$21,191,353 as detailed in section V-A-6 above.

**Proportionate Share:** The proportionate share of the capital facility plan costs which can be directly attributable to growth is equivalent to the value of the *excess capacity* (\$0.00 [see paragraph above]) plus the value of *additional Facilities required at 2050* (\$21,191,353 less the cost of *additional facilities needed at present* (\$0.00) which is equal to \$21,191,353.

### 3. CREDITS FOR PAST AND FUTURE CONTRIBUTIONS

Existing improvements have been paid for by private water companies with no contribution from the general fund. As a result, no credit for past contributions is applicable.

### 4. IMPACT FEE CALCULATION

The culinary water impact fee is calculated using a total value equivalent to the *proportionate share* directly attributable to growth (\$21,191,353) less any credits for *past and future contributions*, of which there are none. The number of additional ERUs at build-out (6,040) is found by subtracting the number of ERUs

at present (430) from the expected number at build-out (6,470). The cost of additional facilities directly attributable to growth is \$3,508 per ERU (\$21,191,353/6,040). Assuming an interest rate of 5.00% and a loan period of 20 years, payments would total \$1.605 for every dollar borrowed. Therefore, the maximum allowable impact fee is \$5,631.

Impact fees are commonly assessed by the number of equivalent residential units (ERU) a development would represent. A single-family residence (1 ERU) would be used as a reference. The predicted demand required by a development would be compared to the demand required by one ERU and then assigned a multiplier to give the required impact fee. For example, the predicted demand for a hotel would be approximately 150 gpd per room, which is 0.1875 times less than the demand of one ERU (800 gpd). The impact fee for a hotel with 30 rooms would be \$31,674 (\$5,631 x 0.1875 x 30 rooms). Using this method, the maximum allowable impact fees are summarized in the following table.

**TABLE 14 – CULINARY WATER DEVELOPMENT IMPACT FEES**

Land Use	Units	Demand <sup>2</sup>	ERUs	Proposed Impact Fee
Residential	Dwelling	800	1.000	\$5,631
Multi-unit	Dwelling	800	1.000	\$5,631
High School	Person	15	0.0188	\$106
Middle School	Person	15	0.0188	\$106
Elementary School	Person	15	0.0188	\$106
Hotel	Room	150	0.1875	\$1,056
Service Station	Pump	250	0.3125	\$1,760
Restaurant	Seat	35	0.0438	\$247
RV Park	Vehicle	100	0.1250	\$704
Church	Seat	5	0.0063	\$35
Nursing Home	Bed	200	0.25	\$1,408
Doctor's Office	Patient	10	0.0125	\$70
	Staff	35	0.0438	\$247
Dentist Office	Chair	200	0.25	\$1,408
	Staff	35	0.044	\$248
Store	Toilet Rm	500	0.625	\$3,519
	Employee	11	0.014	\$79
Commercial	Building	1,600	2.000	\$11,262
Industrial	Building	3,200	4.000	\$22,524

<sup>1</sup>The number of units are estimates.

<sup>2</sup>Assumed *Peak Day Demand* per Unit in gallons for the purpose of calculating ERUs only. Demand estimates are based on Public Drinking Water Design and Operation Rules R309 (Revised 2007).

A possible future water source is the Lake Powell Pipeline.

In order to assist Apple Valley with financing improvements funded by impact fees, it is recommended that the water impact fee be assessed and paid in full when a proposed plat is recorded.

## VI. Wastewater System

### A. Capital Facilities Plan

No existing wastewater collection system exists in Apple Valley proper. New collector and trunk lines are needed. Treatment will also be required.

The State of Utah Division of Water Quality requires that collector lines be capable of conveying four hundred gallons per capita per day (400 gpcd). Larger trunk lines and outfall lines are required to convey two hundred and fifty gallons per capita per day (250 gpcd). These flow rate criteria were established by the State to account for the peaks in flow that occur in a typical wastewater conveyance system and should be used unless measured flow data is available.

For the wastewater system analysis, the elevation of each node was determined by use of a twenty-foot contour map produced from USGS contour data. It should be noted that the elevations used to calculate the slope of each pipe section are natural ground elevations, not actual sewer invert elevations.

For each area in the wastewater conveyance system, a flow contribution was determined by estimating how many connections contributed to each trunk line and then multiplying those connections by a peak flow. A typical residential connection was used as a basis for flow calculation and all other types of connections are scaled to match the ERU (equivalent residential unit).

The proposed conveyance system will be able to support the demand placed on the system from both existing and future development.

#### 1. SERVICE STANDARD

Apple Valley has chosen as its *service standard* the criteria set forth in *Administrative Rules for Design Requirements for Wastewater Collection, Treatment and Disposal Systems* (R317-3 of the Utah Administrative Code).

#### 2. REQUIREMENTS FOR EXISTING DEVELOPMENT

The sewer system including outfall and treatment is designed for 2050 and includes existing development.

**Collector and Outfall Sewer Lines:** The town proposes a system of pipelines which will collect flow from residential and commercial customers and convey the flow to treatment facilities. Proposed outfall facilities are shown on Fig. 3, Appendix E. It is the town's policy to require property owners of future development to pay for the installation of required collector sewer lines at the time of construction. It is the town's policy to require property owners of existing development to pay for the installation of required collector sewer lines at the time of connection. The financial burden to property owners of existing development could be lessened by implementing a Special Improvement District.

#### 3. FINANCING OF PROPOSED FACILITIES

Proposed Facilities will be constructed by new development whenever possible. However, a significant portion of the proposed facilities will be constructed by Apple Valley. This work will be financed through the *sewer fund* with revenues

coming from special improvement districts, impact fees, monthly user fees, grants, and loans.

#### 4. EXCESS CAPACITY

Apple Valley has no sewer system and therefore no excess Capacity.

#### 5. FACILITIES NEEDED AT PRESENT

New facilities are needed at present.

##### Collector Sewer Lines:

The collector sewer lines needed for existing development are exclusive to existing development. Unimproved lots in platted subdivisions area included in existing development.

##### Outfall Sewer Lines and Treatment:

The outfall sewer lines and treatment works needed for existing development are included in the overall system needs. The percentage of the cost for outfall sewer lines and treatment works required by existing development is defined in Section B.2. – Proportionate Share.

#### 6. ADDITIONAL FACILITIES NEEDED AT 2050

**Equivalent Residential Units (ERUs):** With 6,515 ERUs expected at 2050 and a flow of 220 (100 x 2.2) gallons per ERU per day, the expected flow from residential and non-residential areas at 2050 is 1.433 mgd (6,515 ERUs x 220 gal/ERU/day).

TABLE 15 – APPLE VALLEY ESTIMATED 2050 ERUS

Type of Use <sup>1</sup>	Acres	ERUs/ Acre	ERUs at Buildout	Buildout Population <sup>2</sup>	ERUs at 2050	2050 Population
R-1 ACRE	2,941	1	2,941	6,470	395	868
R-1/2 ACRE	6,831	2	13,662	30,056	1,834	4,034
R-MED	2,848	3	8,544	18,797	1,147	2,523
R-HD	1,862	6	11,172	24,578	1,500	3,299
R-PUD	1,439	3	4,317	9,497	579	1,275
School	69	0.91	63			8
Commercial	1,280	6	7,680		1,031	
Manufacturing	40	4	160		21	
<b>Total</b>	<b>17,310</b>		<b>48,539</b>	<b>89,399</b>	<b>6,515</b>	<b>12,000</b>

**Collector Sewer Lines:** Numerous collector lines will be needed at 2050. It is the town's policy to require developers to install needed collectors. As a result, collector sewer lines have not been analyzed for 2050.

**Outfall Sewer Lines:** The analysis of the future wastewater flows is based on the town's Future Land Use Plan (See Appendix E). This map was used to determine the areas and densities contributing to critical points along the main trunk line. The flows contributing to the main trunk line are based on a peaking factor of 2.5 times the average daily flow per unit of 220 gpd, giving 550 gpd per unit peak flow.



Geographically the town is divided into two natural drainage areas as shown on Figure 3. The drainage area north of the divide runs into and follows along Gould Wash. The first of two sewer outfall lines named for this report as the *Gould Outfall* will follow along the same drainage path to a treatment plant on the west side of the town as shown in Figure 3. The area south of the divide drains into Small Creek Wash through Canaan Gap. The second of two sewer outfall lines named for this report as the *Canaan Outfall* will follow along the natural drainage to a second treatment plant west of the Hilldale sewer lagoons as shown in figure 3.

Areas of existing units in Apple Valley are served by private septic systems. It is expected that these areas will eventually be connected to the above mentioned outfall systems.

