Design Report

Capital Facilities Plan

Toquerville City

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Part I. Executive Summary

The Toquerville City, Utah, desires to provide adequate high quality public facilities for its residents and visitors. The City has enjoyed relatively slow growth for several decades and has a 'small town' residential atmosphere with very limited commercial development.

However, popularity of Washington County as a residential and commercial location has surged in the past few years. The County is noted as one of the fastest growing areas in the United States. While Toquerville has been on the edge of most of the recent residential and commercial development in the county, there now are proposals for large residential developments in the west side of the City, which will quickly change the City's small town atmosphere, and burden its existing infrastructure. There are also proposals to develop commercial businesses in the vicinity of the I-15 Exit 27.

Recent upsurge in visitation to the area's National Parks has resulted in increased volumes of traffic on the City's main street. There is no room to widen the two lane SR-17 within the City core, and traffic volume is projected to exceed 10,000 vehicles per day between 2025 and 2030 within this road segment[1]. This has prompted a proposed realignment of SR-17 on the west side of the City core where sufficient rights-of-way are available for a high capacity, high speed transportation corridor.

Washington County and nearby cities have expressed need for regional sports parks for baseball, softball, soccer, golf, and other field sports. Potential sites for a regional sports park on Toquerville's west side, near the I-15/Old Highway 91 corridor, have been discussed with City officials.

City officials are working proactively to provide culinary water systems, streets, and recreational facilities to meet the needs of the anticipated population increases. With the proposed realignment of SR-17 and the proposed residential developments, the City is offered a means to partner with private developers and other governmental entities in constructing the needed infrastructure.

The proposed SR-17 realignment and appurtenant utilities are anticipated to be funded primarily by private sources, with possible supplemental funding from State and Regional highway agencies, and local governmental entities.

The regional sports parks, if constructed, would be funded primarily by State and Regional recreational organizations with partial participation by the City.

[1] Toquerville Transportation Master Plan, March 2018, Jones & DeMille Engineering, Pg 36, Figure 16

The City will require water distribution pipes, streets, and storm drainage within proposed developments to be installed as part of the development. The City will also require neighborhood parks to be provided within the developments. Water facilities, streets, storm drains, parks, and trails supporting the developments will provided by the City and funded by developer participation, impact fees, governmental programs, user fees and property taxes.

The City has identified 41 projects, totaling approximately $23.2 million to be constructed within the next 10 years:

Table 1: Identified Capital Facilities Projects by Project Type

Project Type	0 to 5 Year Construction	6 to 10 Year Construction
Culinary Water Projects	$ 4,612,286	$ 489,253
Storm Drain Projects	$ 1,551,672	$ 1,288,094
Streets Projects	$ 7,487,381	$ 1,082,834
Parks Projects	$ 3,260,486	$ 750,321
Trails Projects	$ 624,748	$ 2,047,887
Total	$ 17,536,573	$ 5,658,389

Part II. Introduction

A. Location

The Toquerville City is located about 30 miles south of Cedar City and less than 20 miles north of St. George. It lies in a valley made up of the converging drainages of Ash Creek and La Verkin Creek. Ten miles to the northwest of Toquerville are the Pine Valley Mountains. To the south are La Verkin City and the City of Hurricane. The elevation of the City varies from 3040 feet on the South end to 3800 feet at the homes along Anderson Junction. State Highway 17 runs through the center of town. This highway is used by tourists to access the National Parks and recreation areas to the East. Toquerville is one of the gateways to eastern Washington County.

Toquerville is located in the upper reaches of the Mohave Desert and has a typical "high desert" climate. Summers are hot and dry, with daytime temperatures reaching 105 degrees and nighttime temperatures around 70 degrees. Spring and autumn temperatures are very comfortable. Winters are mostly mild, with nighttime temperatures averaging about 30 degrees and daytime temperatures in the upper 50's to 60's.

B. Demographics

The Kem C. Gardner Policy Institute at the University of Utah prepares demographic projections for the State of Utah. Its data estimates the average annual growth rate in Washington County since the year 2000 has been about 3.4%. While the Institute projects growth rates for Washington County to slow over the next several decades, it is still expected to see growth rates per decade of 42% from 2015-2025, 31% from 2025-2035, 24% for 2035-2045, 21% for 2045-2055, and 19% for 2055-2065[2]. The projected population for the Toquerville City was determined using these Washington County growth rates. Population data is included in Table 2.

It should be noted that there are no specific long term population projections for Toquerville City, and that the City comprises only a small portion of Washington County's population. Future growth rates in the City can vary significantly from the larger county-wide growth rate. There are currently active proposals for large residential and limited commercial development on the west side of the City. If the proposed developments occur, the City population would increase dramatically faster and much higher than the County based projections.

Since revenues for public facilities (water, sewer, garbage, impact fees, etc.) are normally collected based on residences rather than population, it is needful to estimate the number of residences that will exist in the City. Since Toquerville has very few non-residential users on its

[2] Data source: 2017 Research Brief prepared by the University of Utah, Kem C. Gardner Policy Institute

water system, the most accurate and dynamic way to estimate the number of residences at any time is to compare the number of water meters to the population to determine an estimated number of persons per residence. In 2018, the estimated population was 1682 persons with an average of 632 water meters read that year, making an average residence consist of 2.66 persons. Table 2 also indicates the projected residential units for the City.

Table 2: Projected Population – Toquerville, Utah

YEAR	POPULATION	RESIDENTIAL UNITS	AVERAGE ANNUAL PERCENT CHANGE
2010	1,374	517	0.29%
2011	1,383	520	0.66%
2012	1,400	526	1.23%
2013	1,404	528	0.29%
2014	1,440	541	2.56%
2015	1,484	558	3.06%
2016	1,534	577	3.37%
2017	1,615	600	5.28%
2018	1,682	632	4.17%
2019	1,752	659	4.17%
2020	1,826	686	4.17%
2021	1,902	715	4.17%
2022	1,981	745	4.17%
2023	2,064	776	4.17%
2024	2,150	808	4.17%
2025	2,216	833	3.09%
2030	2,580	970	3.09%
2035	2,984	1,122	2.40%
2040	3,360	1,263	2.40%
2045	3,771	1,418	2.07%
2050	4,178	1,571	2.07%
2055	4,619	1,736	1.86%
2060	5,065	1,904	1.86%
2065	5,553	2,088	1.86%

Data beyond 2017 was estimated based on projected growth rates for Washington County.

C. Existing Facilities

i. Water System

Toquerville has high quality water available from springs about a mile above the city. The water from the springs is used for culinary and irrigation, and is shared with La Verkin City and Hurricane City. The city began its closed water system in 1917 and has expanded and improved service throughout the years to its current service area. The main city water system consists of 3 tanks, approximately 20 miles of pipeline, 150 fire hydrants, 240 valves, and 650 water meters.

In addition to its main city water distribution system, Toquerville operates a small independent water system at Anderson Junction. Water is supplied from a well owned by the Washington County Water Conservancy District (WCWCD), and is currently used only for fire protection. It is anticipated that this system will be expanded significantly in the near future to serve proposed development in the western area of the City. This system has 1 tank, approximately 3 miles of pipeline, 12 fire hydrants, and 6 valves.

The existing water system is shown on Figures 1A through 1C, Appendix A.

ii. Streets and Storm Drainage

The City maintains 20.69 miles of roadway consisting of 14.04 miles of paved roads, 4.27 miles of gravel surfaced roads, and 2.38 miles of unimproved roads. Improved streets have approximately 70,000 lineal feet of concrete curb/gutter.

SR-17 is a state owned and maintained roadway which runs approximately 5 miles through the City.

The city also maintains approximately 4,000 lineal feet of storm drains on Toquer Boulevard (SR-17), Ash Creek Drive, and Center Street. The storm drain discharges into Ash Creek at the west end of Center Street.

The existing roadway system and storm drain system is shown on Figures 2A through 2C, Appendix A.

iii. Parks and Trails

The City has 3 parks, 0.17 miles of improved trails, and 23 miles of unimproved trails.

Existing parks and existing trails are shown on Figure 3, Appendix A.

iv. Utilities by Others

Sanitary sewer service is provided to city residents by the Ash Creek Special Service District. The Special Service District owns and operates the collector lines in the city and serves approximately 574 connections. Some residences still use underground septic disposal systems where connection to the sewer mains is not feasible.

Washington County Water Conservancy District (WCWCD) provides secondary irrigation service to approximately 85% of the residences in Toquerville. Residences in the areas of Toquerville Heights subdivision and on Westfield Road are not connected to the irrigation system.

Power is provided by Rocky Mountain Power, a private utility.

Natural gas is provided by Dominion Energy, a private utility.

Communication services are provided by various private companies.

D. Future Development

Only a small portion of the City's total area has been developed. Large tracts of raw land in the western and northern reaches of the City have topography and access which would support residential, commercial, and recreational development.

Several large scale residential subdivisions are currently proposed west of the current City core and at the I-15 interchange at Anderson Junction. The proposed residential developments will include light commercial areas, local streets, culinary water storage and distribution facilities, sewerage collection facilities, storm drainage facilities, private utilities, neighborhood parks, and trails.

Increases in traffic to the vicinity's National Parks, Monuments, and Recreational Areas have been observed in the past decade. Traffic volume through the City core is projected to approach 10,000 vehicles per day in 2025[3], which is typically considered the maximum capacity of the two-lane SR-17 highway through Toquerville. A high-speed highway is proposed west of the City to divert non-local traffic around the City core and preserve the 'small town atmosphere' along the existing SR-17 highway. The new highway would also provide access to the proposed residential and commercial development west of the City.

There is a large irrigation reservoir planned in the west side of the City near Anderson Junction which will have recreational facilities, including restrooms, campgrounds, day-use aquatic amenities, picnic tables, educational displays, and trails.

[3] Toquerville Transportation Master Plan, March 2018, Jones & DeMille Engineering, Figure 16.

A regional sports park is being considered east of the I-15/Old Highway 91 corridor within the City, along with other potential sites within the county.

Based upon the size and timing of the proposed residential developments, it is expected that the population projection in the above Demographics section may be accelerated. Toquerville City will be faced with rapidly expanding its capital facilities to accommodate the influx of residents. Planning and, particularly, financing the needed improvements will be challenging for City officials. City Council and staff have worked and will continue to work diligently to meet the demands placed upon the City's facilities.

Part III. Water System Capital Facilities Plan

A. Regulatory Requirements

i. Utah Division of Drinking Water

The State of Utah Rules for Public Drinking Water Systems contains Minimum Sizing Requirements under Section R309-510 that are used to determine the required capacity of Toquerville's culinary water system. The system must meet the following three criteria:

(1) R309-510-7 Source Sizing

- The system's source capacity shall be able to provide the Peak Day Demand of 800 gallons per day (gpd) for each residential connection or equivalent residential connection (ERC) for indoor water use.
- The system's source capacity shall be able to provide the Peak Day Demand of 4.90 gallons per minute for each irrigated acre for outdoor water use.
- The system's source capacity shall also be able to provide the Average Yearly Demand of 146,000 gallons for each residential connection or equivalent residential connection for indoor water use, which is an average of 400 gpd/ERC.
- The system's source capacity shall also be able to provide the Average Yearly Demand of 3.26 acre feet of water for each irrigated acre for outdoor use, which is an average of 4,987 gpd/acre based on 213 days of irrigation.

(2) R309-510-8 Storage Sizing

- The system's storage capacity shall provide storage volume to meet the Average Day Demand for water for indoor use (400 gallons/ERC) and also for irrigation use (4,987 gallons/acre).
- The system storage capacity shall provide additional storage volume for fire suppression as required by the local fire code (180,000 gallons, see below).

(3) R309-510-9 Distribution System Sizing

- The distribution system shall be adequate to provide Peak Instantaneous Demand for indoor water use. For complex water systems, hydraulic modeling may be used to analyze the pipe network using a peaking factor for Peak Instantaneous Demand. Typical peaking factor is 2 times the Peak Day Demand for each ERC.

  For a single pipeline, such as a transmission pipeline, the Peak Instantaneous Demand shall be based on the formula:

  $$Q = 10.8 \times N^{0.64}$$

  Where N equals the number of ERC's and Q equals the total flow (gpm)

- The distribution system shall also be adequate to provide Peak Instantaneous Demand of 9.8 gpm for each irrigated acre for outdoor water use.

- The minimum pressure within the distribution system shall be (R309-105-9):

  20 psi during Fire Demand simultaneous with Peak Day Demand

  30 psi during Peak Instantaneous Demand

  40 psi during Peak Day Demand

R309-510-5 Reduction of Sizing Requirements permits water systems to use lower quantity values based on acceptable use data.

ii. International Fire Code

The 2012 International Fire Code, Appendix B, contains quantity requirements for minimum fire flow and flow duration for One- and Two-Family Dwellings and dwellings in excess of 3,600 square feet. The requirements in the code will affect the water storage and distribution system requirements. The Code requires storage capacity for a 2 hour fire flow of 1,000 gpm. for a one-to-two dwelling home, which amounts to 120,000 gallons, and a 2 hour fire flow of 1,500 G.P.M. for a building over 3,600 square feet, which amounts to 180,000 gallons. Since the City has buildings with over 3,600 square feet, the City should have at least 180,000 gallons of storage capacity for fire protection.

iii. Water Rights

All waters within the State of Utah are declared property of the public, and rights to appropriate and use water are regulated by the Utah Division of Water Rights under Utah Code Title 73. Rights equaling the Average Annual Flow must be secured for use in the water system.

Table 3 summarizes the regulatory requirements referenced above.

Table 3: Regulatory Water Quantity Requirements

WATER SYSTEM	INDOOR USE	OUTDOOR USE	FIRE FLOW REQUIREMENT
Water Right	0.448 acre-feet/year per ERC (400 gallons/day)	3.26 Acre-feet/Year per Irrigated Acre	none
Water Source	800 gallons/day per ERC	4.9 gallons/minute per Irrigated Acre	none
Water Storage	400 gallons per ERC	4,964 gallons per Irrigated Acre	180,000 gallons(2)
Distribution	1.11 gallons/ minute per ERC (2 x 800 gallons/day) Single Pipe $10.8*N^{0.64}$	9.8 gallons/minute per Irrigated Acre	1,500 gallons/minute minimum(1)

Notes:

(1) Required Fire Flow for one-two dwelling home greater than 3,600 square feet at fire hydrant

(2) Required 2 hour storage at fire flow of 1,500 gallons per minute

ERC = Equivalent Residential Connection.

N = Number of Equivalent Residential Connections.

B. Water Usage

i. Current Metering

Table 4 shows water usage by month during 2017 and 2018 based on meter readings.

Table 4: Monthly Residential Water Usage for 2017 and 2018

YEAR/ MONTH	METERS READ (ERC)	MONTHLY USAGE (GAL)	MONTHLY USAGE (ACRE-FT)	GALLONS PER DAY PER ERC
2017				
JAN	603	2,823,880	8.67	151
FEB	585	3,988,630	12.24	244
MAR	599	4,186,181	12.85	225
APR	595	4,644,200	14.25	260
MAY	598	5,092,448	15.63	275
JUN	595	7,588,045	23.29	425
JUL	600	6,185,790	18.98	333
AUG	597	7,060,492	21.67	382
SEP	599	5,548,169	17.03	309
OCT	597	4,850,598	14.89	262
NOV	615	4,841,115	14.86	262
DEC	619	3,837,930	11.78	200
2017 Totals	7202	60,647,478	186.13	3326
Average	600	5,053,957	15.51	277
2018				
JAN	616	3,678,190	11.29	193
FEB	613	3,548,835	10.89	207
MAR	622	3,908,174	11.99	203
APR	618	4,766,520	14.63	257
MAY	620	5,068,940	15.56	264
JUN	628	8,955,646	27.49	475
JUL	635	6,157,540	18.90	313
AUG	636	6,675,860	20.49	339
SEP	640	5,954,150	18.27	310
OCT	643	5,059,965	15.53	254
NOV	648	4,042,952	12.41	208
DEC	669	3,390,630	10.41	163
2018 Totals	7,588	61,207,402	187.86	3,185
Average	632	5,100,617	15.65	265

Metered usage summary

- Average Daily Use: Approximately 270 gallons per day per ERC
- Peak Day Use: Approximately 475 gallons per day per ERC (summer months)
- Average Annual Use: Approximately 0.304 AF per ERC

All usage figures indicate the city uses considerably less than minimum regulatory supply requirements and efficiently uses its water. Water systems may request reduction of the State's minimum sizing requirements in accordance with R309-510-5.

ii. Outdoor Usage from Culinary System

Approximately 85% of the water system customers receive untreated water for outdoor landscaping and irrigation through a separate secondary water system. It is estimated that approximately 100 residences in Toquerville Heights and along Westfield Road use the culinary water system for outside watering because there is no secondary water system in that vicinity. *It should be noted that the outdoor usage from the culinary system is included in the above meter readings*.

Table 5: Comparison of Regulatory Requirements and Metered Use per ERC

PARAMETER	REGULATORY REQUIREMENT[1]	METERED USE [2]
Water Rights (Average Annual Use)	0.448 acre-feet/year (400 gallons/day)	0.304 acre-feet/year (270 gallons/day)
Water Source (Peak Day Demand)	800 gallons/day	475 gallons/day
Water Storage (Average Day Demand)	400 gallons	270 gallons

[1] Indoor Use Only
[2] Includes Outdoor Use

C. Water Rights

i. Main System Water Rights

The Toquerville City receives its water for municipal use from Toquerville Springs, which are located at a point North 2125 feet and East 735 feet from the South Quarter Corner of Section 35, Township 40 South, Range 13 West, SLB&M, Washington County, Utah. Table 6 itemizes Toquerville's water rights totaling 538.76 acre feet for municipal use.

Table 6: Toquerville Water Rights

WATER RIGHT NO.	TYPE OF RIGHT	TYPE OF USE	SOURCE	PERIOD OF USE	FLOW
81-3474	1862 Priority	Municipal	Toquerville Springs	Jan. 1 to Dec. 31	12.384 acre-feet
81-3475	1862 Priority	Municipal	Toquerville Springs	Jan. 1 to Dec. 31	67.44 acre-feet
81-3476	1862 Priority	Municipal	Toquerville Springs	Jan. 1 to Dec. 31	93.12 acre-feet
81-4063	1862 Priority	Municipal	Toquerville Springs	Jan. 1 to Dec. 31	3.84 acre-feet
81-3546	1862 Priority	Municipal	Toquerville Springs	Jan. 1 to Dec. 31	0.5 cfs or 361.98 acre-feet
81-2739 a21414	1880 Priority	Municipal	Toquerville Springs	Jan. 1 to Dec. 31	0.057 cfs or 18.57 acre-feet
				TOTAL	538.764 acre-feet

The water right quantity of 538.764 acre-feet would provide a continuous year round flow of 334 gpm. The rights, however, do not necessarily limit the flow rate, but only the annual quantity. Diversion of flows greater than 334 gpm may be possible to meet Peak Daily Demand, but still stay within the annual water right.

Water rights service capacity (Toquerville Springs):

- Based on *regulatory* Annual Supply Requirements of 0.448 AF per ERC, current water rights are adequate for 1,202 ERC.
- Based on *metered* Annual Usage of 0.304 AF per ERC, current water rights are adequate for 1,772 ERC.

ii. Anderson Junction Water Rights

Water used for the Anderson Junction water system is supplied from the Cottom Well which is located North 1480 feet and West 1790 feet from the East Quarter Corner of Section 33, Township 20 South, Range 13 West, SLB&M, Washington County, Utah. Rights are owned by the WCWCD under Water Right No. 81-2935 (a42542) for 63.29 acre feet. Toquerville and WCWCD have agreements in place for purchase or exchange of water from the well.

There is currently no water used, except for fire protection, from the well. It is anticipated that the Anderson Junction system will be expanded significantly in the near future to serve proposed development in the western area of the City.

Water rights service capacity (Anderson Junction):

- Based on *regulatory* Annual Supply Requirements of 0.448 AF per ERC, current water rights are adequate for 141 ERC.
- Based on *metered* Annual Usage of 0.302 AF per ERC, current water rights are adequate for 208 ERC.

iii. Future Water Rights Needs

Based on *regulatory* requirements, the City's current water right will be adequate until approximately 2038 when it projected that there will be 1,205 ERCs on the main system.

Based on *usage*, it is estimated that the City's current water right will be adequate until approximately 2056 when it is projected that there will be 1,769 ERCs on the main system. Development of large non-residential users and effective water conservation measures will affect the timing for additional water rights.

WCWCD owns irrigation rights in Toquerville Springs and diverts irrigation water from the springs. Development of the proposed Toquer Reservoir will make additional irrigation water available to WCWCD, which may allow a decrease in the amount of irrigation water diverted from Toquerville Springs. WCWCD rights to the irrigation water in Toquerville Springs could, then, be changed to culinary use, and the District would be able to provide additional water to the City's water system.

WCWCD owns water rights to several wells in the Anderson Junction area, and is planning to develop additional wells in conjunction with the proposed Toquer Reservoir which will be located just south of Anderson Junction. Agreements are in place between the City and WCWCD for the District to provide additional culinary water as current rights are approached.

D. Water Source

i. Main System Diversion Works

The Toquerville Springs has an estimated minimum yield of 10 cubic feet per second (cfs). Flow has ranged from 7 cfs to 12 cfs depending on season and precipitation. Water from the springs is shared between Toquerville, LaVerkin, and Hurricane for municipal purposes, and with the Washington County Water Conservancy District for irrigation and municipal purposes.

Toquerville's diversion works consist of a pump station with two pumps, each having a capacity of 400 gpm, or 576,000 gallons per day. Current Peak Day Demand is approximately 310,000 gallons. The pump station meets Division of Drinking Water requirements for duplicity, so that water demands can be met with one pump out of service. The existing pumps are in good condition.

It is estimated that 100 residences are irrigated from the culinary system, each with approximately 0.1 acre of watered landscaping, resulting in about 10 acres total outdoor use from the culinary system.

Water source service capacity:

- Based on *regulatory* Peak Day Supply requirements of 4.9 gpm per acre for outdoor use, the current diversion works must provide 49 gpm for irrigation.
- Based on *regulatory* Peak Day Supply requirements of 800 gpd (0.555 gpm) per ERC for indoor use, the current diversion works using a single pump and allowing 49 gpm for outdoor use is adequate for 632 ERC.
- Based on *metered* Peak Day Usage of 475 gpd (0.330 gpm) per ERC, including outdoor use, the current diversion works using a single pump is adequate for 1,212 ERC.

The City treats the water from Toquerville Springs with chlorine using a gas chlorine ejector and auxiliary pressure pump to inject the chlorine solution into the water going to the Springs Tank. Chlorine contact time is provided in the pump line and Springs Tank. The chlorine is supplied in 150 pound cylinders.

ii. Anderson Junction Well System

The Anderson Junction water system, owned and operated by the WCWCD, can receive water from 3 wells:

Cottam Well #1 (ID#11380) was drilled in 1996 and has a 16" diameter steel casing to a depth of 500 feet. The well has a 100' surface seal. Screens extend from 110' to 230', 250' to 370' and 390' to 470'. The well is 14" diameter open bore with gravel pack from 500' to 600'. Yield is approximately 1200 gallons per minute. The well is equipped with a vertical turbine pump with pump bowls set at a depth of 450 feet.

Cottam Well #2B (ID#22956) was drilled in 2000 and has a 16" diameter steel casing to a depth of 500 feet. The well has a 24" surface casing to a depth of 100' which is surface sealed. The steel casing is perforated from 50' to 170', 190' to 310' and 330' to 450'. The well is 16" diameter open bore with sand pack from 500' to 600'. Yield is approximately 400 gallons per minute. The well is equipped with a vertical turbine pump with pump bowls set at a depth of 450 feet.

Toquer Well #1 (Test Well #1581002M00) was drilled in 2015 and has a 16" diameter steel casing to a depth of 300 feet. The well has a 36" surface casing to a depth of 110' which is surface sealed. Screens extend from 80' to 280' and 300' to 320'. The well is 26" diameter open bore with sand pack from 300' to 450'. Yield is approximately 80 gallons per minute. The well is equipped with a vertical turbine pump with pump bowls set at a depth of 270 feet. Utah State Division of Water Rights documents indicate this is a non-production test well under Change a42542.

iii. Future Source Needs

Based on *regulatory* requirements, the current source capacity of 400 gallons per minute, using a single pump, is now fully committed. Larger pumps, or an additional pump will be required to meet the growing Peak Day Demand.

Based on *usage*, the current source will be adequate until 2038 when it is projected that there will be 1,205 ERCs on the system. Development of large non-residential users and effective water conservation measures will affect the timing for additional water source.

Agreements are in place between the City and WCWCD for the District to provide additional culinary water as source capacity is approached.

iv. Recommendations

The existing pumps are adequate based on usage, and should be able to meet peak pay demands for the foreseeable future. As Peak Day Demand approaches the pumping capacity of a single pump, either larger pumps or an additional pump will be required.

Pumps generally have an expected service life of approximately 10 years. Replacement pumps should be programmed for the existing pumps as they near the end of their expected service life.

Replacement of chlorinator and auxiliary pumps should be programmed for maintenance and future replacement.

E. Storage Capacity

i. Existing Storage Tanks

Toquerville had 4 water storage tanks in its system, totaling 1,750,000 gallons. Three tanks, totaling 1,250,000 gallons, are provided on the main water system in the City. One tank, having a capacity of 500,000 gallons is provided on the Anderson Junction water system.

Springs Tank – 250,000 gallons, reinforced concrete, mid-elevation 3548'

The Springs Tank was built in the 1970's and is approximately 50 years old. Repairs of cracks have been previously made. The tank is in fair condition, and is in need of refurbishment or replacement.

Westfield Tank – 500,000 gallons, steel, mid-elevation 3528'

The Westfield Tank is approximately 25 years old and is in good condition. Refurbishing, including sandblasting and recoating, was performed approximately 5 years ago.

Trail Ridge Tank – 500,000 gallons, concrete, mid-elevation 3460'

Trail ridge tank was constructed in approximately 2009, and is in good condition.

Anderson Junction Tank – 500,000 gallons, steel, mid-elevation 4106'

The Anderson Junction Tank was constructed in approximately 2000, and is in good condition.

It is estimated that 100 residences on the main water system are irrigated from the culinary system, each with approximately 0.1 acre of watered landscaping, resulting in about 10 acres total outdoor use from the culinary system.

Water storage service capacity:

- Based on *regulatory* Storage Requirements of 4964 gallons per acre for outdoor use, the current storage on the main water system must provide approximately 50,000 gallons for irrigation; additionally, 180,000 gallons of storage must be provided to meet fire code requirements, leaving 1,020,000 gallons in the main system available for indoor storage.

- Based on *regulatory* Storage Requirements of 400 gallons per ERC for indoor use, the current main system storage is adequate for 2,550 ERC.

- Based on *metered* Average Day Usage of 270 gallons (basis for storage) per ERC, including outdoor use, the current main system storage is adequate for 3,962 ERC.

- Anderson Junction storage capacity is adequate for 800 ERC, with allowance for fire storage, based on *regulatory* Storage Requirements of 400 gallons per ERC for indoor use.

ii. Future Storage Needs

Current storage capacity in the main system will be adequate past 2065.

Residential developments proposed in the west side of the City will result in water demands that are higher in elevation and somewhat removed from the storage tanks on the existing main water system. The proposed residential developments are also quite distant from the Anderson Junction tank. A new 2.0 MG tank is proposed in association with the new residential subdivisions on the west side of the City. The new water tank will be located at an elevation to provide pressure and shorter distribution pipelines to the proposed subdivisions. It is anticipated that the private developers will fund the major portion of the cost of the tanks with participation from the City for the balance of the cost.

It is anticipated that residential and commercial growth, in addition to the currently proposed subdivisions, will occur in the northwest portion of the City. The existing water tank at Anderson Junction may be connected to this development area, or an additional water tank at may be required. Analysis of storage needs and integration of existing facilities should be analyzed as development plans are initiated.

iii. Recommendations

The two steel tanks, and the relatively new concrete Trail Ridge Tank are in good condition. It is expected that the steel tanks will require refurbishing at about 15 year intervals. The reinforced concrete Trail Ridge should require little maintenance for several years, but should be examined at 5 year intervals for cracks or other deterioration.

The reinforced concrete Springs Tank has significant deterioration. It is located at a higher elevation than the Westfield and Trail Ridge tanks and serves as the lead tank for the existing system. Anticipating additional growth and expansion of the existing distribution system, it is recommended that the tank be replaced with a 500,000 gallon tank. The new tank would assure adequate water pressure and service, including fire storage, for the complete system. It is also noted that the Springs Tank provides contact time for the chlorine disinfectant and the larger tank will provide increased contact time for the culinary water.

