

APPENDIX A:
CAPITAL FUNDING SCENARIOS

Schedule of Capital Projects (25 years)

	Project Costs	Cost Dollars	Start Year	End Year	Total Years	Annual Cost
Capital Projects - Storm Drainage						
Warren Estates Evaluation and Drainage Improvement Project	\$3,200,000	Current	FY 2020	FY 2022	3	\$1,066,667
City of Reno Drainage Master Planning	\$2,500,000	Current	FY 2020	FY 2023	4	\$625,000
Rosewood Wash Culvert Upgrades	\$2,500,000	Current	FY 2021	FY 2022	2	\$1,250,000
Dry Creek Repairs at Reno/Tahoe Airport (CoR owned)	\$400,000	Current	FY 2021	FY 2022	2	\$200,000
Autumn Hills, Offenhauser, Longley McCarran Storm Drain Improvements	\$10,000,000	Current	FY 2024	FY 2025	2	\$5,000,000
Culvert Replacement, Stead @ Silver Lake Road	\$600,000	Current	FY 2022	FY 2023	2	\$300,000
Matley Lane and Terminal Way Storm Drain and Catch Basins	\$500,000	Current	FY 2022	FY 2023	2	\$250,000
Truckee River Whitewater Park Repair Work	\$250,000	Current	FY 2021	FY 2022	2	\$125,000
Margrave Ditch Erosion (by Reno Costco)	\$1,000,000	Current	FY 2022	FY 2023	2	\$500,000
Sagittarius Storm Drain Improvements	\$6,000,000	Current	FY 2023	FY 2025	3	\$2,000,000
Sediment basin at pipe inlet at Silver Lake Apartments (City right of way)	\$100,000	Current	FY 2021	FY 2022	2	\$50,000
Sadleir Southworth (Wells Avenue) Area Storm Drain Improvements	\$350,000	Current	FY 2022	FY 2023	2	\$175,000
Belford Drainage overpass at Lake Ditch	\$800,000	Current	FY 2022	FY 2023	2	\$400,000
Irrigation Ditch Tributary Crossing Improvements	\$15,000,000	Current	FY 2025	FY 2030	6	\$2,500,000
In and Out Basins (Various Locations) 12th and Brookfield/12th and Washington	\$500,000	Current	FY 2022	FY 2025	4	\$125,000
Miscellaneous Various Storm Drain: Greenridge to Moore, various "island 18", Edison Way, Sage St yard area, California Avenue, Isbell Road, Avenida de Landa, Wedekind, Scottsdale / Clear Acre	\$2,500,000	Current	FY 2022	FY 2027	6	\$416,667
Miscellaneous Grading-Regrading: Len Circle, Orance and Apple St., Hatch, Brentwood, Walker, Skyline	\$500,000	Current	FY 2022	FY 2027	6	\$83,333
Double Diamond Levee Upgrades	\$1,000,000	Current	FY 2025	FY 2026	2	\$500,000
Aquila Ave/Krupp Circle Drainage Improvments	\$6,500,000	Current	FY 2024	FY 2025	2	\$3,250,000
Thomas Creek at South Virginia between approximately Patriot and Gavian storm drain improvements	\$5,000,000	Current	FY 2024	FY 2025	2	\$2,500,000

	Project Costs	Cost Dollars	Start Year	End Year	Total Years	Annual Cost
Stead Storm Drain and channel improvements	\$7,000,000	Current	FY 2026	FY 2030	5	\$1,400,000
7495 S. Virginia near Huffaker School	\$300,000	Current	FY 2023	FY 2024	2	\$150,000
Horse Creek Channel Improvements Military Rd to Lear	\$350,000	Current	FY 2021	FY 2022	2	\$175,000
Edison Way Area	\$400,000	Current	FY 2024	FY 2025	2	\$200,000
Yori Park Retention Basin	\$50,000	Current	FY 2024	FY 2024	1	\$50,000
East Fork Chalk Creek at Sapphire Ridge Development	\$100,000	Current	FY 2024	FY 2025	2	\$50,000
Whites Creek Flow Split	\$430,000	Current	FY 2025	FY 2026	2	\$215,000
Manzanita Park Wash (With Excavation)	\$1,500,000	Current	FY 2025	FY 2026	2	\$750,000
Thomas Creek at Ventana Parkway	\$1,750,000	Current	FY 2030	FY 2035	6	\$291,667
Evans Creek Block "N" storm drain Improvements at I80 to River	\$1,750,000	Current	FY 2030	FY 2035	6	\$291,667
Whites Creek at Thomas Rd Detention Basin	\$1,800,000	Current	FY 2035	FY 2036	2	\$900,000
Vine Street Culvert Upgrades	\$1,800,000	Current	FY 2035	FY 2036	2	\$900,000
Detention Basins: Thomas Creek at Zolezzi Detention Basin, Evans Creek at Ballardini Ranch, Evans Creek, Dry Creek @ Huffaker, Galena Narrows	\$22,900,000	Current	FY 2035	FY 2044	11	\$2,290,000
Thomas Creek : structures, culverts, flow splits, irrigation ditch bypass structures	\$10,000,000	Current	FY 2035	FY 2040	6	\$1,666,667
Galena Wash- Channel / culverts	\$6,450,000	Current	FY 2035	FY 2044	11	\$645,000
Virginia Foothill Wash--Channel, culverts and debris basins	\$5,800,000	Current	FY 2035	FY 2044	11	\$580,000
Swan Lake/Silver Lake Flooding -partial solutions	\$5,000,000	Current	FY 2025	FY 2030	6	\$833,333
Black Springs Wash, Channel and Culverts	\$2,500,000	Current	FY 2035	FY 2037	3	\$833,333
Anderson Wash--Culvert	\$2,000,000	Current	FY 2039	FY 2040	2	\$1,000,000
Paymaster Wash--Channel	\$2,500,000	Current	FY 2039	FY 2040	2	\$1,250,000
Black Springs Wash-Culvert and Channel work	\$2,600,000	Current	FY 2039	FY 2040	2	\$1,300,000
Lemmon Valley Wash--Culvert	\$1,200,000	Current	FY 2039	FY 2040	2	\$600,000
Aspen Glen Dr. and White Fir St. or Ambrose Park-Structure	\$275,000	Current	FY 2039	FY 2040	2	\$137,500
Alum Creek--Channel and Ditch Modification	\$1,750,000	Current	FY 2039	FY 2040	2	\$875,000
Rosewood Wash (Phase 2) discharge structures, channel improvements, culverts	\$1,000,000	Current	FY 2035	FY 2038	4	\$250,000
Dandini Wash--Structure	\$170,000	Current	FY 2040	FY 2041	2	\$85,000
Dant Wash-culverts	\$8,600,000	Current	FY 2040	FY 2041	2	\$4,300,000
Boynton Slough-Culverts	\$8,600,000	Current	FY 2040	FY 2041	2	\$4,300,000

	Project Costs	Cost Dollars	Start Year	End Year	Total Years	Annual Cost
Evans Creek-Modify Head Gates, Channel improvements and structures	\$1,650,000	Current	FY 2040	FY 2041	2	\$825,000
Total - Capital Projects - Storm Drainage	\$159,425,000					

	Project Costs	Cost Dollars	Start Year	End Year	Total Years	Annual Cost
Capital Projects - Flood						
Remove Pedestrian Bridge (Wells Avenue)	\$911,437	Future	FY 2024	FY 2025	2	\$455,719
Replace Pedestrian Bridge (Upstream of Wells Avenue)	\$2,278,593	Future	FY 2024	FY 2025	2	\$1,139,296
Lake St Bridge	\$11,982,465	Future	FY 2024	FY 2025	2	\$5,991,233
Flood proofing DT	\$307,622	Future	FY 2025	FY 2025	1	\$307,622
New Floodwalls (Riverside), all DTR land	\$29,667,526	Future	FY 2027	FY 2030	4	\$7,416,881
New Floodwalls (Riverside- Geotech)	\$1,083,330	Future	FY 2027	FY 2030	4	\$270,833
Jones St Signal	\$1,321,605	Future	FY 2027	FY 2030	4	\$330,401
Booth St Bridge Demo	\$914,402	Future	FY 2025	FY 2025	1	\$914,402
Booth Ped Bridge	\$683,578	Future	FY 2025	FY 2025	1	\$683,578
Wingfield Ped Bridges	\$1,133,977	Future	FY 2025	FY 2025	1	\$1,133,977
Arlington Closure Gates	\$1,894,923	Future	FY 2025	FY 2025	1	\$1,894,923
Riverside Pump Station	\$13,277,774	Future	FY 2029	FY 2030	2	\$6,638,887
Replace Downtown Floodwalls	\$50,209,274	Future	FY 2039	FY 2040	2	\$25,104,637
Sierra St Bridge	\$11,325,179	Future	FY 2029	FY 2030	2	\$5,662,590
Total - Capital Projects - Flood	\$126,991,686					

Schedule of Capital Projects (20 years)

