

Micron Area Plan

Culinary Water

Micron Culinary Water

Design Criteria

Minimum Pipe Size:	6" (8" in commercial areas)
Pipe Roughness Coefficient:	130
Capita per unit:	3.8
Extreme Peak Flow:	1.0 gpm/ERU (Lehi City system data)
Peak Hourly Flow:	0.80 gpm/ERU (Lehi City system data)
Storage:	400 gpd per connection or ERU (Ut. R309-510-8)
Source:	800 gpd per connection or ERU (Ut. R309-510-7)
Minimum Pressure:	50 psi at peak hourly flow + fire (Lehi Dev. Code) 30 psi at peak instantaneous flow(Ut. R309-105-9) 20 psi at extreme peak (Lehi Dev. Code)
Interior Sprinklers	550 gpm*

Summary of Results

Project Peak Hourly Flow:	1,421 gpm
Project Extreme Peak Flow:	1,776 gpm
Storage Required:	777,000 gallons Tank 1: 560,000 gallons ** Tank 2: 217,000 gallons ** **Includes 550 gpm fire flow for 1 hour
Source Required:	988 gpm
Case 1:	
Extreme Peak (no fire flow)	
Minimum Pressure:	55.9 psi @ J-120
Case 2:	
Peak Hourly Flow + 550 gpm fire flow	
Minimum Pressure:	50 psi at various junctions(see summary sheets)
Required Improvements:	(See Attached Map)

** Note: Interior sprinkler flows are not intended to provide for tall stacks or high sprinkler rates.

Note: Future area plan areas as shown on L14 are included in Culinary Water calculations.

MICRON AREA PLAN

Culinary Water Zone 1

Approx. Building Area (sf)	Residential Units	Capita/ Unit or sf	Capita	Flow/ Capita (gpd)	Average Flow (gpd)	Average Flow (gpm)	# ERU	Peak Hourly Flow (gpm)	Extreme Peak Flow (gpm)	Storage per ERU (gal/ERU)	Storage Required (gal)	Source/ ERU (gpd)	Source Required (gpm)
2,771,274	0	1/333	8,322	15	124,832	87	329	263	329	400	131,402	800	262,805
257,800	0	1/1000	258	20	5,156	4	14	11	14	400	5,427	800	10,855
465,000	0	1/333	1,396	15	20,946	15	55	44	55	400	22,048	800	44,097
223,494	0	1/333	671	15	10,067	7	26	21	26	400	10,597	800	21,194
62,580	0	1/30	2,086	25	52,150	36	137	110	137	400	54,895	800	109,789
143,040	116	3.8	441	100	44,080	31	116	93	116	400	46,400	800	92,800
0	0	1/350	0	15	0	0	0	0	0	400	0	800	0
0	46	3.8	175	100	17,480	12	46	37	46	400	18,400	800	36,800
0	0	3.8	0	100	0	0	0	0	0	400	0	800	0
0	0	3.8	0	100	0	0	0	0	0	400	0	800	0
-	0	-	0	20	0	0	0	0	0	400	0	800	0
-	0	-	0	25	0	0	0	0	0	400	0	800	0
3,923,188	162	-	13,349	274,711	191	723	578	723	723	289,170	578,340	402	578,340