The following new water tanks are recommended:

- Replace existing Springs Tank with new 500,000 gallon buried concrete tank.
- Construct a new 2,000,000 gallon water tank in the area north of proposed subdivision developments in the western area of the City

F. Distribution System

i. Existing Distribution Systems

There are 2 separate distribution systems in Toquerville. The main system that covers the main part of Toquerville from the Springs Tank south to Litchfield Pond and from the Westfield tank to the east at Trail Ridge Estates. This distribution system consists of 3 tanks, approximately 20 miles of pipeline, 150 fire hydrants, 240 valves, and 650 water meters.

The other system is the Anderson Junction system that is located near the Interstate-15 freeway at milepost 27 (Anderson Junction). This system has 1 tank, approximately 3 miles of pipeline, 12 fire hydrants, and 6 valves.

ii. Hydraulic Analysis of Main Water System

A hydraulic model of the existing main system, along with future distribution piping to serve the proposed development in the west side of the City, was prepared in October 2020[4]. The hydraulic model was used to size new pipelines and to determine and mitigate impacts on the existing system.

The model analyzed distribution piping for full build-out of the proposed west side residential and commercial developments, and for moderate growth within the existing main water distribution system. Analyses were performed for Peak Day Demand, Peak Instantaneous Demand, and Available Fire Flow during Peak Day Demand.

The hydraulic model uses 475 gpd/ERC (0.33 gpm/ERC) for indoor use and 4.90 gpm/acre for outdoor use for Peak Day Demand. It should be noted that the peak day indoor use is based on historical meter readings which includes outdoor use for about 20% of the connections to the culinary system. About 80% of the current connections receive irrigation water from a secondary water system. It is felt that 475 gpd/ERC is a conservative and reasonable estimate for indoor use. A secondary water system is not planned for the proposed new subdivisions on the west side of the City, so outside water will come from the culinary system. It is estimated that the residential connections will average about 3500 square feet of irrigated landscaping, or about 0.08 acres, and have a peak irrigation use of about 0.40 gpm/ERC.

The hydraulic model uses a Peak Instantaneous Demand flow equal to 2 times the Peak Day Demand.

The hydraulic model also calculates the amount of fire flow that would available at each pipe junction while supplying the Peak Day Demand within the system.

[4] Master Plan Report Toqerville West Development, October 2020, Alpha Engineering

Table 7 is a summary of the flows and pressures within the existing system as calculated by the hydraulic model. The existing and proposed systems are shown on Figure 1D in Appendix A.

Table 7: Available Fire Flows and Peak Instantaneous Pressures (Existing System)

JUNCTION NUMBER	JUNCTION ELEVATION (FT)	PEAK DAY DEMAND (Model Input) (gpm)	FIRE FLOW AVAILABLE (gpm)	JUNCTION PRESSURE WITH FIRE FLOW (psi)	JUNCTION PRESSURE AT PEAK INSTANTANEOUS DEMAND (psi)
J-E1	3,325.21	2	3,263	58.3	58.2
J-E2	3,429.84	0	3,500	48.0	47.1
J-E4	3,267.55	0	2,918	83.1	82.8
J-E5	3,266.90	61	2,910	83.4	83.1
J-E6	3,286.43	0	3,500	75.0	74.9
J-E7	3,262.92	0	3,500	85.2	85.1
J-E8	3,270.01	0	3,500	82.2	82.0
J-E9	3,277.62	0	3,500	78.9	78.8
J-E10	3,264.83	0	3,500	84.4	84.4
J-E11	3,381.07	2	3,500	67.0	65.4
J-E12	3,274.08	0	3,500	80.4	80.4
J-E13	3,269.09	0	3,500	82.6	82.6
J-E14	3,153.40	0	3,500	132.5	132.2
J-E15	3,148.39	0	3,500	134.7	134.4
J-E16	3,197.20	0	3,500	113.6	113.3
J-E17	3,253.27	0	2,773	89.3	89.0
J-E18	3,250.15	0	2,948	90.7	90.4
J-E19	3,261.56	0	3,392	85.8	85.5
J-E20	3,346.14	0	3,500	78.4	75.8
J-E21	3,348.09	0	3,500	77.5	75.0
J-E22	3,386.46	4	3,500	64.8	63.3
J-E23	3,242.24	0	2,699	94.1	93.7
J-E24	3,315.00	0	3,500	91.3	87.8
J-E25	3,151.97	0	3,302	133.1	132.8
J-E26	3,128.30	0	3,289	143.4	143.0
J-E27	3,259.18	0	2,623	86.8	86.4
J-E28	3,261.35	0	2,612	85.8	85.5
J-E29	3,308.94	2	2,829	95.5	93.1
J-E30	3,132.00	7	3,500	141.8	141.4
J-E31	3,139.48	0	3,500	138.6	138.2

Table 7: (Continued)

JUNCTION NUMBER	JUNCTION ELEVATION (FT)	PEAK DAY DEMAND (Model Input) (gpm)	FIRE FLOW AVAILABLE (gpm)	JUNCTION PRESSURE WITH FIRE FLOW (psi)	JUNCTION PRESSURE AT PEAK INSTANTANEOUS DEMAND (psi)
J-E32	3,191.03	23	3,500	116.3	115.9
J-E33	3,208.39	0	3,203	108.7	108.4
J-E34	3,287.78	8	3,361	74.4	74.1
J-E35	3,386.43	3	3,500	64.2	62.5
J-E36	3,170.09	0	3,500	125.3	125.0
J-E37	3,187.92	3	3,500	117.6	117.3
J-E38	3,171.52	2	3,500	124.7	124.4
J-E39	3,172.81	3	3,500	124.1	123.8
J-E40	3,159.72	0	3,500	129.8	129.5
J-E41	3,186.42	2	3,413	118.3	117.9
J-E42	3,197.50	4	3,500	113.5	113.2
J-E43	3,172.60	0	3,500	124.2	123.9
J-E44	3,347.75	1	3,500	79.4	77.4
J-E45	3,358.04	6	3,500	75.4	73.5
J-E46	3,355.20	2	2,265	76.6	74.7
J-E47	3,168.11	4	3,500	126.2	125.9
J-E48	3,187.99	3	3,500	117.6	117.3
J-E49	3,380.70	2	3,500	66.0	64.2
J-E50	3,148.96	0	3,500	134.5	134.1
J-E51	3,332.70	0	3,500	84.0	81.0
J-E52	3,204.80	0	3,500	110.3	110.0
J-E53	3,170.91	38	3,500	125.0	124.6
J-E54	3,199.57	0	3,500	112.6	112.3
J-E55	3,341.69	2	2,198	81.8	79.8
J-E56	3,313.12	0	3,500	92.5	89.8
J-E57	3,369.54	2	3,500	70.2	68.3
J-E58	3,204.16	0	3,500	110.6	110.3
J-E59	3,180.01	0	3,500	121.0	120.7
J-E60	3,305.60	0	3,500	95.7	92.8
J-E61	3,243.02	0	2,984	93.7	93.4
J-E62	3,359.06	2	3,500	73.9	71.8
J-E63	3,151.63	0	3,500	133.3	133.0
J-E64	3,415.07	4	3,500	54.2	53.2
J-E65	3,426.22	0	3,500	49.6	48.6

Table 7: (Continued)

JUNCTION NUMBER	JUNCTION ELEVATION (FT)	PEAK DAY DEMAND (Model Input) (gpm)	FIRE FLOW AVAILABLE (gpm)	JUNCTION PRESSURE WITH FIRE FLOW (psi)	JUNCTION PRESSURE AT PEAK INSTANTANEOUS DEMAND (psi)
J-E66	3,347.82	2	3,500	80.1	78.3
J-E67	3,411.93	3	3,242	53.5	52.0
J-E68	3,424.34	5	2,780	47.9	46.3
J-E69	3,245.82	0	2,805	92.5	92.2
J-E70	3,405.37	2	2,758	54.6	52.7
J-E71	3,371.45	1	3,310	69.4	67.6
J-E72	3,469.67	0	1,235	25.1	23.3
J-E73	3,467.66	0	904	25.9	24.2
J-E74	3,361.57	3	3,500	72.8	70.6
J-E75	3,126.13	0	3,500	144.3	144.0
J-E76	3,319.28	0	3,500	89.8	87.0
J-E77	3,289.58	0	2,442	73.6	73.2
J-E78	3,357.20	0	3,500	73.7	71.3
J-E79	3,394.94	2	3,245	58.1	56.4
J-E80	3,366.05	1	1,604	70.6	68.9
J-E81	3,381.98	3	3,500	65.8	64.0
J-E82	3,408.17	4	3,211	54.8	53.1
J-E83	3,378.51	3	3,500	66.6	64.7
J-E84	3,357.89	3	3,500	75.4	73.6
J-E85	3,361.97	4	3,500	73.2	71.3
J-E86	3,365.22	4	3,500	71.4	69.4
J-E87	3,251.87	0	2,784	89.9	89.6
J-E88	3,302.11	0	3,122	68.3	68.3
J-E89	3,208.29	0	2,904	108.8	108.5
J-E90	3,382.29	4	3,500	66.5	65.0
J-E91	3,225.33	0	2,974	101.4	101.0
J-E92	3,392.96	0	3,500	58.6	57.0
J-E93	3,448.44	0	3,500	34.4	33.6
J-E94	3,329.71	0	1,428	85.6	83.2
J-E95	3,322.38	1	1,519	90.9	89.0
J-E96	3,342.46	2	3,500	82.2	80.4
J-E97	3,288.55	0	3,500	103.0	100.0
J-E98	3,341.68	0	3,500	80.0	76.9
J-E99	3,305.00	0	3,172	95.7	92.1

Table 7: (Continued)

JUNCTION NUMBER	JUNCTION ELEVATION (FT)	PEAK DAY DEMAND (Model Input) (gpm)	FIRE FLOW AVAILABLE (gpm)	JUNCTION PRESSURE WITH FIRE FLOW (psi)	JUNCTION PRESSURE AT PEAK INSTANTANEOUS DEMAND (psi)
J-E100	3,299.64	0	2,938	98.0	94.5
J-E101	3,195.31	0	3,263	114.4	114.0
J-E102	3,118.14	0	3,487	147.8	147.4
J-E103	3,381.77	0	3,500	66.8	65.2
J-E104	3,342.75	3	2,429	80.8	78.3
J-E105	3,309.74	0	3,500	93.9	91.1
J-E106	3,205.10	1	511	110.2	109.9
J-E107	3,342.30	4	3,500	81.1	79.0
J-E108	3,301.47	2	2,819	98.7	96.4
J-E109	3,258.26	0	3,500	87.2	87.0
J-E110	3,281.04	0	3,432	77.3	77.0
J-E111	3,208.03	0	3,500	108.9	108.6
J-E112	3,363.34	4	(N/A)	73.9	72.1
J-E113	3,399.75	4	2,998	59.7	58.4
J-E114	3,312.11	64	3,500	92.8	89.7
J-E115	3,290.31	0	3,500	103.1	101.2
J-E116	3,281.48	0	2,903	77.1	76.8
J-E117	3,387.94	72	3,500	60.3	57.9
J-E118	3,305.41	0	3,500	95.5	92.0
J-E119	3,141.32	0	3,500	137.8	137.4
J-E120	3,145.63	0	3,500	135.9	135.6
J-E121	3,150.07	0	3,500	134.0	133.7
J-E122	3,161.59	2	3,500	129.0	128.7
J-E123	3,274.22	0	3,500	80.3	80.1
J-E124	3,385.86	6	3,500	64.1	62.4
J-E125	3,364.57	6	3,500	73.0	71.2
J-E126	3,364.35	4	3,500	73.1	71.3
J-E127	3,483.50	0	3,462	99.4	87.3
J-E128	3,315.62	2	2,969	92.6	90.2
J-E129	3,323.18	3	3,105	89.3	87.0
J-E130	3,419.92	1	3,500	52.1	51.1
J-E131	3,434.99	1	3,326	45.7	44.8
J-E132	3,335.00	5	3,500	84.3	82.1
J-E133	3,296.94	0	3,500	100.5	98.5

Table 7: (Continued)

JUNCTION NUMBER	JUNCTION ELEVATION (FT)	PEAK DAY DEMAND (Model Input) (gpm)	FIRE FLOW AVAILABLE (gpm)	JUNCTION PRESSURE WITH FIRE FLOW (psi)	JUNCTION PRESSURE AT PEAK INSTANTANEOUS DEMAND (psi)
J-E134	3,350.90	6	3,500	78.0	76.1
J-E135	3,347.59	4	3,500	79.2	77.2
J-E136	3,345.16	6	3,500	80.1	78.0
J-E137	3,231.92	2	3,279	98.6	98.3
J-E138	3,417.87	0	3,477	47.3	45.0
J-E139	3,252.14	0	3,114	89.8	89.5
J-E140	3,396.37	0	3,293	58.3	56.4

Full fire flow of 1500 gallons per minute is not available at Junctions E72 and E73 because of their high elevation. Static pressures at the Junctions are approximately 30 psi, and fire flow is limited by low pressure at the junction. This area should be reconfigured for service from the new water system which will serve the higher elevations to the west.

Fire flow of 1428 gallons per minute is available at Junction E94 located on the end of a 6" pipe in the cul-de-sac on Mountain Charm Road. This pipeline should be replaced with 8" when the roadway is reconstructed.

Fire flow of only 511 gallons per minute is available at Junction E106 which is located a considerable distance above Cholla Drive on LaVerkin Creek. The junction represents a single residence which is served by a 4" water line. Upsizing the pipeline to 8" for a single residence may not be economically justified.

iii. Anderson Junction Water Distribution System

The distribution system at Anderson Junction is currently used only for fire protection. It is expected that the system will be expanded significantly in the near future to provide service in the western portions of the City. Hydraulic analysis of the distribution system, considering all developable land within the Anderson Junction service area, should be made when preliminary development plans are being prepared.

It is anticipated that the current Main Distribution System and the Anderson Junction Distribution System will become integrated at some time in the future. Pumping facilities and pressure control facilities may be required in the integrated system.

iv. Water Distribution in New Development

Toquerville City policy requires developers of properties within the city to construct culinary water distribution piping, fire hydrants, and control valves within each development. Costs for transmission pipelines to carry water from sources and storage to the development should be proportionally shared through impact fees, or by separate agreement with the City.

Supplemental hydraulic analysis should be required for developments where pressure in existing waterlines are low. Where insufficient flow is available, larger or additional waterlines may have to be installed to the proposed development.

v. Future Distribution Needs

Current main distribution system is in good condition and its capacity will be adequate past 2050, with the exception that full fire flow is not available at isolated locations on the system.

It is anticipated that the Anderson Junction water system will provide source and storage for the potential residential developments in northwestern Toquerville. A large diameter transmission line would be required to transport water from the Anderson Junction water system to the distribution system and possible future storage tanks within the newly developed area. The Anderson Junction system may also be integrated with the proposed system expansion in the western area of the City.

The new Toquerville Parkway will require a substantial cut (120' deep) through a narrow ridgeline south of the Toquerville Cemetery. A large distribution pipe running along the ridgeline, which serves as the major water source to the Toquerville Heights area, will be severed by the roadway cut. It is proposed that water be rerouted through a new water main along the extended Westfield Road and the new Toquerville Parkway to a point in the Ash Creek gorge, then routed back up to the Toquerville Heights subdivision distribution system. The pipeline may also be integrated with a small existing private water system in the Ash Creek Gorge.

vi. Recommendations

As streets are reconstructed, it is suggested that water distribution piping be considered for replacement if they have been in service for over 25 years, or are smaller than 6". Water lines larger than 8" may be required based on hydraulic analysis.

The City had identified the following waterline projects:

- Replace approximately 2,700 feet of existing waterline on Ash Creek Drive in association with roadway reconstruction.
- Install approximately 9,600 feet of waterline to reroute water to Toquerville Heights which will replace the severed main now feeding the area.

- Install approximately 10,000 feet of 20” and 16” water transmission pipeline from the existing Westfield Tank along the Toquerville Parkway to serve proposed development on the west side of the City. Project will also require construction of a new pump system at the existing tank.
- Install approximately 1,800 feet of new 10” pipeline along the realigned Old Highway 91.
- Extend 8” waterline approximately 1,600 feet on Center Street from existing west end, along Center Street extension and Old Church Road extension, to new Toquerville Parkway.
- Replace approximately 1,400 feet of 6’ pipe with 8” pipe along Center Street from Ash Creek Drive to the Ash Creek Bridge.
- Replace approximately 500 feet of waterline on Pecan Avenue west of Ash Creek Road in association with roadway reconstruction.
- Replace approximately 4,000 feet of existing waterline on Cholla Drive in association with roadway reconstruction.
- Replace approximately 350 feet of waterlines on Pecan Avenue east of Toquer Boulevard in association with roadway reconstruction.
- Replace approximately 1,400 feet of existing waterline on Mountain Charm Road in association with roadway reconstruction.
- Construct approximately 7,000 feet of new 8” distribution piping in proposed commercial development on the west side of the I-15 Exist interchange.

It should be noted that impact fees are typically not eligible to fund replacement of existing waterlines, so funding for waterline replacement should be included in the Water Department budget.

Part IV. Streets and Drainage Capital Facilities Plan

A. Streets

i. Street Classification

Functional street classification is a subjective means to identify how a roadway functions and operates when a combination of the roadway's characteristics are evaluated. These characteristics include; roadway configuration, right-of-way, traffic volume, carrying capacity, property access, speed limit, roadway spacing, and length of trips using the roadway.

Four primary classifications are used in classifying selected roadways in Toquerville. These classifications are: Arterial, Collector, Residential Local, and Residential Minor. Arterials provide a higher degree of traffic mobility with limited property access and often connect to the freeway system. Collectors provide a balance between mobility and property access trips. Residential streets and roads serve property access based trips and these trips are generally shorter in length. Traffic from residential roads is gathered on to the collector system and channeled to the arterials.

SR-17, the major route through Toquerville, is classified as an Arterial. The proposed Toquerville Parkway Corridor will be functionally classified as an Arterial. Westfield Road, Springs Drive, Zions Parkway, Shangri-La, and Cholla Drive are functionally classified as collectors. Center Street, with an extention to the proposed Toquerville Parkway, will be functionally classified as a Collector.

ii. Street Standards

Recently updated street requirements are contained in the Toquerville City Standards and Specifications, dated February 2020, and are summarized in Table 8.

Table 8: Streets Design Standards

STREET ELEMENT	RESIDENTIAL	COLLECTOR	MAJOR COLLECTOR	ARTERIAL
Right-of-Way Width (ft)	50	60	66	80
Pavement Width (ft)	35	45	50	65
Min. Pavement Thickness (in)	2.5	3	3	3.5
Base Course Thickness (in)	Engineered Based on Native Soils			
Combination Curb/Gutter	Required, Except for 'Rural' Streets in AG Zones			
Sidewalk Width (ft)	5	5	5	5+

A special standard for the proposed Toquerville Parkway has also been adopted that will provide a total right-of-way width of 120 feet, 4 travel lanes with safety zones, planter median, curb/gutter, and 8' pathways on each side.

iii. Transportation Master Plan

Toquerville completed a Transportation Master Plan by Jones & DeMille Engineering in March 2018. The plan recommends the construction of the Toquerville Parkway on the west side of the City as the major transportation facility through the City which will relieve traffic on the current main roadway through the City's core area. SR-17 designation will be removed from the current roadway and placed on the new parkway. The Master Plan also includes recommendations for extensions and relocations of various collector and local roads.

iv. Existing City Streets

Toquerville has a total of approximately 21 miles of streets that it owns and maintains.

The City has been very active in the past few years in reconstructing several of its local streets to provide asphalt surfacing, curb and gutter, and sidewalks. Streets vary in width between 20 and 35 feet, and most older streets have shoulders with only side ditches. There are a few streets that are narrow and unpaved.

Recent residential subdivisions have included additional streets at various locations. Most new streets, completed in the last 20 years, have asphalt surfacing and combination curb and gutter. Many streets also have concrete sidewalks.

Table 9 is a summary of the City's street distances.

Table 9: Inventory of Streets

SURFACE	FEET	MILES
Asphalt	74,130	14.04
Gravel	22,540	4.27
Unimproved	12,550	2.38

v. Local Bridges

There are three bridges crossing Ash Creek and one bridge crossing LaVerkin Creek within Toquerville City.

Center Street Bridge

The Center Street Bridge is constructed with concrete abutments steel beams, and concrete deck with concrete parapet walls on both sides. The bridge has a raised 4' pedestrian walkway on its north side

The bridge has a 43 foot clear span and a total width of 32 feet with a roadway width of 28 feet. Center Street is programmed to become a Major Collector Road. With the extension of Center Street to the proposed Toquerville Parkway, the road will provide access to the City Park and serve as a major connection between the residences on the west side of Ash Creek and the City Core.

The bridge has a 4’ slightly raised, non-delineated pedestrian walkway on the north side of the travel lanes. The walkway is part of a proposed pedestrian/bicycle corridor between the City Park and the City core. When Center Street is extended to the new Toquerville Parkway, there will be considerable traffic increase across the bridge and the walkway should be moved to the outside of the parapet for safety purposes.

The bridge is in fair condition and can have the travel way widened so 32’ at a future date as daily traffic increases.

Old Church Road Bridge

Old Church Road Bridge is constructed with concrete abutments, steel beams, and concrete deck with concrete parapet walls on both sides.

The bridge has a 23 foot clear span and a roadway width of 22 feet. The bridge is in fair condition and load rated for 20 Tons maximum. Old Church Road is programmed as a Residential Road which will connect the proposed extension of Center Street to the City's core area. The bridge is programmed for a structural upgrade to improve its load capacity.

Westfield Road Bridge

The Westfield Road Bridge is constructed with concrete abutments, prestressed concrete beams, and concrete deck with concrete parapet wall on both sides. The bridge has a delineated 4' pedestrian walkway on its south side.

The bridge has a 60 foot clear span and a total width of 32 feet, roadway width 28 feet, and is in good condition. The Westfield Road is programmed to become a future Collector Road which will connect the proposed Toquerville Parkway with the City's core area. The bridge travel way can be widened to 32' at a future date as daily traffic increases.

Currently, the exposure of pedestrians on the bridge deck within the delineated walkway is considered unsafe by the City, and it is desired to move the pedestrian walkway to the outside edge of the existing parapet.

Zion's Parkway Bridge

The Zions Parkway Bridge crosses LaVerkin Creek and is constructed with concrete abutments, prestressed concrete beams, and concrete deck with concrete parapet walls on both sides. The bridge has a 4' pedestrian walkway outside the north parapet, protected from the roadway area.

The bridge has a 100 foot clear span and a total width of 42 feet with a roadway width of 32 feet. Zions Parkway is programmed to be collector road providing access for the residential area east of the creek.

It is in good condition and is adequate for the anticipated future traffic.

vi. Toquer Boulevard

Toquer Boulevard is currently a two-lane Utah State Highway (SR-17) which is the main north-south thoroughfare for the city. It is an integral part of access to Zion National Park, and has significant non-local traffic. Land use along Toquer Boulevard, within the city's core area, is primarily residential. Utah State Department of Transportation owns and maintains the highway within the City.

Toquer Boulevard, in the core area, is expected to exceed the capacity of a two-lane road within the next few years if the Toquerville Parkway is not constructed. With the parkway in place, the Average Weekday Daily Traffic (ADWT) on Toquer Boulevard is not expected to increase much more that current levels[5].

If the Toquerville Parkway is not constructed, SR-17 north of Toquerville's core area is expected to exceed the capacity of a two-lane road (typically considered to be 10,000 to 15,000 vehicles per day) between 2025 and 2035, and SR-17 south of Toquerville's core area is expected to exceed the capacity of a three-lane road (typically considered to be 15,000 vehicles per day).

[5] Toquerville Transportation Master Plan, March 2018, Jones & DeMille Engineering, Pg 36.

vii. Toquerville Parkway

In response to increasing traffic on SR-17, the City has proposed a 4.25-mile realignment from approximately MP 1.1 (about 700 feet north of South Zions Parkway) to approximately MP 5.4 (about 2.2 mile northwest of Old Church Road), passing around the west side of Toquerville. The realigned SR-17 highway, called Toquerville Parkway, is anticipated to have an AWDT of 20,000 to 25,000 vehicles per day in the future.

The Toquerville Parkway would have a fairly high design speed of 50 mph which would allow for a posted speed limit of 45 to 50 mph. The bypass road would also have limited at-grade access at major intersections. Direct business or residential accesses would be prohibited. According to the city, much of the right-of-way for this bypass road has already been acquired.

There are several residential subdivisions proposed on the west side of Toquerville, and the Toquerville Parkway would serve these developments.

Funding for the Toquerville Parkway is anticipated primarily from private sources with supplemental funding from state/regional/local road funds.

viii. Streets in New Development

Toquerville City policy requires developers of properties within the city to construct local streets with curb/gutter and sidewalks within each development.

Costs for collector and arterial roadways which serve the developments should be proportionally shared through impact fees, or by separate agreement with the City.

ix. Future Streets Needs

The future Toquerville Parkway is needed to serve future development in the western portion of the City and to route non-local traffic off Toquer Boulevard. The parkway will result in safer travel within and through the City.

Future Collector Roadways:

- Westfield Road and Center Street will continue from their respective current locations through undeveloped land and eventually connect to the Toquerville Parkway. Both roadways are recommended to be constructed once the parkway is finished.

- Sunset Drive will continue from its current location through undeveloped land and eventually connect to the Toquerville Parkway and continue west to connect to Old Hwy 91. This is recommended to be constructed once the Toquerville Parkway is finished.

- The intersection of Old Highway 91 with SR-17 will need to be realigned in conjunction with UDOT's programmed improvements to the Exit 27 interchange from I-15. The realignment will move the Old Highway 91/SR-17 intersection further south and east of

its current intersection and will better serve traffic to the proposed Toquer Reservoir and to future development which is proposed in the area.

Future Local Roadways:

- Westfield Tank Road originates from Westfield Road near the crossing of Ash Creek and will connect to the Toquerville Parkway. This is recommended to be constructed once the parkway is finished.

- Hunter Lane originates from SR-17 and connects to the northeast end of Cholla Drive. This is currently a dirt road that will need to be paved if local development occurs.

- The Anderson Junction Road intersection with SR-17 will be abandoned in conjunction with the I-15 interchange improvements. 7 C's Lane will realign to connect to SR-17 east of current intersection, forming a cross intersection with realigned Old Highway 91. Anderson Junction Road traffic will be routed onto the realigned 7 C's Lane. This will remove traffic from the existing Anderson Junction turnoff which is unsafe due to its location near the off ramp of I-15.

x. Recommendations

It is recommended that the proposed Toquerville Parkway be constructed to serve future development in the western portion of the City and to route non-local traffic off Toquer Boulevard. The roadway is expected to be funded primarily by developer participation and impact fees. State, regional, and local governmental sources may assist funding, if required.

An existing intersection at Cholla Drive and SR-17 has limited sight distances due to curvature of the highway. It is recommended that a left and right turn lane be added to SR-17 at the intersection to provide safe turns onto Cholla Drive.

It is recommended that the City upgrade two local bridges across Ash Creek which will become part of collector roads that will connect to the Toquerville Parkway:

- Center Street Road Bridge

  Widen travel way to 32' by moving pedestrian walkway behind existing parapet on north side.

- Westfield Road Bridge

  Widen travel way to 32' by moving pedestrian walkway behind existing parapet on south side.

It is recommended that the City continue to reconstruct local residential streets to provide asphalt surfacing, curb and gutters, drainage improvements, and sidewalks, as appropriate. The City has identified the following local streets for improvements:

- Center Street

  Construct new roadway using Major Collector Road standard from current west end to Toquerville Parkway.

  Construct base, asphalt surfacing, combination curb/gutter, 6' sidewalk.

- Westfield Road

  Construct new roadway using Major Collector Road standard from current end south to Toquerville Parkway

  Construct base, asphalt surfacing, combination curb/gutter, drainage.

- Ash Creek Drive – Old Church Road to Berry Avenue

  Reconstruct base, asphalt surfacing, combination curb/gutter, 6' sidewalk, drainage improvements.

- Sunset Drive – Construct new roadway using Collector Road Standard from current west end to Toquerville Parkway.

- Old Highway 91 Realignment at Anderson Junction

  Construct base, asphalt surfacing, and signage, demolition of old roadway.