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Capital Projects - Storm Drainage						
Warren Estates Evaluation and Drainage Improvement Project	\$3,200,000	Current	FY 2020	FY 2022	3	\$1,066,667
City of Reno Drainage Master Planning	\$2,500,000	Current	FY 2020	FY 2023	4	\$625,000
Rosewood Wash Culvert Upgrades	\$2,500,000	Current	FY 2021	FY 2022	2	\$1,250,000
Dry Creek Repairs at Reno/Tahoe Airport (CoR owned)	\$400,000	Current	FY 2021	FY 2022	2	\$200,000
Autumn Hills, Offenhauser, Longley McCarran Storm Drain Improvements	\$10,000,000	Current	FY 2024	FY 2025	2	\$5,000,000
Culvert Replacement, Stead @ Silver Lake Road	\$600,000	Current	FY 2022	FY 2023	2	\$300,000
Matley Lane and Terminal Way Storm Drain and Catch Basins	\$500,000	Current	FY 2022	FY 2023	2	\$250,000
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Miscellaneous Grading-Regrading: Len Circle, Orance and Apple St., Hatch, Brentwood, Walker, Skyline	\$500,000	Current	FY 2022	FY 2027	6	\$83,333
Double Diamond Levee Upgrades	\$1,000,000	Current	FY 2025	FY 2026	2	\$500,000
Aquila Ave/Krupp Circle Drainage Improvments	\$6,500,000	Current	FY 2024	FY 2025	2	\$3,250,000
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Whites Creek Flow Split	\$430,000	Current	FY 2025	FY 2026	2	\$215,000
Manzanita Park Wash (With Excavation)	\$1,500,000	Current	FY 2025	FY 2026	2	\$750,000
Thomas Creek at Ventana Parkway	\$1,750,000	Current	FY 2031	FY 2036	6	\$291,667
Evans Creek Block "N" storm drain Improvements at I80 to River	\$1,750,000	Current	FY 2031	FY 2036	6	\$291,667
Whites Creek at Thomas Rd Detention Basin	\$1,800,000	Current	FY 2033	FY 2034	2	\$900,000
Vine Street Culvert Upgrades	\$1,800,000	Current	FY 2035	FY 2036	2	\$900,000
Detention Basins: Thomas Creek at Zolezzi Detention Basin, Evans Creek at Ballardini Ranch, Evans Creek, Dry Creek @ Huffaker, Galena Narrows	\$22,900,000	Current	FY 2028	FY 2038	11	\$2,081,818
Thomas Creek : structures, culverts, flow splits, irrigation ditch bypass structures	\$10,000,000	Current	FY 2035	FY 2039	5	\$2,000,000
Galena Wash- Channel / culverts	\$6,450,000	Current	FY 2028	FY 2038	11	\$586,364
Virginia Foothill Wash--Channel, culverts and debris basins	\$5,800,000	Current	FY 2028	FY 2038	11	\$527,273
Swan Lake/Silver Lake Flooding -partial solutions	\$5,000,000	Current	FY 2025	FY 2030	6	\$833,333
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Total - Capital Projects - Storm Drainage	\$159,425,000					

Scenario 2a and 2b: Capital Projects Funded at 100% Over 25 years Using Pay Go

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Capital Scenario										
100% Funding Pay Go (25 Years)	\$0	\$1,759,333	\$3,776,587	\$6,458,594	\$5,878,539	\$24,406,474	\$35,832,143	\$8,814,550	\$15,180,293	\$14,755,125
Total Capital Projects	\$0	\$1,759,333	\$3,776,587	\$6,458,594	\$5,878,539	\$24,406,474	\$35,832,143	\$8,814,550	\$15,180,293	\$14,755,125
Cash Funded	\$0	\$1,759,333	\$3,776,587	\$6,458,594	\$5,878,539	\$24,406,474	\$35,832,143	\$8,814,550	\$15,180,293	\$14,755,125
Debt Funded	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Unfunded	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Cash Funding	\$0	\$1,759,333	\$3,776,587	\$6,458,594	\$5,878,539	\$24,406,474	\$35,832,143	\$8,814,550	\$15,180,293	\$14,755,125
Cash Funding Balance	\$0	\$1,759,333	\$3,776,587	\$6,458,594	\$5,878,539	\$24,406,474	\$35,832,143	\$8,814,550	\$15,180,293	\$14,755,125
Debt Proceeds	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Debt Proceeds Balance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
For Revenue Requirement	\$0	\$1,759,333	\$3,776,587	\$6,458,594	\$5,878,539	\$24,406,474	\$35,832,143	\$8,814,550	\$15,180,293	\$14,755,125

Scenario 3a and 3b: Capital Projects Funded at 100% Over 20 years Using Pay Go and Debt

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Capital Scenario										
100% Funding Pay Go and Debt (20 Years)	\$0	\$1,759,333	\$3,776,587	\$6,458,594	\$5,878,539	\$24,406,474	\$35,832,143	\$8,814,550	\$15,180,293	\$19,303,253
Total Capital Projects	\$0	\$1,759,333	\$3,776,587	\$6,458,594	\$5,878,539	\$24,406,474	\$35,832,143	\$8,814,550	\$15,180,293	\$19,303,253
Cash Funded	\$0	\$1,759,333	\$0	\$235,181	\$5,878,539	\$24,406,474	\$15,832,143	\$8,814,550	\$15,180,293	\$19,303,253
Debt Funded	\$0	\$0	\$3,776,587	\$6,223,413	\$0	\$0	\$20,000,000	\$0	\$0	\$0
Unfunded	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Cash Funding	\$0	\$1,759,333	\$0	\$235,181	\$5,878,539	\$24,406,474	\$15,832,143	\$8,814,550	\$15,180,293	\$19,303,253
Cash Funding Balance	\$0	\$1,759,333	\$0	\$235,181	\$5,878,539	\$24,406,474	\$15,832,143	\$8,814,550	\$15,180,293	\$19,303,253
Debt Proceeds	\$0	\$0	\$10,000,000	\$0	\$0	\$0	\$20,000,000	\$0	\$0	\$0
Debt Proceeds Balance	\$0	\$0	\$10,000,000	\$6,223,413	\$0	\$0	\$20,000,000	\$0	\$0	\$0
For Revenue Requirement	\$0	\$1,759,333	\$0	\$235,181	\$5,878,539	\$24,406,474	\$15,832,143	\$8,814,550	\$15,180,293	\$19,303,253

APPENDIX B:
**FINANCIAL PLANNING AND
RATE CALCULATIONS**

Capital Funding \$2 Million per Year, No Additional MS4 Costs

Revenue Requirements

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
O&M Expenses										
Public Works: Maintenance Division	\$1,791,671	\$1,845,421	\$1,900,784	\$1,957,808	\$2,016,542	\$2,077,038	\$2,139,349	\$2,203,530	\$2,269,636	\$2,337,725
Public Works: Environmental Services	\$453,037	\$466,628	\$480,627	\$495,046	\$509,897	\$525,194	\$540,950	\$557,179	\$573,894	\$591,111
Parks Maintenance	\$21,136	\$21,770	\$22,423	\$23,095	\$23,788	\$24,502	\$25,237	\$25,994	\$26,774	\$27,577
Community Development	\$591,462	\$609,206	\$627,482	\$646,306	\$665,696	\$685,667	\$706,237	\$727,424	\$749,246	\$771,724
Other Supporting Departments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Administration	\$300,000	\$309,000	\$318,270	\$327,818	\$337,653	\$347,782	\$358,216	\$368,962	\$380,031	\$391,432
Additional Staff	\$335,000	\$345,050	\$355,402	\$366,064	\$377,045	\$388,357	\$400,008	\$412,008	\$424,368	\$437,099
Additional MS4 Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total - O&M Expenses	\$3,492,306	\$3,597,075	\$3,704,987	\$3,816,137	\$3,930,621	\$4,048,540	\$4,169,996	\$4,295,096	\$4,423,949	\$4,556,667
Capital and Reserves										
Capital Project Funding	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
Additional Revenue for Debt Coverage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Proposed Debt Service	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operating Reserve	\$244,461	\$251,795	\$259,349	\$267,130	\$0	\$0	\$0	\$0	\$0	\$0
Emergency Reserve	\$420,000	\$420,000	\$420,000	\$420,000	\$0	\$0	\$0	\$0	\$0	\$0
Total - Capital and Reserves	\$2,664,461	\$2,671,795	\$2,679,349	\$2,687,130	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
Total - Revenue Requirement	\$6,156,767	\$6,268,870	\$6,384,336	\$6,503,267	\$5,930,621	\$6,048,540	\$6,169,996	\$6,295,096	\$6,423,949	\$6,556,667

Calculated Rates

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Calculated Rate										
By ERU (Monthly)	\$3.09	\$3.15	\$3.21	\$3.27	\$2.98	\$3.04	\$3.10	\$3.16	\$3.23	\$3.30
By ERU (Monthly) with Collection Rate	\$3.26	\$3.32	\$3.38	\$3.44	\$3.14	\$3.20	\$3.26	\$3.33	\$3.40	\$3.47
5-Year Average By ERU (Monthly) with Collection Rate	\$3.31	\$3.31	\$3.31	\$3.31	\$3.31					

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
10-Year Average By ERU (Monthly) with Collection Rate	\$3.32	\$3.32	\$3.32	\$3.32	\$3.32	\$3.32	\$3.32	\$3.32	\$3.32	\$3.32
20-Year Average By ERU (Monthly) with Collection Rate	\$3.61	\$3.61	\$3.61	\$3.61	\$3.61	\$3.61	\$3.61	\$3.61	\$3.61	\$3.61