Culinary Water Zone 2

Approx. Building Area (sf)	Residential Units	Capita/ Unit or sf	Capita	Flow/ Capita (gpd)	Average Flow (gpd)	Average Flow (gpm)	# ERU	Peak Hourly Flow (gpm)	Extreme Peak Flow (gpm)	Storage per ERU (gal/ERU)	Storage Required (gal)	Source/ ERU (gpd)	Source Required (gpm)
1,672,714	0	1/333	5,023	15	75,347	52	198	159	198	400	79,313	800	158,626
307,000	0	1/1000	307	20	6,140	4	16	13	16	400	6,463	800	12,926
0	0	1/333	0	15	0	0	0	0	0	400	0	800	0
0	0	1/333	0	15	0	0	0	0	0	400	0	800	0
0	0	1/30	0	25	0	0	0	0	0	400	0	800	0
213,600	0	3.8	610	100	0	0	0	0	0	400	0	800	0
0	70	1/350	15	9,154	6	24	19	19	24	400	9,636	800	19,272
0	72	3.8	266	100	26,600	18	70	56	70	400	28,000	800	56,000
0	134	3.8	274	100	27,360	19	72	58	72	400	28,800	800	57,600
-	0	-	509	100	50,920	35	134	107	134	400	53,600	800	107,200
-	0	-	0	20	0	0	0	0	0	400	0	800	0
-	0	-	1,200	25	30,000	21	79	63	79	400	31,579	800	63,158
2,193,314	276	-	8,189	225,522	157	593	475	593	593	237,391	474,783	330	474,783

Culinary Water Zone 3

Approx. Building Area (sf)	Residential Units	Capita/ Unit or sf	Capita	Flow/ Capita (gpd)	Average Flow (gpd)	Average Flow (gpm)	# ERU	Peak Hourly Flow (gpm)	Extreme Peak Flow (gpm)	Storage per ERU (gal/ERU)	Storage Required (gal)	Source/ ERU (gpd)	Source Required (gpm)
511,050	0	1/333	1,535	15	23,020	16	61	48	61	400	24,232	800	48,464
177,600	0	1/1000	178	20	3,552	2	9	7	9	400	3,739	800	7,478
0	0	1/333	0	15	0	0	0	0	0	400	0	800	0
0	0	1/333	0	15	0	0	0	0	0	400	0	800	0
0	0	1/30	0	25	0	0	0	0	0	400	0	800	0
0	0	3.8	0	100	0	0	0	0	0	400	0	800	0
0	0	1/350	0	15	0	0	0	0	0	400	0	800	0
0	30	3.8	114	100	11,400	8	30	24	30	400	12,000	800	24,000
0	252	3.8	958	100	95,760	67	252	202	252	400	100,800	800	201,600
0	61	3.8	232	100	23,180	16	61	49	61	400	24,400	800	48,800
-	0	-	900	20	18,000	13	47	38	47	400	18,947	800	37,895
-	0	-	0	25	0	0	0	0	0	400	0	800	0
688,650	343	-	3,916	174,912	121	460	368	460	460	184,118	368,236	256	368,236

Active Scenario: Peak Extreme Demand

Current Time: 0.000 hours

Label	Elevation (ft)	Peak Extreme Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-25	4,842.00	31	5,051.26	90.5
J-26	4,844.00	59	5,051.28	89.7
J-29	5,025.00	24	5,173.17	64.1
J-31	4,855.00	24	5,051.29	84.9
J-32	4,895.00	46	5,051.34	67.6
J-33	4,968.00	0	5,183.03	93.0
J-35	5,035.00	32	5,171.53	59.1
J-36	4,934.00	18	5,171.37	102.7
J-37	4,874.00	0	5,051.32	76.7
J-38	4,832.00	18	5,051.28	94.9
J-39	4,884.00	12	5,051.35	72.4
J-40	4,872.00	0	5,051.25	77.6
J-41	4,950.00	30	5,172.29	96.2
J-42	4,940.00	93	5,170.94	99.9
J-43	4,970.00	79	5,170.92	86.9
J-44	5,004.00	0	5,171.41	72.4
J-62	4,855.00	66	5,051.53	85.0
J-63	4,898.00	27	5,051.57	66.4
J-65	4,920.00	26	5,051.63	57.0
J-66	4,978.00	38	5,183.19	88.8
J-67	4,975.00	42	5,181.53	89.4
J-68	5,044.00	28	5,184.82	60.9
J-69	5,000.00	50	5,180.71	78.2
J-70	5,098.00	93	5,313.53	93.3
J-71	4,994.00	0	5,180.77	80.8
J-74	4,967.00	42	5,180.55	92.4
J-75	5,041.00	12	5,174.89	57.9
J-77	5,012.00	17	5,171.44	69.0
J-78	5,025.00	127	5,171.72	63.5
J-79	5,110.00	204	5,283.86	75.2
J-80	4,870.00	40	5,051.32	78.4
J-81	4,874.00	174	5,051.15	76.6
J-82	4,880.00	161	5,051.14	74.0
J-83	5,100.00	89	5,277.41	76.8
J-87	4,890.00	0	5,051.57	69.9
J-92	4,997.05	0	5,173.16	76.2
J-101	5,029.72	0	5,172.14	61.6
J-102	4,941.60	0	5,172.00	99.7
J-112	5,126.00	0	5,290.53	71.2
J-114	5,125.00	9	5,307.57	79.0
J-115	5,108.00	29	5,295.92	81.3
J-117	5,060.15	15	5,313.48	109.6
J-118	5,078.00	21	5,314.02	102.1
J-120	5,045.65	0	5,174.80	55.9
J-121	5,092.19	0	5,293.01	86.9
J-122	5,040.00	0	5,186.02	63.2