This report includes a preliminary design and preliminary cost estimate for these outfall lines at 2050.

**TABLE 16 – ESTIMATED COST OF OUTFALL LINES**

Item	Quantity	Units	Unit Price	Amount
Mobilization (10%)	1	LS		\$283,850
12" Sewer Pipe	42,100	LF	\$45	\$1,894,500
15" Sewer Pipe	11,500	LF	\$50	\$575,000
60" MH	30	EA	\$3,500	\$105,000
AC (12' patch)	12,000	SY	\$22	\$264,000
			Total	\$3,122,350
			10% Contingency	\$312,235
			15% Engr & CM	\$780,588
			Total Amount	\$4,215,173

**Treatment:** The town plans to build two mechanical treatment plants to meet wastewater treatment needs at 2050. As discussed under *Equivalent Residential Units* above, there will be an estimated 6,515 ERUs at 2050. Multiplying the average daily flow of 220 gpd/ERU by 6,515 ERUs results in an average daily flow of 1,433,300 gpd. At an estimated cost of eight dollars per gallon per day of capacity (Rogers, 2006) two mechanical treatment plants with a combined capacity of 1.433 mgd will cost approximately \$11,464,000. It is anticipated that the plants will be constructed at the approximate locations shown on Figure 3.

**Total Cost:** The total estimated cost of additional facilities needed at 2050 is summarized below.

**TABLE 17 – ESTIMATED COST OF ADDITIONAL FACILITIES NEEDED AT 2050**

Item	Cost
Outfall sewer lines	\$4,215,000
2 Mechanical treatment plants	\$11,464,000
Total	\$15,679,000

<sup>1</sup>See section VI-A-4.

## 7. METHOD OF FINANCING NEEDED FACILITIES

Facilities needed by future growth should be financed through impact fees, loans, and/or grants. Existing units can be financed through special improvement districts.



**B. Development Impact Fee Analysis****1. SERVICE AREA**

Most of the facilities included in the *Capital Facilities Plan* serve a large portion of the town. Because of this, and the difficulty in assigning benefits to a given area or number of lots, the entire town will be included in a single service area.

**2. PROPORTIONATE SHARE**

In order to determine the proportionate share for each type of establishment the following table has been derived from the state code.

TABLE 18 – PROPORTIONATE SHARE

Type	Units	GPD /Unit	ERUs
Permanent residence	Residence	400	1.0000
Hotels & motels	Room	150	0.3750
RV parks	Space	100	0.2500
Airports	Passenger	3	0.0075
	Employee	15	0.0375
Boarding houses	Residents	50	0.1250
	Nonresidents	10	0.0250
Bowling alleys w/snack bar	Alley	100	0.2500
Bowling alleys w/0 snack bar	Alley	85	0.2125
Churches	Person	5	0.1250
Country clubs	Resident member	100	0.2500
	Non-resident member	25	0.0625
	Employee	15	0.0375
Dentist's office	Chair	200	0.5000
	Staff member	35	0.0875
Doctor's office	Patient	10	0.0250
	Staff member	35	0.0875
Fairgrounds	Person	1	0.0025
Fire station w/food preparation	Full-time employee	70	0.1750
Fire station w/o food preparation	Full-time employee	5	0.0125
Gyms	Participant	25	0.0625
	Spectator	4	0.0100
Hairdresser	Chair	50	0.1250
	Operator	35	0.0875
Hospitals	Bed	250	0.6250
Industrial buildings w/showers (exclusive of industrial waste)	Employee per shift	35	0.0875
Industrial buildings w/o showers (exclusive of industrial waste)	Employee per shift	15	0.0375
Jail facilities	Inmate	115	0.2875
	Employee	10	0.0250
Launderette	Washer	580	1.4500
Movie Theaters (auditorium)	Seat	5	0.0125
Movie Theaters (drive-in)	Car	10	0.0250
Nursing Homes	Bed	280	0.7000
Office buildings w/cafeteria	Employee	25	0.0625
Office buildings w/o cafeteria	Employee	15	0.0375
Picnic parks	Person	5	0.0125
Restaurants w/24 hour service	Seat	50	0.1250
Restaurants w/o 24 hour service	Seat	35	0.0875
Restaurants – single service utensils	Customer/day	10	0.0250
Rooming house	Person	40	0.1000
Schools – boarding	Person	75	0.1875
Schools w/o cafeteria & showers	Person	15	0.0375
Schools w/cafeteria w/o showers	Person	20	0.0500
Schools w/cafeteria & showers	Person	25	0.0625
Service stations	Vehicle/day	10	0.0250
Skating rinks & dance halls w/kitchen	Person	13	0.0325
Skating rinks & dance halls w/o kitchen	Person	10	0.0250
Ski areas w/o kitchen	Person	10	0.0250
Stores	Toilet stall	500	1.2500
	Employee	11	0.0275
Swimming pools & bath houses	Person	10	0.0250
Taverns, bars, cocktail lounges	Seat	20	0.0500
Visitor centers	Visitor day	5	0.0125

### 3. CREDITS FOR PAST AND FUTURE CONTRIBUTIONS

No improvements have been paid for out of the *water and sewer fund* or from the general fund. As a result, no credit for past contributions is applicable.

### 4. IMPACT FEE CALCULATION

Impact fees have been calculated based upon the following assumptions.

- Value of excess Capacity: \$0.00
- Additional improvements needed at 2050: \$11,464,000.
- The value of excess Capacity *plus* the cost of additional improvements needed at 2050 is \$11,464,000. The amount that can be charged an impact fee is 93.4% (6,085 additional units at 2050/6,515 total units at 2050) of \$11,464,000 or \$10,707,376. The estimated cost per ERU will be \$1,760. Assuming an interest rate of 5.00% and a loan period of 20 years, payments would total \$1.605 for every dollar borrowed. Therefore, the maximum allowable impact fee is \$2,824 per ERU. The following table contains a schedule of maximum impact fees.

TABLE 19 – WASTEWATER SYSTEM MAXIMUM ALLOWABLE IMPACT FEES

Type	Units	ERUs	Impact Fee / Unit
Permanent residence	Residence	1.0000	2,824
Hotels & motels	Room	0.3750	\$1,059
RV parks	Space	0.2500	\$706
Airports	Passenger	0.0075	\$21
	Employee	0.0375	\$106
Boarding houses	Residents	0.1250	\$353
	Nonresidents	0.0250	\$71
Bowling alleys w/snack bar	Alley	0.2500	\$706
Bowling alleys w/o snack bar	Alley	0.2125	\$600
Churches	Person	0.0125	\$35
	Resident member	0.2500	\$706
	Non-resident member	0.0625	\$177
Country clubs	Employee	0.0375	\$106
	Chair	0.5000	\$1,412
Dentist's office	Staff member	0.0875	\$247
	Patient	0.0250	\$71
Doctor's office	Staff member	0.0875	\$247
	Person	0.0025	\$7
Fairgrounds	Person	0.0025	\$7
Fire station w/food preparation	Full-time employee	0.1750	\$494
Fire station w/o food preparation	Full-time employee	0.0125	\$35
Gyms	Participant	0.0625	\$177
	Spectator	0.0100	\$28
Hairdresser	Chair	0.1250	\$353
	Operator	0.0875	\$247
Hospitals	Bed	0.6250	\$1,765
Industrial buildings w/showers (exclusive of industrial waste)	Employee per shift	0.0875	\$247
Industrial buildings w/o showers (exclusive of industrial waste)	Employee per shift	0.0375	\$106
Jail facilities	Inmate	0.2875	\$812
	Employee	0.0250	\$71
Launderette	Washer	1.4500	\$4,095
Movie Theaters (auditorium)	Seat	0.0125	\$35
Movie Theaters (drive-in)	Car	0.0250	\$71
Nursing Homes	Bed	0.7000	\$1,977
Office buildings w/cafeteria	Employee	0.0625	\$177
Office buildings w/o cafeteria	Employee	0.0375	\$106
Picnic parks	Person	0.0125	\$35
Restaurants w/24 hour service	Seat	0.1250	\$353
Restaurants w/o 24 hour service	Seat	0.0875	\$247
Restaurants – single service utensils	Customer/day	0.0250	\$71
Rooming house	Person	0.1000	\$282
Schools – boarding	Person	0.1875	\$530
Schools w/o cafeteria & showers	Person	0.0375	\$106
Schools w/cafeteria w/o showers	Person	0.0500	\$141
Schools w/cafeteria & showers	Person	0.0625	\$177
Service stations	Vehicle/day	0.0250	\$71
Skating rinks & dance halls w/kitchen	Person	0.0325	\$92
Skating rinks & dance halls w/o kitchen	Person	0.0250	\$71
Ski areas w/o kitchen	Person	0.0250	\$71
Stores	Toilet stall	1.2500	\$3,530
	Employee	0.0275	\$78
Swimming pools & bath houses	Person	0.0250	\$71
Taverns, bars, cocktail lounges	Seat	0.0500	\$141
Visitor centers	Visitor day	0.0125	\$35

## VII. Storm Water System

### A. Capital Facilities Plan

#### 1. SERVICE STANDARD

Apple Valley has chosen to implement the following standard.