Override Rates

			FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
5-Year Manual Override			\$3.50	\$3.50	\$3.50	\$3.50	\$3.50
Revenue Recovery			\$6,963,306	\$6,963,306	\$6,963,306	\$6,963,306	\$6,963,306
Revenue Requirement with Collection Rate			\$6,480,808	\$6,598,811	\$6,720,354	\$6,845,544	\$6,242,759
Difference	\$1,928,254		\$482,498	\$364,495	\$242,952	\$117,762	\$720,547

Capital Funding \$2 Million per Year, Additional MS4 Costs

Revenue Requirements

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
O&M Expenses										
Public Works:										
Maintenance Division	\$1,791,671	\$1,845,421	\$1,900,784	\$1,957,808	\$2,016,542	\$2,077,038	\$2,139,349	\$2,203,530	\$2,269,636	\$2,337,725
Public Works:										
Environmental Services	\$453,037	\$466,628	\$480,627	\$495,046	\$509,897	\$525,194	\$540,950	\$557,179	\$573,894	\$591,111
Parks Maintenance	\$21,136	\$21,770	\$22,423	\$23,095	\$23,788	\$24,502	\$25,237	\$25,994	\$26,774	\$27,577
Community Development	\$591,462	\$609,206	\$627,482	\$646,306	\$665,696	\$685,667	\$706,237	\$727,424	\$749,246	\$771,724
Other Supporting Departments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Administration	\$300,000	\$309,000	\$318,270	\$327,818	\$337,653	\$347,782	\$358,216	\$368,962	\$380,031	\$391,432
Additional Staff	\$335,000	\$345,050	\$355,402	\$366,064	\$377,045	\$388,357	\$400,008	\$412,008	\$424,368	\$437,099
Additional MS4 Costs	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116
Total - O&M Expenses	\$3,743,422	\$3,848,191	\$3,956,103	\$4,067,253	\$4,181,737	\$4,299,656	\$4,421,112	\$4,546,212	\$4,675,065	\$4,807,783
Capital and Reserves										
Capital Project Funding	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
Additional Revenue for Debt Coverage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Proposed Debt Service	\$262,040	\$269,373	\$276,927	\$284,708	\$0	\$0	\$0	\$0	\$0	\$0
Operating Reserve	\$262,040	\$269,373	\$276,927	\$284,708	\$0	\$0	\$0	\$0	\$0	\$0
Emergency Reserve	\$420,000	\$420,000	\$420,000	\$420,000	\$0	\$0	\$0	\$0	\$0	\$0
Total - Capital and Reserves	\$2,682,040	\$2,689,373	\$2,696,927	\$2,704,708	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
Total - Revenue Requirement	\$6,425,461	\$6,537,564	\$6,653,031	\$6,771,961	\$6,181,737	\$6,299,656	\$6,421,112	\$6,546,212	\$6,675,065	\$6,807,783

Calculated Rates

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Calculated Rate										
By ERU (Monthly)	\$3.23	\$3.29	\$3.34	\$3.40	\$3.11	\$3.17	\$3.23	\$3.29	\$3.36	\$3.42
By ERU (Monthly) with Collection Rate	\$3.40	\$3.46	\$3.52	\$3.58	\$3.27	\$3.33	\$3.40	\$3.46	\$3.53	\$3.60
5-Year Average By ERU (Monthly) with Collection Rate	\$3.45	\$3.45	\$3.45	\$3.45	\$3.45					

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
10-Year Average By ERU (Monthly) with Collection Rate	\$3.46	\$3.46	\$3.46	\$3.46	\$3.46	\$3.46	\$3.46	\$3.46	\$3.46	\$3.46
20-Year Average By ERU (Monthly) with Collection Rate	\$3.75	\$3.75	\$3.75	\$3.75	\$3.75	\$3.75	\$3.75	\$3.75	\$3.75	\$3.75

Override Rates

			FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
5-Year Manual Override			\$3.50	\$3.50	\$3.50	\$3.50	\$3.50
Revenue Recovery			\$6,963,306	\$6,963,306	\$6,963,306	\$6,963,306	\$6,963,306
Revenue Requirement with Collection Rate			\$6,763,644	\$6,881,647	\$7,003,190	\$7,128,380	\$6,507,092
Difference	\$532,578		\$199,662	\$81,659	(\$39,884)	(\$165,074)	\$456,214

Capital Funding 100% Pay Go (25 years), No Additional MS4 Costs

Revenue Requirements

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
O&M Expenses										
Public Works:										
Maintenance Division	\$1,791,671	\$1,845,421	\$1,900,784	\$1,957,808	\$2,016,542	\$2,077,038	\$2,139,349	\$2,203,530	\$2,269,636	\$2,337,725
Public Works:										
Environmental Services	\$453,037	\$466,628	\$480,627	\$495,046	\$509,897	\$525,194	\$540,950	\$557,179	\$573,894	\$591,111
Parks Maintenance	\$21,136	\$21,770	\$22,423	\$23,095	\$23,788	\$24,502	\$25,237	\$25,994	\$26,774	\$27,577
Community Development	\$591,462	\$609,206	\$627,482	\$646,306	\$665,696	\$685,667	\$706,237	\$727,424	\$749,246	\$771,724
Other Supporting Departments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Administration	\$300,000	\$309,000	\$318,270	\$327,818	\$337,653	\$347,782	\$358,216	\$368,962	\$380,031	\$391,432
Additional Staff	\$635,000	\$654,050	\$673,672	\$693,882	\$714,698	\$736,139	\$758,223	\$780,970	\$804,399	\$828,531
Additional MS4 Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total - O&M Expenses	\$3,792,306	\$3,906,075	\$4,023,257	\$4,143,955	\$4,268,274	\$4,396,322	\$4,528,212	\$4,664,058	\$4,803,980	\$4,948,099
Capital and Reserves										
Capital Project Funding	\$0	\$1,759,333	\$3,776,587	\$6,458,594	\$5,878,539	\$24,406,474	\$35,832,143	\$8,814,550	\$15,180,293	\$14,755,125
Additional Revenue for Debt Coverage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Proposed Debt Service	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operating Reserve	\$265,461	\$273,425	\$281,628	\$290,077	\$0	\$0	\$0	\$0	\$0	\$0
Emergency Reserve	\$420,000	\$420,000	\$420,000	\$420,000	\$0	\$0	\$0	\$0	\$0	\$0
Total - Capital and Reserves	\$685,461	\$2,452,759	\$4,478,215	\$7,168,671	\$5,878,539	\$24,406,474	\$35,832,143	\$8,814,550	\$15,180,293	\$14,755,125
Total - Revenue Requirement	\$4,477,767	\$6,358,834	\$8,501,472	\$11,312,626	\$10,146,813	\$28,802,796	\$40,360,355	\$13,478,608	\$19,984,273	\$19,703,224

Calculated Rates

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Calculated Rate										
By ERU (Monthly)	\$2.25	\$3.20	\$4.27	\$5.69	\$5.10	\$14.48	\$20.29	\$6.77	\$10.04	\$9.90
By ERU (Monthly) with Collection Rate	\$2.37	\$3.36	\$4.50	\$5.99	\$5.37	\$15.24	\$21.35	\$7.13	\$10.57	\$10.42

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
5-Year Average By ERU (Monthly) with Collection Rate	\$4.32	\$4.32	\$4.32	\$4.32	\$4.32					
10-Year Average By ERU (Monthly) with Collection Rate	\$8.63	\$8.63	\$8.63	\$8.63	\$8.63	\$8.63	\$8.63	\$8.63	\$8.63	\$8.63
20-Year Average By ERU (Monthly) with Collection Rate	\$8.93	\$8.93	\$8.93	\$8.93	\$8.93	\$8.93	\$8.93	\$8.93	\$8.93	\$8.93

Override Rates

			FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
5-Year Manual Override			\$4.50	\$4.50	\$4.50	\$4.50	\$4.50
Revenue Recovery			\$8,952,822	\$8,952,822	\$8,952,822	\$8,952,822	\$8,952,822
Revenue Requirement with Collection Rate			\$4,713,439	\$4,713,439	\$6,693,509	\$8,948,918	\$11,908,027
Difference	\$1,819,630		\$4,239,383	\$2,259,313	\$3,904	(\$2,955,205)	(\$1,728,034)