- 7 C's Lane Extension at Anderson Junction

  Construct base, asphalt surfacing, and signage, demolition of old roadway.

- Cholla Drive, Cane Circle, Staghorn Street. Cholla Circle, Ocotillo Circle, Ramose Circle

  Reconstruct base, asphalt surfacing, combination curb/gutter, drainage improvements.

- Pecan Avenue (West) – Ash Creek Drive to Cul-de-sac

  Construct base, asphalt surfacing, combination curb gutter, 6' sidewalk north side, drainage improvements.

- Pecan Avenue (East) – Toquer Boulevard to east end

  Construct base, asphalt surfacing, drainage improvements.

- Ash Creek Point – Ash Creek Drive, Berry Avenue, Pioneer Road, Pioneer dead end spur, Brainard Circle

  Reconstruct base, asphalt surfacing, drainage improvements.

- Mountain Charm Road

  Reconstruct base, asphalt surfacing, drainage improvements.

- Old Church Road

  Widen existing roadway using Residential Road standard from Ash Creek Drive to current west end.

  Construct base, asphalt surfacing, combination curb/gutter, and 6‘ sidewalk.

Local streets projects can be funded with UDOT Class C road funds and with property taxes. New local street improvements extending into undeveloped areas may also be eligible for funding from impact fees.

B. Storm Drains

i. Existing Storm Drain System

The City owns and maintains approximately 4,000 lineal feet of storm drain on Toquer Boulevard (SR-17), Ash Creek Drive, and Center Street. This storm drain system discharges into Ash Creek at the west end of Center Street. The drainage system consists of drop inlet boxes, HDPE corrugated pipe, and concrete manholes. In addition, there are several small segmented drains that serve limited areas throughout the City which drain into Ash Creek or LaVerkin Creek. The existing storm drains are shown on Figure 2C.

Most streets in the city have surface collection ditches or curb/gutters on the shoulder of the roadway. Because current the streets are located close to Ash Creek or LaVerkin Creek, surface drainage is generally routed quickly into these natural drainages.

ii. Future Storm Drain Needs

West Side Storm Drains:

Proposed developments in the western portion of Toquerville are not located close to the two creeks which run through the City. The area is relatively flat and does not have major natural drainage channels. Storm water runoff from the new developments will have to be retained or piped to the creeks. Costs for outfall storm drains which serve multiple developments should be proportionally shared through impact fees, or by separate agreement with the City.

East Side Storm Drains:

Existing storm drains on the eastern side of Toquerville are small and serve very limited areas. Areas of poor drainage should be identified and the existing storm drain systems should be extended where practical. Poorly drained areas where existing facilities are not available should have new drains constructed. Easements for new drainage improvements should be acquired as soon as possible, noting that many drains will have to cross private properties which are unimproved at this time.

Developers of properties within the city should continue to construct local storm drain facilities within each development.

iii. Recommendations

It is recommended that a master drainage plan for the western portion of the City be developed in order that storm runoff from the various subdivisions are coordinated to provide routing and rights-of-way for an extended storm drain system.

The City has identified the following current needs for storm water drainage:

- Ash Creek Drive

  Install new drain pipe and inlet boxes from Old Church Road to existing drain pipe at mid-block south of Pecan Avenue. Storm drain should be in conjunction with reconstruction of roadway.

  Install new drain pipe and inlet boxes from Westfield Road to existing drain pipe in Center Street. Storm drain should be in conjunction with reconstruction of roadway.

- Old Church Road

  Install new drain pipe and inlet boxes from current west end of roadway to Ash Creek. Design of this storm drain should consider the service area it will serve in the future. This storm drain will be extended westerly with new roadway construction to the proposed Toquerville Parkway and provide storm water drainage to proposed developments in the west area of the City.

  Install new drain pipe and inlet boxes from Ash Creek Drive to Ash Creek.

- Center Street

  Replace existing drain pipe from Toquer Boulevard to Ash Creek. Install erosion control for outlet to Ash Creek. Tie in new drain pipes at Toquer Boulevard and at Ash Creek Drive.

- Cotton Gin Avenue

  Construct new inlet structure in drainage channel above the existing tank site and install new pipe to connect with the end of the existing drain pipe on Cotton Gin Avenue.

- Staghorn Street/Cholla Drive

  Install inlet boxes and drain pipe from the cul-de-sac on Staghorn Street to Cholla Drive, then along Cholla Drive to Chella Circle, then along Chella Circle to LaVerkin Creek.

  Install inlet boxes and drain pipe along Cholla Drive from Parcel T-CHCR-1B-54 [Andersen] to outlet drain on Chella Circle.

- Shangrila Drive / Rim View Drive / Chaparell Drive

  Install inlet boxes and drain pipe along Chaparell Drive from Parcel T-TEA-C-21 [Patrick] to Shangrila Drive.

  Install inlet boxes and drain pipe along Rim View Drive from Parcel T-TEA-B-18 [Dodson] to Shangrila Drive.

  Install inlet boxes and drain pipe along Shangrila Drive from Chaparell Drive to LaVerkin Creek.

- Mountain Charm Street

  Install inlet box and drain pipe from the end of the cul-de-sac to Ash Creek. Easement from property owner (Parcel T-128-A-16, Olsen) must be acquired.

- Peachtree Drive

  Install inlet box and drain pipe from north cul-de-sac to Ash Creek. Easement from property owner (Parcel T-AHP-A-10 [Perry]) must be acquired.

  Install inlet boxes and drain pipe from intersection with Peachtree Circle to Ash Creek. Easement from property owner (Parcel T-APH-A-21/22 [Belchak]) must be acquired.

- Grassy Lane

  Construct drainage channel with erosion protection from the east end of Grassy Lane to Ash Creek. Routing appears to be in a public right-of-way.

- North Toquer Boulevard

  Install inlet boxes and drain pipe from Creekside Drive to Westfield Road. Tie to or replace existing drain pipes near Center Street, depending on conditions and size.

- South Toquer Boulevard (SR-17)

  Install inlet boxes and drain pipe from intersection of SR 17 and Hunter Lane to Ash Creek. Easement from property owner (Parcel T-125-G-1 [Equestrian Ranches LLC]) must be acquired.

  Install inlet boxes and drain pipe along SR-17 from Hunter Lane to Diamond G Lane then route drain pipe to Ash Creek. Easement from property owner (Parcel T-121-E-1 [Naegle]) must be acquired.

  Install inlet boxes and drain pipe along SR-17 from Parcel T-CHCR-1B-18 [Corley] to LaVerkin CreekShangrila Drive/Rim View Drive/Chaparell Drive

- Hunter Lane

  Construct drainage swale on north side of Hunter Lane from Parcel T-136 [Gilbert] to LaVerkin Creek.

Part V. Parks and Trails Capital Facilities Plan

A. Parks

i. Park Standards

The National Recreation and Park Association (NRPA) suggests that communities should have between 6.25 and 10 acres of developed parks and open space for every 1,000 residents. Currently, Toquerville City provides 16.62 acres which is about 9.23 acres per 1,000 persons, based on a population of 1,800.

ii. Park Classification

Standards for open space and recreation areas are helpful in establishing an initial estimate of land and facility types that a community should commit to recreation. The following classifications for parks, recreation areas, and open spaces are provided to identify the numerous types of recreational facilities that are required to meet the various demands for recreational facilities for Toquerville City. Using the NRPA standards as a basis, five types of recreational facilities which allow for active and passive recreation are illustrated:

- **Regional Park** - This is the largest of the park types classified. It usually covers areas greater than 200 acres. The NRPA defines this park type as "areas of natural quality for nature oriented outdoor recreation, such as viewing, and studying nature, wildlife habitat, conservation, swimming, picnicking, hiking, fishing, boating, camping, and trail uses. Toquerville City is ideally located in close proximity to Confluence Park, Quail Creek State Park, Sand Hollow State Park, Zion's National Park, and other state and national parks which fall under the description of this park type.

- **Community Park** - This park type is generally between 5 to 50 acres in size, and services a wide range of recreational activities for the entire community. An example of this type of facility would be a soccer or sports complex that contains areas of passive recreation such as walking trails, covered picnic areas, and natural areas.

- **Neighborhood Park** - This type of park should address the specific recreational needs of the nearby neighborhood it serves. The NRPA states that generally this park type encompasses between 1½ to 5 acres. Generally, they contain play structures for toddlers and pre-teens. They provide covered picnic areas, shaded seating, and havens for quiet reflection, trails, and large informal open areas for unorganized play activities. Their location should be within ½ to 1 mile of the community they serve.

- **Linear Park** - Linear park types are generally transportation corridors for non-motorized modes of transportation such as walking or cycling. They are used to connect parks and other recreational facilities to neighborhoods, to the center of town, and to other neighboring communities. They are generally located in natural corridors such as along stream and river banks and along side washes.

- **Mini Park** - These parks are used to address limited, isolated or unique recreational needs, and are generally one acre or less in size. An example of this type of park would be a trail head or a historical marker.

iii. Community Parks Master Plan

Toquerville completed a Community Parks Master Plan by Jackson Land Design in 2016. The plan recommends renovating two existing parks and construction of a third neighborhood park. This facilities plan includes the recommendations of the Master Plan.

iv. Existing Parks

Currently, there are 3 local parks in Toquerville City:

City Center Park

City Center Park is the City's main park where most community and neighborhood functions are held. This 10.32-acre park is bisected by Ash Creek. Currently, all of the active program elements are located on the northwest side of Ash Creek.

This park enjoys a heavy amount of use, and is in fairly good condition. However, many of the park areas are not ADA compliant. The bleacher areas at the ball field do not have accessible routes or surfacing. The slope leading to the concession and restroom building does not meet ADA requirements.

Trail Ridge Park

Trail Ridge Park is Located at 1210 S Arches Street in the Trail Ridge Estates Subdivision on the south end of the City. This 4.23-acre park parallels La Verkin Creek to the west. Currently, only about one-half of this park's total area is developed. At the park's southeast corner is a storm water detention pond that is approximately 10' deep and encompasses about 9,000 square feet.

This park is currently underdeveloped. It has tremendous potential to be a very popular park with its proximity to LaVerkin Creek and the City's trail system.

Westfield Park (undeveloped, previously Almond Heights Park)

Westfield Park is located in the Almond Heights Subdivision on Westfield Road and is undeveloped. The park encompasses 2.07 acres with majestic views in all directions.

This park is currently open space with the intention to develop it into a neighborhood park.

Toquerville Heights Park (undeveloped)

Toquerville Park is a small programmed neighborhood park in the Toquerville Heights area. No site has yet been established.

Existing parks have amenities shown in Table 10:

Table 10: Park Amenities

TOQUERVILLE PARKS	AREA (acres)	PARKING LOT	BALL PARK	BASKETBALL COURT	PLAYGROUND	RESTROOMS
WESTFIELD PARK	2.07	YES	NO	NO	NO	NO
TRAIL RIDGE PARK	4.23	YES	NO	YES	NO	YES
CITY CENTER PARK	10.32	YES	YES	YES	YES	YES
TOQUERVILLE HEIGHTS PARK*	0.50	NO	NO	NO	NO	NO
TOTAL	17.12					

*Programmed Park – No site yet established

v. Future Parks Needs

Existing parks within the City are heavily used, and heavily worn. To improve the quality of the park and experience of the user, the Community Parks Master Plan recommends renovating the City Center Park and the Trail Ridge Park. The Master Plan further recommends development of the Westfield Park as a neighborhood park to accommodate current and future residents of the developing southwest area.

The City is desirous to provide a high quality park experience within all of its neighborhoods. An additional neighborhood park with playground equipment is needed in the south end of the City in the existing Toquerville Heights area. This park would be City funded.

Proposed residential development in the western portions of the City will also require neighborhood parks. The City will require, as part of the developments, that small parks be included in these areas. Two small parks are anticipated in the western area of the City, and one small park near Anderson Junction in the northern area of the City is anticipated. Funding of these parks will be primarily by the developers.

vi. Proposed Recreation Facilities

Toquer Reservoir

A large reservoir in west Toquerville City is in planning stages by the Washington County Water Conservancy District. Associated with the reservoir is a proposed recreation area which would include camp sites, picnic sites, a pavilion, restrooms, walking trail, and boat ramp. Funding for the reservoir recreational facilities would be by the Washington County Water Conservancy District.

Regional Sports Parks

Because of high usage of other sports parks in the Washington County area, county and city recreation officials are desirous to construct a large regional sports park encompassing multiple baseball diamonds, softball diamonds, soccer fields, and other sports fields. Discussion of potential sites for a regional sports park have included the vicinity of the proposed Toquer Reservoir.

A second possible regional recreation facility adjacent to the I-15/Old Highway 91 corridor has also been discussed.

Neighborhood Parks

There are large residential developments proposed in the area west of current City core. This area is separated from the current neighborhoods by Ash Creek and by terrain. It is proposed to provide neighborhood parks in the area of these developments to serve needs of the west side of the City. Two neighborhood parks are proposed to be constructed in the area. The City will require the developers to construct a Westbrook Group Park and a Lowe Park as part of the developments.

The City also desires to establish an additional neighborhood park with playground equipment in the Toquerville Heights area in the south end of the City. Funding would be from City sources.

Considerable development is expected in the vicinity of Anderson Junction. The City also desires to establish a neighborhood park in this area as development occurs. Park costs would be funded primarily by the developers with the City funding the balance of the costs.

vii. Recommendations

The Community Parks Master Plan contains the following recommendations for City Center Park, Trail Ridge Park, and Westfield Park; the Toquerville Heights Park is also recommended with a scope to include playground equipment.

City Center Park

This park is classified as a Community Park. It is recommended that many of the existing park elements on the west side of Ash Creek be preserved, but improving vehicular and pedestrian circulation. Proposed improvements include:

- Construct ADA accessible routes and spectator seating at the existing ball field and concession area.
- Add two new bleacher pad areas with shade covers are shown.
- Modify parking lot and drive aisle to create space for the concrete bleacher pads

- Construct a retaining planter wall and new ADA sidewalks.
- Renovate existing full-court basketball court to create two regulation pickle ball courts.
- Add a looped perimeter sidewalk to connect the pickle ball courts to the parking lot and ball field.
- Provide picnic pads or exercise stations located along the looped walking path.
- Replace old playground equipment and add fall protection.
- Provide benches and additional shade trees to beautify the area.
- Construct a new amphitheater and stage house which can double as a large open air picnic pavilion.
- Add a 5' wide raised planter at the top of the slope adjacent to Center Street.

It is further recommended additional facilities be constructed on the east side of the park, south of Ash Creek, where a large undeveloped area is available. New facilities would include:

- A community center
- Paved parking lot
- Half-court basketball
- Pavilion
- Looped walking trails and picnic areas.
- Grass, trees and planter areas to beautify the area.

The proposed City Center Park improvements are shown in Figure 4.

Trail Ridge Park

This park is classified as a Neighborhood Park and will be used by the entire population of Toquerville City due to the planned amenities and access to La Verkin Creek. Currently, this park's main function is for youth soccer, basketball, and Frisbee golf. It is recommended that existing park elements be preserved, but include the following improvements:

- Enlarge the existing soccer field
- Add a new large pavilion.
- Realign the 10' wide asphalt trail to accommodate a new dog park.

- Construct a fenced dog park which would include a looped walking path, benches, picnic tables, drinking fountain for humans and dogs, grass and shade trees, and a small covered pavilion
- Beautify the existing storm water detention pond with decorative rock mulch and landscaping
- Beautify the steep slope along Zions Parkway and Arches Street using two contrasting types of rock mulch with added tree and shrub plantings.

The proposed Trail Ridge Park improvements are shown in Figure 5.

Westfield Park

This park is classified as a Neighborhood Park and will be used primarily by residents living in the vicinity. Proposed improvements include:

- A curved arbor
- A looped walking trail that will meet all ADA requirements with picnic tables and benches located along the looped walking trail.
- Native vegetation and exposed rock around the park perimeter.
- A pavilion to be used for community and family gatherings.
- A playground adjacent to the pavilion.
- A restroom with two unisex restrooms.
- A 20-stall parking lot
- A large open grass area for informal play and games
- Tree and shrub plantings with decorative boulders and rock mulch

The proposed Westfield Park improvements are shown in Figure 6.

Toquerville Heights Park

This park is in concept phase. No specific site has been established. Planning and construction of the park is anticipated within 5 years. Funding would be from City sources.

B. Trail System

i. Existing Trails

Toquerville City has approximately 24 miles of improved and unimproved trails as shown on Figure 3.

Table 11 is a summary of the City's trail distances.

Table 11: Inventory of Trails

SURFACE	FEET	MILES
Concrete	200	0.04
Asphalt	700	0.13
Gravel	0	0
Unimproved	123,000	23.30

Approximately 2,100 feet of private asphalt paved trail has been constructed along the west and north sides of the Trail Ridge Park. Although privately owned, it is often used by general public at the Trail Ridge Park. The City is working with the trail owner to integrate this pathway into the city trails system.

Approximately 1,500 feet of private concrete pathway has been constructed on the west bank of LaVerkin Creek, across from the Trail Ridge Park. The City is working with the residents of Cholla Estates to integrate this pathway into the City trails system

The City has also constructed approximately 700 feet of paved trail along the west side of Ash Creek, extending from Old Church Road to the City Center Park. In conjunction with the City Park trail, the City has constructed approximately 200' of concrete sidewalk along Center Street as the beginning of a concrete sidewalk trail up Center Street.

The remainder of the trails in the City have evolved over many years as ATV trails. Satellite images taken over 20 years show most of these trails. The trails are undeveloped and unsurfaced, and no formal rights-of-way for these trails have been secured.

ii. Future Trails Needs

The City is desirous to establish a full trail system for its residents. Neighboring communities have been active in developing trails systems in the past several years. There is a need to interconnect with other community trail systems and extend these facilities through the City. As development of the City occurs, new rights-of-way need to set aside and secured as subdivisions are platted.

The City has an opportunity to develop high quality trails in conjunction with the proposed realignment of Old Highway 91 at Anderson Junction and with the proposed Toquer Reservoir in the western side of the City.

- Paved trail around Toquer Reservoir (funded by WCWCD).
- Paved trail between Toquer Reservoir and Anderson Junction along Old Highway 91.

Proposed residential development on the west side of the City and the construction of the Toquerville Parkway offers opportunity for trails within this area.

- Paved trail adjacent to the Toquerville Parkway (funded by developers).
- Paved trail extending from Toquerville Parkway to Toquer Reservoir (funded by developers).
- Paved trail extending from the City Park along Center Street to the Toquerville Parkway (funded by developers).
- Paved trail extending from the Westfield Bridge to the Toquerville Parkway along a ravine commonly named Flume Wash (Flume Wash Trail).

There is need for pedestrian and bicycle corridors in the core area of the City.

- A 6' wide sidewalk for this purpose will be constructed from the City Park along Center Street to Ash Creek Drive.
- A paved 10' wide trail will be constructed along Ash Creek from the City Park to the Westfield Road Bridge (Riverwalk Trail).

- A paved 10’ wide trail is proposed along Ash Creek to extend the Riverwalk Trail from the Westfield Road Bridge to Confluence Park at the south boundary of the City (Riverwalk Trail South Extension).

- A paved trail will be constructed along existing Old Church Road from Ash Creek Drive to the current west end of Old Church Road (tie to developer funded trail along the Center Street extension).

- A gravel trail along Hunter Lane from Toquer Boulevard (SR-17) to Cholla Drive.

The City is working with the Cholla Estates Homeowner Association to integrate a private existing concrete paved trail along LaVerkin Creek into the City’s trail system (Cholla Trail)

The City is desirous to establish extended trails in undeveloped areas for ATVs, mountain biking, and hiking.

- Blackrock Trail – 5 mile long graded trail from Hunter Lane to Toquer Falls Road.

- Escalante Trail - 3 mile long graded trail north of the City

- Nephi Twist Trail – 3-mile long graded trail from Cholla Drive to Highway 6 east of the City (partially within City limits).

iii. Recommendations

It is recommended that the City work with developers of residential and commercial properties to assure adequate trails are included as part of the development plans. The City should coordinate with WCWCD for establishment of the trail around the proposed Toquer Reservoir to provide connection to the trail along Old Highway 91 and the trail from the Toquerville Parkway.

It is recommended that the City program trail construction as part of capital improvements that are funded by City sources such as impact fees and recreational grants:

- 6’ Sidewalk on Center Street
    - 6’ wide concrete surfaced trail (sidewalk) from Ash Creek Drive to the bridge across Ash Creek, and including the walkway on the side of the bridge.
    - 1,400 lineal feet.
- Riverwalk Trail
    - 10’ wide asphalt surfaced trail along the side of Ash Creek from the Center Street bridge to the Westfield Road bridge, and including the walkway on the side of the bridge.
    - 2,100 lineal feet.

- Blackrock Trail Improvements
    - 10’ wide graded trail from Hunter Lane to Toquerville Falls Road (Spring Drive) east of the City core.
    - 25,000 lineal feet
- Cholla Trail
    - Integrate existing trail along LaVerkin Creek into City system.
    - 2 footbridges
- Riverwalk Trail South Extension
    - 10’ wide asphalt surfaced trail along the south side of Ash Creek from the Westfield Road bridge to Confluence Park.
    - 19,000 lineal feet
- Center Street Trail Improvements
    - 10’ wide asphalt surfaced trail along the side of Center Street from the City Park to the Toquerville Parkway.
    - 3,000 lineal feet.
- Old Highway 91 Frontage Road Trail Improvements
    - 10’ wide asphalt surfaced trail along the side of the east frontage road of 1-15 from Anderson Junction to proposed Toquer Reservoir trail.
    - 9,900 lineal feet.
- Flume Wash Trail Improvements
    - 10’ wide asphalt surfaced trail from Riverside Walk up the Flume Wash to the Toquerville Parkway.
    - 4,200 lineal feet.
- Hunter Lane Trail Improvements
    - 10’ wide gravel surfaced trail along Hunter Lane.
    - 2,700 lineal feet.
- Escalante Trail Improvements
    - 10’ wide graded trail from SR-17 trailhead to Diamond G Lane north of Anderson Junction.
    - 15,000 lineal feet.
- Nephi Twist Trail Improvements
    - 10’ wide graded trail from Cholla Drive to Highway 6 east of City
    - 10,000 lineal feet to City limit

Part VI. 10-Year Capital Project List

A. Water System

- Replace approximately 2,700 feet of existing waterline on Ash Creek Drive in association with roadway reconstruction (Project CW-01).

The existing 8" waterline is several years old and beginning to require repairs. The roadway is proposed to be reconstructed and it is prudent to install a new 10" PVC waterline during construction.

- Install approximately 9,600 feet of 8" waterline to reroute water to Toquerville Heights. (Project CW-02).

The new Toquerville Parkway will require a substantial cut (120' deep) through a narrow ridgeline south of the Toquerville Cemetery. The pipeline running along the ridgeline to the Toquerville Heights area will be severed by the roadway cut. A new pipeline to Toquerville Heights will be routed from the current end of Westfield Road along the road's extension and then along the new Toquerville Parkway into the Ash Creek gorge and extended back up the ridge and to the Toquerville Heights distribution system. The new pipeline may be integrated with a small existing private water system to provide water to development along the creek.

- Install approximately 10,000 feet of 20" and 16" water transmission pipeline from the existing Westfield Tank along the Toquerville Parkway to serve proposed development on the west side of the City. Project will also require construction of a new pump system at the existing tank. (Project CW-04).

New waterline will link to future distribution system waterlines installed by developers in the vicinity of the Toquerville Parkway. Provide pressure controls, based on hydraulic analysis of combined systems.

- Install approximately 1,800 feet of new 10" pipeline along the realigned Old Highway 91 (Project CW-05).

The project would replace the existing 10" pipeline where the Old Highway 91 is removed for the new alignment of the I-15 Exit 27 interchange. The new pipeline would follow the new alignment of Old Highway 91 and provide service to proposed commercial development.

- Extend 8" waterline approximately 1,600 feet on Center Street from existing west end, along Center Street extension and Old Church Road extension, to new Toquerville Parkway (Project CW-08A).

New waterline will link to future distribution system waterlines installed by developers in the vicinity of the Toquerville Parkway. Provide pressure reducing station, based on hydraulic analysis of combined systems.

- Replace approximately 1,400 feet of 6’ pipe with 8” pipe along Center Street from Ash Creek Drive to the Ash Creek Bridge (Project CW-08B).

The existing waterline is 6”. The sidewalk along the roadway is proposed to be constructed and it is prudent to install a new 8” PVC waterline during construction.

- Replace approximately 500 feet of waterline on Pecan Avenue west of Ash Creek Road in association with roadway reconstruction (Project CW-10).

The existing waterline is 6”. The roadway is proposed to be reconstructed and it is prudent to install a new 8” PVC waterline during construction.

- Replace approximately 4,000 feet of existing waterline on Cholla Drive in association with roadway reconstruction (Project CW-13).

The existing waterline installed by developer has numerous deficiencies and has required frequent repairs. The roadway is proposed to be reconstructed and it is prudent to install a new 8” PVC waterline during construction.

- Replace existing Springs Tank with new 500,000 gallon buried concrete tank (Project CW-23).

Existing tank is approximately 50 years old and is deteriorating. Repairs have been previously been made to several cracks, and there is currently some leakage from the tank.

- Construct a new 2,000,000 gallon water tank in the area north of proposed subdivision developments in the western area of the City (Project CW-24).

The new water tank will be located at an elevation to provide pressure and shorter distribution pipelines to the proposed subdivisions. (Note: This tank will be funded primarily by the developer, with partial funding from the City)

- Replace approximately 350 feet of waterlines on Pecan Avenue east of Toquer Boulevard in association with roadway reconstruction (Project CW-25).

The existing waterline is 2”. The roadway is proposed to be reconstructed and it is prudent to install a new 4” PVC waterline during construction (3 connections).

- Replace approximately 1,400 feet of existing waterline on Mountain Charm Road in association with roadway reconstruction (Project CW-27).

The existing waterline installed by developer has numerous deficiencies and has required frequent repairs. The roadway is proposed to be reconstructed and it is prudent to install a new

8” PVC waterline during construction. Project will include a segment to loop to the waterline on Peachtree Drive.

- Construct approximately 7,000 feet of new 8” distribution piping in proposed commercial development on the west side of the I-15 Exist interchange (Project CW-31).

Proposed commercial development will establish potential for several travel related business, and connect to existing frontage roads on west side of I-15.

B. Streets and Storm Drainage

1. Reconstruct Ash Creek Drive (Project ST-01).

   Ash Creek Drive pavement is deteriorating and requires considerable maintenance (crack sealing). Surface width is only 28’. The road has only side ditches for drainage between intersections. Reconstruction will be to Collector Standard with 45’ surfacing, curb/gutters, and sidewalks.

2. Extend storm drain on Ash Creek Drive (Project SD-01).

   Storm drain will be extended from the end of the existing storm drain to Old Church Road. Inlet boxes will be constructed for new curb/gutter. Existing inlets will be modified as needed to conform to new curb/gutter (Phase A).

   Storm drain and inlet boxes will be constructed from existing storm drain in Center Street to Westfield Road in conjunction with reconstruction of the roadway. Inlet boxes will be constructed for new curb/gutter (Phase B).

3. Extend South Westfield Road to Toquerville Parkway (Project ST-03).

   South Westfield Road will connect the southern residential area of the City to the proposed Toquerville Parkway. The roadway will be extended from its current south end approximately 2,000 feet to the Toquerville Parkway using a Collector Road Standard.

   Construct pedestrian bridge on south side of existing bridge across Ash Creek.

4. Realign Old Highway 91 at Anderson Junction (Project ST-05).

   Existing intersection with SR-17 is close to the Interstate off ramp and is unsafe. Increased traffic will occur at this intersection with completion of the proposed Toquer Reservoir. Realignment will move the intersection approximately 1,000 feet east to a safer location.

5. Realign Anderson Junction Road / 7 C's Lane at Anderson Junction (Project ST-06).

   Existing intersection with SR-17 is close to the Interstate off ramp and is unsafe. Realignment will combine the Anderson Junction Road and 7 C's Lane to move the intersection approximately 1,000 feet east to a safer location.

6. Construct storm drain on west Old Church Road (Project SD-07).

   New drain pipe and inlet boxes will be installed from Ash Creek to the current west end of Old Church Road. This storm drain will be extended westerly in the future with new roadway construction to the proposed Toquerville Parkway, and provide storm water drainage to proposed developments in the west area of the City. Design of this storm drain should consider the extended service area it will serve in the future.