- For the 10-year storm, all storm water must be contained in the street with one dry emergency lane in each direction twelve feet in width.
- For the 100-year storm, all storm water must be contained within the streets with a maximum depth of one foot above the low top of curb.
- All water not contained as described above must be conveyed in a storm drain system.
- The town engineer may modify the above items (to be either more or less restrictive) for special conditions.

Responsibility for construction of required facilities shall be as follows.

- The landowner or developer will be responsible for all storm water facilities within his property, including natural flows originating off-site which cross the development.
- Apple Valley will be responsible for all off-site storm water facilities included in the Capital Facilities Plan.
- The landowner will be responsible for all off-site storm water facilities not included in the Capital Facilities Plan imposed by the town after review of a hydrology study prepared by the owner's engineer and approved by the town engineer.

#### 2. INVENTORY OF EXISTING FACILITIES

Apple Valley has two major drainages. Gould Wash flows east to west through the northerly portion of Apple Valley. To the south, Short Creek and Canaan Wash flow from east to west. The main objective of the future storm drain system is to convey street flow to these drainages and their tributaries. There are several roadways that have culverts currently in use at areas crossing these drainages. In addition to these culvert crossings there are a number of culverts that convey water under Highway 89. It is assumed that these culverts do not restrict flow.

#### 3. METHOD OF FINANCING OF EXISTING FACILITIES

Apple Valley has no existing storm water facilities that have been financed through the *general fund*.

#### 4. EXCESS CAPACITY

Existing storm water facilities are being used at or near Capacity. There is no excess Capacity available for development.

#### 5. ADDITIONAL FACILITIES NEEDED AT PRESENT

Although there are several areas of the town where additional storm drain facilities would be desirable, this study has focused on three areas of major concern. All areas of concern will require improvements that would be the responsibility of the local residents. These improvements could be financed through special

improvement districts for those involved. The third area of concern, two bridge crossings, could be financed through impact fees, loans and grants.

- The first is a low lying area along the south east edge of the Apple Valley Subdivision where runoff ponds and causes local flooding. This problem can be eliminated by constructing drainage either by open ditch or pipe to Gould Wash.
- The second area of concern is development adjacent to Gould Wash that is vulnerable to erosion damage during storm events. These vulnerable areas can be protected with channel stabilization such a rip-rap or gabions. It should be noted that development should not be allowed adjacent to any wash or drainage without requiring the developer to provide a flood plain study and an engineered channel stabilization system.
- The third area of concern is the need for a new bridge crossing on Gould Wash at Main Street and a bridge replacement at the access to Apple Valley Subdivision at SR-59 near the gas station. Precast concrete bridges with wing walls and head walls are considered in this report. The estimated costs for these bridges are given in the following tables:

**TABLE 20 – MAIN STREET BRIDGE**

ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
Mobilization @ 5%	1	S.F.	\$14,978.00	\$14,978
86 LF 10 ft Span x 8 ft Rise Precast Conc. Bridge	1	L.S.	\$53,519.00	\$53,519
Precast Headwalls, 4' above crown, detached.	2	EA.	\$16,530.00	\$33,060
Precast Wingwalls	4	EA.	\$25,161.00	\$100,644
Installation (Materials + 60%)	1	L.S.	\$112,333.80	\$112,334
SUBTOTAL				\$314,535
12% Engineering				\$37,744
3% Legal and Fiscal				\$9,436
10% Contingency				\$31,453
<b>TOTAL ESTIMATED COST</b>				<b>\$393,168</b>

**TABLE 21 – APPLE VALLEY ACCESS BRIDGE**

ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
<b>Apple Valley Access Bridge</b>				
Mobilization @ 5%	1	S.F.	\$30,595.00	\$30,595
86 LF 48 ft Span x 11 ft Rise Precast Conc. Bridge	1	L.S.	\$190,485.00	\$190,485
Precast Headwalls, 2' above crown, detached.	2	EA.	\$20,102.00	\$40,204
Precast Wingwalls	4	EA.	\$37,937.00	\$151,748
Installation (Materials x 60%)	1	L.S.	\$229,462.20	\$229,462
SUBTOTAL				\$642,494
12% Engineering				\$77,099
3% Legal and Fiscal				\$19,275
10% Contingency				\$64,249
<b>TOTAL ESTIMATED COST</b>				<b>\$803,117</b>

The total amount for the two bridges is \$1,196,285 (\$393,168 + \$803,117). There are an estimated 500 developed acres and 15,421 (15,921-500) acres yet to be developed within the study boundary. The amount that can be attributed to Additional Facilities Needed at Present is \$37,569 ( $\$1,196,285 \times (500 \text{ acres}/15,921 \text{ acres})$ ).

## 6. ADDITIONAL FACILITIES NEEDED AT 2050

Only those storm drain facilities of major concern, which would be difficult if not impossible to construct without large-scale participation, are included in this analysis. Smaller facilities will be constructed by individual developments as required by the town.

The bridge crossings on Gould Wash at Main Street and at the access to Apple Valley Subdivision at SR-59 near the gas station are Additional Facilities Needed at 2050. There are an estimated 15,421 (15,921 acres-500 acres) acres yet to be developed within the study boundary. The amount that can be attributed to Additional Facilities Needed at 2050 is \$1,196,285.

The following table gives estimated 100 year storm flows for locations in Gould Wash, Canaan Wash, and Short Creek Wash. These flows were calculated by modeling the basins using the SCS method. SewerGEMS, a hydraulic modeling program developed by Bentley, was used to determine the flows for this study. The soils classification was obtained from the *Soil Survey of Washington County Area* and the Natural Resource Conservation Resource (NRCS) Soils Website. Properties were largely too variable to estimate, but soils in each hydrologic group are found in the study area. The ground covers used were *Pinyon, Juniper (Fair Condition)* and *Desert Shrub (Poor & Fair Condition)*. Composite curve numbers were calculated on an area-weighted average. The hydrologic analysis was based on a 3-hour duration storm with estimates for the 100-year event. The precipitation value, as obtained from the National Oceanic and Atmospheric Administration (NOAA) website, was 2.00 inches. *Flows used to size any future culverts or bridges should be determined by independent hydrology reports.*

TABLE 22 – 100 YEAR FLOWS<sup>1</sup>

Drainage	Location	Flow (cfs)
Gould Wash	A	5,281
	B	5,165
	C	4,776
	D	3,606
	E	2,910
	F	2,759
	G	396
	H	2,142
	I	1,474
Short Creek/Canaan Wash	M	5,301
	N	3,924
	O	3,388
	P	2,656
	Q	1,614
	R	627



<sup>1</sup>See Figure 2

## 7. METHOD OF FINANCING NEEDED FACILITIES

Owners of new developments will be required to construct and finance planned storm water facilities adjacent to their respective projects as a condition of development.

Facilities needed at present could be financed through *Special Improvement Districts* (SIDs) or with *grants* if such become available. Facilities needed at 2050 will be financed through impact fees.

## B. Development Impact Fee Analysis

### 1. SERVICE AREA

All of Apple Valley has been included in one service area because of the difficulty in defining benefits and collecting different impact fees in various areas of the town.

### 2. PROPORTIONATE SHARE

In the areas of greatest concern, runoff will not significantly increase during development. Planned storm water facilities are needed in these areas not because runoff will be increased, but because development will place individuals in areas where there is a significant danger to life and property if expected flood waters are not controlled. Although there are many possible ways of determining the proportionate share of costs for different types of development, none seem to be more equitable than assessing impact fees based upon the area developed.

To determine the proportionate share of required improvements that are the direct result of new development; additional facilities needed at present, excess capacity, and additional facilities needed at 2050 need to be considered.

- Additional Facilities Needed at Present: \$37,569
- Excess Capacity: \$0.00
- Additional Facilities Needed at 2050: \$1,196,285

**Additional Facilities Needed at Present:** The estimated cost of additional facilities required at present is \$37,569 as discussed in section VII-A-5 above.