Capital Funding 100% Pay Go (25 years), Additional MS4 Costs

Revenue Requirements

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
O&M Expenses										
Public Works:										
Maintenance Division	\$1,791,671	\$1,845,421	\$1,900,784	\$1,957,808	\$2,016,542	\$2,077,038	\$2,139,349	\$2,203,530	\$2,269,636	\$2,337,725
Public Works:										
Environmental Services	\$453,037	\$466,628	\$480,627	\$495,046	\$509,897	\$525,194	\$540,950	\$557,179	\$573,894	\$591,111
Parks Maintenance	\$21,136	\$21,770	\$22,423	\$23,095	\$23,788	\$24,502	\$25,237	\$25,994	\$26,774	\$27,577
Community Development	\$591,462	\$609,206	\$627,482	\$646,306	\$665,696	\$685,667	\$706,237	\$727,424	\$749,246	\$771,724
Other Supporting Departments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Administration	\$300,000	\$309,000	\$318,270	\$327,818	\$337,653	\$347,782	\$358,216	\$368,962	\$380,031	\$391,432
Additional Staff	\$635,000	\$654,050	\$673,672	\$693,882	\$714,698	\$736,139	\$758,223	\$780,970	\$804,399	\$828,531
Additional MS4 Costs	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116
Total - O&M Expenses	\$4,043,422	\$4,157,191	\$4,274,373	\$4,395,071	\$4,519,390	\$4,647,438	\$4,779,328	\$4,915,174	\$5,055,096	\$5,199,215
Capital and Reserves										
Capital Project Funding	\$0	\$1,759,333	\$3,776,587	\$6,458,594	\$5,878,539	\$24,406,474	\$35,832,143	\$8,814,550	\$15,180,293	\$14,755,125
Additional Revenue for Debt Coverage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Proposed Debt Service	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operating Reserve	\$283,040	\$291,003	\$299,206	\$307,655	\$0	\$0	\$0	\$0	\$0	\$0
Emergency Reserve	\$420,000	\$420,000	\$420,000	\$420,000	\$0	\$0	\$0	\$0	\$0	\$0
Total - Capital and Reserves	\$703,040	\$2,470,337	\$4,495,793	\$7,186,249	\$5,878,539	\$24,406,474	\$35,832,143	\$8,814,550	\$15,180,293	\$14,755,125
Total - Revenue Requirement	\$4,746,461	\$6,627,528	\$8,770,166	\$11,581,320	\$10,397,929	\$29,053,912	\$40,611,471	\$13,729,724	\$20,235,389	\$19,954,340

Calculated Rates

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Calculated Rate										
By ERU (Monthly)	\$2.39	\$3.33	\$4.41	\$5.82	\$5.23	\$14.60	\$20.41	\$6.90	\$10.17	\$10.03
By ERU (Monthly) with Collection Rate	\$2.51	\$3.51	\$4.64	\$6.13	\$5.50	\$15.37	\$21.49	\$7.26	\$10.71	\$10.56
5-Year Average By ERU (Monthly) with Collection Rate	\$4.46	\$4.46	\$4.46	\$4.46	\$4.46					

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
10-Year Average By ERU (Monthly) with Collection Rate	\$8.77	\$8.77	\$8.77	\$8.77	\$8.77	\$8.77	\$8.77	\$8.77	\$8.77	\$8.77
20-Year Average By ERU (Monthly) with Collection Rate	\$9.06	\$9.06	\$9.06	\$9.06	\$9.06	\$9.06	\$9.06	\$9.06	\$9.06	\$9.06

Override Rates

			FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
5-Year Manual Override			\$4.50	\$4.50	\$4.50	\$4.50	\$4.50
Revenue Recovery			\$8,952,822	\$8,952,822	\$8,952,822	\$8,952,822	\$8,952,822
Revenue Requirement with Collection Rate			\$4,996,275	\$6,976,345	\$9,231,754	\$12,190,863	\$10,945,188
Difference	\$423,684		\$3,956,547	\$1,976,477	(\$278,932)	(\$3,238,041)	(\$1,992,366)

Capital Funding 100% Pay Go and Debt (20 years), No Additional MS4 Costs

Revenue Requirements

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
O&M Expenses										
Public Works: Maintenance Division	\$1,791,671	\$1,845,421	\$1,900,784	\$1,957,808	\$2,016,542	\$2,077,038	\$2,139,349	\$2,203,530	\$2,269,636	\$2,337,725
Public Works: Environmental Services	\$453,037	\$466,628	\$480,627	\$495,046	\$509,897	\$525,194	\$540,950	\$557,179	\$573,894	\$591,111
Parks Maintenance	\$21,136	\$21,770	\$22,423	\$23,095	\$23,788	\$24,502	\$25,237	\$25,994	\$26,774	\$27,577
Community Development	\$591,462	\$609,206	\$627,482	\$646,306	\$665,696	\$685,667	\$706,237	\$727,424	\$749,246	\$771,724
Other Supporting Departments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Administration	\$300,000	\$309,000	\$318,270	\$327,818	\$337,653	\$347,782	\$358,216	\$368,962	\$380,031	\$391,432
Additional Staff	\$953,000	\$981,590	\$1,011,038	\$1,041,369	\$1,072,610	\$1,104,788	\$1,137,932	\$1,172,070	\$1,207,232	\$1,243,449
Additional MS4 Costs	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total - O&M Expenses	\$4,110,306	\$4,233,615	\$4,360,624	\$4,491,442	\$4,626,186	\$4,764,971	\$4,907,920	\$5,055,158	\$5,206,813	\$5,363,017
Capital and Reserves										
Capital Project Funding	\$0	\$1,759,333	\$0	\$235,181	\$5,878,539	\$24,406,474	\$15,832,143	\$8,814,550	\$15,180,293	\$19,303,253
Additional Revenue for Debt Coverage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Proposed Debt Service	\$0	\$0	\$657,085	\$657,085	\$657,085	\$657,085	\$1,971,256	\$1,971,256	\$1,971,256	\$1,971,256
Operating Reserve	\$287,721	\$296,353	\$305,244	\$314,401	\$0	\$0	\$0	\$0	\$0	\$0
Emergency Reserve	\$420,000	\$420,000	\$420,000	\$420,000	\$0	\$0	\$0	\$0	\$0	\$0
Total - Capital and Reserves	\$707,721	\$2,475,686	\$1,382,329	\$1,626,667	\$6,535,624	\$25,063,559	\$17,803,399	\$10,785,805	\$17,151,549	\$21,274,508
Total - Revenue Requirement	\$4,818,027	\$6,709,302	\$5,742,952	\$6,118,109	\$11,161,810	\$29,828,530	\$22,711,319	\$15,840,963	\$22,358,362	\$26,637,525

Calculated Rates

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Calculated Rate										
By ERU (Monthly)	\$2.42	\$3.37	\$2.89	\$3.08	\$5.61	\$14.99	\$11.42	\$7.96	\$11.24	\$13.39
By ERU (Monthly) with Collection Rate	\$2.55	\$3.55	\$3.04	\$3.24	\$5.91	\$15.78	\$12.02	\$8.38	\$11.83	\$14.09

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
5-Year Average By ERU (Monthly) with Collection Rate	\$3.66	\$3.66	\$3.66	\$3.66	\$3.66					
10-Year Average By ERU (Monthly) with Collection Rate	\$8.04	\$8.04	\$8.04	\$8.04	\$8.04	\$8.04	\$8.04	\$8.04	\$8.04	\$8.04
20-Year Average By ERU (Monthly) with Collection Rate	\$12.82	\$12.82	\$12.82	\$12.82	\$12.82	\$12.82	\$12.82	\$12.82	\$12.82	\$12.82

Override Rates

			FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
5-Year Manual Override			\$3.90	\$3.90	\$3.90	\$3.90	\$3.90
Revenue Recovery			\$7,759,112	\$7,759,112	\$7,759,112	\$7,759,112	\$7,759,112
Revenue Requirement with Collection Rate			\$5,071,608	\$7,062,423	\$6,045,213	\$6,440,115	\$11,749,274
Difference	\$2,426,490		\$2,687,505	\$696,690	\$1,713,899	\$1,318,997	(\$3,990,161)

Capital Funding 100% Pay Go and Debt (20 years), Additional MS4 Costs

Revenue Requirements

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
O&M Expenses										
Public Works: Maintenance Division	\$1,791,671	\$1,845,421	\$1,900,784	\$1,957,808	\$2,016,542	\$2,077,038	\$2,139,349	\$2,203,530	\$2,269,636	\$2,337,725
Public Works: Environmental Services	\$453,037	\$466,628	\$480,627	\$495,046	\$509,897	\$525,194	\$540,950	\$557,179	\$573,894	\$591,111
Parks Maintenance	\$21,136	\$21,770	\$22,423	\$23,095	\$23,788	\$24,502	\$25,237	\$25,994	\$26,774	\$27,577
Community Development	\$591,462	\$609,206	\$627,482	\$646,306	\$665,696	\$685,667	\$706,237	\$727,424	\$749,246	\$771,724
Other Supporting Departments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Administration	\$300,000	\$309,000	\$318,270	\$327,818	\$337,653	\$347,782	\$358,216	\$368,962	\$380,031	\$391,432
Additional Staff	\$953,000	\$981,590	\$1,011,038	\$1,041,369	\$1,072,610	\$1,104,788	\$1,137,932	\$1,172,070	\$1,207,232	\$1,243,449
Additional MS4 Costs	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116	\$251,116
Total - O&M Expenses	\$4,361,422	\$4,484,731	\$4,611,740	\$4,742,558	\$4,877,302	\$5,016,087	\$5,159,036	\$5,306,274	\$5,457,929	\$5,614,133
Capital and Reserves										
Capital Project Funding	\$0	\$1,759,333	\$0	\$235,181	\$5,878,539	\$24,406,474	\$15,832,143	\$8,814,550	\$15,180,293	\$19,303,253
Additional Revenue for Debt Coverage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Proposed Debt Service	\$0	\$0	\$657,085	\$657,085	\$657,085	\$657,085	\$1,971,256	\$1,971,256	\$1,971,256	\$1,971,256
Operating Reserve	\$305,300	\$313,931	\$322,822	\$331,979	\$0	\$0	\$0	\$0	\$0	\$0
Emergency Reserve	\$420,000	\$420,000	\$420,000	\$420,000	\$0	\$0	\$0	\$0	\$0	\$0
Total - Capital and Reserves	\$725,300	\$2,493,265	\$1,399,907	\$1,644,245	\$6,535,624	\$25,063,559	\$17,803,399	\$10,785,805	\$17,151,549	\$21,274,508
Total - Revenue Requirement	\$5,086,721	\$6,977,996	\$6,011,647	\$6,386,803	\$11,412,926	\$30,079,646	\$22,962,435	\$16,092,079	\$22,609,478	\$26,888,641