7. Extend Center Street Road (Project ST-08).

   Existing Center Street will become a major collector road to connect the proposed Toquerville Parkway with the center of the City. The roadway will be extended from its current west end approximately 3,000 feet to its connection to the Toquerville Parkway using a Major Collector Road standard, and will include major drainage provisions.

8. Replace Storm Drain on Center Street (Project SD-08).

   Replace existing drain pipe from Ash Creek to Toquer Boulevard. Tie in new drain pipes at Toquer Boulevard and at Ash Creek Drive. Install erosion control for outlet to Ash Creek.

9. Extend Sunset Drive to Toquerville Parkway (Project ST-09).

   Sunset Drive will connect the west side residential area of the City to the proposed Toquerville Parkway. The roadway will be extended from its current west end approximately 2,500 feet to the Toquerville Parkway using a Collector Road Standard.

10. Reconstruct the West segment of Pecan Avenue (Project ST-10).

    Existing street is gravel surfaced only. Reconstruction will provide paved surface, combination curb/gutter and sidewalks.

11. Construct storm drain on Cotton Gin Avenue (Project SD-11).

    A new inlet structure will be constructed in the drainage channel above the existing tank site and new pipe installed to connect with the end of the existing drain pipe on Cotton Gin Avenue.

12. Construct turning lane on SR-17 for Cholla Drive (Project ST-12).

    Existing intersection has no provision for traffic to pass vehicles turning left from SR-17 onto Cholla Drive. SR-17 is relatively high speed and traffic must now stop behind left turning vehicles. Sight distance to intersection on SR-17 is limited.

13. Reconstruct Cholla Drive and adjacent cul-de-sac streets (Project ST-13).

    Much of the existing pavement structure is deteriorated and the surfacing does not drain to curb/gutter system. Reconstruction will provide new pavement and replace existing curb/gutter. Minor drainage improvements will be provided.

14. Construct storm drain on Staghorn Drive and west Cholla Drive (Project SD-13).

    New storm drain and inlet boxes will be constructed on Staghorn Street and the lower west end of Cholla Drive with an outlet along Chella Circle to LaVerkin Creek.

15. Construct storm drains system in Toquerville Heights (Project SD-14).

    New storm drain and inlet boxes will be constructed on Chaparell Drive, Rim View Drive, and Shangrila Drive with an outlet extended under SR-17 to LaVerkin Creek.

16. Widen Old Church Road – Ash Creek Drive to current west end (Project ST-15A).

    Existing Old Church Road has a pavement width of 24 feet or less. The roadway will be widened to Residential Road Standard from the bridge across Ash Creek to the west end. Existing residences limit width from the bridge to Ash Creek Drive, but the pavement will be widened as much as practicable, depending on existing conditions, and parking restrictions applied.

17. Structural upgrade on Old Church Bridge (Project ST-15B)

    The bridge has a 23 foot clear span and a roadway width of 22 feet. The bridge is in fair condition and load rated for 20 Tons maximum. Work will include addition of steel beams and a new deck and parapets.

18. Construct storm drain on Old Church Road (Project SD-15).

    Storm drain and inlet boxes will be constructed from Ash Creek to Ash Creek Drive in conjunction with reconstruction of the roadway.

19. Reconstruct the East segment of Pecan Avenue (Project ST-25).

    Existing street has a single paved lane in poor condition, and has poor drainage. Reconstruction will provide a wider paved surface and drainage improvements.

20. Reconstruct South Ash Creek Drive, Berry Avenue, Pioneer Road, & Brainard Circle (Ash Creek Point) (Project ST-26).

    Much of the existing pavement structure is deteriorated. Reconstruction will provide new pavement section and minor drainage improvements

21. Reconstruct Mountain Charm Road (Project ST-27).

    Much of the existing pavement structure is deteriorated. Reconstruction will provide new pavement section.

22. Construct storm drain from Mountain Charm Road to Ash Creek (Project SD-27).

    New inlet box will be constructed in the cul-de-sac and drain pipe extended across private property to Ash Creek. A head wall will be constructed at the outlet.

23. Construct storm drains from Peachtree Drive to Ash Creek (Project SD-28).

    New inlet box will be constructed in the north cul-de-sac and drain pipe extended across private property to Ash Creek. A head wall will be constructed at the outlet (Phase A).

    New storm drain and inlet boxes will be constructed along Peachtree Drive from Peachtree Circle to Ash Creek. A head wall will be constructed at the outlet (Phase B).

    New inlet box will be constructed at the east end of Grassy Lane and drain pipe extended to Ash Creek. A head wall will be constructed at the outlet (Phase C).

24. Construct storm drain on North Toquer Boulevard (Project SD-29).

    New storm drain pipe and inlet boxes will be constructed along the highway from Creekside Drive to Westfield Road. The new piping will connect to the existing storm drain on Center Street.

25. Construct storm drain on South Toquer Boulevard, SR-17 (Project SD-30).

    New inlet boxes will be constructed on the shoulders of the highway near the intersection with Hunter Lane and drain pipe extended across private property to Ash Creek. A head wall will be constructed at the outlet (Phase A).

    Storm drain pipe and inlet boxes will be constructed along the highway from Hunter Lane to Diamond G Lane, the drain pipe will be extended across private property to Ash Creek. A head wall will be constructed at the outlet (Phase B).

    Storm drain pipe and inlet boxes will be constructed along the south portion of the highway and the drain pipe routed to LaVerkin Creek. A headwall will be constructed at the outlet (Phase C).

26. West Anderson Junction Roads (Project ST-31).

    Construct approximately 7,000 feet of new roadway to Collector Road Standard, excluding sidewalk in proposed commercial development on the west side of the I-15 Exist interchange.

C. Parks and Trails

1. Construct improvements at City Center Park (Project PK-16).

   The City has recently made improvements to the bleacher area at the ball diamond. Programmed improvements include an amphitheater/stage house and other amenities that can be constructed as funding becomes available.

2. Construct improvements at Trail Ridge Park (Project PK-17).

   Programmed improvements include a large pavilion, dog park, enlarged soccer field, and site beautification.

3. Construct improvements at Westfield Park (Project PK-18).

   Programmed improvements include a small pavilion, restrooms, playground, parking area, and site beautification.

4. Construct improvements at Toquerville Heights Park (Project PK-19).

   Programmed improvements include a small pavilion, restrooms, playground, parking area, and site beautification.

5. Install pedestrian walkway on side of Center Street Bridge (Project TR-08A).

   Widen travel way to 32' by moving the existing walkway to the north side of the existing parapet. Existing pedestrian walkway is located next to travel way, and is dangerous. Relocated walkway will be protected behind existing parapet. Center Street is programmed as a future Collector Road to tie to the Toquerville Parkway, and traffic will increase significantly. Existing bridge has 28' travel way and is inadequate for future traffic load.

6. Construct concrete sidewalk along Center Street (Project TR-08B).

   Programmed trail is a 6' wide concrete sidewalk extending 1,400 feet along Center Street from Ash Creek Bridge to Ash Creek Drive.

7. Construct Riverwalk Trail (Project TR-20A).

   Programmed trail is a 10' wide paved trail extending approximately 0.4 miles along Ash Creek from the Center Street bridge to the Westfield Road bridge.

8. Install pedestrian walkway on side of Westfield Road Bridge (Project TR-20B).

   Widen travel way to 32' by moving the existing walkway to south side of existing parapet. Existing pedestrian walkway is only delineated next to travel way, and is dangerous. Relocated walkway will be protected behind existing parapet. Westfield Road is programmed as a future Collector Road to tie to the Toquerville Parkway, and traffic volumes will increase significantly. Existing bridge has 28' travel way and is inadequate for future traffic load.

9. Construct Blackrock Trail Improvements (Project TR-21).

   Programmed trail is a 10' wide graded mountain biking and hiking trail extending approximately 5.0 miles from Hunter Lane to Toquerville Falls road (Spring Drive) in the eastern area of the City.

10. Construct Cholla Trail (Project TR-22).

    City is negotiating to take ownership of an existing private trail and integrate it into the City trails system. Programmed improvements include two footbridges across LaVerkin Creek and repairs and improvements along existing trail.

11. Construct improvements at Anderson Junction Neighborhood Park (Project PK-32).

    Programmed improvements include a small pavilion, restrooms, playground, parking area, and site beautification (Note: This park will be funded primarily by the developer, with partial funding from the City).

12. Construct improvements at North Regional Sports Park (Project PK-33).

    Programmed improvements include multiple baseball diamonds, softball diamonds, soccer fields, and other sports fields with supporting parking lots, restroom and concession buildings, pathways, and spectator bleachers. (Note: This park will be funded through area governmental recreational entities, with limited participation from Toquerville City).

13. Construct improvements at South Regional Sports Park (Project PK-34).

    Programmed improvements include large area sport facilities with supporting parking lot, restroom and concession building, and pathways. (Note: This park will be funded through area governmental recreational entities, with limited participation from Toquerville City).

14. Construct Riverwalk Trail South Extension (Project TR-35).

    Programmed trail is a 10' wide paved trail extending approximately 3.6 miles along Ash Creek from the Westfield Road bridge to Confluence Park.

15. Construct paved trail along Old Church Road (Project TR-36).

    Programmed trail is a 10' wide paved trail extending approximately 0.35 miles along Old Church Road from Ash Creek Drive to the current end of the roadway.

16. Construct paved trail along Old Highway 91 (I-15 Frontage Road) (Project TR-37).

    Programmed trail is a 10’ wide paved trail extending approximately 1.8 miles along Old Highway 91 from Anderson Junction to the south City Boundary and tying to the future trail around Toquer Reservoir.

17. Construct gravel trail along Hunter Lane (Project TR-38).

    Programmed trail is a 10’ wide gravel trail extending approximately 0.5 miles along Hunter Lane from SR-17 to Cholla Drive.

18. Construct Escalante Trail Improvements (Project TR-39).

    Programmed trail is a 10’ wide graded mountain biking and hiking trail extending approximately 3.0 miles from SR-17 to Diamond G Lane in the northern area of the City.

19. Construct Nephi Twist Trail Improvements (Project TR-40).

    Programmed trail is a 10’ wide graded mountain biking and hiking trail extending approximately 2.0 miles from Cholla Drive to the east City Limit near Highway 6 in the southeastern area of the City.

20. Construct Flume Wash Trail (Project TR-41).

    Programmed trail is a 10’ wide paved trail from the Riverwalk Trail at Ash Creek and extending west approximately 0.8 miles up the Flume Wash to the Toquerville Parkway Trail.

D. Cost Estimates

1. Table 13 groups the proposed capital improvements into 36 projects and shows the estimated cost of each project and its components. Cost breakdown for each project component is contained in Appendix B.

2. Table 14 groups the proposed capital improvements by type and shows the estimated cost by improvement type.

Appendix A Figures

1A. Culinary Water System – Anderson Junction

1B. Culinary Water System – Main System North

1C. Culinary Water System – Main System South

1D. Culinary Water System – Water Network Analysis

2A. Roads and Bridges – City North

2B. Roads and Bridges – City South

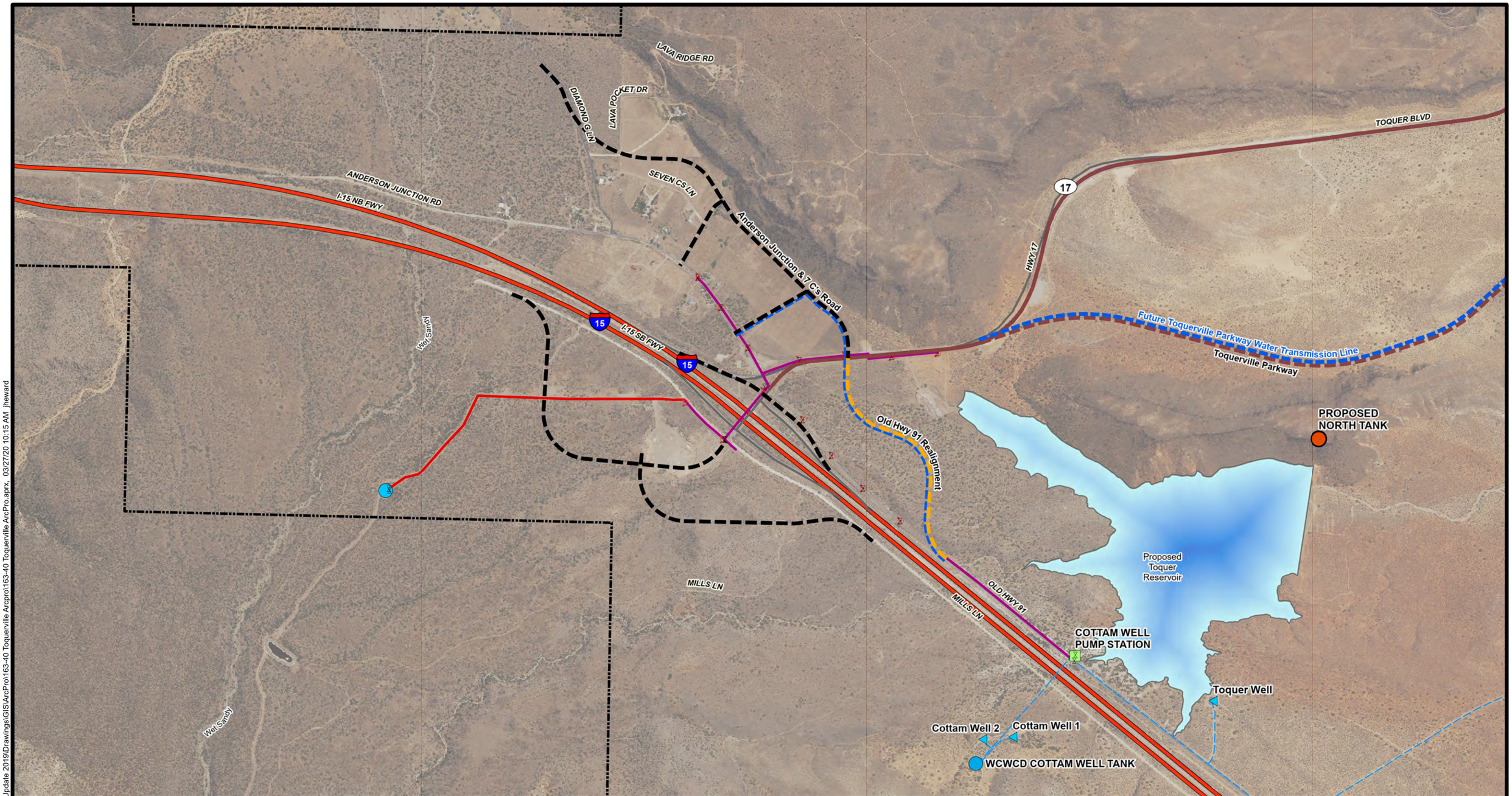
2C. Storm Drains

3. Trails and Parks

4. Toquerville City Park

5. Trail Ridge Park

6. Westfield Park



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Feet

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- Pressure Reducing Valve
- Culinary Water Valve
- Culinary Water Tank
- Proposed Culinary Water Tank
- Culinary Water Meter
- Fire Hydrant
- Pump Station
- Water Lateral
- Municipal Boundary
- Future Water Transmission Line

Existing Culinary Line

- Unknown Pipe Size
- 4" Pipe
- 6" Pipe
- 8" Pipe
- 10" Pipe
- 12" Pipe
- WCWCD Pipe
- Proposed Waterline
- Existing Arterial Road
- Future Arterial Road
- Existing Collector Road
- Future Collector Road
- Future Local Road

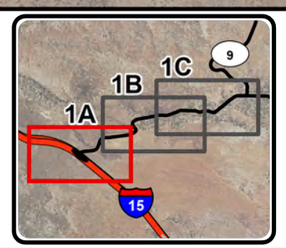

Figure 1A

Culinary Water System Exhibit

Toquerville, Utah

Spatial Reference:	Utah State Plane NAD 83, feet
Drawn By:	JRH
Scale:	1" = 1,000 feet
Date:	March 2020

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Culinary Water System Exhibit

Toquerville, Utah

Spatial Reference:	Utah State Plane NAD 83, feet
Drawn By:	JRH
Scale:	1" = 1,000 feet
Date:	March 2020

Figure 1B

Culinary Water System Exhibit

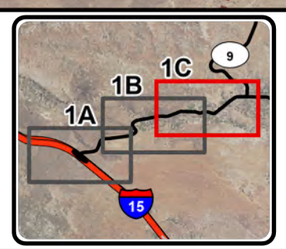
Toquerville, Utah

Spatial Reference:	Utah State Plane NAD 83, feet
Drawn By:	JRH
Scale:	1" = 1,000 feet
Date:	March 2020

Figure 1C

0 500 1,000 2,000
Feet

Pressure Reducing Valve
Culinary Water Valve
Culinary Water Tank
Proposed Culinary Water Tank
Culinary Water Meter
Fire Hydrant
Pump Station
Water Lateral
Municipal Boundary
Future Water Transmission Line
Existing Culinary Line
Unknown Pipe Size
4" Pipe
6" Pipe
8" Pipe
10" Pipe
12" Pipe
WCWCD Pipe
Proposed Waterline
Existing Arterial Road
Future Arterial Road
Existing Collector Road
Future Collector Road
Future Local Road



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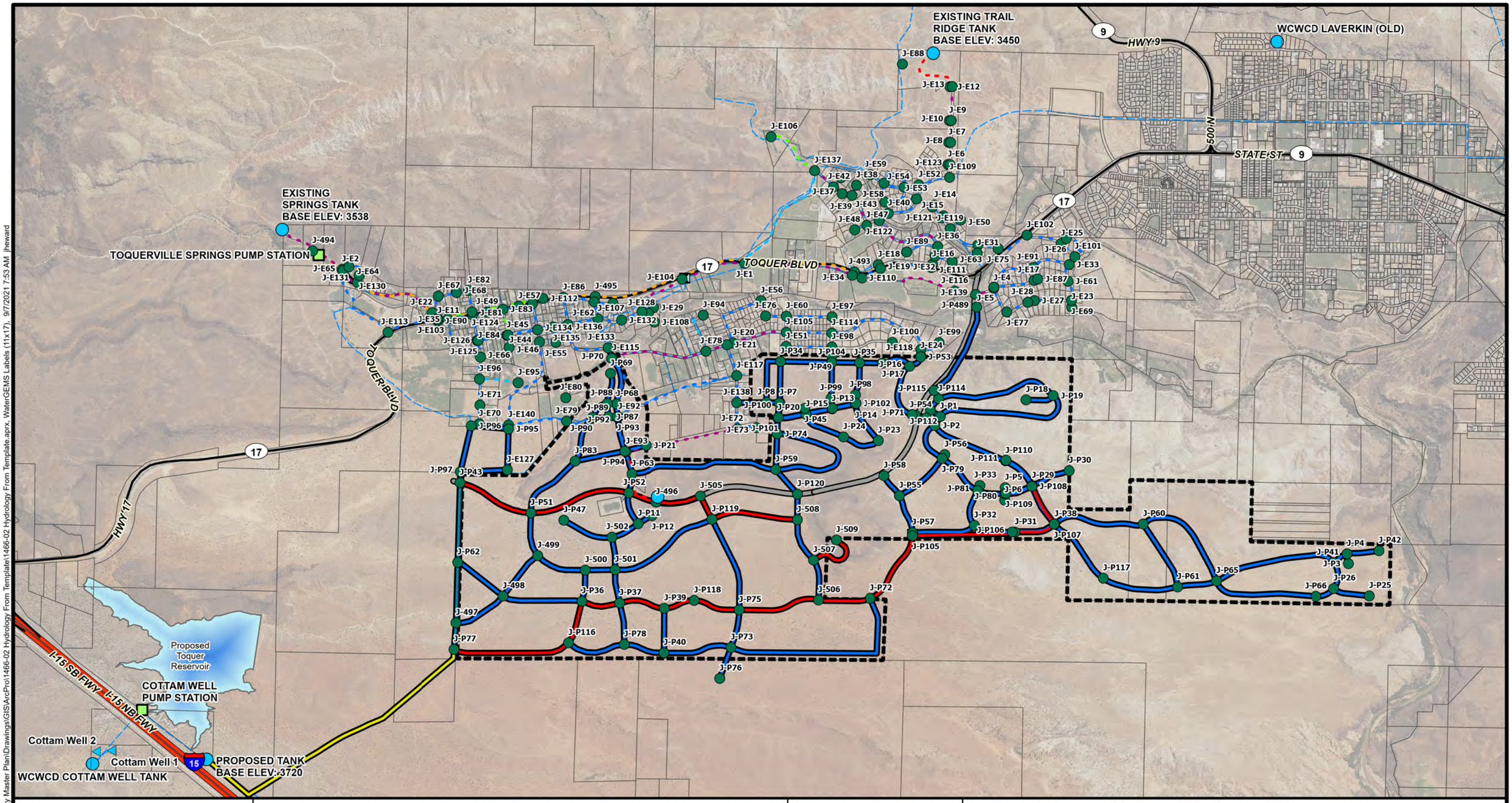

0 1,000 2,000 4,000
Feet

Legend

Modeled WaterGEMS Pipe
- 4, EXISTING
- 6, EXISTING
- 8, EXISTING
- 10, EXISTING
- 12, EXISTING
- 24, EXISTING
- 8, PROPOSED
- 10, PROPOSED
- 12, PROPOSED
- 16, PROPOSED
- 20, PROPOSED
- Updated Toq Parkway
- Development Boundary
- WaterGEMS Junctions
- Existing Pump Station
- Pressure Reducing Valve
- Culinary Water Tank
- Washington County Parcels
- Anderson Junction Res

WCWCD
- Wells
- WCWCD Pipe

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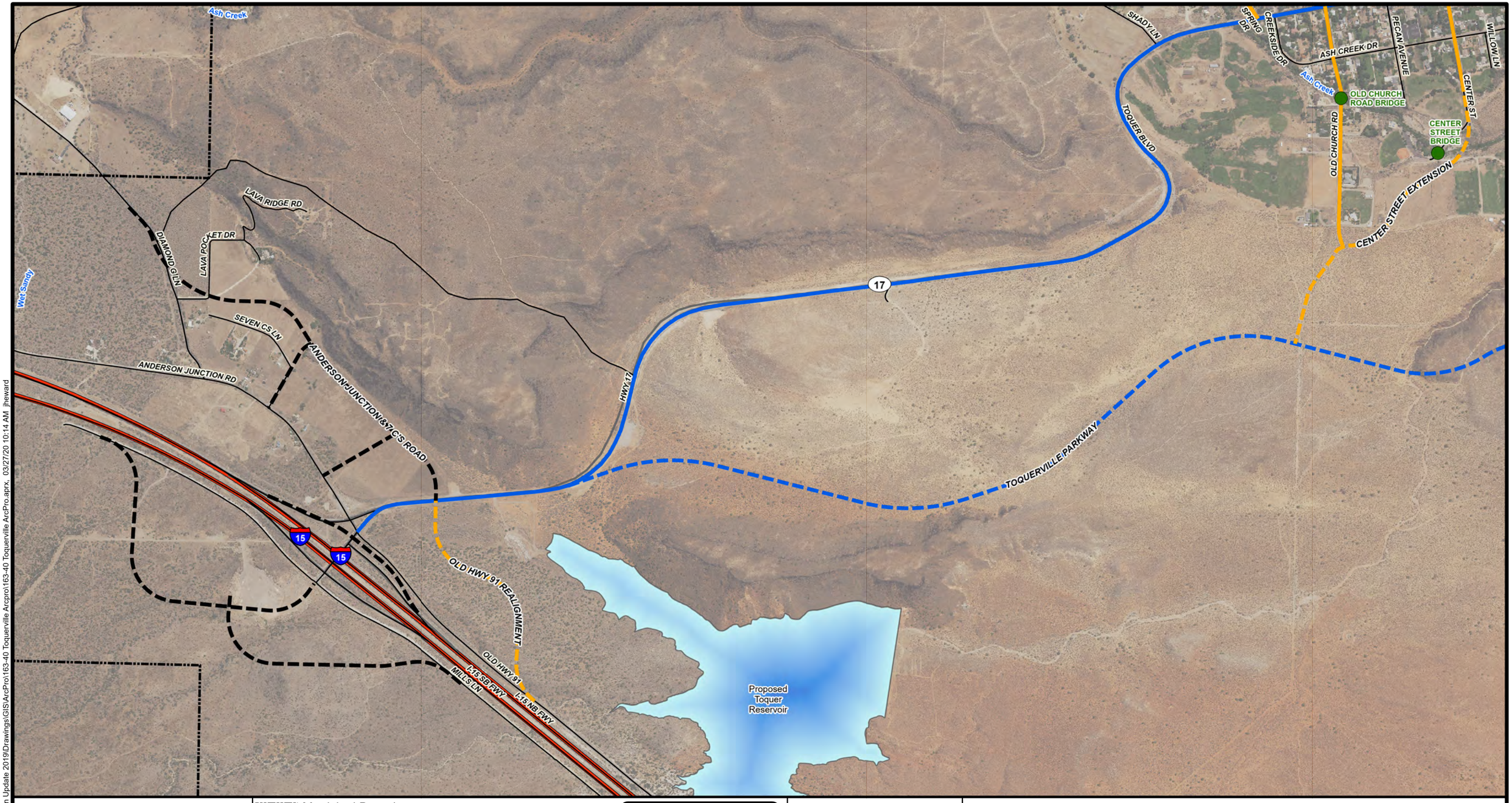
Figure 1D

Water Network Analysis Exhibit

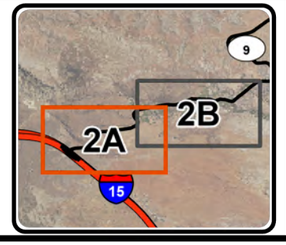
Toquerville, Utah

Spatial Reference:	Utah State Plane NAD 83, feet
Drawn By:	JRH, TLS
Scale:	1" = 2,000 feet
Date:	July 2020



0 500 1,000 2,000
Feet

Municipal Boundary
Roads
Existing Bridge
Existing Arterial Road
Future Arterial Road
Existing Collector Road
Future Collector Road
Future Local Road



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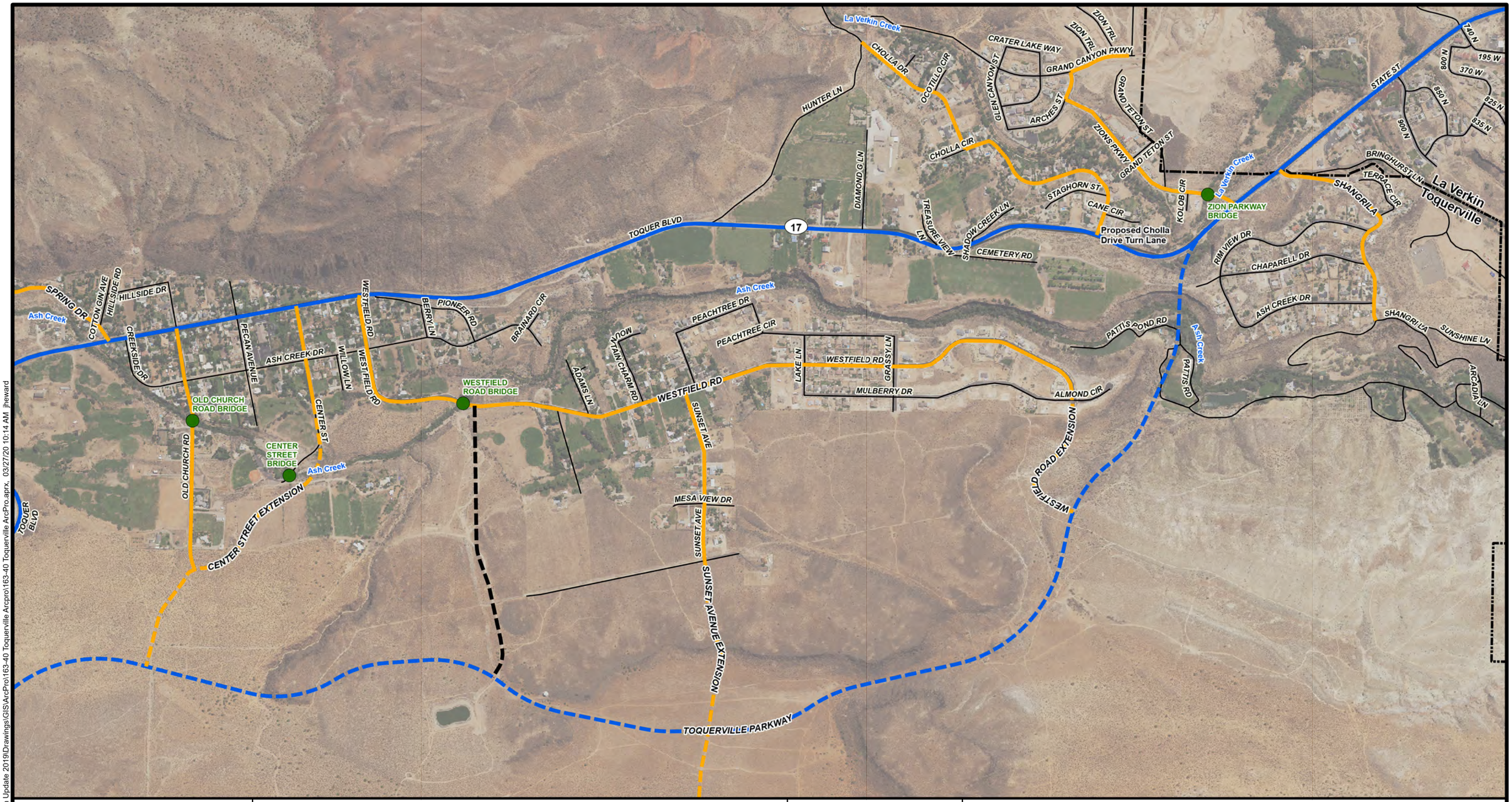
Roads and Bridges Exhibit