**Excess Capacity:** It is assumed that there is no excess capacity as discussed in section VII-A-4.

**Additional Facilities Required at 2050:** The estimated cost of additional Facilities required at 2050 is \$1,196,285 as detailed in section VII-A-6 above.

**Proportionate Share:** The proportionate share of the capital facility plan costs which can be directly attributable to growth is equivalent to the value of the *excess capacity* (\$0.00 [see paragraph above]) plus the value of *additional Facilities required at 2050* (\$1,196,285) less the cost of *additional facilities needed at present* (\$37,569) which is equal to \$1,158,716.



**3. CREDITS FOR PAST AND FUTURE CONTRIBUTIONS**

No existing storm drain facilities have been financed through the general fund. There is no long term debt attributable to existing storm drain facilities so no credit for future contributions is applicable.

**4. IMPACT FEE CALCULATION**

The storm water impact fee is calculated using a total value equivalent to the *proportionate share* directly attributable to growth. The proportionate share (\$1,158,716) multiplied by \$1.605 to account for bonding at 5% for 20 years gives a maximum allowable expense that can be paid for by impact fees of \$1,859,739. There are an estimated 15,421 (15,921-500) acres yet to be developed within the study boundary resulting in a maximum allowable impact fee of \$121 per acre.

## VIII. Parks, Trails and Open Space

### A. Capital Facilities Plan

#### 1. SERVICE STANDARD

The *National Recreation and Park Association* recommends a standard of 5.0-10.0 acres of parks per 1000 people (Nichols 2005). Apple Valley plans to develop two parks, one twenty acre park and one 40 acre park. This results in a service level of 5 acres per 1000 people. Two golf courses are being planned by private development and are not included in the service level.

Apple Valley does not currently have trails. However, they desire to provide trails as a service to the 2050 population. Apple Valley will supply 20 miles of trail at 2050 or 0.00167 miles of trail per person (20 miles of trail / 12,000 people).

#### 2. INVENTORY OF EXISTING FACILITIES

Apple Valley has no existing trails or parks.

#### 3. METHOD OF FINANCING OF EXISTING FACILITIES

No trail or park improvements have been financed by the general fund.

#### 4. EXCESS CAPACITY

The town has no trails or parks so there is no excess trail or park capacity.

#### 5. ADDITIONAL FACILITIES NEEDED AT PRESENT

Since the town plans to establish the level of service for parks and open space, 6.3 miles of trail (0.00167 miles of trail per person x 944 people) are needed. With a standard of 5 acres of park per 1000 persons, the current population is in need of 4.7 acres of park (5 acres per 1000 persons x 944 people).

#### 6. ADDITIONAL FACILITIES NEEDED AT 2050

Apple Valley desires to add additional parks and open space as needed in order to maintain the standard. The 2050 population has been estimated to be 12,000 as discussed in section III-C. At a standard of 5 acres per 1000 people, a total of 60 acres will be required at 2050, 4.7 acres for the current population and an additional 50.3 acres by 2050. Apple Valley is planning to purchase two forty-acre parcels from the BLM for parks and must wait for BLM approval. However, the town plans to construct parks following the basic criteria listed below as funding becomes available.

- Construct one forty-acre park.
- Construct one twenty-acre park.
- Facilitate public access.
- Include facilities for a variety of age groups.
- Include facilities for group activities.
- Include sports facilities such as baseball and soccer fields.

Every park will not include all of the amenities listed above. Each park may emphasize one or two features such as a park with mainly sports facilities. Two parks will be needed at 2050.

**TABLE 23 – CAPITAL IMPROVEMENTS ESTIMATE FOR A 40-ACRE PARK**

Improvement	Cost <sup>1</sup>
Road w/ pullouts and parking areas	\$8,500
Trails, signs & benches	\$20,000
Bridge/Culvert	\$5,000
Pavilion	\$20,300
Picnic tables	\$11,950
Trash collection system	\$2,000
Landscaping and fencing	\$5,500
Flush and composting toilets	\$20,000
BLM land purchase including environmental	\$40,400
Drinking fountain	\$3,000
Riding arena	\$4,200
Archery grounds	\$2,200
Play area	\$6,500
Athletic fields and improvements	\$250,000
TOTAL	\$399,550

Cost estimates for possible Apple Valley Park Master Plan.

Approximately 20 miles of trail including eight parking lots will be needed due to the 2050 population. At a cost of approximately \$225,000 per mile estimated from recent costs of constructing trails in the St George area, the total cost of additional trails is \$4,500,000. The proposed trail system crosses SR-59 in two locations. The cost for these two overpass or underpass crossings are not considered in this report. In order to pay for land, equipment and facilities necessary for new trails, bonding may be required.

## 7. METHOD OF FINANCING NEEDED FACILITIES

Parks, trails and open space are needed due to existing and future population growth. As a result, it is the intent of the town to finance facilities through special improvement districts and development impact fees to the extent possible.

### B. Development Impact Fee Analysis

#### 1. SERVICE AREA

The entire town will be included in one *service area* for parks and open space.

#### 2. PROPORTIONATE SHARE

Of the various zones established in Apple Valley, only residential zones generate demand for parks, trails and open space. Because of this, only residential zones will be assessed an impact fee.

#### 3. CREDITS FOR PAST AND FUTURE CONTRIBUTIONS

Because there have been no past contributions, new development should not receive a credit of 0.12% in the impact fee calculation.

#### 4. IMPACT FEE CALCULATION

##### a. PARKS & OPEN SPACE

Sixty acres of parks will be needed at 2050. At an estimated cost per acre of \$9,989 (\$399,550/40), the total cost of additional parks needed is \$599,325 (60 x 9,989).

In order to pay for land, equipment and facilities necessary for new parks, bonding may be required. At an estimated interest rate of 5.0% with a term of 20 years, the cost per dollar borrowed would be \$1.605. When bonding is applied to the \$599,325 needed for parks at 2050 the cost is \$961,917. This cost divided among 11,056 (12,000– 944) people is \$87 per person. With an average household size of 2.2 the impact fee would be \$191 per residential unit.

##### b. TRAILS

Approximately 20 miles of trail including eight parking lots will be needed due to the 2050 population. At a cost of approximately \$225,000 per mile estimated from recent costs of constructing trails in the St George area, the total cost of additional trails is \$4,500,000. In order to pay for land, equipment and facilities necessary for new trails, bonding may be required. At an estimated interest rate of 5.0% with a term of 20 years, the cost per dollar borrowed would be \$1.605. When bonding is applied to the \$4,500,000 needed for trails at 2050 the cost is \$7,222,500. This cost divided among 11,056 (12,000– 944) people is \$653 per person. With an average household size of 2.2 the impact fee for trails would be \$1,437 per residential unit.

The total impact fee for trails, parks and open space would be \$1,628 (\$191 + \$1,437) per residential unit.

## IX. Public Safety

An impact fee for public safety includes fire and police protection facilities. Apple Valley maintains a volunteer fire department with one fire station. Police protection is currently contracted to Washington County.

### A. Capital Facilities Plan

#### 1. SERVICE STANDARD

**Fire Protection:** Based on similar cities, it is estimated that 0.5 square feet of fire station per capita will be needed at 2050. The resulting total 2050 requirement is about 6,000 square feet (12,000 x 0.5). The existing fire station is 4,800 square feet. The net future requirement is 1,200 square feet (6,000 – 4,800). The best insurance rates are available to properties within a 5 mile radius of a fire station. These ISO criteria should be taken into account when locating new facilities.

**Police Protection:** Rich Townsend (Director Officer of Standards and Training) with the State of Utah recommends that cities within Utah meet the same officer to citizen ratio as the State of Utah. Currently Utah has approximately one officer per every 1,750 citizens. At 2050 conditions 7 officers would be needed to meet this standard (12,000 people x 1.0 Officer/1,750 people).

#### 2. INVENTORY OF EXISTING FACILITIES

**Fire Protection:** Apple Valley owns one fire station. The station, which is located at 6802 East Meadowlark Lane, has an area of 4,800 square feet and a replacement cost of approximately \$593,000 (assuming a value of \$110 per square foot for the building and \$65,000 for the lot).

**Police Protection:** Apple Valley has no assets (land and buildings) related to police protection.

#### 3. METHOD OF FINANCING OF EXISTING FACILITIES

**Fire Protection:** Existing fire station was given to the town by Washington County.

**Police Protection:** There are no existing facilities to finance.

#### 4. EXCESS CAPACITY

**Fire Protection:** With an area required at 2050 of 0.50 square feet of station per person the present population would need 472 square feet (944 persons x 0.5 square feet per person) leaving an excess capacity of 4,328 square feet (4,800 – 472) with excess capacity valued at \$534,688 (\$593,000 x (4,328/4,800)).