Calculated Rates

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Calculated Rate										
By ERU (Monthly)	\$2.56	\$3.51	\$3.02	\$3.21	\$5.74	\$15.12	\$11.54	\$8.09	\$11.36	\$13.52
By ERU (Monthly) with Collection Rate	\$2.69	\$3.69	\$3.18	\$3.38	\$6.04	\$15.91	\$12.15	\$8.51	\$11.96	\$14.23
5-Year Average By ERU (Monthly) with Collection Rate	\$3.80	\$3.80	\$3.80	\$3.80	\$3.80					

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
10-Year Average By ERU (Monthly) with Collection Rate	\$8.17	\$8.17	\$8.17	\$8.17	\$8.17	\$8.17	\$8.17	\$8.17	\$8.17	\$8.17
20-Year Average By ERU (Monthly) with Collection Rate	\$12.95	\$12.95	\$12.95	\$12.95	\$12.95	\$12.95	\$12.95	\$12.95	\$12.95	\$12.95

Override Rates

			FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
5-Year Manual Override			\$3.90	\$3.90	\$3.90	\$3.90	\$3.90
Revenue Recovery			\$7,759,112	\$7,759,112	\$7,759,112	\$7,759,112	\$7,759,112
Revenue Requirement with Collection Rate			\$5,354,444	\$7,345,259	\$6,328,049	\$6,722,951	\$12,013,606
Difference	\$1,013,254		\$2,404,669	\$413,854	\$1,431,063	\$1,036,161	(\$4,254,494)

APPENDIX C:
**NON-SINGLE FAMILY
RESIDENTIAL DIGITIZED
SAMPLE**

Commercial and Industrial Land Use

Example 1:

All Points Towing – 2801 Vassar Street (PIN 012-323-08)

Impervious Area = 84,450.05 Sq. Ft.

ERUs = 24



Example 2:

Smart Foodservice Warehouse Stores – 115 Kietzke Lane (PIN 012-382-22)

Impervious Area = 54,223.41 Sq. Ft.

ERUs = 16



Example 3:

Econo Lodge Near Reno-Sparks Convention Center – 1885 S. Virginia Street (PIN 014-251-07)

Impervious Area = 109,209.25 Sq. Ft.

ERUs = 31



Example 4:

Target Shopping Center – 6845 Sierra Center Pkwy (Multiple PINs)

Impervious Area = 1,057,571 Sq. Ft.

ERUs = 300



Multifamily Land Use

Example 1:

Delicchi Lane Apartment – 825 Delucchi Lane (PIN 025-373-04)

Impervious Area = 144,943.00 Sq. Ft.

ERUs = 41



Example 2:

Mobile Home Park – 2725 Lietzke Lane (PIN 020-131-07)

Impervious Area = 152,506.60 Sq. Ft.

ERUs = 44



Example 3:

Multifamily 5 to 9 Units – 249 Linden Street (PIN 020-022-04)

Impervious Area = 11,397.78 Sq. Ft.

ERUs = 4



Example 4:

Multifamily 10 or more units – 810 Mill Street (PIN 012-143-54)

Impervious Area = 5,399.32 Sq. Ft.

ERUs = 2



Example 5:

Multifamily 3 or 4 Units – 776 Aitken Street (PIN 012-121-18)

Impervious Area = 3,157.00 Sq. Ft.

ERUs = 1



Example 6:

Clearacre Garden 2 – 3900 Clear Acre Lane (Multiple PINs)

Impervious Area = 122,999.00 Sq. Ft.

ERUs = 35



Example 7:

Multifamily 10 or more units – 2141 Centennial Way (PIN 004-354-14)

Impervious Area = 62,676.67 Sq. Ft.

ERUs = 18



Example 8:

Multifamily 10 or more units – 4050 Baker Lane (PIN 024-140-15)

Impervious Area = 282,673.80 Sq. Ft.

ERUs = 80



Example 9:

Multifamily 3 to 4 units – 2520 Comstock Drive (PIN 003-382-08)

Impervious Area = 8,989.81 Sq. Ft.

ERUs = 3



Example 10:

Multifamily 5 to 9 units – 645 Sadleir Way (PIN 008-021-12)

Impervious Area = 19,139.01 Sq. Ft.

ERUs = 6



Institutional

Example 1:

Our Lady of the Snows Catholic Church – 1138 Wright Street (PIN 014-044-04)

Impervious Area = 73,199.15 Sq. Ft.

ERUs = 21

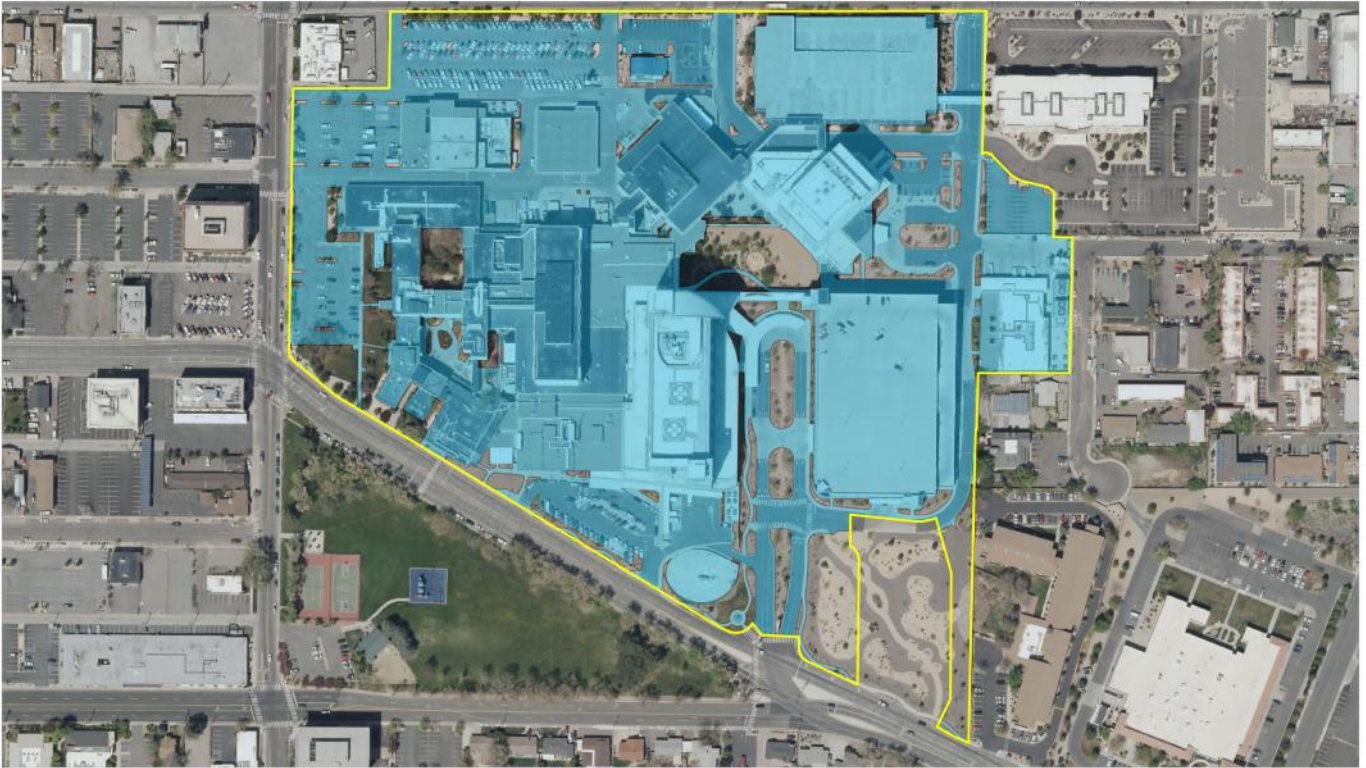


Example 2:

Renown Regional Medical Center – 1155 Mill Street (PIN 012-150-24)

Impervious Area = 1,036,851.00 Sq. Ft.

ERUs = 294



Example 3:

Reno High School – 395 Booth Street (PIN 010-051-43)

Impervious Area = 995,624.00 Sq. Ft.

ERUs = 282



Example 4:

O'Brien Middle School – 10500 Stead Blvd. (PIN 550-020-05)

Impervious Area = 539,338.00 Sq. Ft.

ERUs = 153



Example 4:

Dodson Elementary School – 4355 Houston Drive (PIN 021-202-01)

Impervious Area = 130,846.00 Sq. Ft.