Toquerville, Utah

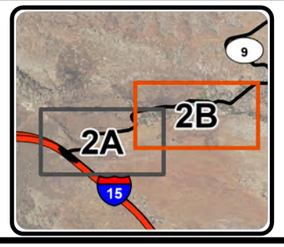
Spatial Reference:	Utah State Plane NAD 83, feet
Drawn By:	JRH
Scale:	1" = 1,000 feet
Date:	March 2020

Figure 2A



0 500 1,000 2,000
Feet

- Municipal Boundary
- Roads
- Existing Bridge
- Existing Arterial Road
- Future Arterial Road
- Existing Collector Road
- Future Collector Road
- Future Local Road



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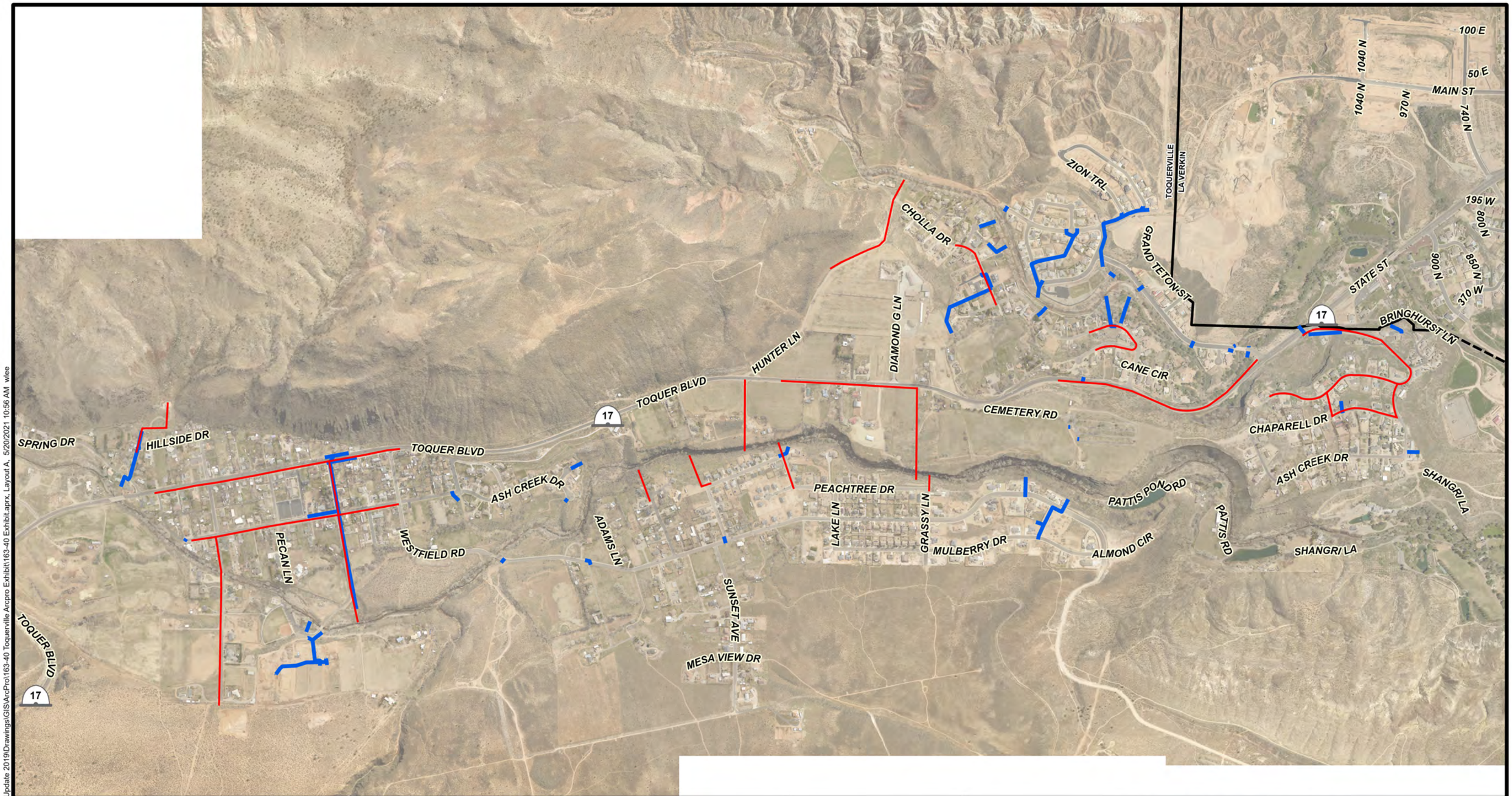
Roads and Bridges Exhibit

Toquerville, Utah

Spatial Reference:	Utah State Plane NAD 83, feet
Drawn By:	JRH
Scale:	1" = 1,000 feet
Date:	March 2020

Figure 2B



0 500 1,000 2,000
Feet

Legend

- Existing Storm Drain
- Proposed Storm Drain

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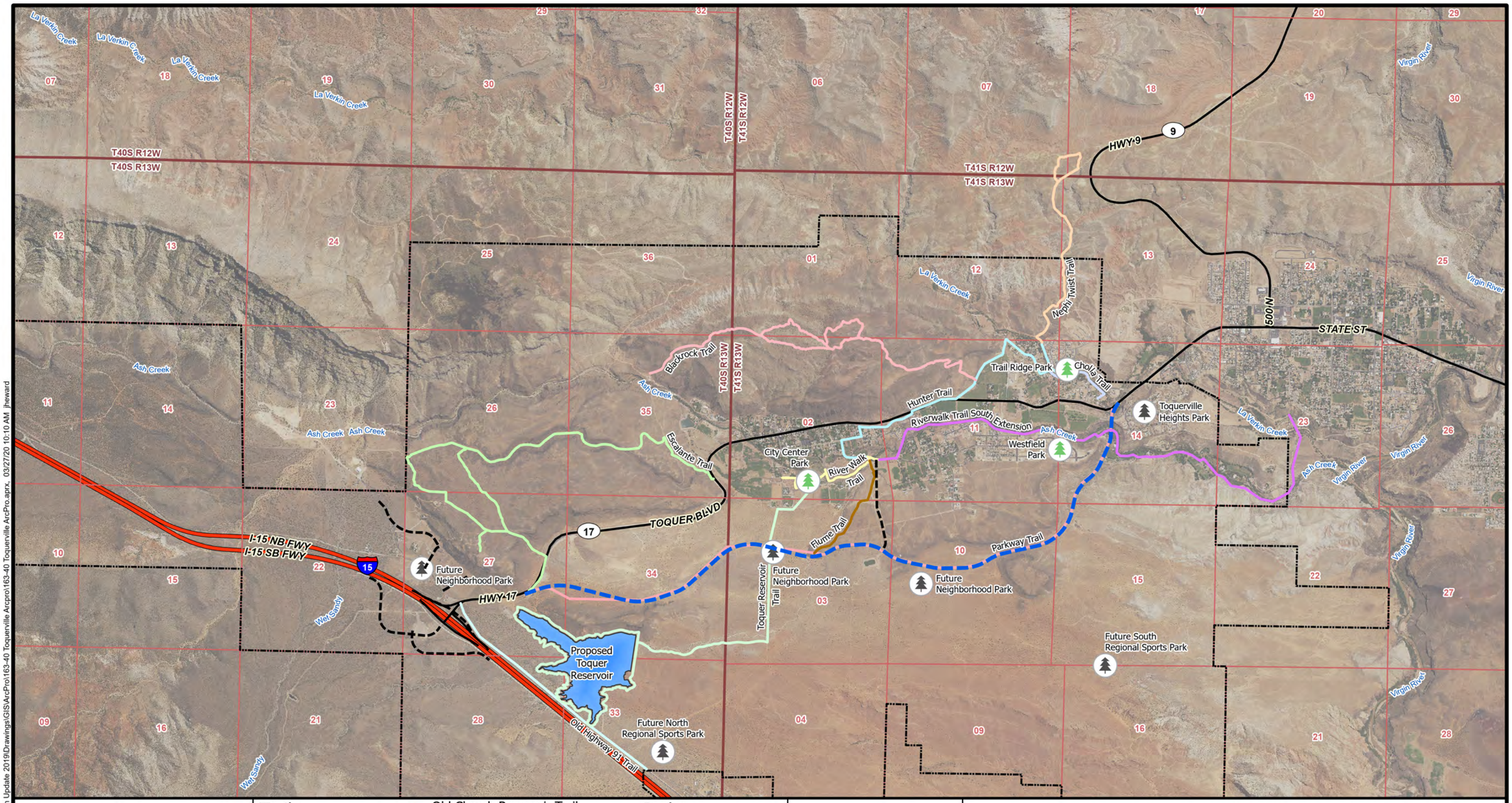
Figure 2C

Storm Drain Exhibit

Toquerville, Utah

Spatial Reference:	Utah State Plane NAD 83, feet
Drawn By:	CWL
Scale:	1" = 1,000 feet
Date:	May19, 2021



0 1,500 3,000 6,000
Feet

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Trails

- Blackrock Trail
- Bypass Trail
- Cholla Trail
- Escalante Trail
- Hunter Trail
- Nephi Twist Trail
- Old Church Reservoir Trail
- Old Highway 91 Trail
- River Walk Trail
- Riverwalk Trail South Extension
- Flume Trail
- Parkway Trail
- Toquer Reservoir Trail

Parks

- Existing
- Future
- Municipal Boundary
- Townships
- Sections

Figure 3

Trails & Parks Exhibit

Toquerville, Utah

Spatial Reference:	NAD 1983 StatePlane Utah South FIPS 4303 Feet
Drawn By:	JRH
Scale:	1" = 3,000 feet
Date:	March 2020

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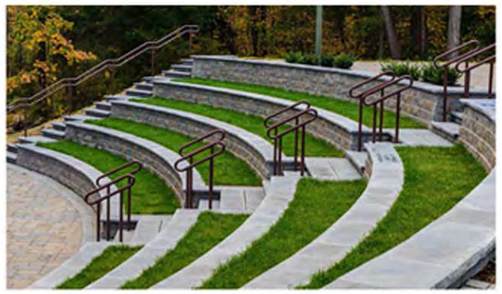
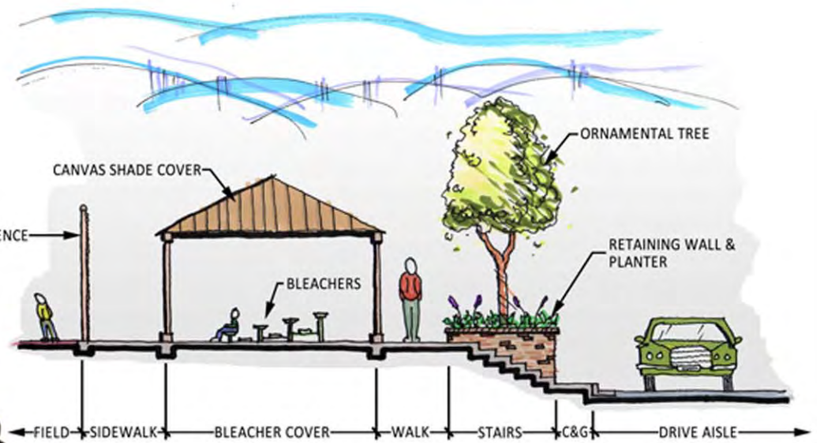
TOQUERVILLE CITY PARK

Toquerville, Utah

CONCEPT MASTER PLAN



Amphitheater - CONCEPT IMAGE



Bleacher Pad and Driveway - SECTION VIEW

NOT TO SCALE

Toquerville City Park - PLAN VIEW

Scale: 1"=40'-0"

0' 20' 40' 80'

Prepared By:

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fax (208) 237-2260
JLandDesign@cableone.net

TRAIL RIDGE PARK

Toquerville, Utah

CONCEPT MASTER PLAN

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NEW BRIDGE
PARK SIGN FEATURE LANDSCAPED
NEW FULL-COURT BASKETBALL
TRAIL RIDGE ESTATES SUBDIVISION
EXISTING PARKING LOT
NEW PAVILION
DECORATIVE ROCK MULCH BANDING (2 TYPES) ON SLOPE
NEW STAIRWAY
EXISTING TREES
GRASS
ARCHES STREET
EXISTING DETENTION POND TO BE LANDSCAPED
LA VERKIN CREEK
SIDEWALK (TYP.)
NEW SOCCER FIELD (60 YDS. X 100 YDS.)
NEW RESTROOMS
BENCH
NEW DOG PARK
ZIONS PARKWAY
TEE-BALL #1
TEE-BALL #2
PAVILION FOUNTAIN
NEW PLAYGROUND
NEW PICKLE BALL COURTS
PICNIC TABLES & STREAM ACCESS
BLEACHER PAD
REVISED TRAIL ALIGNMENT
LA VERKIN CREEK

Trail Ridge Park - PLAN VIEW

Scale: 1”=30’-0”

WESTFIELD PARK

Toquerville, Utah

CONCEPT MASTER PLAN

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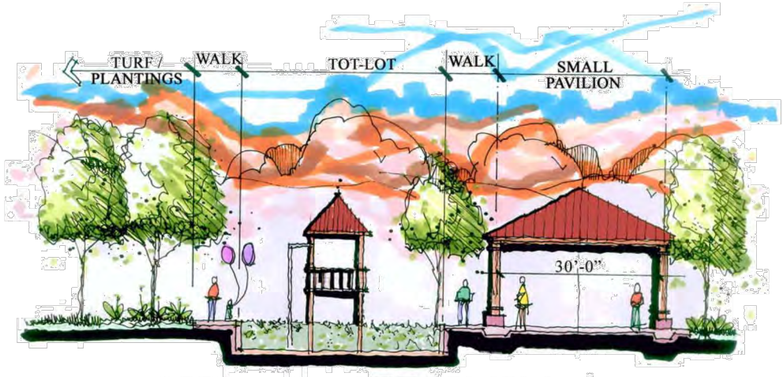
Westfield Park - PLAN VIEW
Scale: 1"=20'-0"

0' 10' 20' 40'



Section View at Playground

Not to Scale

Playground

Arbor Structure

Restroom

Pavilion

Concept Images:

Appendix B

Project Cost Estimates

Toquerville City

Table 13: 10-Year Capital Projects List

PROJECT	DESCRIPTION	CONSTRUCTION	CONTINGENCY	ENGINEERING	TOTAL
1 - 5 YEAR HORIZON					
Project 01 -- Ash Creek Drive					
CW-01	Replace 2,700 feet of existing 8" pipe including valves, hydrants, and appurtenances	$186,600	$18,660	$34,894	$240,154
ST-01	Reconstruct roadway to Collector Road standard with pavement, curb/gutter, and 6' sidewalk	$730,425	$73,043	$136,589	$940,057
SD-01A	Extend storm drain from Old Church Road to Center Street with inlet boxes and add modifications of existing inlet boxes	$98,600	$9,860	$18,438	$126,898
SD-01B	Install storm drain from Westfield Road to Center Street	$58,900	$5,890	$11,014	$75,804
				Project Total	**$1,382,914**
Project 02 -- Toquerville Heights Waterline Loop					
CW-02	Install 9,600 feet of new 8" waterline from end of Westfield Road, along Toquerville Parkway and Ash Creek, to west end of Shangrila Drive. Abandon existing pipeline along ridgeline.	$491,700	$49,170	$91,948	$632,818
				Project Total	**$632,818**
Project 03 -- Westfield Road					
ST-03A	Extend roadway 2,000 feet from existing south end to Toquerville Parkway using Collector Road Standard	$585,700	$58,570	$109,526	$753,796
ST-03B	Construct pedestrian birdge on south side of existing bridge across Ash Creek	$149,300	$14,930	$27,919	$192,149
				Project Total	**$945,945**
Project 04 -- Toquerville West Off-Site Water Transmission Pipeline					
CW-04A	Install 5,400 feet of 20" pipe along Toquerville Parkway from Old Church Road to new water tank (CW-24)	$839,000	$83,900	$156,893	$1,079,793
CW-04B	Install 4,600 feet of 16" pipe along the Toquerville Parkway from Westfield Tank to Old Church Road	$551,200	$55,120	$103,074	$709,394
CW-04C	Construct new pump station at Westfield Tank	$381,600	$38,160	$71,359	$491,119
				Project Total	**$2,280,307**
Project 05 – Old Highway 91					
CW-05	Install 1,800 feet of 10" pipe along realigned roadway. Abandon existing pipe along demolished alignment.	$106,000	$10,600	$19,822	$136,422
ST-05	Realign Old Highway 91 at Anderson Junction to move intersection with SR-17 1,000 feet east. Demolish old alignment.	$276,200	$27,620	$51,649	$355,469
				Project Total	**$491,891**
Project 06 – Anderson Junction Road & 7 C's Road					
ST-06	Realign Anderson Junction Road and 7 C's Road at Anderson Junction to move intersection with SR-17 1,000 feet east. Demolish old alignment.	$336,100	$33,610	$62,851	$432,561
				Project Total	**$432,561**
Project 07 -- Old Church Road Storm Drain					
SD-07	Install storm drain from current west end of Old Church Road to Ash Creek	$137,000	$13,700	$25,619	$176,319
				Project Total	**$176,319**
Project 08 -- Center Street Waterlines, Road, Bridge, Storm Drain, Sidewalk Project					
CW-08A	Install 1,600 feet of 8" pipe along Center Street extension from Old Church Road intersection to Toquerville Parkway	$87,500	$8,750	$16,363	$112,613
CW-08B	Replace 1,400 feet of 8" pipe along existing Center Street from Ash Creek Drive to Ash Creek Bridge	$81,100	$8,110	$15,166	$104,376
ST-08	Extend roadway 3,000 feet from existing west end to Toquerville Parkway using Major Collector Road Standard	$957,500	$95,750	$179,053	$1,232,303
SD-08	Replace storm drain from Toquerville Boulevard to Ash Creek	$163,300	$16,330	$30,537	$210,167
TR-08A	Add pedestrian walkway to north side of bridge parapet	$50,100	$5,010	$9,369	$64,479
TR-08B	Construct 6' wide sidewalk improvements for 1,400 feet along the Center Street	$86,300	$8,630	$16,138	$111,068
				Project Total	**$1,835,005**
Project 09 -- Sunset Drive					
ST-09	Extend roadway 2,500 feet from existing west end to Toquerville Parkway using Collector Road Standard	$704,275	$70,428	$131,699	$906,402
				Project Total	**$906,402**
Project 10 -- West Pecan Avenue					
CW-10	Replace existing waterline with 8" pipe including valves and fire hydrant	$29,700	$2,970	$5,554	$38,224
ST-10	Reconstruct roadway to Residential Standard with curb/gutter. Sidewalk on north side only	$99,700	$9,970	$18,644	$128,314
				Project Total	**$166,538**
Project 11 -- Cotton Gin Avenue Storm Drain					
SD-11	Construct new inlet structure and drain pipe from above existing tank to inlet of existing drain pipe	$54,350	$5,435	$10,163	$69,948
				Project Total	**$69,948**

Project 12 – Cholla Drive Turn Lane (SR-17)					
ST-12	Construct left turn lane (SB SR-17) and right turn lane (NB SR-17) onto Cholla Drive	$554,241	$55,424	$103,643	$713,308
				Project Total	**$713,308**
Project 13 – Cholla Estates					
CW-13	Replace existing waterlines with 8" pipe including valves and fire hydrants on Cholla Drive and adjacent cul-de-sac streets	$315,400	$31,540	$58,980	$405,920
ST-13A	Cholla Drive - Reconstruct existing pavement structure and curb/gutter. Minor drainage improvements	$533,900	$53,390	$99,839	$687,129
ST-13B	Cane Circle - Reconstruct existing pavement structure and curb/gutter. Minor drainage improvements	$67,720	$6,772	$12,664	$87,156
ST-13C	Staghorn Street - Reconstruct existing pavement structure and curb/gutter. Minor drainage improvements	$128,300	$12,830	$23,992	$165,122
ST-13D	Cholla Circle - Reconstruct existing pavement structure and curb/gutter. Minor drainage improvements	$51,680	$5,168	$9,664	$66,512
ST-13E	Ocotillo Circle - Reconstruct existing pavement structure and curb/gutter. Minor drainage improvements	$47,480	$4,748	$8,879	$61,107
ST-13F	Ramose Circle - Reconstruct existing pavement structure and curb/gutter. Minor drainage improvements	$47,340	$4,734	$8,853	$60,927
SD-13	Install storm drain on Staghorn Street, Cholla Drive, and Chella Drive to LaVerkin Creek	$168,600	$16,860	$31,528	$216,988
				Project Total	**$1,750,861**
Project 14 -- Shagrila Drive/Rim View Drive/Chaparell Drive Storm Drain					
SD-14A	Install storm drain on Chaparelle Drive	$88,300	$8,830	$16,512	$113,642
SD-14B	Install storm drain on Rim View Drive	$160,100	$16,010	$29,939	$206,049
SD-14C	Install storm drain on Shangrila Drive	$236,000	$23,600	$44,132	$303,732
				Project Total	**$623,423**
Project 15 – Old Church Road					
ST-15A	Widen existing roadway from Ash Creek Drive to existing west end to Residential Road Standard	$362,840	$36,284	$67,851	$466,975
ST-15B	Structural upgrade on Ash Creek Bridge	$185,000	$18,500	$34,595	$238,095
SD-15	Install storm drain from below Ash Creek Drive to Ash Creek	$40,500	$4,050	$7,574	$52,124
				Project Total	**$757,194**
Project 16 – City Center Park					
PK-16A	City Center Park West Side Improvements	$196,100	$19,610	$36,671	$252,381
PK-16B	City Center Park East Side Improvements	$1,219,000	$121,900	$227,953	$1,568,853
				Project Total	**$1,821,234**
Project 17 – Trail Ridge Park					
PK-17	Construct site improvements for 4.23 acres to include infrastructure and amenities	$429,300	$42,930	$80,279	$552,509
				Project Total	**$552,509**
Project 18 – Westfield Park					
PK-18	Construct site improvements for .07 acres to include infrastructure and amenities	$318,000	$31,800	$59,466	$409,266
				Project Total	**$409,266**
Project 19 – Toquerville Heights Park					
PK-19	Construct site improvements for 0.5 acre to include infrastructure and amenities	$371,000	$37,100	$69,377	$477,477
				Project Total	**$477,477**
Project 20 – Riverwalk Trail					
TR-20A	Construct paved trail improvements for 2,100 feet along Ash Creek	$92,230	$9,223	$17,247	$118,700
TR-20B	Add pedestrian walkway to south side of Westfield Road bridge parapet	$50,100	$5,010	$9,369	$64,479
				Project Total	**$183,179**
Project 21 – Blackrock Trail					
TR-21	Construct graded trail improvements for 25,000 feet from Hunter Lane to Toquerville Falls Road (Spring Drive)	$143,100	$14,310	$26,760	$184,170
				Project Total	**$184,170**
Project 22 – Cholla Trail					
TR-22	Repairs and improvements to existing trail (Formerly owned by Cholla Estates HOA)	$63,600	$6,360	$11,893	$81,853
				Project Total	**$81,853**
Project 23 -- Springs Tank Replacement					
CW -23	Replace concrete water tank and appurtenant valves and piping	$513,950	$51,395	$96,109	$661,454
				Project Total	**$661,454**
				1-5 YEAR CAPITAL PROJECTS TOTAL COST	**$17,536,573**

6 - 10 YEAR HORIZON					
Project 24 -- Toquerville West Off-Site Water Tank					
CW -24	Construct new 2,000,000 gallon water tank and appurtenant valves and piping (City Funding Participation - 25%)	$212,000	$21,200	$39,644	$272,844
				Project Total	**$272,844**
Project 25 -- East Pecan Avenue					
CW-25	Replace existing waterline with 8" pipe including valves and fire hydrant	$25,000	$2,500	$4,675	$32,175
ST-25	Reconstruct roadway to 20' width with surface drainage improvements	$49,200	$4,920	$9,200	$63,320
				Project Total	**$95,495**
Project 26 -- Ash Creek Point Roads					
ST-26A	South Ash Creek Drive - Reconstruct existing pavement structure and minor drainage improvements	$146,500	$14,650	$27,396	$188,546
ST-26B	Berry Avenue – Reconstruct existing pavement structure and minor drainage improvements	$47,200	$4,720	$8,826	$60,746
ST-26C	Pioneer Road – Reconstruct existing pavement structure and minor drainage improvements (includes 16' wide spur)	$82,000	$8,200	$15,334	$105,534
ST-26D	Brainard Circle – Reconstruct existing pavement structure and minor drainage improvements	$27,700	$2,770	$5,180	$35,650
				Project Total	**$390,476**
Project 27 – Mountain Charm Road					
CW-27	Replace existing waterline with 8" pipe including valves and fire hydrant. Loop to Peachtree Drive	$66,300	$6,630	$12,398	$85,328
ST-27	Mountain Charm Road – Reconstruct existing pavement structure and minor drainage improvements	$103,900	$10,390	$19,429	$133,719
SD-27	Install storm drain on Mountain Charm Road	$24,400	$2,440	$4,563	$31,403
				Project Total	**$250,450**
Project 28 – Peachtree Drive/Grassy Lane Storm Drain					
SD-28A	Install storm drain from north Peachtree Drive to Ash Creek	$24,400	$2,440	$4,563	$31,403
SD-28B	Install storm drain from Peachtree Circle along Peachtree Drive to Ash Creek	$58,100	$5,810	$10,865	$74,775
SD-28C	Install storm drain from Grassy Lane to Ash Creek	$5,300	$530	$991	$6,821
				Project Total	**$112,999**
Project 29 – North Toquerville Boulevard Storm Drain					
SD-29	Install storm drain on Toquerville Boulevard from Creekside Drive to Westfield Road	$398,800	$39,880	$74,576	$513,256
				Project Total	**$513,256**
Project 30 – South Toquerville Boulevard (SR-17) Storm Drain					
SD-30A	Install storm drain from SR-17 at Hunter Lane to Ash Creek	$46,250	$4,625	$8,649	$59,524
SD-30B	Install storm drain along SR-17 from Hunter Lane to Diamond G Lane the route to Ash Creek	$212,200	$21,220	$39,681	$273,101
SD-30C	Install storm drain along SR-17 from Parcel T-CHCR-1B-18 to LaVerkin Creek	$231,400	$23,140	$43,272	$297,812
				Project Total	**$630,437**
Project 31 – West Anderson Junction					
CW-31	Construct water distribution system in West Anderson Junction Commercial Area (City Funding Participation - 25%)	$76,850	$7,685	$14,371	$98,906
ST-31	Construct streets in West Anderson Junction Commercial Area (City Funding Participation - 25%)	$384,863	$38,486	$71,969	$495,318
				Project Total	**$594,224**
Project 32 – Anderson Junction Neighborhood Park					
PK-32	Construct site improvements for 1 acre to include infrastructure and amenities (City Funding Participation - 25%)	$53,000	$5,300	$9,911	$68,211
				Project Total	**$68,211**
Project 33 – North Regional Sports Park					
PK-33	Construct site improvements for 40 acres to include infrastructure and amenities (City Funding Participation - 10%)	$212,000	$21,200	$39,644	$272,844
				Project Total	**$272,844**
Project 34 – South Regional Sports Park					
PK-34	Construct site improvements for 120 acres to include infrastructure and amenities (City Funding Participation - 10%)	$318,000	$31,800	$59,466	$409,266
				Project Total	**$409,266**
Project 35 – Riverwalk Trail South Extension					
TR-35	Construct paved trail improvements for 19,000 feet along Ash Creek	$921,890	$92,189	$172,393	$1,186,472
				Project Total	**$1,186,472**