**Police Protection:** Apple Valley currently has no police station because it is contracting with the County for facilities so there is no excess capacity.

#### 5. ADDITIONAL FACILITIES NEEDED AT PRESENT

**Fire Protection:** No additional facilities are needed at present.

**Police Protection:** For reference, Cedar City has a 14,400 square foot police station which houses 75 police officers. At present conditions 1 officer would be needed to meet this standard (944 people x 1.0 Officer/1,750 people). The area per officer is approximately 300 square feet. Based upon this ratio and 1 officer at present, a 300 square foot police station would be required. At an approximate cost of \$65,000 for 0.5 acres of land and \$110 per square foot to construct a building, the total cost of a 300 square foot building would be \$98,000.

#### 6. ADDITIONAL FACILITIES NEEDED AT 2050

**Fire Protection:** Two stations whose sizes sum to 6,000 square feet will be needed at 2050. With 4,800 square feet of fire station existing, an additional 1,200 square feet of station will be needed at 2050. At an approximate cost of \$110 per square foot for the building and \$65,000 for 0.5 acres of land, the total value of additional fire station square footage needed at 2050 would be \$197,000.

**Police Protection:** For reference, Cedar City has a 14,400 square foot police station which houses 75 police officers. The area per officer is approximately 300 square feet. Based upon this ratio and 7 officers at 2050, a 2,100 square foot police station would be required. At an approximate cost of \$65,000 for 0.5 acres of land and \$110 per square foot to construct a building, the total cost of a 2,100 square foot building would be \$296,000.

#### 7. METHOD OF FINANCING NEEDED FACILITIES

Additional facilities needed due to growth at 2050 will be financed through impact fees, loans and bonds.

### B. Development Impact Fee Analysis

#### 1. SERVICE AREA

**Fire Protection:** Apple Valley is considered to be a single service area because of the expected service overlap between stations and crews.

**Police Protection:** Apple Valley is considered to be a single service area.

#### 2. PROPORTIONATE SHARE

**Fire Protection:** Fire response data for the last 5 years was made available by the Apple Valley volunteer fire department. Responses included fire, vehicle accidents, and false alarms. The data shows that the average number of responses per year is 60. When divided over 429 units (944 people/2.2 people per unit), the response rate per unit per year is 0.14 responses per unit. The data received from the fire department did not indicate whether the responses were for residential or commercial. However, a study recently performed for the Town of Virgin resulted in 17.74 responses per commercial acre versus each response per residential unit. Therefore, for the purpose of this study it will be assumed that there are 0.14 responses per unit for residential zones and 2.47 responses per acre (17.74 x 0.14) for commercial zones at 2050.

Based on the information above, the following number of responses per year could be expected at 2050.

**TABLE 24 – ESTIMATED NUMBER OF YEARLY FIRE RESPONSES PER DEVELOPMENT TYPE AT 2050**

Land Use	Acres or Units	Estimated No. of Responses	
		Per acre or unit	Total
Residential	5,455	0.14/unit	764
Commercial/Manufacturing	177*	2.47/acre	438
Total estimated responses per year			1,202

\*Calculated at 2050 (1,320 acres x 12,000/89,399)

To determine the proportionate share of required improvements that are the direct result of new development; additional facilities needed at present, excess capacity, and additional facilities needed at 2050 need to be considered.

- Additional Facilities Needed at Present: \$0.00
- Excess Capacity: \$534,688
- Additional Facilities Needed at 2050: \$790,000

**Additional Facilities Needed at Present:** The estimated cost of additional facilities required at present is \$0.0 as discussed in section IX-A-5 above.

**Excess Capacity:** It is assumed that there is excess capacity of \$534,688 as discussed in section IX-A-4.

**Additional Facilities Required at 2050:** The estimated cost of additional Facilities required at 2050 is \$790,000 as detailed in section IX-A-6 above.

**Proportionate Share:** The proportionate share of the capital facility plan costs which can be directly attributable to growth is equivalent to the value of the *excess capacity* (\$0.00 [see paragraph above]) plus the value of *additional Facilities required at 2050* (\$790,000) less the cost of *additional facilities needed at present* (\$534,688) which is equal to \$255,312.

Assuming a proportionate share of \$255,312 for the existing and proposed firehouses and 1,202 average responses per year at 2050, the value per expected response for new development would be \$212. An impact fee based on expected responses would be as follows.

**TABLE 25 – AVERAGE ANNUAL COST OF FIRE RESPONSES AT 2050 BY LAND USE**

Land Use	Estimated No. of Responses	Value per Response	Impact
Residential	0.14/unit	\$212	\$30/unit
Commercial	2.47/acre	\$212	\$524/acre

**Police Protection:** Available response data was recorded by the county and made available by Apple Valley for the period from January 2003 to December 2006. The number of responses per year is shown in the following table.

TABLE 26: POLICE RESPONSE DATA

Year	Estimated No. of Responses	Estimated No. of Residents	Estimated No. of ERUs <sup>1</sup>	Responses Per ERU
2001	89	470	214	0.42
2002	68	524	238	0.29
2003	84	584	265	0.32
2004	145	651	296	0.49
2005	135	726	330	0.41
2006	156	809	367	0.42
Average Number of Responses Per Year/ERU				0.39

<sup>1</sup>The estimated number of ERUs is found by dividing the number of residents by 2.2 residents per household.

The average number of responses per ERU per year was 0.39. The data received from the police department did not indicate whether the responses were for residential or commercial. However, a study recently performed for the Town of Virgin resulted in 17.74 responses per commercial acre versus each response per residential unit. Therefore, for the purpose of this study it will be assumed that there are 0.39 responses per unit for residential zones and 6.92 responses per acre (17.74 x 0.39) for commercial zones at 2050.

TABLE 27 – ESTIMATED NUMBER OF YEARLY POLICE RESPONSES PER DEVELOPMENT TYPE AT 2050

Land Use	Acres or Units	Estimated No. of Responses	
		Per acre or unit	Total
Residential	5,455 units	0.39/unit	2,127
Commercial/Manufacturing	177 acres*	6.92/acre	1,225
Total estimated responses per year			3,352

\*Calculated at 2050 (1,320 x 12,000/89,399)

To determine the proportionate share of required improvements that are the direct result of new development; additional facilities needed at present, excess capacity, and additional facilities needed at 2050 need to be considered.

- Additional Facilities Needed at Present: \$98,000
- Excess Capacity: \$0.00
- Additional Facilities Needed at 2050: \$296,000

**Additional Facilities Needed at Present:** The estimated cost of additional Facilities required at present is \$98,000 as detailed in section IX-A-6 above..

**Excess Capacity:** It is assumed that there is no excess capacity as discussed in section IX-A-4.

**Additional Facilities Required at 2050:** The estimated cost of additional Facilities required at 2050 is \$296,000 as detailed in section IX-A-6 above.

**Proportionate Share:** The proportionate share of the capital facility plan costs which can be directly attributable to growth is equivalent to the value of the *excess*



capacity (\$0.00 [see paragraph above]) plus the value of *additional Facilities required at 2050* (\$296,000) less the cost of *additional facilities needed at present* (\$98,000) which is equal to \$198,000

Assuming a proportionate share of \$198,000 for new development for the proposed firehouses and 1,202 average responses per year at 2050, the value per expected response for new development would be \$165. An impact fee based on expected responses would be as follows.

**TABLE 28 – AVERAGE ANNUAL COST OF POLICE RESPONSES AT 2050 BY LAND USE**

Land Use	Estimated No. of Responses	Value per Response	Impact
Residential	0.39/unit	\$165	\$64/unit
Commercial	6.92/acre	\$165	\$1,142/acre

**3. CREDITS FOR PAST AND FUTURE CONTRIBUTIONS**

**Fire Protection:** Because fire protection facilities were donated, newly developed properties will not receive any property tax credit.

**Police Protection:** Because the town owns no public facilities dedicated to police protection, no credit will be applied towards police protection.

**4. IMPACT FEE CALCULATION**

**Fire Protection:** In order to pay for the fire protection facilities, bonding may be required. Assuming an interest rate of 5.00% and a loan period of 20 years, payments would total \$1.605 for every dollar borrowed. Applying the appropriate credits to the fees obtained above and applying bonding gives the following maximum allowable impact fees for fire protection.