Active Scenario: Peak Extreme Demand

Current Time: 0.000 hours

Label	Elevation (ft)	Peak Extreme Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-123	5,036.00	0	5,187.62	65.6
J-124	5,110.00	0	5,314.63	88.5

Active Scenario: Peak Extreme Demand

Current Time: 0.000 hours

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Headloss (ft)	Velocity (ft/s)
P-27	2,073	J-25	J-31	8.0	PVC	130.0	0.04	0.15
P-29	647	J-31	J-32	8.0	PVC	130.0	0.04	0.30
P-40	1,463	J-25	J-38	8.0	PVC	130.0	0.02	0.14
P-41	734	J-38	J-26	8.0	PVC	130.0	0.00	0.02
P-42	690	J-37	J-38	8.0	PVC	130.0	0.04	0.27
P-43	818	J-26	J-39	8.0	PVC	130.0	0.07	0.36
P-46	540	J-25	J-40	8.0	PVC	130.0	0.00	0.10
P-55	1,075	J-36	J-42	8.0	PVC	130.0	0.43	0.81
P-77	1,019	J-65	J-63	8.0	PVC	130.0	0.07	0.30
P-79	161	J-66	J-33	8.0	PVC	130.0	0.16	1.32
P-81	842	J-67	J-33	6.0	PVC	130.0	1.51	1.52
P-83	1,200	J-68	J-66	8.0	PVC	130.0	1.62	1.57
P-91	807	J-29	J-75	8.0	PVC	130.0	1.72	2.00
P-93	261	J-44	J-77	8.0	PVC	130.0	0.03	0.41
P-94	545	J-77	J-35	8.0	PVC	130.0	0.10	0.52
P-99	503	J-39	J-80	8.0	PVC	130.0	0.03	0.30
P-100	588	J-80	J-37	8.0	PVC	130.0	0.00	0.05
P-101	691	J-37	J-81	8.0	PVC	130.0	0.16	0.61
P-102	593	J-81	J-40	8.0	PVC	130.0	0.10	0.50
P-103	487	J-40	J-82	8.0	PVC	130.0	0.11	0.60
P-104	1,571	J-82	J-32	8.0	PVC	130.0	0.19	0.43
P-124	1,054	J-43	J-42	8.0	PVC	130.0	0.02	0.17
P-127	1,113	J-35	J-36	8.0	PVC	130.0	0.16	0.47
P-131	519	J-63	J-87	8.0	PVC	130.0	0.00	0.03
P-132	658	J-87	J-62	8.0	PVC	130.0	0.03	0.26
P-140	700	J-40	PRV-2	8.0	PVC	130.0	0.42	1.00
P-141	208	J-42	PRV-2	8.0	PVC	130.0	0.12	1.00
P-142	88	J-36	PRV-3	8.0	PVC	130.0	0.04	0.84
P-143	830	PRV-3	J-37	8.0	PVC	130.0	0.35	0.84
P-144	959	J-39	PRV-4	8.0	PVC	130.0	0.32	0.73
P-145	464	J-41	PRV-4	8.0	PVC	130.0	0.15	0.73
P-146	1,201	J-33	PRV-6	8.0	PVC	130.0	0.17	0.47
P-147	244	PRV-6	J-65	8.0	PVC	130.0	0.04	0.47
P-149	1,714	PRV-5	J-87	8.0	PVC	130.0	0.10	0.29
P-150	951	J-43	PRV-1	8.0	PVC	130.0	0.59	1.03
P-151	536	PRV-1	J-32	8.0	PVC	130.0	0.33	1.03
P-153	317	J-29	J-92	8.0	PVC	130.0	0.01	0.16
P-154	534	J-92	J-41	8.0	PVC	130.0	0.88	1.74
P-155	1,264	J-75	J-92	8.0	PVC	130.0	1.73	1.57
P-156	1,671	J-62	J-63	8.0	PVC	130.0	0.03	0.16
P-157	870	J-44	J-42	8.0	PVC	130.0	0.47	0.95
P-167	735	J-35	J-101	8.0	PVC	130.0	0.61	1.20
P-168	661	J-101	J-29	8.0	PVC	130.0	1.03	1.69
P-169	727	J-41	J-102	8.0	PVC	130.0	0.29	0.81
P-170	658	J-102	J-36	8.0	PVC	130.0	0.63	1.29
P-171	959	J-101	J-102	8.0	PVC	130.0	0.15	0.48