Project 36 – Old Church Road Trail					
TR-36	Construct paved trail improvements for 1,800 feet along Old Church Road from Ash Creek Drive to end of Old Church Road	$60,640	$6,064	$11,340	$78,044
				Project Total	**$78,044**
Project 37 – Old Highway 91 (I-15 Frontage Road) Trail					
TR-37	Construct paved trail improvements for 9,900 feet along Old Highway 91 from Anderson Junction to south Toquerville boundary	$313,470	$31,347	$58,619	$403,436
				Project Total	**$403,436**
Project 38 – Hunter Lane Trail					
TR-38	Construct gravel trail improvements for 2,700 feet along Hunter Lane from SR-17 to Cholla Drive	$28,900	$2,890	$5,404	$37,194
				Project Total	**$37,194**
Project 39 – Escalante Trail					
TR-39	Construct graded trail improvements for 15,000 feet from SR-17 trailhead to Diamond G Lane, north of Anderson Junction	$79,500	$7,950	$14,867	$102,317
				Project Total	**$102,317**
Project 40 – Nephi Twist Trail					
TR-01	Construct graded trail improvements for 10,000 feet from Cholla Drive to east City Limit near Highway 6	$59,650	$5,965	$11,155	$76,770
				Project Total	**$76,770**
Project 41 – Flume Trail					
TR-41	Construct gravel trail improvements up Flume Wash for 4,300 feet from the Riverwalk Trail west to the Toquerville Parkway	$127,160	$12,716	$23,779	$163,655
				Project Total	**$163,655**
				6-10 YEAR CAPITAL PROJECTS TOTAL COST	**$5,658,389**
				1-10 YEAR CAPITAL PROJECTS TOTAL COST	**$23,194,962**

Toquerville City

Table 14: 10-Year Capital Projects List by Type of Project

PROJECT	DESCRIPTION	CONSTRUCTION	CONTINGENCY	ENGINEERING	TOTAL
1 - 5 YEAR HORIZON					
WATER PROJECTS					
Project 01 -- Ash Creek Drive					
CW-01	Replace 2,700 feet of existing 8” pipe including valves, hydrants, and appurtenances	$186,600	$18,660	$34,894	$240,154
Project 02 -- Toquerville Heights Waterline Loop					
CW-02	Install 9,600 feet of new 8" waterline from end of Westfield Road, along Toquerville Parkway and Ash Creek, to west end of Shangrila Drive. Abandon existing pipeline along ridgeline.	$491,700	$49,170	$91,948	$632,818
Project 04 -- Toquerville West Off-Site Water Transmission Pipeline					
CW-04A	Install 5,400 feet of 20" pipe along Toquerville Parkway from Old Church Road to new water tank (CW-24)	$839,000	$83,900	$156,893	$1,079,793
CW-04B	Install 4,600 feet of 16" pipe along the Toquerville Parkway from Westfield Tank to Old Church Road	$551,200	$55,120	$103,074	$709,394
CW-04C	Construct new pump station at Westfield Tank	$381,600	$38,160	$71,359	$491,119
Project 05 – Old Highway 91					
CW-05	Install 1,800 feet of 10" pipe along realigned roadway. Abandon existing pipe along demolished alignment.	$106,000	$10,600	$19,822	$136,422
Project 08 -- Center Street					
CW-08A	Install 1,600 feet of 8” pipe along Center Street extension from Old Church Road intersection to Toquerville Parkway	$87,500	$8,750	$16,363	$112,613
CW-08B	Repllace 1,400 feet of 8" pipe along existing Center Street from Ash Creek Drive to Ash Creek Bridge	$81,100	$8,110	$15,166	$104,376
Project 10 -- West Pecan Avenue					
CW-10	Replace existing waterline with 8” pipe including valves and fire hydrant	$29,700	$2,970	$5,554	$38,224
Project 13 – Cholla Estates					
CW-13	Replace existing waterlines with 8” pipe including valves and fire hydrants on Cholla Drive and adjacent cul-de-sac streets	$315,400	$31,540	$58,980	$405,920
Project 23 -- Springs Tank Replacement					
CW -23	Replace concrete water tank and appurtenant valves and piping	$513,950	$51,395	$96,109	$661,454
				WATER PROJECTS TOTAL	**$4,612,286**
STORM DRAIN PROJECTS					
Project 01 -- Ash Creek Drive					
SD-01A	Extend storm drain to Old Church Road with inlet boxes and add modifications of existing inlet boxes	$98,600	$9,860	$18,438	$126,898
SD-01B	Install storm drain from Westfield Road to Center Street	$58,900	$5,890	$11,014	$75,804
Project 07 -- Old Church Road Storm Drain					
SD-07	Install storm drain from current west end of Old Church Road to Ash Creek	$137,000	$13,700	$25,619	$176,319
Project 08 -- Center Street Waterlines, Road, Bridge, Storm Drain, Sidewalk Project					
SD-08	Replace storm drain from Toquerville Boulevard to Ash Creek	$163,300	$16,330	$30,537	$210,167
Project 11 -- Cotton Gin Avenue Storm Drain					
SD-11	Construct new inlet structure and drain pipe from above existing tank to inlet of existing drain pipe	$54,350	$5,435	$10,163	$69,948
Project 13 – Cholla Estates					
SD-13	Install storm drain on Staghorn Street, Cholla Drive, and Chella Drive to LaVerkin Creek	$168,600	$16,860	$31,528	$216,988
Project 14 -- Shagrila Drive/Rim View Drive/Chaparell Drive Storm Drain					
SD-14A	Install storm drain on Chaparelle Drive	$88,300	$8,830	$16,512	$113,642
SD-14B	Install storm drain on Rim View Drive	$160,100	$16,010	$29,939	$206,049
SD-14C	Install storm drain on Shangrila Drive	$236,000	$23,600	$44,132	$303,732
Project 15 – Old Church Road					
SD-15	Install storm drain from below Ash Creek Drive to Ash Creek	$40,500	$4,050	$7,574	$52,124
				STORM DRAIN PROJECTS TOTAL	**$1,551,672**

STREET PROJECTS					
Project 01 -- Ash Creek Drive					
ST-01	Reconstruct roadway to Collector Road standard with pavement, curb/gutter, and 6' sidewalk	$730,425	$73,043	$136,589	$940,057
Project 03 -- Westfield Road					
ST-03A	Extend roadway 2,000 feet from existing south end to Toquerville Parkway using Collector Road Standard	$585,700	$58,570	$109,526	$753,796
ST-03B	Construct pedestrian birdge on south side of existing bridge across Ash Creek	$149,300	$14,930	$27,919	$192,149
Project 05 – Old Highway 91					
ST-05	Realign Old Highway 91 at Anderson Junction to move intersection with SR-17 1,000 feet east. Demolish old alignment.	$276,200	$27,620	$51,649	$355,469
Project 06 – Anderson Junction Road & 7 C's Road					
ST-06	Realign Anderson Junction Road and 7 C's Road at Anderson Junction to move intersection with SR-17 1,000 feet east.	$336,100	$33,610	$62,851	$432,561
Project 08 -- Center Street					
ST-08	Extend roadway 3,000 feet from existing west end to Toquerville Parkway using Major Collector Road Standard	$957,500	$95,750	$179,053	$1,232,303
Project 09 -- Sunset Drive					
ST-09	Extend roadway 2,500 feet from existing west end to Toquerville Parkway using Collector Road Standard	$704,275	$70,428	$131,699	$906,402
Project 10 -- West Pecan Avenue					
ST-10	Reconstruct roadway to Residential Standard with curb/gutter. Sidewalk on north side only	$99,700	$9,970	$18,644	$128,314
Project 12 – Cholla Drive Turn Lane (SR-17)					
ST-12	Construct left turn lane (SB SR-17) and right turn lane (NB SR-17) onto Cholla Drive	$554,241	$55,424	$103,643	$713,308
Project 13 – Cholla Estates					
ST-13A	Cholla Drive - Reconstruct existing pavement structure and curb/gutter. Minor drainage improvements	$533,900	$53,390	$99,839	$687,129
ST-13B	Cane Circle - Reconstruct existing pavement structure and curb/gutter. Minor drainage improvements	$67,720	$6,772	$12,664	$87,156
ST-13C	Staghorn Street - Reconstruct existing pavement structure and curb/gutter. Minor drainage improvements	$128,300	$12,830	$23,992	$165,122
ST-13D	Cholla Circle - Reconstruct existing pavement structure and curb/gutter. Minor drainage improvements	$51,680	$5,168	$9,664	$66,512
ST-13E	Ocotillo Circle - Reconstruct existing pavement structure and curb/gutter. Minor drainage improvements	$47,480	$4,748	$8,879	$61,107
ST-13F	Ramose Circle - Reconstruct existing pavement structure and curb/gutter. Minor drainage improvements	$47,340	$4,734	$8,853	$60,927
Project 15 – Old Church Road					
ST-15A	Widen existing roadway from Ash Creek Drive to existing west end to Residential Road Standard	$362,840	$36,284	$67,851	$466,975
ST-15B	Structural upgrade on Ash Creek Bridge	$185,000	$18,500	$34,595	$238,095
				STREET PROJECTS TOTAL	**$7,487,381**
PARKS PROJECTS					
Project 16 – City Center Park					
PK-16A	City Center Park West Side Improvements	$196,100	$19,610	$36,671	$252,381
PK-16B	City Center Park East Side Improvements	$1,219,000	$121,900	$227,953	$1,568,853
Project 17 – Trail Ridge Park					
PK-17	Construct site improvements for 4.23 acres to include infrastructure and amenities	$429,300	$42,930	$80,279	$552,509
Project 18– Westfield Park					
PK-18	Construct site improvements for .07 acres to include infrastructure and amenities	$318,000	$31,800	$59,466	$409,266
Project 19 – Toquerville Heights Park					
PK-19	Construct site improvements for 1 acre to include infrastructure and amenities	$371,000	$37,100	$69,377	$477,477
				PARKS PROJECTS TOTAL	**$3,260,486**

TRAILS PROJECTS					
Project 08 -- Center Street					
TR-08A	Add pedestrian walkway to north side of bridge parapet	$50,100	$5,010	$9,369	$64,479
TR-08B	Construct 6' wide sidewalk improvements for 1,400 feet along the Center Street	$86,300	$8,630	$16,138	$111,068
Project 20 – Riverwalk Trail					
TR-20A	Construct paved trail improvements for 2,100 feet along Ash Creek	$92,230	$9,223	$17,247	$118,700
TR-20B	Add pedestrian walkway to south side of Westfield Road bridge parapet	$50,100	$5,010	$9,369	$64,479
Project 21 – Blackrock Trail					
TR-21	Construct graded trail improvements for 25,000 feet from Hunter Lane to Toquerville Falls Road (Spring Drive)	$143,100	$14,310	$26,760	$184,170
Project 22 – Cholla Trail					
TR-22	Repairs and improvements to existing trail (Formerly owned by Cholla Estates HOA)	$63,600	$6,360	$11,893	$81,853
				TRAILS PROJECTS TOTAL	**$624,748**
				TOTAL PROJECTS 1 - 5 YEAR HORIZON	**$17,536,573**
6 - 10 YEAR HORIZON					
WATER PROJECTS					
Project 24 -- Toquerville West Off-Site Water Tank					
CW -24	Construct new 2,000,000 gallon water tank and appurtenant valves and piping (City Funding Participation - 25%)	$212,000	$21,200	$39,644	$272,844
Project 25 -- East Pecan Avenue					
CW-25	Replace existing waterline with 8” pipe including valves and fire hydrant	$25,000	$2,500	$4,675	$32,175
Project 27 – Mountain Charm Road					
CW-27	Replace existing waterline with 8” pipe including valves and fire hydrant. Loop to Peachtree Drive	$66,300	$6,630	$12,398	$85,328
Project 31 – West Anderson Junction					
CW-31	Construct water distribution system in West Anderson Junction Commercial Area	$76,850	$7,685	$14,371	$98,906
				WATER PROJECTS TOTAL	**$489,253**
STORM DRAIN PROJECTS					
Project 27 – Mountain Charm Road					
SD-27	Install storm drain on Mountain Charm Road	$24,400	$2,440	$4,563	$31,403
Project 28 – Peachtree Drive/Grassy Lane Storm Drain					
SD-28A	Install storm drain from north Peachtree Drive to Ash Creek	$24,400	$2,440	$4,563	$31,403
SD-28B	Install storm drain from Peachtree Circle along Peachtree Drive to Ash Creek	$58,100	$5,810	$10,865	$74,775
SD-28C	Install storm drain from Grassy Lane to Ash Creek	$5,300	$530	$991	$6,821
Project 29 – North Toquerville Boulevard Storm Drain					
SD-29	Install storm drain on Toquerville Boulevard from Creekside Drive to Westfield Road	$398,800	$39,880	$74,576	$513,256
Project 30 – South Toquerville Boulevard (SR-17) Storm Drain					
SD-30A	Install storm drain from SR-17 at Hunter Lane to Ash Creek	$46,250	$4,625	$8,649	$59,524
SD-30B	Install storm drain along SR-17 from Hunter Lane to Diamond G Lane the route to Ash Creek	$212,200	$21,220	$39,681	$273,101
SD-30C	Install storm drain along SR-17 from Parcel T-CHCR-1B-18 to LaVerkin Creek	$231,400	$23,140	$43,272	$297,812
				STORM DRAIN PROJECTS TOTAL	**$1,288,094**

STREET PROJECTS					
Project 25 -- East Pecan Avenue					
ST-25	Reconstruct roadway to 20’ width with surface drainage improvements	$49,200	$4,920	$9,200	$63,320
Project 26 -- Ash Creek Point Roads					
ST-26A	South Ash Creek Drive - Reconstruct existing pavement structure and minor drainage improvements	$146,500	$14,650	$27,396	$188,546
ST-26B	Berry Avenue – Reconstruct existing pavement structure and minor drainage improvements	$47,200	$4,720	$8,826	$60,746
ST-26C	Pioneer Road – Reconstruct existing pavement structure and minor drainage improvements (includes 16' wide spur)	$82,000	$8,200	$15,334	$105,534
ST-26D	Brainard Circle – Reconstruct existing pavement structure and minor drainage improvements	$27,700	$2,770	$5,180	$35,650
Project 27 – Mountain Charm Road					
ST-27	Mountain Charm Road – Reconstruct existing pavement structure and minor drainage improvements	$103,900	$10,390	$19,429	$133,719
Project 31 – West Anderson Junction					
ST-31	Construct streets in West Anderson Junction Commercial Area	$384,863	$38,486	$71,969	$495,318
				STREET PROJECTS TOTAL	**$1,082,834**
PARKS PROJECTS					
Project 32– Anderson Junction Neighborhood Park					
PK-32	Construct site improvements for 1 acre to include infrastructure and amenities (City Funding Participation - 25%)	$53,000	$5,300	$9,911	$68,211
Project 33– North Regional Sports Park					
PK-33	Construct site improvements for 40 acres to include infrastructure and amenities (City Funding Participation - 10%)	$212,000	$21,200	$39,644	$272,844
Project 34– South Regional Sports Park					
PK-34	Construct site improvements for 120 acres to include infrastructure and amenities (City Funding Participation - 10%)	$318,000	$31,800	$59,466	$409,266
				STREET PROJECTS TOTAL	**$750,321**
TRAILS PROJECTS					
Project 35 – Riverwalk Trail South Extension					
TR-35	Construct paved trail improvements for 19,000 feet along Ash Creek	$921,890	$92,189	$172,393	$1,186,472
Project 36 – Old Church Road Trail					
TR-36	Construct paved trail improvements for 1,800 feet along Old Church Street from Ash Creek Drive to end of Old Church Road	$60,640	$6,064	$11,340	$78,044
Project 37 – Old Highway 91 (I-15 Frontage Road) Trail					
TR-37	Construct paved trail improvements for 9,900 feet along Old Highway 91 from Anderson Junction to south Toquerville boundary	$313,470	$31,347	$58,619	$403,436
Project 38 – Hunter Lane Trail					
TR-38	Construct gravel trail improvements for 2,700 feet along Hunter Lane from SR-17 to Cholla Drive	$28,900	$2,890	$5,404	$37,194
Project 39 – Escalante Trail					
TR-39	Construct graded trail improvements for 15,000 feet from SR-17 trailhead to Diamond G Lane, north of Anderson Junction	$79,500	$7,950	$14,867	$102,317
Project 40 – Nephi Twist Trail					
TR-40	Construct graded trail improvements for 10,000 feet from Cholla Drive to east City Limit near Highway 6	$59,650	$5,965	$11,155	$76,770
Project 41 – Flume Trail					
TR-41	Construct gravel trail improvements up Flume Wash for 4,300 feet from the Riverwalk Trail west to the Toquerville Parkway	$127,160	$12,716	$23,779	$163,655
				TRAIL PROJECTS TOTAL	**$2,047,887**
				TOTAL PROJECTS 6 - 10 YEAR HORIZON	**$5,658,389**
				1-10 YEAR CAPITAL PROJECTS TOTAL COST	**$23,194,962**

Toquerville City
Project 01 - Ash Creek Drive Reconstruction
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
CW-01 Waterline Phase					
1	Mobilization @ 6%	1	L.S.	$10,600.00	$10,600
2	10" PVC Waterline	2,700	L.F.	$35.00	$94,500
3	8" Gate Valves	9	Each	$2,500.00	$22,500
4	10" Gate Valves	5	Each	$3,300.00	$16,500
5	Tie-in to Existing Waterlines	5	Each	$2,500.00	$12,500
6	Tie-in Existing Fire Hydrants	6	Each	$2,500.00	$15,000
7	Tie-over Existing Meters	30	Each	$500.00	$15,000
8	Construction Contingency @ 10%				$18,660
				Construction Subtotal	$205,260
9	Design Engineering @ 7.5%				$15,395
10	Construction Observation and Testing @ 7.5%				$15,395
11	Administrative Costs @ 2%				$4,105
				CW-01 Waterline Phase Total	**$240,154**
ST-01 Street Phase					
1	Mobilization @ 6%	1	L.S.	$41,400.00	$41,400
2	Earthwork	5,250	C.Y.	$10.00	$52,500
3	Gravel Road Base (8" Thick)	121,500	S.F.	$1.00	$121,500
4	Hot Mix Aspahlt (3" Thick)	121,500	S.F.	$1.75	$212,625
5	Concrete High-Back Combination Curb Gutter	5,400	L.F.	$20.00	$108,000
6	6' Concrete Sidewalk w/4" Thick Gravel Base	32,400	S.F.	$6.00	$194,400
7	Construction Contingency @ 10%				$73,043
				Construction Subtotal	$803,468
8	Design Engineering @ 7.5%				$60,260
9	Construction Observation and Testing @ 7.5%				$60,260
10	Administrative Costs @ 2%				$16,069
				ST-01 Street Phase Total	**$940,057**
SD-01A Storm Drain Phase (Old Church to Center)					
1	Mobilization @ 6%	1	L.S.	$5,600.00	$5,600
2	24" HDPE Storm Drain	1,000	L.F.	$45.00	$45,000
3	18" HDPE Storm Drain	200	L.F.	$40.00	$8,000
4	New Drop Inlet Box, Grate & Frame	8	Each	$4,000.00	$32,000
5	Modify Inlet Box, Grate & Frame	2	Each	$2,000.00	$4,000
6	Manholes	2	Each	$2,000.00	$4,000
7	Construction Contingency @ 10%				$9,860
				Construction Subtotal	$108,460
8	Design Engineering @ 7.5%				$8,135
9	Construction Observation and Testing @ 7.5%				$8,135
10	Administrative Costs @ 2%				$2,169
				SD-01A Storm Drain Phase Total	**$126,898**

ALPHA ENGINEERING

SD-01B Storm Drain Phase (Westfield to Center)					
1	Mobilization @ 6%	1	L.S.	$3,400.00	$3,400
2	24" HDPE Storm Drain	700	L.F.	$45.00	$31,500
3	18" HDPE Storm Drain	100	L.F.	$40.00	$4,000
4	New Drop Inlet Box, Grate & Frame	4	Each	$4,000.00	$16,000
5	Manholes	2	Each	$2,000.00	$4,000
6	Construction Contingency @ 10%				$5,890
				Construction Subtotal	$64,790
7	Design Engineering @ 7.5%				$4,859
8	Construction Observation and Testing @ 7.5%				$4,859
9	Administrative Costs @ 2%				$1,296
				SD-01B Storm Drain Phase Total	**$75,804**
PROJECT TOTAL					**$1,382,914**

Toquerville City
Project 02 - Toquerville Heights Waterline
Engineer's Preliminary Opinion of Probable Cost
September 1, 2021

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
CW-02 8" Waterline					
1	Mobilization @ 6%	1	L.S.	$27,900.00	$27,900
2	8" PVC Waterline	9,600	L.F.	$38.00	$364,800
3	8" Gate Valves	10	Each	$3,000.00	$30,000
4	Tie-in to Existing Waterline	2	Each	$5,000.00	$10,000
5	New Fire Hydrants	8	Each	$5,500.00	$44,000
6	Tie Over Existing Connections from Private System	6	Each	$2,500.00	$15,000
7	Construction Contingency @ 10%				$49,170
				Construction Subtotal	$540,870
8	Design Engineering @ 7.5%				$40,565
9	Construction Observation and Testing @ 7.5%				$40,565
10	Administrative Costs @ 2%				$10,817
				CW-02 8" Waterline Total	**$632,818**
PROJECT TOTAL					**$632,818**

ALPHA ENGINEERING

Toquerville City
Project 03 - Westfield Road Extension & Bridge Pedestrian Walkway
Engineer's Preliminary Opinion of Probable Cost
September 1, 2021

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
ST-03A Street Extension Phase					
1	Mobilization @ 6%	1	L.S.	$33,200.00	$33,200
2	Earthwork	7,000	C.Y.	$10.00	$70,000
3	Gravel Road Base (8" Thick)	100,000	S.F.	$1.00	$100,000
4	Hot Mix Aspahlt (3" Thick)	100,000	S.F.	$1.75	$175,000
5	Concrete High-Back Combination Curb Gutter	4,000	L.F.	$20.00	$80,000
6	6' Concrete Sidewalk w/4" Thick Gravel Base	20,000	S.F.	$6.00	$120,000
7	Pavement Marking	1	L.S.	$7,500.00	$7,500
8	Construction Contingency @ 10%				$58,570
				Construction Subtotal	$644,270
9	Design Engineering @ 7.5%				$48,320
10	Construction Observation and Testing @ 7.5%				$48,320
11	Administrative Costs @ 2%				$12,885
				ST-03B Street Extension Phase Total	**$753,796**
ST-03B Pedestrian Bridge Phase					
1	Mobilization @ 6%	1	L.S.	$8,500.00	$8,500
2	Traffic Control	1	L.S.	$7,500.00	$7,500
3	Demolition	1	L.S.	$3,000.00	$3,000
4	Earthwork	1	L.S.	$5,000.00	$5,000
5	Concrete High-Back Combination Curb Gutter	80	L.F.	$20.00	$1,600
6	6' Concrete Sidewalk w/4" Thick Gravel Base	700	S.F.	$6.00	$4,200
7	ADA Sidewalk Ramps	2	EA.	$500.00	$1,000
8	3" HMA and 8" Base Course	500	S.F.	$5.00	$2,500
9	Salvage and Reinstall Tapered Approach Barrier	2	EA.	$500.00	$1,000
10	Concrete Bridge Abutments and 8" Base Course	2	EA.	$7,500.00	$15,000
11	Furnish and Install Steel Pedestrian Bridge	1	L.S.	$100,000.00	$100,000
12	Construction Contingency @ 10%				$14,930
				Construction Subtotal	$164,230
13	Design Engineering @ 7.5%				$12,317
14	Construction Observation and Testing @ 7.5%				$12,317
15	Administrative Costs @ 2%				$3,285
				ST-03B Pedestrian Bridge Phase	**$192,149**
PROJECT TOTAL					**$945,945**

ALPHA ENGINEERING

Toquerville City
Project 04 - Toquerville Parkway Water Transmission Pipeline
Engineer's Preliminary Opinion of Probable Cost
September 1, 2021

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
CW-04A 20" Waterline					
1	Mobilization @ 6%	1	L.S.	$47,500.00	$47,500
2	20" DI Waterline with Bio-V Wrap	5,400	L.F.	$140.00	$756,000
3	20" Butterfly Valves	1	Each	$7,500.00	$7,500
4	16" Butterfly Valves	3	Each	$6,000.00	$18,000
5	Appertenant Work	1	L.S.	$10,000.00	$10,000
6	Construction Contingency @ 10%				$83,900
				Construction Subtotal	$922,900
7	Design Engineering @ 7.5%				$69,218
8	Construction Observation and Testing @ 7.5%				$69,218
9	Administrative Costs @ 2%				$18,458
				CW-04A 20" Waterline Total	**$1,079,793**
CW-04B 16" Waterline					
1	Mobilization @ 6%	1	L.S.	$31,200.00	$31,200
2	16" DI Waterline with Bio-V Wrap	4,600	L.F.	$105.00	$483,000
3	16" Butterfly Valves	2	Each	$6,000.00	$12,000
4	8" Gate Valves	5	Each	$3,000.00	$15,000
5	Appertenant Work	1	L.S.	$10,000.00	$10,000
6	Construction Contingency @ 10%				$55,120
				Construction Subtotal	$606,320
7	Design Engineering @ 7.5%				$45,474
8	Construction Observation and Testing @ 7.5%				$45,474
9	Administrative Costs @ 2%				$12,126
				CW-04B 16" Waterline Total	**$709,394**
CW-04C Pump Station					
1	Mobilization @ 6%	1	L.S.	$21,600.00	$21,600
2	Site Work & Access Road	1	L.S.	$25,000.00	$25,000
3	Concrete Building	1	L.S.	$60,000.00	$60,000
4	Pumps & Piping	1	L.S.	$200,000.00	$200,000
5	Electrical & Controls	1	L.S.	$75,000.00	$75,000
6	Construction Contingency @ 10%				$38,160
				Construction Subtotal	$419,760
7	Design Engineering @ 7.5%				$31,482
8	Construction Observation and Testing @ 7.5%				$31,482
9	Administrative Costs @ 2%				$8,395
				CW-04C Pump Station Total	**$491,119**
PROJECT TOTAL					**$2,280,307**

ALPHA ENGINEERING

Toquerville City
Project 05 - Old Highway 91 Realignment
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
CW-05 Waterline Phase					
1	Mobilization @ 6%	1	L.S.	$6,000.00	$6,000
2	10" PVC Waterline	1,800	L.F.	$35.00	$63,000
3	10" Gate Valve	3	Each	$3,500.00	$10,500
4	Tie-in to Existing Waterline	2	Each	$5,000.00	$10,000
5	New Fire Hydrant	3	Each	$5,500.00	$16,500
6	Construction Contingency @ 10%				$10,600
				Construction Subtotal	$116,600
7	Design Engineering @ 7.5%				$8,745
8	Construction Observation and Testing @ 7.5%				$8,745
9	Administrative Costs @ 2%				$2,332
				CW-05 Waterline Phase Total	**$136,422**
ST-05 Old Highway 91 Realignment					
1	Mobilization @ 6%	1	L.S.	$15,700.00	$15,700
2	Earthwork	5,000	C.Y.	$10.00	$50,000
3	Gravel Road Base (8" Thick)	67,500	S.F.	$1.00	$67,500
4	Hot Mix Aspahlt (3" Thick)	67,500	S.F.	$2.00	$135,000
5	Pavement Marking	1	L.S.	$5,000.00	$5,000
6	Signage	1	L.S.	$3,000.00	$3,000
7	Construction Contingency @ 10%				$27,620
				Construction Subtotal	$303,820
8	Design Engineering @ 7.5%				$22,787
9	Construction Observation and Testing @ 7.5%				$22,787
10	Administrative Costs @ 2%				$6,076
				ST-05 Old Highway 91 Realignment Total	**$355,469**
PROJECT TOTAL					**$355,469**