**TABLE 29 – FIRE PROTECTION FEES**

Land Use	Calculated Fee	Calculated Fee with Bonding	Tax Credit	Credit for Debt	Maximum Fee
Residential	\$30/unit	\$48/unit	\$0.00/unit	\$0.00	\$48/unit
Commercial	\$524/acre	\$841/acre	\$0.00/acre	\$0.00	\$841/acre

**Police Protection:** The cost of police protection to be provided by impact fees is \$64 per residential unit. In order to pay for the facilities required to supply appropriate police protection, bonding may be required. Assuming an interest rate of 5.00% and a loan period of 20 years, payments would total \$1.605 for every dollar borrowed. The impact fee would therefore increase to \$103 for each ERU. The maximum commercial impact fee for police protection is \$1,142 per acre. Assuming an interest rate of 5.00% and a loan period of 20 years, payments would total \$1.605 for every dollar borrowed. The impact fee would therefore increase to \$1,833 per acre.

**TABLE 30 – POLICE PROTECTION FEES**

Land Use	Calculated Fee	Calculated Fee with Bonding	Tax Credit	Credit for Debt	Maximum Fee
Residential	\$64/unit	\$103/unit	\$0.00/unit	\$0.00	\$103/unit
Commercial	\$1,142/acre	\$1,833/acre	\$0.00/acre	\$0.00	\$1,833/acre

## X. Roadways

### A. Capital Facilities Plan

#### 1. SERVICE STANDARD

Apple Valley has recently adopted new street standards. The standards designate roads as local (50' row), collector (60' row), major collector (66' row), arterial road (80' row), major arterial road (greater than 80'). Roads funded by impact fees will be any roads greater than a 50' row that will be built and maintained by the town. Private and local roads should be built and funded by local development, special improvement districts or other methods that assess the properties affecting these roads. Roads that are found within the Utah Department of Transportation (UDOT) right of way will be built and maintained by UDOT, and will not receive funding from impact fees.

#### 2. INVENTORY OF EXISTING FACILITIES

Apple Valley has paved, gravel, and dirt roads within the town boundaries.

#### 3. METHOD OF FINANCING OF EXISTING FACILITIES

For the purposes of this study it is assumed that all roadway improvements have been financed through the general fund.

#### 4. EXCESS CAPACITY

Currently there is no excess roadway capacity in Apple Valley. More roads will need to be built to accommodate future development.

#### 5. ADDITIONAL FACILITIES NEEDED AT PRESENT

Many of the town streets are currently not paved and without curb and gutter. It is recommended that these streets be upgraded to include paving and curb and gutter.

#### 6. ADDITIONAL FACILITIES NEEDED AT 2050

In order to provide the appropriate level of service, additional roads will be required at 2050. Required roadways have been marked as shown on the *Road Map* in Appendix E. Fifty foot local paved public roads will be paid for by developers who develop those areas, since these roads would directly service the homes being built. In addition, 50' of all other roads will be paid for by the developer as these roads will be used to access the developments. Any additional width will be paid for through impact fees. The estimated cost to construct additional roads required to serve the 2050 population are summarized in the following tables.

TABLE 31 – 66' ROW DESIGN AND CONSTRUCTION COSTS

ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
Mobilization @ 5%	1	L.S.	\$1,390,667.00	\$1,390,667
Earthwork, Grading and Subgrade Preparation	1,071,429	C.Y.	\$3.50	\$3,750,002
3" Asphalt	9,496,760	S.F.	\$0.83	\$7,882,311
8" Roadbase	9,496,760	S.F.	\$0.70	\$6,647,732
MC 70 Prime Coat	9,496,760	S.F.	\$0.05	\$474,838
5' Sidewalk w/ 4" Base	292,208	L.F.	\$21.00	\$6,136,368
Curb and Gutter w/ 6" Base	292,208	L.F.	\$10.00	\$2,922,080
			SUBTOTAL	\$29,203,997
			12% Engineering	\$3,504,480
			3% Legal and Fiscal	\$876,120
			10% Contingency	\$2,920,400
			<b>TOTAL ESTIMATED COST</b>	<b>\$36,504,997</b>

TABLE 32 – 100' ROW DESIGN AND CONSTRUCTION COSTS

ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
Mobilization @ 5%	1	L.S.	\$455,988.00	\$455,988
Earthwork, Grading and Subgrade Preparation	497,722	C.Y.	\$3.50	\$1,742,027
3" Asphalt	2,911,675	S.F.	\$0.83	\$2,416,690
8" Roadbase	2,911,675	S.F.	\$0.70	\$2,038,173
MC 70 Prime Coat	2,911,675	S.F.	\$0.05	\$145,584
5' Sidewalk w/ 4" Base	89,590	L.F.	\$21.00	\$1,881,390
Curb and Gutter w/ 6" Base	89,590	L.F.	\$10.00	\$895,900
			SUBTOTAL	\$9,575,752
			12% Engineering	\$1,149,090
			3% Legal and Fiscal	\$287,273
			10% Contingency	\$957,575
			<b>TOTAL ESTIMATED COST</b>	<b>\$11,969,690</b>

Since new development will need roads to access their properties, they will assume the cost of a 50' ROW for all roadways. Therefore, 50% of the cost of the 100' ROW (\$5,984,845), and 24.24% of the 66' ROW (\$8,848,811) will be paid for with impact fees.

The combining the costs of all roadway ROWs results in an estimated capital cost of \$14,833,656.

## 7. METHOD OF FINANCING NEEDED FACILITIES

Additional roads are needed solely due to population growth. As a result, Apple Valley should finance additional facilities through development impact fees to the extent possible. That portion which cannot be financed through impact fees should be financed through the general fund or building and construction funds.

### B. Development Impact Fee Analysis

#### 1. SERVICE AREA

The entire town is included in one *service area* for roadways.

**2. PROPORTIONATE SHARE**

Both commercial and residential zones create need for roadways. Because of this both residential and commercial zones will be assessed an impact fee.

**3. CREDITS FOR PAST AND FUTURE CONTRIBUTIONS**

Because roadways have been largely financed from the general fund, newly developed properties will have already contributed approximately 0.12% of the value of existing roads through property taxes (see section IV).

**4. IMPACT FEE CALCULATION**

Because of the way impact fees are collected, the Capacity of existing facilities is usually exceeded when little or no revenue from impact fees has been collected to finance the additional facilities required. In addition, it is generally desirable to construct facilities with a twenty-year, or greater, life span.

As a result of these factors, most facilities must be constructed with revenue from loans. Assuming an interest rate of 5.00% and a loan period of 20 years, payments would total \$1.605 for every dollar borrowed. The cost of the \$14,833,656 including interest would be \$23,808,018. The adjusted cost to 2050 is \$3,195,743 ( $\$23,808,018 \times 12,000/89,399$ ). The cost per ERU at 2050 would therefore be \$494 ( $\$3,195,743/6,470$  ERUs at 2050). Applying the credit discussed in the previous section, the impact fee is reduced by 0.12% to \$493 Table 33 shows the approximated ERUs for a variety of different establishments and their associated impact fees.

TABLE 33 – ROADWAYS DEVELOPMENT IMPACT FEES

Type	Units	Trips per day	ERUs	Impact Fee/ Unit
Residential: Single Family Detached Housing	Lot	9.57	1.00	\$493
Auto Parts Store	1,000 S.F.	61.91	6.47	\$3,189
Bank: Drive in	1,000 S.F.	265.21	27.71	\$13,662
Bank: Walk in	1,000 S.F.	156.48	16.35	\$8,061
Car Lot	1,000 S.F.	37.5	3.92	\$1,932
Church	1,000 S.F.	9.11	0.95	\$469
Elementary School	Student	1.02	0.11	\$53
Furniture Store	1,000 S.F.	5.06	0.53	\$261
Gas or Service Station	Pump	168.56	17.61	\$8,683
Gas or Service Station w/ Convenience Center	Pump	162.78	17.01	\$8,386
Hardware or Paint Store	1,000 S.F.	51.29	5.36	\$2,642
High School	Student	1.79	0.19	\$92
Hospital	1,000 S.F.	16.78	1.75	\$864
Hotel	Room	8.92	0.93	\$460
Industrial Park	1,000 S.F.	6.96	0.73	\$359
Industrial: General Light	1,000 S.F.	6.97	0.73	\$359
Library	1,000 S.F.	54	5.64	\$2,782
Lumber Store	1,000 S.F.	39.71	4.15	\$2,046
Manufacturing	1,000 S.F.	3.82	0.40	\$197
Middle School	Student	1.45	0.15	\$75
Mobile home park	Occupied Unit	4.81	0.50	\$248
Nursery (Garden Center)	1,000 S.F.	36.08	3.77	\$1,859
Nursing Home	Beds	2.61	0.27	\$134
Office: General	1,000 S.F.	11.01	1.15	\$567
Office: Government	1,000 S.F.	68.93	7.20	\$3,551
Office: Medical or Dental	1,000 S.F.	36.13	3.78	\$1,861
Pharmacy w/Drive Through Window	1,000 S.F.	88.16	9.21	\$4,542
Pharmacy w/out Drive Through Window	1,000 S.F.	90.06	9.41	\$4,639
Residential: Apartment	Unit	6.63	0.69	\$342
Residential: PUD	Lot	7.5	0.78	\$386
Residential: Townhome	Home	5.86	0.61	\$302
Restaurant: Fast-Food w/Drive Through	1,000 S.F.	496.12	51.84	\$25,558
Restaurant: Fast-Food w/out Drive through	1,000 S.F.	716	74.82	\$36,885
Restaurant: High-Turnover Sit Down	1,000 S.F.	130.34	13.62	\$6,714
Restaurant: Quality	1,000 S.F.	89.95	9.40	\$4,634
Specialty Retail Center	1,000 S.F.	40.67	4.25	\$2,095
Super Market	1,000 S.F.	111.51	11.65	\$5,744
Tire Store	1,000 S.F.	24.87	2.60	\$1,281
Video Rental Store	1,000 S.F.	31.54	3.30	\$1,625
Warehouse	1,000 S.F.	4.96	0.52	\$256