ERUs = 37



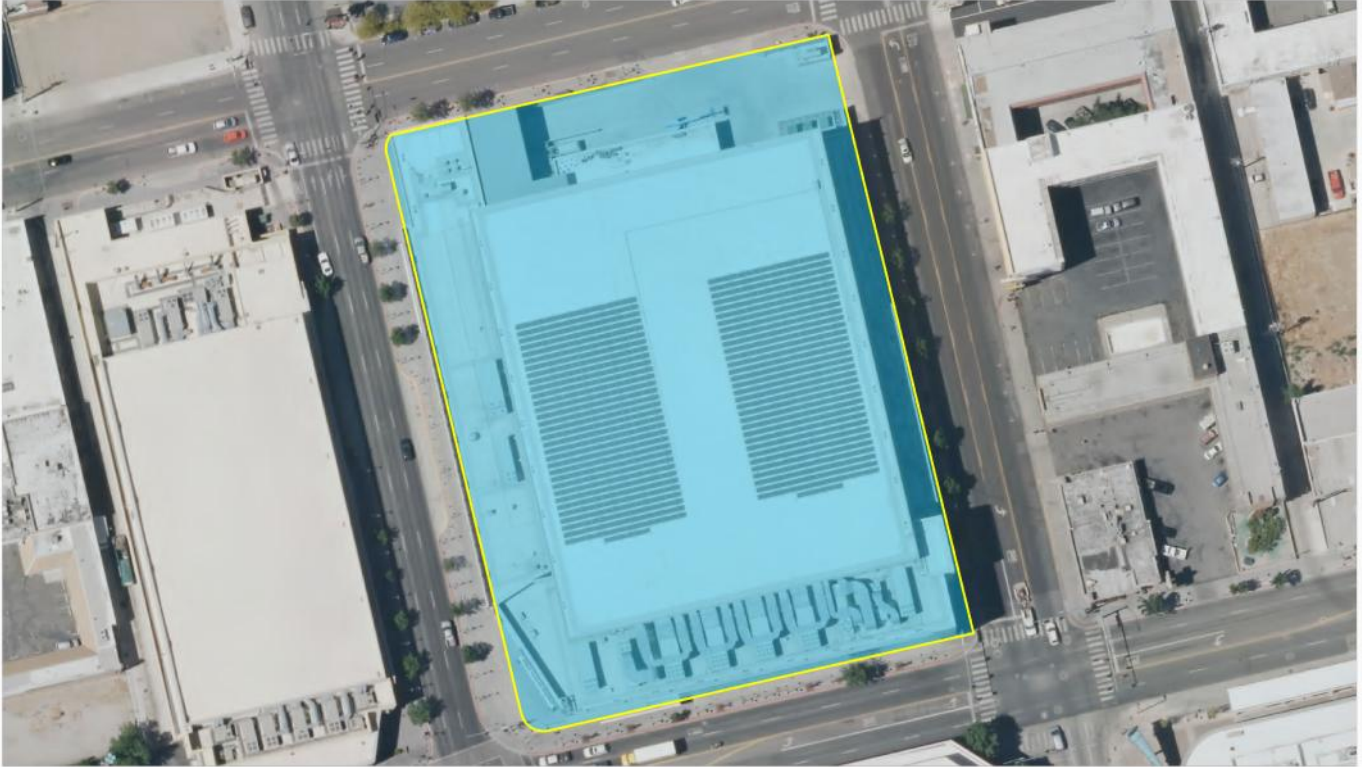
Government

Example 1:

Reno Events Center – 400 N. Center Street (PIN 007-552-01)

Impervious Area = 119,505.68 Sq. Ft.

ERUs = 34



Example 2:

Reno Police Department – 455E. 2nd Street (PIN 012-013-01)

Impervious Area = 88,943.90 Sq. Ft.

ERUs = 26



Example 3:

McKinley Arts and Cultural Center – 925 Riverside Drive (PIN 011-084-02)

Impervious Area = 80,374.24 Sq. Ft.

ERUs = 23



APPENDIX D:

**PEER CITIES RESIDENTIAL AND
NON-RESIDENTIAL RATE
STRUCTURES AND RATES**

Single Family Residential Property on a 10,000 sq. ft. Lot with 4,000 sq. ft. of Impervious Area

Entity	Rate Structure Type	Fixed Charge	Minimum Charge	Variable Charge	Consumption-Based Charge	Bill Amount	Bills Per Year	Annual bill	Avg. Monthly Bill	Pop.	Gross Area (sq. miles)	Median Income
Irving, TX	Fee based on zoning codes and lot size. Townhouse or downtown development, Duplex, or SFR on a lot less than 5,000 sq. ft.	\$ 3.00	\$ -	\$ -	\$ -	\$ 3.00	12	\$36.00	\$3.00	240,373	67.02	\$ 58,196
Irving, TX	Fee based on zoning codes and lot size. Manufactured Home or SFR on lot greater than 5,000 sq. ft.	\$ 4.00	\$ -	\$ -	\$ -	\$ 4.00	12	\$48.00	\$4.00	240,373	67.02	\$ 58,196
Irving, TX	Fee based on zoning codes and lot size. Triplex and Fourplex per complex charge	\$ 10.48	\$ -	\$ -	\$ -	\$10.48	12	\$ 125.76	\$ 10.48	240,373	67.02	\$ 58,196
Modesto, CA	Fee based on Residential lot size - less than 3,500 sq. ft.	\$1.65	\$ -	\$ -	\$ -	\$ 1.65	12	\$19.80	\$1.65	214,221	36.87	\$ 54,024
Modesto, CA	Fee based on Residential lot size - 3,501 - 7,000 sq. ft.	\$3.23	\$ -	\$ -	\$ -	\$ 3.23	12	\$38.76	\$3.23	214,221	36.87	\$ 54,024
Modesto, CA	Fee based on Residential lot size - greater than 7,000 sq. ft.	\$4.85	\$ -	\$ -	\$ -	\$ 4.85	12	\$58.20	\$4.85	214,221	36.87	\$ 54,024
Stockton, CA	ERU = 2,347 ft of IA. Flat rate of 1 ERU for all SFRs, multifamily units, and apartment residences	\$2.10	\$ -	\$ -	\$ -	\$ 2.10	12	\$25.20	\$2.10	310,496	61.67	\$ 48,396
Salt Lake City, UT	SFR and Duplex - flat fee for lot size less than 0.25 acres	\$4.94	\$ -	\$ -	\$ -	\$ 4.94	12	\$59.28	\$4.94	200,544	111.11	\$ 54,009
Salt Lake City, UT	SFR and Duplex - flat fee for lot size greater than 0.25 acres	\$6.91	\$ -	\$ -	\$ -	\$ 6.91	12	\$82.92	\$6.91	200,544	111.11	\$ 54,009
Salt Lake City, UT	Triplex and Fourplex - flat fee	\$9.88	\$ -	\$ -	\$ -	\$ 9.88	12	\$ 118.56	\$9.88	200,544	111.11	\$ 54,009
Carson City, NV	Single family res, flat fee	\$5.69	\$ -	\$ -	\$ -	\$ 5.69	12	\$68.28	\$5.69	54,745	144.66	\$ 49,341

Entity	Rate Structure Type	Fixed Charge	Minimum Charge	Variable Charge	Consumption-Based Charge	Bill Amount	Bills Per Year	Annual bill	Avg. Monthly Bill	Pop.	Gross Area (sq. miles)	Median Income
Aurora, CO	Flat fee for Single-Family Residential, additional fee per dwelling unit for multi-family residential	\$ 10.46	\$ -	\$ -	\$ -	\$10.46	12	\$ 125.52	\$ 10.46	366,623	154.73	\$ 58,343
Washoe Co, NV	flat fee	\$9.31	\$ -	\$ -	\$ -	\$ 9.31	12	\$ 111.72	\$9.31	460,587	6,302.37	\$ 58,595
Norfolk, VA	Flat daily rate for SFR billed monthly, plus \$1.00 per account per month admin charge.	\$ 11.71	\$ -	\$ -	\$ -	\$11.71	12	\$ 140.52	\$ 11.71	244,703	54.12	\$ 47,137
Boulder, CO	Three flat tiers based on parcel size plus service charge of \$2.50	\$ 18.11	\$ -	\$ -	\$ -	\$18.11	12	\$ 217.32	\$ 18.11	107,125	24.66	\$ 64,183
Tacoma, WA	Fee based on lot size and density of development. Undeveloped 1 acre or less. Variable charge is per 500 square foot of lot size. Different rates if on waterfront	\$7.65	\$ -	\$ 0.2865	\$ -	\$13.38	12	\$ 160.56	\$ 13.38	213,418	49.72	\$ 55,506
Tacoma, WA	Fee based on lot size and density of development. Undeveloped greater than 1 acre. Variable charge is per 500 square foot of lot size. Different rates if on waterfront	\$7.65	\$ -	\$ 0.0616	\$ -	\$ 8.88	12	\$ 106.58	\$8.88	213,418	49.72	\$ 55,506
Tacoma, WA	Fee based on lot size and density of development. Light Development - land with very limited IA. Variable charge is per 500 square foot of lot size. Different rates if on waterfront	\$7.65	\$ -	\$ 0.8812	\$ -	\$25.27	12	\$ 303.29	\$ 25.27	213,418	49.72	\$ 55,506
Tacoma, WA	Fee based on lot size and density of development. Moderate development - most	\$7.65	\$ -	\$ 1.2054	\$ -	\$31.76	12	\$ 381.10	\$ 31.76	213,418	49.72	\$ 55,506