Active Scenario: Peak Extreme Demand

Current Time: 0.000 hours

Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen- Williams C	Headloss (ft)	Velocity (ft/s)
P-176	217	J-69	J-71	6.0	PVC	130.0	0.06	0.57
P-177	841	J-71	J-67	6.0	PVC	130.0	0.75	1.04
P-178	1,081	J-71	J-74	6.0	PVC	130.0	0.23	0.48
P-183	1,101	J-79	J-83	6.0	PVC	130.0	6.44	2.88
P-185	414	J-78	J-44	6.0	PVC	130.0	0.32	0.96
P-187	383	J-112	J-79	6.0	PVC	130.0	6.67	5.19
P-189	210	J-83	PRV-7	6.0	PVC	130.0	3.19	4.82
P-195	430	J-70	PRV-8	6.0	PVC	130.0	0.00	0.00
P-196	579	PRV-8	J-69	6.0	PVC	130.0	0.00	0.00
P-209	1,275	PRV-9	J-74	6.0	PVC	130.0	0.00	0.00
P-217	1,097	J-114	J-115	8.0	PVC	130.0	11.65	4.76
P-218	1,256	J-115	J-112	8.0	PVC	130.0	5.39	2.92
P-226	43	PRV-9	J-117	6.0	PVC	130.0	0.00	0.00
P-227	1,833	J-117	J-70	6.0	PVC	130.0	0.06	0.17
P-228	1,643	J-70	J-118	8.0	PVC	130.0	0.49	0.69
P-233	156	PRV-7	J-120	6.0	PVC	130.0	2.36	4.82
P-234	739	J-120	J-78	6.0	PVC	130.0	3.08	2.40
P-235	915	J-120	J-43	6.0	PVC	130.0	3.89	2.42
P-237	2,547	J-121	J-83	6.0	PVC	130.0	15.59	2.95
P-239	475	J-115	J-121	6.0	PVC	130.0	2.91	2.95
P-241	723	J-68	J-122	8.0	PVC	130.0	1.20	1.75
P-242	2,404	J-122	PRV-5	8.0	PVC	130.0	0.14	0.29
P-244	1,959	J-75	J-123	8.0	PVC	130.0	12.73	3.65
P-245	728	J-123	J-122	8.0	PVC	130.0	1.60	2.04
P-246	1,883	T-1	J-123	10.0	PVC	130.0	9.38	3.64
P-247	1,926	J-114	J-124	10.0	PVC	130.0	7.06	3.09
P-248	1,452	J-124	J-118	8.0	PVC	130.0	0.60	0.83
P-249	1,500	T-2	J-124	10.0	PVC	130.0	7.37	3.62