\*Units and Trips per day are found in the 6<sup>th</sup> edition of *Trip Generation* Published by the Institute of Transportation Engineers.

## XI. Impact Fee Adjustment

According to Title 11 Chapter 36 Section 202 entitled Impact fees -- Enactment -- Required Provisions, the cost of performing the capital facilities plan can be paid for through the impact fees.

Typically capital facilities plans are performed when needed or at approximately five year increments. It is anticipated that another capital facilities plan will be prepared for Apple Valley in five years. During the next five years it is anticipated that substantial growth will occur in Apple Valley. Therefore, a growth rate of 7.0% (last year was 10.89%) is assumed for the next five years. Using the assumed growth rate an increase in population of 394 people or 179 new homes is approximated.

The cost of the capital facilities plan was \$37,712. Dividing this amount over 179 homes results in an additional \$211 that can be added to the impact fees. The adjustments to the impact fees to account for the cost of the capital facilities plan are prorated over all of the impact fees. Each impact fee will be increased based on it's percentage of the total cost to develop. The costs were shared as shown in the following table:

### ADJUSTED MAXIMUM IMPACT FEES

Impact Fee Per ERU	Plan Cost (\$)	Total (%)	Adjustment to Impact Fee
Water	\$8,276.00	21.96%	\$46
Wastewater	\$9,052.00	24.01%	\$51
Storm Water	\$9,052.00	24.01%	\$51
Parks, Trails, and Open Space	\$3,786.00	10.04%	\$21
Fire Safety	\$1,884.00	5.00%	\$11
Police	\$1,884.00	5.00%	\$11
Roads	\$3,760.00	9.98%	\$21
Sum	\$37,694.00	90.02%	\$211

**CULINARY WATER  
MAXIMUM IMPACT FEES**

Land Use	Units	Demand	ERUs	Unadjusted Impact Fee	Adjusted Impact Fee
Residential	Dwelling	800	1.000	\$5,631	\$5,677
Multi-unit	Dwelling	800	1.000	\$5,631	\$5,677
High School	Person	15	0.0188	\$106	\$107
Middle School	Person	15	0.0188	\$106	\$107
Elementary School	Person	15	0.0188	\$106	\$107
Hotel	Room	150	0.1875	\$1,056	\$1,064
Service Station	Pump	250	0.3125	\$1,760	\$1,774
Restaurant	Seat	35	0.0438	\$247	\$249
RV Park	Vehicle	100	0.1250	\$704	\$710
Church	Seat	5	0.0063	\$35	\$36
Nursing Home	Bed	200	0.25	\$1,480	\$1,420
Doctor's Office	Patient	10	0.0125	\$70	\$71
	Staff	35	0.0438	\$247	\$249
Dentist Office	Chair	200	0.25	\$1,408	\$1,419
	Staff	35	0.044	\$248	\$250
Store	Toilet Rm	500	0.625	\$3,519	\$3,548
	Employee	11	0.014	\$79	\$79
Commercial	Building	1,600	2.000	\$11,262	\$11,354
Industrial	Building	3,200	4.000	\$22,524	\$22,708



**WASTE WATER  
MAXIMUM IMPACT FEES**

Type	Units	ERUs	Impact Fee / Unit	Adjusted Impact Fee / Unit
Permanent residence	Residence	1.0000	\$2,824	\$2,875
Hotels & motels	Room	0.3750	\$1,059	\$1,078
RV parks	Space	0.2500	\$706	\$719
Airports	Passenger	0.0075	\$21	\$22
	Employee	0.0375	\$106	\$108
Boarding houses	Residents	0.1250	\$353	\$359
	Nonresidents	0.0250	\$71	\$72
Bowling alleys w/snack bar	Alley	0.2500	\$706	\$719
Bowling alleys w/o snack bar	Alley	0.2125	\$600	\$611
Churches	Person	0.0125	\$35	\$36
	Resident member	0.2500	\$706	\$719
Country clubs	Non-resident member	0.0625	\$177	\$180
	Employee	0.0375	\$106	\$108
Dentist's office	Chair	0.5000	\$1,412	\$1,438
	Staff member	0.0875	\$247	\$252
Doctor's office	Patient	0.0250	\$71	\$72
	Staff member	0.0875	\$247	\$252
Fairgrounds	Person	0.0025	\$7	\$7
Fire station w/food preparation	Full-time employee	0.1750	\$494	\$503
Fire station w/o food preparation	Full-time employee	0.0125	\$35	\$36
Gyms	Participant	0.0625	\$177	\$180
	Spectator	0.0100	\$28	\$29
Hairdresser	Chair	0.1250	\$353	\$359
	Operator	0.0875	\$247	\$252
Hospitals	Bed	0.6250	\$1,765	\$1,797
Industrial buildings w/showers (exclusive of industrial waste)	Employee per shift	0.0875	\$247	\$252
Industrial buildings w/o showers (exclusive of industrial waste)	Employee per shift	0.0375	\$106	\$108
Jail facilities	Inmate	0.2875	\$812	\$827
	Employee	0.0250	\$71	\$72
Launderette	Washer	1.4500	\$4,095	\$4,169
Movie Theaters (auditorium)	Seat	0.0125	\$35	\$36
Movie Theaters (drive-in)	Car	0.0250	\$71	\$72
Nursing Homes	Bed	0.7000	\$1,977	\$2,013
Office buildings w/caféteria	Employee	0.0625	\$177	\$180
Office buildings w/o caféteria	Employee	0.0375	\$106	\$108
Picnic parks	Person	0.0125	\$35	\$36
Restaurants w/24 hour service	Seat	0.1250	\$353	\$359
Restaurants w/o 24 hour service	Seat	0.0875	\$247	\$252
Restaurants – single service utensils	Customer/day	0.0250	\$71	\$72
Rooming house	Person	0.1000	\$282	\$288
Schools – boarding	Person	0.1875	\$530	\$539
Schools w/o caféteria & showers	Person	0.0375	\$106	\$108
Schools w/caféteria w/o showers	Person	0.0500	\$141	\$144
Schools w/caféteria & showers	Person	0.0625	\$177	\$180
Service stations	Vehicle/day	0.0250	\$71	\$72
Skating rinks & dance halls w/kitchen	Person	0.0325	\$92	\$93
Skating rinks & dance halls w/o kitchen	Person	0.0250	\$71	\$72
Ski areas w/o kitchen	Person	0.0250	\$71	\$72
Stores	Toilet stall	1.2500	\$3,530	\$3,594
	Employee	0.0275	\$78	\$79
Swimming pools & bath houses	Person	0.0250	\$71	\$72
Taverns, bars, cocktail lounges	Seat	0.0500	\$141	\$144
Visitor centers	Visitor day	0.0125	\$35	\$36

**STORM WATER  
MAXIMUM IMPACT FEE**

Zoning	Adj. Impact Fee
Residential	\$172/acre
Commercial	\$172/acre

**PARKS, TRAILS & OPEN SPACE  
MAXIMUM IMPACT FEE**

Zoning	Adj. Impact Fee
Residential	\$1,649/unit
Commercial	None

**PUBLIC SAFETY  
MAXIMUM IMPACT FEE**

FIRE	
Zoning	Adj. Impact Fee
Residential	\$59/unit
Commercial	\$852/acre
POLICE	
Zoning	Adj. Impact Fee
Residential	\$114/unit
Commercial	\$1,844/acre

