

Street Capacity Calculations

La Orilla Road

56' F-F Street Section with 8" curb

Slope= 0.0344

For water depths less than 0.125 feet

Y= Water depth
 Area = $8 \cdot Y^2$
 P= $\text{SQRT}(257 \cdot Y^2) + Y$
 n= 0.017

Depth (ft)	Area (ft ²)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.010	0.001	0.170	0.005	0.000	0.001	0.455	0.005	0.801	0.007
0.020	0.003	0.341	0.009	0.002	0.005	0.722	0.014	0.899	0.017
0.040	0.013	0.681	0.019	0.015	0.029	1.146	0.046	1.010	0.041
0.060	0.029	1.022	0.028	0.043	0.086	1.501	0.090	1.080	0.066
0.080	0.051	1.362	0.038	0.093	0.186	1.819	0.146	1.133	0.094
0.100	0.080	1.703	0.047	0.169	0.338	2.111	0.211	1.176	0.124
0.120	0.115	2.044	0.056	0.275	0.549	2.383	0.286	1.212	0.154
0.125	0.125	2.129	0.059	0.306	0.612	2.449	0.306	1.221	0.162

For water depths greater than 0.125 ft but less than 0.645 ft

Y1= Y-0.125
 A2= $A1 + 2 \cdot Y1 + 28 \cdot Y1^2$
 P2= $P1 + \text{SQRT}(2501 \cdot Y1^2)$

Depth (ft)	Area (ft ²)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.130	0.136	2.384	0.057	0.326	0.651	2.399	0.312	1.173	0.160
0.200	0.433	5.955	0.073	1.221	2.441	2.822	0.564	1.112	0.230
0.300	1.333	11.056	0.121	5.271	10.542	3.956	1.187	1.273	0.410
0.400	2.793	16.157	0.173	14.048	28.095	5.030	2.012	1.402	0.618
0.450	3.733	18.707	0.200	20.662	41.324	5.536	2.491	1.454	0.727
0.485	4.467	20.477	0.218	26.245	52.491	5.875	2.848	1.487	0.805
0.550	6.033	23.808	0.253	39.162	78.323	6.492	3.570	1.543	0.956
0.600	7.393	26.359	0.280	51.351	102.703	6.946	4.168	1.580	1.074
0.645	8.736	28.654	0.305	64.160	128.319	7.344	4.737	1.612	1.182

For water depths greater than 0.645 ft but less than 0.667 ft

Y2= Y - 0.645
 A3= $A2 + Y2 \cdot 28$
 P3= $P2 + Y2$

Depth (ft)	Area (ft ²)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.646	8.764	28.895	0.303	64.144	128.287	7.319	4.728	1.605	1.178
0.647	8.792	28.896	0.304	64.484	128.968	7.334	4.745	1.607	1.182
0.650	8.876	28.899	0.307	65.510	131.019	7.380	4.797	1.613	1.193
0.652	8.932	28.901	0.309	66.197	132.394	7.411	4.832	1.617	1.201
0.657	9.072	28.906	0.314	67.927	135.854	7.487	4.919	1.628	1.219
0.660	9.156	28.909	0.317	68.974	137.948	7.533	4.972	1.634	1.230
0.665	9.296	28.914	0.322	70.732	141.465	7.609	5.060	1.644	1.249
0.667	9.352	28.916	0.323	71.441	142.881	7.639	5.095	1.648	1.257