Toquerville City
Project 06 - Anderson Junction Road & 7C's Lane Realignment
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
ST-06 Junction Road & 7C's Lane Realignment					
1	Mobilization @ 6%	1	L.S.	$19,100.00	$19,100
2	Earthwork	6,000	C.Y.	$10.00	$60,000
3	Gravel Road Base (6" Thick)	105,000	S.F.	$0.90	$94,500
4	Hot Mix Aspahlt (2.5" Thick)	105,000	S.F.	$1.50	$157,500
5	Signage	1	L.S.	$5,000.00	$5,000
6	Construction Contingency @ 10%				$33,610
				Construction Subtotal	$369,710
7	Design Engineering @ 7.5%				$27,728
8	Construction Observation and Testing @ 7.5%				$27,728
9	Administrative Costs @ 2%				$7,394
				ST-06 Junction Road & 7C's Lane Realignment Total	**$432,561**
PROJECT TOTAL					**$432,561**

Toquerville City
Project 07 - Old Church Road Storm Drain
Engineer's Preliminary Opinion of Probable Cost
May 1, 2021

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
SD-07 Storm Drain Phase					
1	Mobilization @ 6%	1	L.S.	$7,800.00	$7,800
2	24" HDPE Storm Drain	1,400	L.F.	$45.00	$63,000
3	18" HDPE Storm Drain	150	L.F.	$40.00	$6,000
4	New Drop Inlet Box, Grate & Frame	6	Each	$4,000.00	$24,000
5	Manholes	3	Each	$2,000.00	$6,000
6	Outlet Structure	1	L.S.	$5,000.00	$5,000
7	Pavement Repair	8,400	S.F.	$3.00	$25,200
8	Construction Contingency @ 10%				$13,700
				Construction Subtotal	$150,700
9	Design Engineering @ 7.5%				$11,303
10	Construction Observation and Testing @ 7.5%				$11,303
11	Administrative Costs @ 2%				$3,014
				SD-07 Storm Drain Phase Total	**$176,319**
PROJECT TOTAL					**$176,319**

Toquerville City
Project 08 - Center Street Waterlines, Road, Bridge, Sidewalk Project
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
CW-08A Waterline Extension Phase					
1	Mobilization @ 6%	1	L.S.	$5,000.00	$5,000
2	8" PVC Waterline	1,600	L.F.	$30.00	$48,000
3	8" Gate Valves	3	Each	$2,500.00	$7,500
4	Tie-in to Existing Waterlines	2	Each	$2,500.00	$5,000
5	New Fire Hydrants	4	Each	$5,500.00	$22,000
6	Construction Contingency @ 10%				$8,750
				Construction Subtotal	$96,250
7	Design Engineering @ 7.5%				$7,219
8	Construction Observation and Testing @ 7.5%				$7,219
9	Administrative Costs @ 2%				$1,925
				CW-08A Waterline Extension Phase Total	**$112,613**
CW-08B Waterline Replacement Phase					
1	Mobilization @ 6%	1	L.S.	$4,600.00	$4,600
2	8" PVC Waterline	1,400	L.F.	$30.00	$42,000
3	8" Gate Valves	3	Each	$2,500.00	$7,500
4	Tie-in to Existing Waterlines	2	Each	$2,500.00	$5,000
5	New Fire Hydrants	4	Each	$5,500.00	$22,000
6	Construction Contingency @ 10%				$8,110
				Construction Subtotal	$89,210
7	Design Engineering @ 7.5%				$6,691
8	Construction Observation and Testing @ 7.5%				$6,691
9	Administrative Costs @ 2%				$1,784
				CW-08B Waterline Replacement Phase Total	**$104,376**
ST-08 Street Extension Phase					
1	Mobilization @ 6%	1	L.S.	$54,000.00	$54,000
2	Earthwork	15,000	C.Y.	$10.00	$150,000
3	Gravel Road Base (8" Thick)	150,000	S.F.	$1.00	$150,000
4	Hot Mix Aspahlt (3" Thick)	150,000	S.F.	$1.75	$262,500
5	Concrete High-Back Combination Curb Gutter	6,000	L.F.	$20.00	$120,000
6	6' Concrete Sidewalk w/4" Thick Gravel Base	36,000	S.F.	$6.00	$216,000
7	Pavement Marking	1	L.S.	$5,000.00	$5,000
8	Construction Contingency @ 10%				$95,750
				Construction Subtotal	$1,053,250
9	Design Engineering @ 7.5%				$78,994
10	Construction Observation and Testing @ 7.5%				$78,994
11	Administrative Costs @ 2%				$21,065
				ST-08 Street Extension Phase Total	**$1,232,303**

ALPHA ENGINEERING

SD-08 Storm Drain Phase					
1	Mobilization @ 6%	1	L.S.	$9,300.00	$9,300
2	24" HDPE Storm Drain	1,800	L.F.	$45.00	$81,000
3	18" HDPE Storm Drain	200	L.F.	$40.00	$8,000
4	New Drop Inlet Box, Grate & Frame	4	Each	$4,000.00	$16,000
5	Modify Inlet Box, Grate & Frame	2	Each	$2,000.00	$4,000
6	Manholes	2	Each	$2,000.00	$4,000
7	Outlet Structure	1	L.S.	$5,000.00	$5,000
8	Pavement Repair	12,000	S.F.	$3.00	$36,000
9	Construction Contingency @ 10%				$16,330
				Construction Subtotal	$179,630
10	Design Engineering @ 7.5%				$13,472
11	Construction Observation and Testing @ 7.5%				$13,472
12	Administrative Costs @ 2%				$3,593
				SD-08 Storm Drain Phase Total	**$210,167**
TR-08A Pedestrian Walkway Phase					
1	Mobilization @ 6%	1	L.S.	$2,900.00	$2,900
2	Earthwork	20	C.Y.	$15.00	$300
3	Cast-in-Place Reinforced Concrete Abutments	8	C.Y.	$800.00	$6,400
4	Cast-in-Place Reinforced Concrete Deck	9	C.Y.	$1,000.00	$9,000
5	Cast-in Place Reinforced Concrete Parapet	10	C.Y.	$800.00	$8,000
6	Steel Outrigger Supports	9	Each	$2,500.00	$22,500
7	Chain Link Fence	50	L.F.	$20.00	$1,000
8	Construction Contingency @ 10%				$5,010
				Construction Subtotal	$55,110
9	Design Engineering @ 7.5%				$4,133
10	Construction Observation and Testing @ 7.5%				$4,133
11	Administrative Costs @ 2%				$1,102
				TR-08A Pedestrian Walkway Phase Total	**$64,479**
TR-08B Sidewalk Phase					
1	Mobilization @ 6%	1	L.S.	$4,900.00	$4,900
2	Earthwork	300	C.Y.	$10.00	$3,000
3	Concrete High-Back Combination Curb Gutter	1,400	L.F.	$20.00	$28,000
4	6' Concrete Sidewalk w/4" Thick Gravel Base	8,400	S.F.	$6.00	$50,400
5	Construction Contingency @ 10%				$8,630
				Construction Subtotal	$94,930
6	Design Engineering @ 7.5%				$7,120
7	Construction Observation and Testing @ 7.5%				$7,120
8	Administrative Costs @ 2%				$1,899
				TR-08B Sidewalk Phase Total	**$111,068**
PROJECT TOTAL					**$1,624,838**

ALPHA ENGINEERING

Toquerville City
Project 09 - Sunset Drive Extension
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
ST-09 Street Extension					
1	Mobilization @ 6%	1	L.S.	$39,900.00	$39,900
2	Earthwork	7,500	C.Y.	$10.00	$75,000
3	Gravel Road Base (8" Thick)	112,500	S.F.	$1.00	$112,500
4	Hot Mix Aspahlt (3" Thick)	112,500	S.F.	$1.75	$196,875
5	Concrete High-Back Combination Curb Gutter	5,000	L.F.	$20.00	$100,000
6	6' Concrete Sidewalk w/4" Thick Gravel Base	30,000	S.F.	$6.00	$180,000
7	Construction Contingency @ 10%				$70,428
				Construction Subtotal	$774,703
8	Design Engineering @ 7.5%				$58,103
9	Construction Observation and Testing @ 7.5%				$58,103
10	Administrative Costs @ 2%				$15,494
				ST-09 Street Extension Total	**$906,402**
PROJECT TOTAL					**$906,402**

ALPHA ENGINEERING

Toquerville City
Project 10 - West Pecan Avenue Reconstruction
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
CW-10 Waterline Phase					
1	Mobilization @ 6%	1	L.S.	$1,700.00	$1,700
2	8" PVC Waterline	500	L.F.	$30.00	$15,000
3	8" Gate Valve	1	Each	$2,500.00	$2,500
4	Tie-in to Existing Waterline	1	Each	$5,000.00	$5,000
5	New Fire Hydrant	1	Each	$5,500.00	$5,500
6	Construction Contingency @ 10%				$2,970
				Construction Subtotal	$32,670
7	Design Engineering @ 7.5%				$2,450
8	Construction Observation and Testing @ 7.5%				$2,450
9	Administrative Costs @ 2%				$653
				CW-10 Waterline Phase Total	**$38,224**
ST-10 Street Phase					
1	Mobilization @ 6%	1	L.S.	$5,700.00	$5,700
2	Earthwork	800	C.Y.	$10.00	$8,000
3	Gravel Road Base (6" Thick)	17,500	S.F.	$0.90	$15,750
4	Hot Mix Aspahlt (2.5" Thick)	17,500	S.F.	$1.50	$26,250
5	Concrete High-Back Combination Curb Gutter	1,000	L.F.	$20.00	$20,000
6	4' Concrete Sidewalk w/4" Thick Gravel Base	4,000	S.F.	$6.00	$24,000
7	Construction Contingency @ 10%				$9,970
				Construction Subtotal	$109,670
8	Design Engineering @ 7.5%				$8,225
9	Construction Observation and Testing @ 7.5%				$8,225
10	Administrative Costs @ 2%				$2,193
				ST-10 Street Phase Total	**$128,314**
PROJECT TOTAL					**$166,538**

ALPHA ENGINEERING

Toquerville City
Project 11 - Cotton Gin Avenue Storm Drain
Engineer's Preliminary Opinion of Probable Cost
May 1, 2021

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
SD-11 Storm Drain Phase					
1	Mobilization @ 6%	1	L.S.	$3,100.00	$3,100
2	24" HDPE Storm Drain	750	L.F.	$45.00	$33,750
3	Inlet Structure	1	L.S.	$7,500.00	$7,500
4	Manholes	4	Each	$2,000.00	$8,000
5	Tie to Existing Storm Drain	1	L.S.	$2,000.00	$2,000
6	Construction Contingency @ 10%				$5,435
				Construction Subtotal	$59,785
7	Design Engineering @ 7.5%				$4,484
8	Construction Observation and Testing @ 7.5%				$4,484
9	Administrative Costs @ 2%				$1,196
				SD-11 Storm Drain Phase Total	**$69,948**
PROJECT TOTAL					**$69,948**

Toquerville City
Project 12 - Cholla Drive Turn Lane (SR-17)
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
ST-12 Turn Lane Construction Phase					
1	Mobilization @ 6%	1	L.S.	$31,400.00	$31,400
2	Sawcut & Remove Existing Asphalt	4,300	L.F.	$2.30	$9,890
3	Grading - Export	3,540	C.Y.	$27.50	$97,350
4	Grading - Excavation, Placement , and Compaction	100	C.Y.	$17.50	$1,750
5	Granular Borrow (12' thick)	1,815	C.Y.	$40.00	$72,600
6	Granular Road Base (6' thick)	910	C.Y..	$45.00	$40,950
7	Hot Mix Asphalt (5" thick)	1,512	Ton	$111.00	$167,832
8	Geotextile at New Asphalt	5,450	S.Y.	$1.60	$8,720
9	Chip Seal New Roadway	12,120	S.Y.	$6.50	$78,780
10	Pavement Marking - Solid Double Yellow	2,780	L.F.	$0.50	$1,390
11	Pavement Marking - Solid White	5,415	L.F.	$0.25	$1,354
12	Pavement Marking - Dashed White	1,500	L.F.	$0.15	$225
13	Signage & Pavement Arrows	1	L.S.	$2,000.00	$2,000
14	Traffic Control	1	L.S.	$40,000.00	$40,000
15	Construction Contingency @ 10%				$55,424
				Construction Subtotal	$609,665
16	Design Engineering @ 7.5%				$45,725
17	Construction Observation and Testing @ 7.5%				$45,725
18	Administrative Costs @ 2%				$12,193
				ST-12 Turn Lane Construction Total	**$713,308**
PROJECT TOTAL					**$713,308**

Toquerville City
Project 13 - Cholla Estates Waterline and Road Reconstruction
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
CW-13 Waterline Phase					
1	Mobilization @ 6%	1	L.S.	$17,900.00	$17,900
2	8" PVC Waterline	6,100	L.F.	$30.00	$183,000
3	8" Gate Valve	9	Each	$2,500.00	$22,500
4	Tie-in to Existing Waterline	3	Each	$5,000.00	$15,000
5	New Fire Hydrant	14	Each	$5,500.00	$77,000
6	Construction Contingency @ 10%				$31,540
				Construction Subtotal	$346,940
7	Design Engineering @ 7.5%				$26,021
8	Construction Observation and Testing @ 7.5%				$26,021
9	Administrative Costs @ 2%				$6,939
				CW-13 Waterline Phase Total	**$405,920**
ST-13A Cholla Drive Reconstruction Phase					
1	Mobilization @ 6%	1	L.S.	$30,300.00	$30,300
2	Earthwork	5,000	C.Y.	$10.00	$50,000
3	Gravel Road Base (6" Thick)	121,500	S.F.	$0.90	$109,350
4	Hot Mix Aspahlt (2.5" Thick)	121,500	S.F.	$1.50	$182,250
5	Concrete High-Back Combination Curb Gutter	8,100	L.F.	$20.00	$162,000
6	Construction Contingency @ 10%				$53,390
				Construction Subtotal	$587,290
7	Design Engineering @ 7.5%				$44,047
8	Construction Observation and Testing @ 7.5%				$44,047
9	Administrative Costs @ 2%				$11,746
				ST-13A Cholla Drive Reconstruction Phase Total	**$687,129**
ST-13B Cane Circle Reconstruction Phase					
1	Mobilization @ 6%	1	L.S.	$3,900.00	$3,900
2	Earthwork	650	C.Y.	$10.00	$6,500
3	Gravel Road Base (6" Thick)	16,800	S.F.	$0.90	$15,120
4	Hot Mix Aspahlt (2.5" Thick)	16,800	S.F.	$1.50	$25,200
5	Concrete High-Back Combination Curb Gutter	850	L.F.	$20.00	$17,000
6	Construction Contingency @ 10%				$6,772
				Construction Subtotal	$74,492
7	Design Engineering @ 7.5%				$5,587
8	Construction Observation and Testing @ 7.5%				$5,587
9	Administrative Costs @ 2%				$1,490
				ST-13B Cane Circle Reconstruction Phase Total	**$87,156**

ALPHA ENGINEERING

ST-13C Staghorn Street Reconstruction Phase					
1	Mobilization @ 6%	1	L.S.	$7,300.00	$7,300
2	Earthwork	1,200	C.Y.	$10.00	$12,000
3	Gravel Road Base (6" Thick)	32,500	S.F.	$0.90	$29,250
4	Hot Mix Aspahlt (2.5" Thick)	32,500	S.F.	$1.50	$48,750
5	Concrete High-Back Combination Curb Gutter	1,550	L.F.	$20.00	$31,000
6	Construction Contingency @ 10%				$12,830
				Construction Subtotal	$141,130
7	Design Engineering @ 7.5%				$10,585
8	Construction Observation and Testing @ 7.5%				$10,585
9	Administrative Costs @ 2%				$2,823
				ST-13C Staghorn Street Reconstruction Phase Total	**$165,122**
ST-13D Cholla Circle Reconstruction Phase					
1	Mobilization @ 6%	1	L.S.	$3,000.00	$3,000
2	Earthwork	500	C.Y.	$10.00	$5,000
3	Gravel Road Base (6" Thick)	12,700	S.F.	$0.90	$11,430
4	Hot Mix Aspahlt (2.5" Thick)	12,700	S.F.	$1.50	$19,050
5	Concrete High-Back Combination Curb Gutter	660	L.F.	$20.00	$13,200
6	Construction Contingency @ 10%				$5,168
				Construction Subtotal	$56,848
7	Design Engineering @ 7.5%				$4,264
8	Construction Observation and Testing @ 7.5%				$4,264
9	Administrative Costs @ 2%				$1,137
				ST-13D Cholla Circle Reconstruction Phase Total	**$66,512**
ST-13E Ocotillo Circle Reconstruction Phase (with spur)					
1	Mobilization @ 6%	1	L.S.	$2,700.00	$2,700
2	Earthwork	450	C.Y.	$10.00	$4,500
3	Gravel Road Base (6" Thick)	11,700	S.F.	$0.90	$10,530
4	Hot Mix Aspahlt (2.5" Thick)	11,700	S.F.	$1.50	$17,550
5	Concrete High-Back Combination Curb Gutter	610	L.F.	$20.00	$12,200
6	Construction Contingency @ 10%				$4,748
				Construction Subtotal	$52,228
7	Design Engineering @ 7.5%				$3,917
8	Construction Observation and Testing @ 7.5%				$3,917
9	Administrative Costs @ 2%				$1,045
				ST-13E Ocotillo Circle Reconstruction Phase Total	**$61,107**
ST-13F Ramose Circle Reconstruction Phase					
1	Mobilization @ 6%	1	L.S.	$2,700.00	$2,700
2	Earthwork	450	C.Y.	$10.00	$4,500
3	Gravel Road Base (6" Thick)	11,600	S.F.	$0.90	$10,440
4	Hot Mix Aspahlt (2.5" Thick)	11,600	S.F.	$1.50	$17,400
5	Concrete High-Back Combination Curb Gutter	615	L.F.	$20.00	$12,300
6	Construction Contingency @ 10%				$4,734
				Construction Subtotal	$52,074
7	Design Engineering @ 7.5%				$3,906
8	Construction Observation and Testing @ 7.5%				$3,906
9	Administrative Costs @ 2%				$1,041
				ST-13F Ramose Circle Reconstruction Phase Total	**$60,927**

SD-13 Storm Drain Phase					
1	Mobilization @ 6%	1	L.S.	$6,500.00	$6,500
2	24" HDPE Storm Drain	1,500	L.F.	$45.00	$67,500
3	18" HDPE Storm Drain	200	L.F.	$40.00	$8,000
4	New Drop Inlet Box, Grate & Frame	8	Each	$4,000.00	$32,000
5	Manholes	8	Each	$2,000.00	$16,000
6	Outlet Structure	1	L.S.	$5,000.00	$5,000
7	Pavement Repair	11,200	S.F.	$3.00	$33,600
8	Construction Contingency @ 10%				$16,860
				Construction Subtotal	$185,460
9	Design Engineering @ 7.5%				$13,910
10	Construction Observation and Testing @ 7.5%				$13,910
11	Administrative Costs @ 2%				$3,709
				SD-13 Storm Drain Phase Total	**$216,988**
PROJECT TOTAL					**$1,750,861**

ALPHA ENGINEERING

Toquerville City
Project 14 - Shangrila / Rim View / Shaparell Drives Storm Drain
Engineer's Preliminary Opinion of Probable Cost
May 1, 2021

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
SD-14A Chaparell Drive Phase					
1	Mobilization @ 6%	1	L.S.	$3,000.00	$3,000
2	24" HDPE Storm Drain	800	L.F.	$45.00	$36,000
3	18" HDPE Storm Drain	100	L.F.	$40.00	$4,000
4	New Drop Inlet Box, Grate & Frame	4	Each	$4,000.00	$16,000
5	Manholes	5	Each	$2,500.00	$12,500
6	Pavement Repair	5,600	S.F.	$3.00	$16,800
7	Construction Contingency @ 10%				$8,830
				Construction Subtotal	$97,130
8	Design Engineering @ 7.5%				$7,285
9	Construction Observation and Testing @ 7.5%				$7,285
10	Administrative Costs @ 2%				$1,943
				SD-14A Chaparell Drive Phase Total	**$113,642**
SD-14B Rim View Drive Phase					
1	Mobilization @ 6%	1	L.S.	$9,100.00	$9,100
2	24" HDPE Storm Drain	1,500	L.F.	$45.00	$67,500
3	18" HDPE Storm Drain	150	L.F.	$40.00	$6,000
4	New Drop Inlet Box, Grate & Frame	6	Each	$4,000.00	$24,000
5	Manholes	7	Each	$2,500.00	$17,500
6	Pavement Repair	12,000	S.F.	$3.00	$36,000
7	Construction Contingency @ 10%				$16,010
				Construction Subtotal	$176,110
8	Design Engineering @ 7.5%				$13,208
9	Construction Observation and Testing @ 7.5%				$13,208
10	Administrative Costs @ 2%				$3,522
				SD-14B Rim View Drive Phase Total	**$206,049**
SD-14C Shangrila Drive Phase					
1	Mobilization @ 6%	1	L.S.	$13,400.00	$13,400
2	24" HDPE Storm Drain	2,100	L.F.	$45.00	$94,500
3	18" HDPE Storm Drain	200	L.F.	$40.00	$8,000
4	New Drop Inlet Box, Grate & Frame	8	Each	$4,000.00	$32,000
5	Manholes	5	Each	$2,500.00	$12,500
6	Outlet Structure	1	L.S.	$5,000.00	$5,000
7	Pavement Repair	15,200	S.F.	$3.00	$45,600
8	Highway Crossing	1	L.S.	$25,000.00	$25,000
9	Construction Contingency @ 10%				$23,600
				Construction Subtotal	$259,600
10	Design Engineering @ 7.5%				$19,470
11	Construction Observation and Testing @ 7.5%				$19,470
12	Administrative Costs @ 2%				$5,192
				SD-14C Shangrila Drive Phase Total	**$303,732**
PROJECT TOTAL					**$623,423**

Toquerville City
Project 15 - Old Church Road Reconstruction
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
ST-15A Street Widening Phase					
1	Mobilization @ 6%	1	L.S.	$20,600.00	$20,600
2	Earthwork	2,400	C.Y.	$10.00	$24,000
3	Gravel Road Base (6" Thick)	48,600	S.F.	$0.90	$43,740
4	Hot Mix Aspahlt (2.5" Thick)	48,600	S.F.	$1.50	$72,900
5	Concrete High-Back Combination Curb Gutter	3,600	L.F.	$20.00	$72,000
6	6' Concrete Sidewalk w/4" Thick Gravel Base	21,600	S.F.	$6.00	$129,600
7	Construction Contingency @ 10%				$36,284
				Construction Subtotal	$399,124
8	Design Engineering @ 7.5%				$29,934
9	Construction Observation and Testing @ 7.5%				$29,934
10	Administrative Costs @ 2%				$7,982
				ST-15A Street Widening Phase Total	**$466,975**
ST-15B Bridge Upgrade Phase					
1	Mobilization @ 6%	1	L.S.	$10,500.00	$10,500
2	Earthwork	100	C.Y.	$15.00	$1,500
3	Demolition of Parapet Wall	1	L.S.	$5,000.00	$5,000
4	Cast-in-Place Reinforced Concrete Abutments	100	C.Y.	$800.00	$80,000
5	Cast-in-Place Reinforced Concrete Deck	60	C.Y.	$1,000.00	$60,000
6	Cast-in Place Reinforced Concrete Parapet	10	C.Y.	$800.00	$8,000
7	Steel Beams	10,000	LBS.	$2.00	$20,000
8	Construction Contingency @ 10%				$18,500
				Construction Subtotal	$203,500
9	Design Engineering @ 7.5%				$15,263
10	Construction Observation and Testing @ 7.5%				$15,263
11	Administrative Costs @ 2%				$4,070
				ST-15B Bridge Upgrade Phase Total	**$238,095**
SD-15 Storm Drain Phase					
1	Mobilization @ 6%	1	L.S.	$2,300.00	$2,300
2	24" HDPE Storm Drain	300	L.F.	$45.00	$13,500
3	18" HDPE Storm Drain	50	L.F.	$40.00	$2,000
4	New Drop Inlet Box, Grate & Frame	2	Each	$4,000.00	$8,000
5	Manholes	1	Each	$2,500.00	$2,500
6	Outlet Structure	1	L.S.	$5,000.00	$5,000
7	Pavement Repair	2,400	S.F.	$3.00	$7,200
8	Construction Contingency @ 10%				$4,050
				Construction Subtotal	$44,550
9	Design Engineering @ 7.5%				$3,341
10	Construction Observation and Testing @ 7.5%				$3,341
11	Administrative Costs @ 2%				$891
				SD-15 Storm Drain Phase Total	**$52,124**
PROJECT TOTAL					**$757,194**

ALPHA ENGINEERING

Toquerville City
Project 16 - City Center Park
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
PK-16A City Center Park West Side Improvements					
1	Mobilization @ 6%	1	L.S.	$11,100.00	$11,100
2	Pathways and Improvements	1	L.S.	$10,000.00	$10,000
3	Courts and Playground	1	L.S.	$15,000.00	$15,000
4	Amphitheater and Improvements	1	L.S.	$150,000.00	$150,000
5	Parking Improvements	1	L.S.	$10,000.00	$10,000
6	Construction Contingency @ 10%				$19,610
				Construction Subtotal	$215,710
7	Design Engineering @ 7.5%				$16,178
8	Construction Observation and Testing @ 7.5%				$16,178
9	Administrative Costs @ 2%				$4,314
	PK-16A City Center Park West Side Improvements Total				**$252,381**
PK-16B City Center Park East Side Improvements					
1	Mobilization @ 6%	1	L.S.	$69,000.00	$69,000
2	Community Center Building	1	L.S.	$1,000,000.00	$1,000,000
3	Pathways and Improvments	1	L.S.	$25,000.00	$25,000
4	Landscaping and Beautification	1	L.S.	$50,000.00	$50,000
5	Pavilion	1	L.S.	$25,000.00	$25,000
6	Parking Improvements	1	L.S.	$50,000.00	$50,000
7	Construction Contingency @ 10%				$121,900
				Construction Subtotal	$1,340,900
8	Design Engineering @ 7.5%				$100,568
9	Construction Observation and Testing @ 7.5%				$100,568
10	Administrative Costs @ 2%				$26,818
	PK-16B City Center Park East Side Improvements Total				**$1,568,853**
PROJECT TOTAL					**$1,821,234**

Toquerville City
Project 17 - Trail Ridge Park
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
PK-17 Trail Ridge Park Improvements					
1	Mobilization @ 6%	1	L.S.	$24,300.00	$24,300
2	Pathways and Improvements	1	L.S.	$25,000.00	$25,000
3	Playground	1	L.S.	$30,000.00	$30,000
4	Restrooms	1	L.S.	$100,000.00	$100,000
5	Pavilion	1	L.S.	$50,000.00	$50,000
6	Dog Park	1	L.S.	$200,000.00	$200,000
7	Construction Contingency @ 10%				$42,930
				Construction Subtotal	$472,230
8	Design Engineering @ 7.5%				$35,417
9	Construction Observation and Testing @ 7.5%				$35,417
10	Administrative Costs @ 2%				$9,445
				PK-17 Trail Ridge Park Improvements Total	**$552,509**
PROJECT TOTAL					**$552,509**

Toquerville City
Project 18 - Westfield Park
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
PK-18 Westfield Park Improvements					
1	Mobilization @ 6%	1	L.S.	$18,000.00	$18,000
2	Parking Improvements	1	L.S.	$75,000.00	$75,000
3	Playground and Court	1	L.S.	$50,000.00	$50,000
4	Restrooms	1	L.S.	$100,000.00	$100,000
5	Pavilion	1	L.S.	$25,000.00	$25,000
6	Pathways and Landscaping	1	L.S.	$50,000.00	$50,000
7	Construction Contingency @ 10%				$31,800
				Construction Subtotal	$349,800
8	Design Engineering @ 7.5%				$26,235
9	Construction Observation and Testing @ 7.5%				$26,235
10	Administrative Costs @ 2%				$6,996
				PK-18 Westfield Park Improvements Total	**$409,266**
PROJECT TOTAL					**$409,266**

Toquerville City
Project 19 - Toquerville Heights Park
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
PK-19 Toquerville Heights Park Improvements					
1	Mobilization @ 6%	1	L.S.	$21,000.00	$21,000
2	Parking Improvements	1	L.S.	$100,000.00	$100,000
3	Playground and Court	1	L.S.	$50,000.00	$50,000
4	Restrooms	1	L.S.	$100,000.00	$100,000
5	Pavilion	1	L.S.	$25,000.00	$25,000
6	Pathways and Landscaping	1	L.S.	$75,000.00	$75,000
7	Construction Contingency @ 10%				$37,100
				Construction Subtotal	$408,100
8	Design Engineering @ 7.5%				$30,608
9	Construction Observation and Testing @ 7.5%				$30,608
10	Administrative Costs @ 2%				$8,162
				PK-19 Toquerville Heights Park Improvements Total	**$477,477**
PROJECT TOTAL					**$477,477**