**ROAD AND STREET FACILITIES  
MAXIMUM IMPACT FEE**

Type	Units	Trips per day	ERUs	Impact Fee/ Unit	Adj. Impact Fee/ Unit
Residential: Single Family Detached Housing	Lot	9.57	1.00	\$493.00	\$514.00
Auto Parts Store	1,000 S.F.	61.91	6.47	\$3,189.30	\$3,325.16
Bank: Drive in	1,000 S.F.	265.21	27.71	\$13,662.33	\$14,244.30
Bank: Walk in	1,000 S.F.	156.48	16.35	\$8,061.09	\$8,404.46
Car Lot	1,000 S.F.	37.5	3.92	\$1,931.82	\$2,014.11
Church	1,000 S.F.	9.11	0.95	\$469.30	\$489.29
Elementary School	Student	1.02	0.11	\$52.55	\$54.78
Furniture Store	1,000 S.F.	5.06	0.53	\$260.67	\$271.77
Gas or Service Station	Pump	168.56	17.61	\$8,683.39	\$9,053.27
Gas or Service Station w/ Convenience Center	Pump	162.78	17.01	\$8,385.64	\$8,742.83
Hardware or Paint Store	1,000 S.F.	51.29	5.36	\$2,642.21	\$2,754.76
High School	Student	1.79	0.19	\$92.21	\$96.14
Hospital	1,000 S.F.	16.78	1.75	\$864.42	\$901.25
Hotel	Room	8.92	0.93	\$459.52	\$479.09
Industrial Park	1,000 S.F.	6.96	0.73	\$358.55	\$373.82
Industrial: General Light	1,000 S.F.	6.97	0.73	\$359.06	\$374.36
Library	1,000 S.F.	54	5.64	\$2,781.82	\$2,900.31
Lumber Store	1,000 S.F.	39.71	4.15	\$2,045.67	\$2,132.80
Manufacturing	1,000 S.F.	3.82	0.40	\$196.79	\$205.17
Middle School	Student	1.45	0.15	\$74.70	\$77.88
Mobile home park	Occupied Unit	4.81	0.50	\$247.79	\$258.34
Nursery (Garden Center)	1,000 S.F.	36.08	3.77	\$1,858.67	\$1,937.84
Nursing Home	Beds	2.61	0.27	\$134.45	\$140.18
Office: General	1,000 S.F.	11.01	1.15	\$567.18	\$591.34
Office: Government	1,000 S.F.	68.93	7.20	\$3,550.94	\$3,702.20
Office: Medical or Dental	1,000 S.F.	36.13	3.78	\$1,861.24	\$1,940.52
Pharmacy w/Drive Through Window	1,000 S.F.	88.16	9.21	\$4,541.58	\$4,735.03
Pharmacy w/out Drive Through Window	1,000 S.F.	90.06	9.41	\$4,639.45	\$4,837.08
Residential: Apartment	Unit	6.63	0.69	\$341.55	\$356.09
Residential: PUD	Lot	7.5	0.78	\$386.36	\$402.82
Residential: Single Family Detached Housing	Lot	9.57	1.00	\$493.00	\$514.00
Residential: Townhome	Home	5.86	0.61	\$301.88	\$314.74
Restaurant: Fast-Food w/Drive Through	1,000 S.F.	496.12	51.84	\$25,557.70	\$26,646.36
Restaurant: Fast-Food w/out Drive through	1,000 S.F.	716	74.82	\$36,884.85	\$38,456.01
Restaurant: High-Turnover Sit Down	1,000 S.F.	130.34	13.62	\$6,714.48	\$7,000.50
Restaurant: Quality	1,000 S.F.	89.95	9.40	\$4,633.79	\$4,831.17
Specialty Retail Center	1,000 S.F.	40.67	4.25	\$2,095.12	\$2,184.37
Super Market	1,000 S.F.	111.51	11.65	\$5,744.45	\$5,989.15
Tire Store	1,000 S.F.	24.87	2.60	\$1,281.18	\$1,335.76
Video Rental Store	1,000 S.F.	31.54	3.30	\$1,624.79	\$1,694.00
Warehouse	1,000 S.F.	4.96	0.52	\$255.52	\$266.40

\*Units and Trips per day are found in the 6<sup>th</sup> edition of  
*Trip Generation* Published by the Institute of Transportation Engineers

APPENDIX A

WATER RIGHTS

## APPENDIX B

## GLOSSARY

- Acre-foot:** The volume of water required to cover an acre to a depth of one foot (325,851 gallons).
- Average Yearly Demand:** The amount of water delivered to consumers by a public water system during a typical year.
- Average Yearly Flow:** See *average yearly demand*.
- Building permit fees:** Fees specifically charged for the purpose of enforcing the uniform codes.
- 2050:** The condition where all vacant land within town or town limits has been developed leaving no room for additional growth.
- Emergency Storage:** Storage tank volume which provides water during emergency situations, such as pipeline failures, major trunk main failures, equipment failures, electrical power outages, water supply failures, source water supply contamination, or natural disasters.
- Equalization Storage:** Storage tank volume, which stores water during periods of low demand and releases water during periods of high demand.
- Equivalent Residential Connection:** See *Equivalent Residential Unit*.
- Equivalent Residential Unit:** A term used to evaluate service connections to consumers other than the typical residential domicile (commercial, industrial, schools, etc.). If a service connection is equal to two *equivalent residential units*, it is expected to use (or discharge) twice the quantity as a typical single family residential unit.
- Fire flow storage:** Storage tank volume allocated to fire suppression.
- Hook-up fees:** Fees charged for hooking-up utility services. Hook-up fees may only include costs directly incurred hooking-up a new customer.
- Peak daily flow:** See *peak day demand*.
- Peak day demand:** The amount of water delivered to consumers by a public water system on the day of highest consumption. This day typically occurs during a “hot spell” in the summer.
- Peak instantaneous demand:** The highest flow rate that can be expected through any water main of the distribution network of a public water system at any instant in time.
- Proportional share:** The share of total costs of a given type of development roughly proportional and reasonably related to the impact caused by the development activity.
- Public safety facility:** For the purposes of impact fees, *public safety facilities* include and are restricted to land and buildings constructed or leased for the housing of police, fire, or other public safety entities. Specifically excluded are jails, prisons, or other places of involuntary incarceration.
- Secondary water:** Secondary water a term used for irrigation water. A secondary water system supplies irrigation water to its customers.
- Service area:** The area within which the impact fee is charged. A service area may include part or all of the political subdivision.
- Static pressure:** The pressure that would occur in a full pipeline with no flow (which results in no pressure loss).

## APPENDIX C

# ABBREVIATIONS

Ac: Acre	LF: Linear Feet
Ac-Ft: Acre-foot or Acre-feet	LOS: Level of Service
AF: Acre-foot or Acre-feet	LS: Lump Sum
AWWA: American Waterworks Association	M-D: Manufacturing and Distribution
CF: Cubic Feet	MG: Million Gallons
CFP: Capital Facilities Plan	MGD: Million Gallons per Day
CFS: Cubic Feet per Second	M-H: Mobile Home (Including Apple valley Creek Ranchos [KCR])
C-G: General Commercial	MH-E: Mobile Home Estates
C-H: Highway Commercial	Min: Minute
ERC: Equivalent Residential Connections	N/A: Not Applicable or Not Available
ERU: Equivalent Residential Units (=ERC)	PCIFB: Permanent Community Impact Fund Board
FPS: Feet Per Second	R-1-8: Residential
Ft: Foot or Feet	R-1-10: Residential
Gal: Gallon	R-1-20: Residential
Gal/Day: Gallons per Day	RA: Residential Agricultural
GIS: Geographic Information System	R-M-7: Multiple Residential
GPA: Gallons Per Acre	R-M-15: Multiple Residential
GPCD: Gallon Per Citizen Day	R-R-1: Rural Residential
GPD: Gallons Per Day	RV: Recreational Vehicle
GPM: Gallons Per Minute	Sec: Second
Hr: Hour	SF: Square Feet
In: Inch	

## APPENDIX D

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## APPENDIX E

# MAPS

### Figures

- Fig. 1. Land Use Plan
- Fig. 2. Water Plan
- Fig. 3. Sanitary Water Plan
- Fig. 4. Storm Water Map
- Fig. 5. Parks and Trails Plan
- Fig. 6. Road Plan
- Fig. 7. WCWCD 20" Pipe, Virgin to Apple Valley