Entity	Rate Structure Type	Fixed Charge	Minimum Charge	Variable Charge	Consumption-Based Charge	Bill Amount	Bills Per Year	Annual bill	Avg. Monthly Bill	Pop.	Gross Area (sq. miles)	Median Income
	single family homes with yards. Variable charge is per 500 square foot of lot size. Different rates if on waterfront											
Tacoma, WA	Fee based on lot size and density of development. Heavy development - most commercial properties with parking lots and some vegetation. Variable charge is per 500 square foot of lot size. Different rates if on waterfront	\$7.65	\$ -	\$ 1.7684	\$ -	\$43.02	12	\$ 516.22	\$ 43.02	213,418	49.72	\$ 55,506
Tacoma, WA	Fee based on lot size and density of development. Very heavy development - industrial with mostly IA and lots of runoff. Variable charge is per 500 square foot of lot size. Different rates if on waterfront	\$ 7.65	\$ -	\$2.3619	\$-	\$54.89	12	\$ 658.66	\$54.89	213,418	49.72	\$55,506
Sparks, NV	River Protection Charge	\$ 5.41	\$ -	\$ -	\$-	\$ 5.41	12	\$64.92	\$ 5.41	100,888	35.76	\$58,120
Carson City, NV	Multifamily res, flat fee	\$29.33	\$ -	\$ -	\$-	\$29.33	12	\$ 351.96	\$29.33	54,745	144.66	\$49,341
Dallas, TX	Tiered residential. 4 tiers - based on impervious area.	\$ 8.51	\$ -	\$ -	\$-	\$ 8.51	12	\$ 102.12	\$ 8.51	1,197,816	385.8	67,382
City of Louisville, CO	Flat fee single family residential	\$ 4.40	\$ -	\$ -	\$-	\$ 4.40	12	\$52.80	\$ 4.40	21,128	8.09	69,945
City of Lakewood, CO	Flat fee for single family residential and multi-family residential	\$46.20	\$ -	\$ -	\$-	\$46.20	1	\$ 46.20	\$ 3.85	154,958	42.87	52,960

Non-Single Family Residential Property on a 20,000 sq. ft. Lot with 12,000 sq. ft. of Impervious Area

Entity	Rate Structure Type	Fixed Charge	Minimum Charge	Variable Charge	Consumption-Based Charge	Bill Amount	Bills Per Year	Annual bill	Avg. Monthly Bill	Pop.	Gross Area (sq. miles)	Median Income
Irving, TX	Fee based on zoning codes and lot size. Commercial/Industrial up to 10,000 square foot lot	\$9.00	\$-	\$ -	\$-	\$ 9.00	12	\$108.00	\$9.00	240,373	67.02	\$ 58,196
Irving, TX	Fee based on zoning codes and lot size. Commercial/Industrial 10,001 to 20,000 square foot lot	\$18.00	\$-	\$ -	\$-	\$ 18.00	12	\$216.00	\$18.00	240,373	67.02	\$ 58,196
Irving, TX	Fee based on zoning codes and lot size. Commercial/Industrial 20,001 to 45,000 square foot lot	\$36.00	\$-	\$ -	\$-	\$ 36.00	12	\$432.00	\$36.00	240,373	67.02	\$ 58,196
Irving, TX	Fee based on zoning codes and lot size. Commercial/Industrial greater than 45,000 square foot lot	\$-	\$-	\$0.012	\$-	\$ 540.01	12	\$6,480.14	\$540.01	240,373	67.02	\$ 58,196
Irving, TX	Fee based on zoning codes and lot size. Multifamily per square foot charge	\$-	\$-	\$0.012	\$-	\$ 240.00	12	\$2,880.00	\$240.00	240,373	67.02	\$ 58,196
Modesto, CA	Fee based on property type. Per acre charge. Commercial	\$-	\$-	\$77.68	\$-	\$ 35.67	12	\$427.99	\$35.67	214,221	36.87	\$ 54,024
Modesto, CA	Fee based on property type. Per acre charge. Trans/Utility	\$-	\$-	\$32.71	\$-	\$ 15.02	12	\$180.22	\$15.02	214,221	36.87	\$ 54,024
Modesto, CA	Fee based on property type. Per acre charge. Non-profit	\$-	\$-	\$32.71	\$-	\$ 15.02	12	\$180.22	\$15.02	214,221	36.87	\$ 54,024
Modesto, CA	Fee based on property type. Per acre charge. Government	\$-	\$-	\$57.24	\$-	\$ 26.28	12	\$315.37	\$26.28	214,221	36.87	\$ 54,024
Modesto, CA	Fee based on property type. Per acre charge. Hospitals	\$-	\$-	\$40.88	\$-	\$ 18.77	12	\$225.23	\$18.77	214,221	36.87	\$ 54,024

Entity	Rate Structure Type	Fixed Charge	Minimum Charge	Variable Charge	Consumption-Based Charge	Bill Amount	Bills Per Year	Annual bill	Avg. Monthly Bill	Pop.	Gross Area (sq. miles)	Median Income
Modesto, CA	Fee based on property type. Per acre charge. Schools	\$-	\$-	\$20.44	\$-	\$ 9.38	12	\$112.62	\$9.38	214,221	36.87	\$ 54,024
Modesto, CA	Fee based on property type. Per acre charge. Parks/Cemeteries	\$-	\$-	\$8.18	\$-	\$ 3.76	12	\$45.07	\$3.76	214,221	36.87	\$ 54,024
Modesto, CA	Fee based on property type. Per acre charge. Multifamily less than 1,000 sq. ft.	\$-	\$-	\$77.68		\$ 35.67	12	\$427.99	\$35.67	214,221	36.87	\$ 54,024
Modesto, CA	Fee based on property type. Per acre charge. Multifamily 1,000 - 3,500 sq. ft.	\$-	\$-	\$65.41		\$ 30.03	12	\$360.39	\$30.03	214,221	36.87	\$ 54,024
Modesto, CA	Fee based on property type. Per acre charge. Multifamily 3,501 - 7,000 sq. ft.	\$-	\$-	\$32.71		\$ 15.02	12	\$180.22	\$15.02	214,221	36.87	\$ 54,024
Modesto, CA	Fee based on property type. Per acre charge. Multifamily over 7,000 sq. ft.	\$-	\$-	\$20.44		\$ 9.38	12	\$112.62	\$9.38	214,221	36.87	\$ 54,024
Modesto, CA	Fee based on property type. Per acre charge. Multifamily 2 dwellings on 1 lot	\$-	\$-	\$40.88		\$ 18.77	12	\$225.23	\$18.77	214,221	36.87	\$ 54,024
Modesto, CA	Fee based on property type. Per acre charge. Multifamily mobile home park	\$-	\$-	\$24.53		\$ 11.26	12	\$135.15	\$11.26	214,221	36.87	\$ 54,024
Stockton, CA	Commercial Property assumed 90% density of development. ERU = 2,347 ft of IA	\$-	\$-	\$2.10	\$-	\$ 16.11	12	\$193.27	\$16.11	310,496	61.67	\$ 48,396
Stockton, CA	Institutional Property assumed 62% density of development. ERU = 2,347 ft of IA	\$-	\$-	\$2.10	\$-	\$ 11.10	12	\$133.14	\$11.10	310,496	61.67	\$ 48,396
Stockton, CA	Industrial Property assumed 79% density of development. ERU = 2,347 ft of IA	\$-	\$-	\$2.10	\$-	\$ 14.14	12	\$169.65	\$14.14	310,496	61.67	\$ 48,396
Salt Lake City, UT	ERU = 2,500	\$-	\$-	\$4.94	\$-	\$ 24.70	12	\$296.40	\$24.70	200,544	111.11	\$ 54,009

Entity	Rate Structure Type	Fixed Charge	Minimum Charge	Variable Charge	Consumption-Based Charge	Bill Amount	Bills Per Year	Annual bill	Avg. Monthly Bill	Pop.	Gross Area (sq. miles)	Median Income
Carson City, NV	Single family res, flat fee	\$5.69	\$-	\$ -	\$-	\$ 5.69	12	\$68.28	\$5.69	54,745	144.66	\$ 49,341
Aurora, CO	By Class, base residential rate for first 2,500 square feet (minimum charge) plus \$8.24 for each additional 2,500 square feet of floor space	\$10.46	\$-	\$8.24	\$-	\$ 43.42	12	\$521.04	\$43.42	366,623	154.73	\$ 58,343
Washoe Co, NV	flat fee	\$9.31	\$-	\$ -	\$-	\$ 9.31	12	\$111.72	\$9.31	460,587	6,302.37	\$ 58,595
Norfolk, VA	Daily rate per 2,000 sq. ft. of IA billed monthly, plus \$1.00 per account per month admin charge.	\$1.00	\$-	\$7.38	\$-	\$ 45.28	12	\$543.36	\$45.28	244,703	54.12	\$ 47,137
Boulder, CO	Base charge plus an impervious square foot rate, subject to a minimum	\$2.50	\$15.61	\$0.0057	\$-	\$ 70.90	12	\$850.80	\$70.90	107,125	24.66	\$ 64,183
Tacoma, WA	Fee based on lot size and density of development. Undeveloped 1 acre or less. Variable charge is per 500 square foot of lot size. Different rates if on waterfront	\$7.65	\$-	\$0.2865	\$-	\$ 19.11	12	\$229.32	\$19.11	213,418	49.72	\$ 55,506
Tacoma, WA	Fee based on lot size and density of development. Undeveloped greater than 1 acre. Variable charge is per 500 square foot of lot size. Different rates if on waterfront	\$7.65	\$-	\$0.0616	\$-	\$ 10.11	12	\$121.37	\$10.11	213,418	49.72	\$ 55,506