Active Scenario: Peak Day + Fire

Current Time: 0.000 hours

Label	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Peak Extreme Demand (gpm)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Velocity of Maximum Pipe (ft/s)	Pipe w/ Maximum Velocity
J-25	550	898	25	51.2	J-75	10.00	P-233
J-26	550	909	47	50.9	J-75	10.00	P-189
J-29	550	895	19	50.0	J-75	9.56	P-189
J-31	550	891	19	51.3	J-83	10.00	P-233
J-32	550	886	37	51.3	J-83	10.00	P-233
J-33	550	1,142	0	50.0	J-68	5.55	P-245
J-35	550	898	26	51.0	J-75	9.94	P-189
J-36	550	908	15	50.6	J-35	10.00	P-189
J-37	550	906	0	50.9	J-75	10.00	P-233
J-38	550	906	14	51.0	J-75	10.00	P-189
J-39	550	913	9	50.7	J-75	10.00	P-233
J-40	550	896	0	51.3	J-35	10.00	P-233
J-41	550	913	24	50.0	J-75	9.77	P-189
J-42	550	881	74	51.3	J-83	10.00	P-189
J-43	550	844	63	51.3	J-83	10.00	P-189
J-44	550	885	0	51.1	J-35	10.00	P-189
J-62	550	1,204	53	50.0	J-68	6.54	P-245
J-63	550	1,202	22	50.0	J-68	6.51	P-245
J-65	550	1,176	20	50.0	J-68	6.31	P-147
J-66	550	1,127	31	50.0	J-68	5.55	P-245
J-67	550	1,546	34	50.0	J-68	9.73	P-177
J-68	550	995	23	55.8	J-122	5.55	P-245
J-75	550	832	10	52.7	J-35	8.85	P-189
J-77	550	894	14	50.7	J-35	10.00	P-189
J-80	550	910	32	50.8	J-75	10.00	P-189
J-81	550	901	139	51.1	J-75	10.00	P-233
J-82	550	894	129	51.3	J-83	10.00	P-233
J-87	550	1,206	0	50.0	J-68	6.58	P-245
J-92	550	892	0	50.0	J-75	9.53	P-189
J-101	550	931	0	50.1	J-75	10.00	P-189
J-102	550	928	0	50.2	J-75	10.00	P-189
J-70	550	1,128	75	56.5	J-120	7.86	P-248
J-69	550	1,367	40	50.0	J-70	8.92	P-196
J-71	550	1,422	0	50.0	J-70	8.07	P-196
J-74	550	1,169	34	50.0	J-117	7.04	P-227
J-79	550	689	163	51.6	J-112	9.28	P-187
J-83	550	635	71	55.6	J-112	7.79	P-187
J-78	550	829	102	51.3	J-83	10.00	P-189
J-112	550	691	0	56.2	J-79	7.73	P-217
J-114	550	1,361	7	50.0	J-112	8.14	P-249
J-115	550	861	23	50.0	J-112	8.82	P-217
J-117	550	769	12	56.5	J-120	8.86	P-227
J-118	550	1,463	17	54.7	J-70	10.00	P-248

Active Scenario: Peak Day + Fire

Current Time: 0.000 hours

Label	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Peak Extreme Demand (gpm)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Velocity of Maximum Pipe (ft/s)	Pipe w/ Maximum Velocity
J-120	550	713	0	51.3	J-83	10.00	P-233
J-121	550	826	0	50.0	J-112	9.38	P-239
J-122	550	1,222	0	50.0	J-68	7.00	P-245
J-123	550	1,971	0	50.0	J-68	8.41	P-189
J-124	550	1,816	0	56.5	J-120	10.00	P-249

Micron Water Model Updated.wtg

Color Coding Legend
Pipe: Diameter (in)

	<= 6.0
	<= 8.0
	<= 10.0
	Other