Toquerville City
Project 20 - Riverwalk Trail
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
TR-20A Riverwalk Trail					
1	Mobilization @ 6%	1	L.S.	$5,300.00	$5,300
2	Earthwork	2,000	C.Y.	$19.00	$38,000
3	Gravel Road Base (6" Thick)	25,200	S.F.	$0.90	$22,680
4	Hot Mix Aspahlt (2" Thick)	21,000	S.F.	$1.25	$26,250
5	Construction Contingency @ 10%				$9,223
				Construction Subtotal	$101,453
6	Design Engineering @ 7.5%				$7,609
7	Construction Observation and Testing @ 7.5%				$7,609
8	Administrative Costs @ 2%				$2,029
				TR-20A Riverwalk Trail Total	**$118,700**
T-20B Westfield Road Bridge Pedestrian Walkway					
1	Mobilization @ 6%	1	L.S.	$2,900.00	$2,900
2	Earthwork	20	C.Y.	$15.00	$300
3	Cast-in-Place Reinforced Concrete Abutments	8	C.Y.	$800.00	$6,400
4	Cast-in-Place Reinforced Concrete Deck	9	C.Y.	$1,000.00	$9,000
5	Cast-in Place Reinforced Concrete Parapet	10	C.Y.	$800.00	$8,000
6	Steel Outrigger Supports	9	Each	$2,500.00	$22,500
7	Chain Link Fence	50	L.F.	$20.00	$1,000
8	Construction Contingency @ 10%				$5,010
				Construction Subtotal	$55,110
9	Design Engineering @ 7.5%				$4,133
10	Construction Observation and Testing @ 7.5%				$4,133
11	Administrative Costs @ 2%				$1,102
				TR-20B Westfield Road Bridge Pedestrian Walkway Total	**$64,479**
PROJECT TOTAL					**$183,179**

Toquerville City
Project 21 - Blackrock Trail
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
TR-21 Blackrock Trail					
1	Mobilization @ 6%	1	L.S.	$8,100.00	$8,100
2	Earthwork	18,000	C.Y.	$7.50	$135,000
3	Construction Contingency @ 10%				$14,310
				Construction Subtotal	$157,410
4	Design Engineering @ 7.5%				$11,806
5	Construction Observation and Testing @ 7.5%				$11,806
6	Administrative Costs @ 2%				$3,148
				TR-21 Blackrock Trail Total	**$184,170**
PROJECT TOTAL					**$184,170**

Toquerville City
Project 22 - Cholla Trail
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
TR-22 Cholla Trail (Existing)					
1	Mobilization @ 6%	1	L.S.	$3,600.00	$3,600
2	Footbridge	2	L.S.	$20,000.00	$40,000
3	Repairs and Miscellaneous Improvements	1	L.S.	$20,000.00	$20,000
4	Construction Contingency @ 10%				$6,360
				Construction Subtotal	$69,960
5	Design Engineering @ 7.5%				$5,247
6	Construction Observation and Testing @ 7.5%				$5,247
7	Administrative Costs @ 2%				$1,399
				TR-22 Cholla Trail Total	**$81,853**
PROJECT TOTAL					**$81,853**

Toquerville City
Project 23 - Springs Tank Replacement
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
CW-23 Tank Replacement					
1	Mobilization @ 6%	1	L.S.	$29,100.00	$29,100
2	Abandon Existing Tank	1	L.S.	$10,000.00	$10,000
3	Excavation	20,000	C.Y.	$15.00	$300,000
4	Cast-in-Place Reinforced Concrete Floor/Footer	250	C.Y.	$200.00	$50,000
5	Cast-in-Place Reinforced Concrete Wall	175	C.Y.	$250.00	$43,750
6	Cast-in-Place Reinforced Concrete Deck	150	C.Y.	$300.00	$45,000
7	10" PVC Waterline	200	L.F.	$35.00	$7,000
8	8" Gate Valves (Drain)	1	Each	$2,500.00	$2,500
9	10" Gate Valves (Inlet, Outlet)	2	Each	$3,300.00	$6,600
10	Hatch, Ladder, Overflow Pipe, Accessories	1	L.S.	$10,000.00	$10,000
11	Tie-in to Existing Waterlines	2	Each	$5,000.00	$10,000
12	Construction Contingency @ 10%				$51,395
				Construction Subtotal	$565,345
13	Design Engineering @ 7.5%				$42,401
14	Construction Observation and Testing @ 7.5%				$42,401
15	Administrative Costs @ 2%				$11,307
				CW-23 Tank Replacement Total	**$661,454**
PROJECT TOTAL					**$661,454**

ALPHA ENGINEERING

Toquerville City
Project 24 - North Water Tank (Lowe)
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
CW-24 North Water Tank (Lowe)					
1	Mobilization @ 6%	1	L.S.	$48,000.00	$48,000
2	Site Preparation and Fencing	1	L.S.	$25,000.00	$25,000
3	500,000 Gallon Steel Tank	1	L.S.	$750,000.00	$750,000
4	Piping and Valves	1	L.S.	$25,000.00	$25,000
5	Construction Contingency @ 10%				$84,800
				Construction Subtotal	$932,800
6	Design Engineering @ 7.5%				$69,960
7	Construction Observation and Testing @ 7.5%				$69,960
8	Administrative Costs @ 2%				$18,656
				CW-24 North Water Tank Total	**$1,091,376**
PROJECT TOTAL					**$1,091,376**
CITY COST PARTICIPATION AT 25%					**$272,844**

Toquerville City
Project 25 - East Pecan Avenue Reconstruction
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
CW-26 Waterline Phase					
1	Mobilization @ 6%	1	L.S.	$1,500.00	$1,500
2	8" PVC Waterline	350	L.F.	$30.00	$10,500
3	8" Gate Valve	1	Each	$2,500.00	$2,500
4	Tie-in to Existing Waterline	1	Each	$5,000.00	$5,000
5	New Fire Hydrant	1	Each	$5,500.00	$5,500
6	Construction Contingency @ 10%				$2,500
				Construction Subtotal	$27,500
7	Design Engineering @ 7.5%				$2,063
8	Construction Observation and Testing @ 7.5%				$2,063
9	Administrative Costs @ 2%				$550
				CW-26 Waterline Phase Total	**$32,175**
ST-26 Street Phase					
1	Mobilization @ 6%	1	L.S.	$2,800.00	$2,800
2	Earthwork	260	C.Y.	$10.00	$2,600
3	Gravel Road Base (6" Thick)	7,000	S.F.	$0.90	$6,300
4	Hot Mix Aspahlt (2.5" Thick)	5,000	S.F.	$1.50	$7,500
5	5' Wide Concrete Waterway	60	C.Y.	$500.00	$30,000
6	Construction Contingency @ 10%				$4,920
				Construction Subtotal	$54,120
7	Design Engineering @ 7.5%				$4,059
8	Construction Observation and Testing @ 7.5%				$4,059
9	Administrative Costs @ 2%				$1,082
				ST-26 Street Phase Total	**$63,320**
PROJECT TOTAL					**$95,495**

ALPHA ENGINEERING

Toquerville City
Project 26 - Ash Creek Point Roads Reconstruction
Engineer's Preliminary Opinion of Probable Cost February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
ST-27A South Ash Creek Drive Reconstruction Phase					
1	Mobilization @ 6%	1	L.S.	$8,300.00	$8,300
2	Earthwork	1,800	C.Y.	$10.00	$18,000
3	Gravel Road Base (6" Thick)	48,000	S.F.	$0.90	$43,200
4	Hot Mix Aspahlt (2.5" Thick)	48,000	S.F.	$1.50	$72,000
5	Reconstruct Valve and Manhole Collars	1	L.S.	$5,000.00	$5,000
6	Construction Contingency @ 10%				$14,650
				Construction Subtotal	$161,150
7	Design Engineering @ 7.5%				$12,086
8	Construction Observation and Testing @ 7.5%				$12,086
9	Administrative Costs @ 2%				$3,223
				ST-27A South Ash Creek Drive Reconstruction Phase Total	**$188,546**
ST-27B Berry Avenue Reconstruction Phase					
1	Mobilization @ 6%	1	L.S.	$2,700.00	$2,700
2	Earhtwork	600	C.Y.	$10.00	$6,000
3	Gravel Road Base (6" Thick)	15,000	S.F.	$0.90	$13,500
4	Hot Mix Aspahlt (2.5" Thick)	15,000	S.F.	$1.50	$22,500
5	Reconstruct Valve and Manhole Collars	1	L.S.	$2,500.00	$2,500
6	Construction Contingency @ 10%				$4,720
				Construction Subtotal	$51,920
7	Design Engineering @ 7.5%				$3,894
8	Construction Observation and Testing @ 7.5%				$3,894
9	Administrative Costs @ 2%				$1,038
				ST-27B Berry Avenue Reconstruction Phase Total	**$60,746**
ST-27C Pioneer Road Reconstruction Phase (with spur)					
1	Mobilization @ 6%	1	L.S.	$4,700.00	$4,700
2	Earthwork	1,000	C.Y.	$10.00	$10,000
3	Gravel Road Base (6" Thick)	27,000	S.F.	$0.90	$24,300
4	Hot Mix Aspahlt (2.5" Thick)	27,000	S.F.	$1.50	$40,500
5	Reconstruct Valve and Manhole Collars	1	L.S.	$2,500.00	$2,500
6	Construction Contingency @ 10%				$8,200
				Construction Subtotal	$90,200
7	Design Engineering @ 7.5%				$6,765
8	Construction Observation and Testing @ 7.5%				$6,765
9	Administrative Costs @ 2%				$1,804
				ST-27C Pioneer Road Reconstruction Phase Total	**$105,534**

ALPHA ENGINEERING

ST-27D Brainard Circle Reconstruction Phase					
1	Mobilization @ 6%	1	L.S.	$1,600.00	$1,600
2	Earthwork	350	C.Y.	$10.00	$3,500
3	Gravel Road Base (6" Thick)	9,000	S.F.	$0.90	$8,100
4	Hot Mix Aspahlt (2.5" Thick)	9,000	S.F.	$1.50	$13,500
5	Reconstruct Valve and Manhole Collars	1	L.S.	$1,000.00	$1,000
6	Construction Contingency @ 10%				$2,770
				Construction Subtotal	$30,470
7	Design Engineering @ 7.5%				$2,285
8	Construction Observation and Testing @ 7.5%				$2,285
9	Administrative Costs @ 2%				$609
				ST-27D Brainard Circle Reconstruction Phase Total	**$35,650**
PROJECT TOTAL					**$390,476**

ALPHA ENGINEERING

Toquerville City
Project 27 - Mountain Charm Road Reconstruction
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
CW-28 Waterline Phase					
1	Mobilization @ 6%	1	L.S.	$3,800.00	$3,800
2	8" PVC Waterline	1,400	L.F.	$30.00	$42,000
3	8" Gate Valve	2	Each	$2,500.00	$5,000
4	Tie-in to Existing Waterline	2	Each	$5,000.00	$10,000
5	New Fire Hydrant	1	Each	$5,500.00	$5,500
6	Construction Contingency @ 10%				$6,630
				Construction Subtotal	$72,930
7	Design Engineering @ 7.5%				$5,470
8	Construction Observation and Testing @ 7.5%				$5,470
9	Administrative Costs @ 2%				$1,459
				CW-28 Waterline Phase Total	**$85,328**
ST-28 Street Reconstruction Phase					
1	Mobilization @ 6%	1	L.S.	$5,900.00	$5,900
2	Earthwork	1,300	C.Y.	$10.00	$13,000
3	Gravel Road Base (6" Thick)	35,000	S.F.	$0.90	$31,500
4	Hot Mix Aspahlt (2.5" Thick)	35,000	S.F.	$1.50	$52,500
5	Reconstruct Valve and Manhole Collars	1	L.S.	$1,000.00	$1,000
6	Construction Contingency @ 10%				$10,390
				Construction Subtotal	$114,290
7	Design Engineering @ 7.5%				$8,572
8	Construction Observation and Testing @ 7.5%				$8,572
9	Administrative Costs @ 2%				$2,286
				ST-28 Street Reconstruction Phase Total	**$133,719**
SD-28 Storm Drain Phase					
1	Mobilization @ 6%	1	L.S.	$1,400.00	$1,400
2	18" HDPE Storm Drain	350	L.F.	$40.00	$14,000
3	New Drop Inlet Box, Grate & Frame	1	Each	$4,000.00	$4,000
4	Outlet Structure	1	L.S.	$5,000.00	$5,000
5	Construction Contingency @ 10%				$2,440
				Construction Subtotal	$26,840
6	Design Engineering @ 7.5%				$2,013
7	Construction Observation and Testing @ 7.5%				$2,013
8	Administrative Costs @ 2%				$537
				SD-28 Storm Drain Phase Total	**$31,403**
PROJECT TOTAL					**$250,450**

ALPHA ENGINEERING

Toquerville City
Project 28 - Peachtree Drive / Grassy Lane Storm Drain
Engineer's Preliminary Opinion of Probable Cost
May 1, 2021

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
SD-29A North Peachtree Drive Phase					
1	Mobilization @ 6%	1	L.S.	$1,400.00	$1,400
2	18" HDPE Storm Drain	350	L.F.	$40.00	$14,000
3	New Drop Inlet Box, Grate & Frame	1	Each	$4,000.00	$4,000
4	Outlet Structure	1	L.S.	$5,000.00	$5,000
5	Construction Contingency @ 10%				$2,440
				Construction Subtotal	$26,840
6	Design Engineering @ 7.5%				$2,013
7	Construction Observation and Testing @ 7.5%				$2,013
8	Administrative Costs @ 2%				$537
				SD-29A North Peachtree Drive Phase Total	**$31,403**
SD-29B Peachtree Circle / Peachtree Drive Phase					
1	Mobilization @ 6%	1	L.S.	$3,300.00	$3,300
2	24" HDPE Storm Drain	500	L.F.	$45.00	$22,500
3	18" HDPE Storm Drain	50	L.F.	$40.00	$2,000
4	New Drop Inlet Box, Grate & Frame	3	Each	$4,000.00	$12,000
5	Manholes	1	Each	$2,500.00	$2,500
6	Outlet Structure	1	L.S.	$5,000.00	$5,000
7	Pavement Repair	3,600	S.F.	$3.00	$10,800
8	Construction Contingency @ 10%				$5,810
				Construction Subtotal	$63,910
9	Design Engineering @ 7.5%				$4,793
10	Construction Observation and Testing @ 7.5%				$4,793
11	Administrative Costs @ 2%				$1,278
				SD-29B Peachtree Circle / Peachtree Drive Phase Total	**$74,775**
SD-29C Grassy Lane Phase					
1	Mobilization @ 6%	1	L.S.	$300.00	$300
2	Drainage Channel	100	L.F.	$25.00	$2,500
3	Riprap Erosion Protection	50	C.Y.	$50.00	$2,500
4	Construction Contingency @ 10%				$530
				Construction Subtotal	$5,830
5	Design Engineering @ 7.5%				$437
6	Construction Observation and Testing @ 7.5%				$437
7	Administrative Costs @ 2%				$117
				SD-29C Grassy Lane Phase Total	**$6,821**
PROJECT TOTAL					**$112,999**

Toquerville City
Project 29 - North Toquer Boulevard Storm Drain
Engineer's Preliminary Opinion of Probable Cost
May 1, 2021

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
SD-30 North Toquerville Boulevard Phase					
1	Mobilization @ 6%	1	L.S.	$22,600.00	$22,600
2	Traffic Control	1	L.S.	$10,000.00	$10,000
3	30" HDPE Storm Drain	2,600	L.F.	$60.00	$156,000
4	18" HDPE Storm Drain	300	L.F.	$40.00	$12,000
5	New Drop Inlet Box, Grate & Frame	11	Each	$4,000.00	$44,000
6	Manholes	6	Each	$2,500.00	$15,000
7	Pavement Repair	23,200	S.F.	$6.00	$139,200
8	Construction Contingency @ 10%				$39,880
				Construction Subtotal	$438,680
9	Design Engineering @ 7.5%				$32,901
10	Construction Observation and Testing @ 7.5%				$32,901
11	Administrative Costs @ 2%				$8,774
				SD-30 North Toquerville Boulevard Phase Total	**$513,256**
PROJECT TOTAL					**$513,256**

Toquerville City
Project 30 - South Toque Boulevard Storm Drain
Engineer's Preliminary Opinion of Probable Cost
May 1, 2021

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
SD-31A SR-17 Drain to Ash Creek from Hunter Lane Phase					
1	Mobilization @ 6%	1	L.S.	$1,000.00	$1,000
2	24" HDPE Storm Drain	650	L.F.	$45.00	$29,250
3	New Drop Inlet Box, Grate & Frame	2	Each	$4,000.00	$8,000
4	Outlet Structure	1	L.S.	$5,000.00	$5,000
7	Pavement Repair	500	S.F.	$6.00	$3,000
5	Construction Contingency @ 10%				$4,625
				Construction Subtotal	$50,875
6	Design Engineering @ 7.5%				$3,816
7	Construction Observation and Testing @ 7.5%				$3,816
8	Administrative Costs @ 2%				$1,018
	SD-31A SR-17 Drain to Ash Creek from Hunter Lane Phase Total				**$59,524**
SD-31B SR-17 to Diamond G Lane to Ash Creek Phase					
1	Mobilization @ 6%	1	L.S.	$12,100.00	$12,100
2	Traffic Control	1	L.S.	$10,000.00	$10,000
3	24" HDPE Storm Drain	2,000	L.F.	$45.00	$90,000
4	18" HDPE Storm Drain	150	L.F.	$40.00	$6,000
5	New Drop Inlet Box, Grate & Frame	6	Each	$4,000.00	$24,000
6	Manholes	3	Each	$2,500.00	$7,500
7	Outlet Structure	1	L.S.	$5,000.00	$5,000
8	Pavement Repair	9,600	S.F.	$6.00	$57,600
9	Construction Contingency @ 10%				$21,220
				Construction Subtotal	$233,420
10	Design Engineering @ 7.5%				$17,507
11	Construction Observation and Testing @ 7.5%				$17,507
12	Administrative Costs @ 2%				$4,668
	SD-31B SR-17 to Diamond G Lane to Ash Creek Phase Total				**$273,101**
SD-31C Lower SR-17 to LaVerkin Creek Phase					
1	Mobilization @ 6%	1	L.S.	$13,100.00	$13,100
2	Traffic Control	1	L.S.	$10,000.00	$10,000
3	24" HDPE Storm Drain	1,700	L.F.	$45.00	$76,500
4	18" HDPE Storm Drain	200	L.F.	$40.00	$8,000
5	New Drop Inlet Box, Grate & Frame	8	Each	$4,000.00	$32,000
6	Manholes	4	Each	$2,500.00	$10,000
7	Outlet Structure	1	L.S.	$5,000.00	$5,000
8	Pavement Repair	12,800	S.F.	$6.00	$76,800
9	Construction Contingency @ 10%				$23,140
				Construction Subtotal	$254,540
10	Design Engineering @ 7.5%				$19,091
11	Construction Observation and Testing @ 7.5%				$19,091
12	Administrative Costs @ 2%				$5,091
	SD-31C Lower SR-17 to LaVerkin Creek Phase Total				**$297,812**
PROJECT TOTAL					**$630,437**

Toquerville City
Project 31 - West Anderson Junction Development
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
CW-32 Waterline Phase					
1	Mobilization @ 6%	1	L.S.	$17,400.00	$17,400
2	8" PVC Waterline	7,000	L.F.	$30.00	$210,000
3	8" Gate Valve	6	Each	$2,500.00	$15,000
4	Tie-in to Existing Waterline	2	Each	$5,000.00	$10,000
5	New Fire Hydrant	10	Each	$5,500.00	$55,000
6	Construction Contingency @ 10%				$30,740
				Construction Subtotal	$338,140
7	Design Engineering @ 7.5%				$25,361
8	Construction Observation and Testing @ 7.5%				$25,361
9	Administrative Costs @ 2%				$6,763
				CW-32 Waterline Phase Total	**$395,624**
ST-32 Street Phase					
1	Mobilization @ 6%	1	L.S.	$87,200.00	$87,200
2	Earthwork	30,000	C.Y.	$10.00	$300,000
3	Gravel Road Base (8" Thick)	315,000	S.F.	$1.00	$315,000
4	Hot Mix Aspahlt (3" Thick)	315,000	S.F.	$1.75	$551,250
5	Concrete High-Back Combination Curb Gutter	14,000	L.F.	$20.00	$280,000
6	Pavement Marking	1	L.S.	$5,000.00	$5,000
7	Signage	1	L.S.	$1,000.00	$1,000
8	Construction Contingency @ 10%				$153,945
				Construction Subtotal	$1,693,395
9	Design Engineering @ 7.5%				$127,005
10	Construction Observation and Testing @ 7.5%				$127,005
11	Administrative Costs @ 2%				$33,868
				ST-32 Street Phase Total	**$1,981,272**
PROJECT TOTAL					**$2,376,896**
CITY COST PARTICIPATION AT 25%					**$594,224**

ALPHA ENGINEERING

Toquerville City
Project 32 - Anderson Junction Neighborhood Park
Engineer's Preliminary Opinion of Probable Cost February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
PK-33 Anderson Junction Neighborhood Park					
1	Mobilization @ 6%	1	L.S.	$12,000.00	$12,000
2	Park Development	1	Acre	$200,000.00	$200,000
3	Construction Contingency @ 10%				$21,200
				Construction Subtotal	$233,200
4	Design Engineering @ 7.5%				$17,490
5	Construction Observation and Testing @ 7.5%				$17,490
6	Administrative Costs @ 2%				$4,664
				PK-33 Anderson Junction Neighborhood Park Total	**$272,844**
PROJECT TOTAL					**$272,844**
CITY COST PARTICIPATION AT 25%					**$68,211**

Toquerville City
Project 33 - North Regional Sports Park
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
PK-34 North Regional Sports Park					
1	Mobilization @ 6%	1	L.S.	$120,000.00	$120,000
2	Park Development	40	Acre	$50,000.00	$2,000,000
3	Construction Contingency @ 10%				$212,000
				Construction Subtotal	$2,332,000
4	Design Engineering @ 7.5%				$174,900
5	Construction Observation and Testing @ 7.5%				$174,900
6	Administrative Costs @ 2%				$46,640
				PK-34 North Regional Sports Park	**$2,728,440**
PROJECT TOTAL					**$2,728,440**
CITY COST PARTICIPATION AT 10%					**$272,844**

Toquerville City
Project 34 - South Regional Sports Park
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
PK-35 South Regional Sports Park					
1	Mobilization @ 6%	1	L.S.	$180,000.00	$180,000
2	Park Development	120	Acre	$25,000.00	$3,000,000
3	Construction Contingency @ 10%				$318,000
				Construction Subtotal	$3,498,000
4	Design Engineering @ 7.5%				$262,350
5	Construction Observation and Testing @ 7.5%				$262,350
6	Administrative Costs @ 2%				$69,960
				PK-35 South Regional Sports Park Total	**$4,092,660**
PROJECT TOTAL					**$4,092,660**
CITY COST PARTICIPATION AT 10%					**$409,266**

Toquerville City
Project 35 - South Regional Sports Park
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
PK-35 South Regional Sports Park					
1	Mobilization @ 6%	1	L.S.	$180,000.00	$180,000
2	Park Development	120	Acre	$25,000.00	$3,000,000
3	Construction Contingency @ 10%				$318,000
				Construction Subtotal	$3,498,000
4	Design Engineering @ 7.5%				$262,350
5	Construction Observation and Testing @ 7.5%				$262,350
6	Administrative Costs @ 2%				$69,960
				PK-35 South Regional Sports Park Total	**$4,092,660**
PROJECT TOTAL					**$4,092,660**
CITY COST PARTICIPATION AT 10%					**$409,266**

Toquerville City
Project 36 - Riverwalk Trail South Extension
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
TR-36 Riverwalk Trail					
1	Mobilization @ 6%	1	L.S.	$52,200.00	$52,200
2	Earthwork	12,000	C.Y.	$10.00	$120,000
3	24" Culverts	4	Each	$800.00	$3,200
4	Footbridge	1	Each	$20,000.00	$20,000
5	Special Walkway	3,700	L.F	$100.00	$370,000
6	Gravel Road Base (6" Thick)	183,600	S.F.	$0.90	$165,240
7	Hot Mix Aspahlt (2" Thick)	153,000	S.F.	$1.25	$191,250
8	Construction Contingency @ 10%				$92,189
				Construction Subtotal	$1,014,079
9	Design Engineering @ 7.5%				$76,056
10	Construction Observation and Testing @ 7.5%				$76,056
11	Administrative Costs @ 2%				$20,282
				TR-36 Riverwalk Trail Total	**$1,186,472**
PROJECT TOTAL					**$1,186,472**

Toquerville City
Project 37 - Old Highway 91 (I-15 Frontage Road) Trail
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
TR-38 Old Highway 91 Trail					
1	Mobilization @ 6%	1	L.S.	$17,800.00	$17,800
2	Earthwork	6,000	C.Y.	$10.00	$60,000
3	Gravel Road Base (6" Thick)	118,800	S.F.	$0.90	$106,920
4	Hot Mix Aspahlt (2" Thick)	99,000	S.F.	$1.25	$123,750
5	Signage	1	L.S.	$5,000.00	$5,000
6	Construction Contingency @ 10%				$31,347
				Construction Subtotal	$344,817
7	Design Engineering @ 7.5%				$25,861
8	Construction Observation and Testing @ 7.5%				$25,861
9	Administrative Costs @ 2%				$6,896
				TR-38 Old Highway 91 Trail Total	**$403,436**
PROJECT TOTAL					**$403,436**

Toquerville City
Project 38 - Hunter Lane Trail
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
TR-39 Hunter Lane Trail					
1	Mobilization @ 6%	1	L.S.	$1,700.00	$1,700
2	Earthwork	1,100	C.Y.	$10.00	$11,000
3	Gravel Road Base (6" Thick)	27,000	S.F.	$0.60	$16,200
4	Construction Contingency @ 10%				$2,890
				Construction Subtotal	$31,790
5	Design Engineering @ 7.5%				$2,384
6	Construction Observation and Testing @ 7.5%				$2,384
7	Administrative Costs @ 2%				$636
				TR-39 Hunter Lane Trail Total	**$37,194**
PROJECT TOTAL					**$37,194**

Toquerville City
Project 39 - Escalante Trail
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
TR-40 Escalante Trail					
1	Mobilization @ 6%	1	L.S.	$4,500.00	$4,500
2	Earthwork	10,000	C.Y.	$7.50	$75,000
3	Construction Contingency @ 10%				$7,950
				Construction Subtotal	$87,450
4	Design Engineering @ 7.5%				$6,559
5	Construction Observation and Testing @ 7.5%				$6,559
6	Administrative Costs @ 2%				$1,749
				TR-40 Escalante Trail Total	**$102,317**
PROJECT TOTAL					**$102,317**

Toquerville City
Project 40 - Nephi Twist Trail
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
TR-41 Nephi Twist Trail					
1	Mobilization @ 6%	1	L.S.	$3,400.00	$3,400
2	Earthwork	7,500	C.Y.	$7.50	$56,250
3	Construction Contingency @ 10%				$5,965
				Construction Subtotal	$65,615
4	Design Engineering @ 7.5%				$4,921
5	Construction Observation and Testing @ 7.5%				$4,921
6	Administrative Costs @ 2%				$1,312
				TR-41 Nephi Twist Trail Total	**$76,770**
PROJECT TOTAL					**$76,770**

Toquerville City
Project 41 - Flume Trail
Engineer's Preliminary Opinion of Probable Cost
February 1, 2020

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM PRICE
TR-42 Flume Trail					
1	Mobilization @ 6%	1	L.S.	$4,300.00	$4,300
2	Earthwork	2,500	C.Y.	$10.00	$25,000
3	Gravel Road Base (6" Thick)	50,400	S.F.	$0.90	$45,360
4	Hot Mix Aspahlt (2" Thick)	42,000	S.F.	$1.25	$52,500
5	Construction Contingency @ 10%				$12,716
				Construction Subtotal	$139,876
6	Design Engineering @ 7.5%				$10,491
7	Construction Observation and Testing @ 7.5%				$10,491
8	Administrative Costs @ 2%				$2,798
				TR-42 Flume Trail Total	**$163,655**
PROJECT TOTAL					**$163,655**