Entity	Rate Structure Type	Fixed Charge	Minimum Charge	Variable Charge	Consumption-Based Charge	Bill Amount	Bills Per Year	Annual bill	Avg. Monthly Bill	Pop.	Gross Area (sq. miles)	Median Income
Tacoma, WA	Fee based on lot size and density of development. Light Development - land with very limited IA. Variable charge is per 500 square foot of lot size. Different rates if on waterfront	\$7.65	\$-	\$0.8812	\$-	\$ 42.90	12	\$514.78	\$42.90	213,418	49.72	\$ 55,506
Tacoma, WA	Fee based on lot size and density of development. Moderate development - most single family homes with yards. Variable charge is per 500 square foot of lot size. Different rates if on waterfront	\$7.65	\$-	\$1.2054	\$-	\$ 55.87	12	\$670.39	\$55.87	213,418	49.72	\$ 55,506
Tacoma, WA	Fee based on lot size and density of development. Heavy development - most commercial properties with parking lots and some vegetation. Variable charge is per 500 square foot of lot size. Different rates if on waterfront	\$7.65	\$-	\$1.7684	\$-	\$ 78.39	12	\$940.63	\$78.39	213,418	49.72	\$ 55,506
Tacoma, WA	Fee based on lot size and density of development. Very heavy development - industrial with mostly IA and lots of runoff. Variable charge is per 500 square foot of lot size. Different rates if on waterfront	\$7.65	\$-	\$2.3619	\$-	\$ 102.13	12	\$1,225.51	\$102.13	213,418	49.72	\$ 55,506
Sparks, NV	River Protection Charge, per 1,000 gallons of water usage (assume 10,000 gallons)	\$-	\$-	\$ -	\$0.64	\$ 6.40	12	\$76.80	\$6.40	100,888	35.76	\$ 58,120

Entity	Rate Structure Type	Fixed Charge	Minimum Charge	Variable Charge	Consumption-Based Charge	Bill Amount	Bills Per Year	Annual bill	Avg. Monthly Bill	Pop.	Gross Area (sq. miles)	Median Income
Carson City, NV	Multifamily res, flat fee	\$29.33	\$-	\$ -	\$-	\$ 29.33	12	\$351.96	\$29.33	54,745	144.66	\$ 49,341
Dallas, TX	Fee per 1,000 sq. ft. of IA	\$-	\$5.49	\$1.92	\$-	\$ 23.04	12	\$276.48	\$23.04	1,197,816	385.8	67,382
City of Louisville, CO	Rate per 3,500 square feet of impervious area	\$-	\$-	\$4.23	\$-	\$ 16.92	12	\$203.04	\$16.92	21,128	8.09	69,945
City of Lakewood, CO	Rate per 2,250 sq. ft. of impervious area	\$-	\$-	\$3.42	\$-	\$ 20.53	12	\$246.40	\$20.53	154,958	42.87	52,960

APPENDIX E:
CITY COUNCIL PRESENTATION

CITY OF RENO

Stormwater Funding Feasibility Study

March 13, 2019



Overview of Study

- Goals and Scope of Study
- Study Inputs
- Results
 - » Program Planning
 - » Utility Administration
 - » Funding Assessment
 - » Units of Service
- Peer Utilities
- Recommendations
- Next Steps



Goals and Scope of Study



Stormwater Funding Feasibility Study

Evaluate the potential to form a stormwater utility and implement a stormwater fee to provide a **predictable and sustainable** stormwater funding source that is **equitable** to customers.



Stormwater Funding Feasibility Study

- Scope
 - » Program Planning – current and future level of service
 - » Financial planning and modeling
 - » Rate structure and revenue generation assessment
 - » Evaluate costs of utility administration
 - » Peer cities comparison
 - » Recommendations and next steps



Study Inputs



Program Planning

- Current stormwater activities and drainage improvements, planning, and projects are completed by:
 - » Public Works Department
 - » Maintenance and Operations section
 - » Engineering section
 - » Parks Maintenance Division
 - » Community Development



Program Planning

- Funding for these departments and divisions come from a variety of sources including the
 - » Sewer Fund
 - » Street Fund

The City does not currently have a unique funding source for flood and drainage planning and projects



Results



Program Planning

- Operations and Maintenance - \$1.8M
- NPDES MS4 Permit- \$1M
 - » *Potential MS4 Costs (assume 25% increase)- \$1.25M*
- Total Capital needs - \$286M
 - » City Storm Drainage (20 year CIP) - \$159M
 - » Truckee River Flood Management: City of Reno elements and mitigation - \$127M



Additional Staffing

- Additional engineering related staffing would be required to complete additional capital projects
- Projected staffing levels vary based on the timing, number, and intensity of capital projects
- Staffing ranges
 - » Project Coordinator – 1 FTE
 - » Senior Civil Engineer – 1 FTE
 - » Associate Civil – 1 to 2 FTEs
 - » Engineering Technicians – 1 to 2 FTEs
- Total additional staffing = \$200K - \$580K



Utility Administration

- The implementation of a utility requires additional administrative effort
 - » Billing and Technology – 1 FTE
 - » Customer Service – 1 FTE
 - » Data Maintenance – 1 FTE
 - » Imagery – \$10K/ year
- Total Utility Administration = \$220K



Financial Policies

- Utility Reserves
 - » Operating Reserves – 3 month of O&M expenses
 - » Emergency Reserves - \$1.5M
 - » Reserve funding built up over a 4-year period



Funding Assessment

- Scenarios modeled with varying capital funding levels and potential additional NPDES MS4 permit costs
- City needs approximately \$5 Million to \$11 Million per year in the short term and over the next five to seven years.

Cost Category	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
O&M and MS4	\$3.4M - \$4.0M	\$3.5M - \$4.1M	\$3.6 - \$4.2M	\$3.7 - \$4.3M	\$3.8 - \$4.4M
Capital	\$0 - \$2M	\$1.7M - \$2M	\$2M - \$3.8M	\$2M - \$6.4M	\$2M - \$5.9M
Reserves	\$660K - \$701K	\$660K - \$701K	\$660K - \$701K	\$660K - \$701K	\$0
Total	\$4.1M - \$4.7M	\$5.0M - \$6.8M	\$5.2M - \$8.7M	\$5.9M - \$11.4M	\$5.2M - \$10.3M



Capital Scenarios

Capital Scenario	Description	Estimated Rate (10-year average)
1	\$2M annual funding, program of currently identified projects would not be completed, 3 additional utility admin. staff needed to support program	\$3.40
2	PAYGO funding, 25 years to complete program, additional engineering and utility admin. staff needed to support program	\$8.60
3	Issue debt, 20 years to complete program, additional engineering and utility admin. staff needed to support program	\$8.00



Capital Needs Examples



Example Capital Projects

Project Name	Project Description	Estimated Cost (construction only)
City of Reno Drainage Master Plan	Phased master plan of City of Reno storm drain systems; evaluates remaining storm drain capacities of existing facilities and prioritizes drainage improvement projects	\$2.5M
Ditches	Irrigation Ditches Overtopping Relief-	\$15 M
Truckee River Flood Projects	Truckee River Flood Project Elements (Reno only and mitigation)	
Margrave Ditch erosion (by Reno Costco)	Address erosion and property loss	\$1M
Matley Ln & Terminal Way	Storm drain and catch basins	\$500K
Dry Creek Repairs at Reno-Tahoe International Airport (City of Reno portions)	The Dry Creek channel segment just north of the E. Peckham Ln crossing has eroded the east and west channel banks, causing property damage and channel migration. Design repairs at Dry Creek channel within the City of Reno Maintenance easement at Reno-Tahoe International Airport.	\$400K
Warren Estates Evaluation & Drainage Improvement Project	Drainage improvements in the Longwood/Hedgewood roads; new storm drain.	\$4.0 M

Example Capital Projects

Project Name	Project Description	Estimated Cost (construction only)
Rosewood Wash Culvert Upgrades	Storm drain improvements and Flood Insurance Map revisions to reflect revised floodplain	\$2.5M
Stead Blvd. at Silver Lake Rd	Upsize culvert across Silver Lake Rd at RR from 24" PVC to large diameter RCB	\$600K
Autumn Hills, Offenhauser, Longley & McCarran storm drain improvements and Detention Solutions	Storm drain upsizing; possible detention	\$10M
Sagittarius Storm Drain Improvements	Storm drain construction/ditch relief	\$6M
Aquila Ave/Krupp Cir Drainage Improvements	Enlarge and reinforce roadside ditches, upsize/install new storm drain	\$6.5M
Thomas Creek at South Virginia St.	Improve storm drainage across roadways in this area	\$5M



Funding Assessment

To provide a dedicated and reliable source of funding, the City could enact a stormwater utility fee that would be charged to every property based on the contribution of the property to the demand it places on the stormwater system



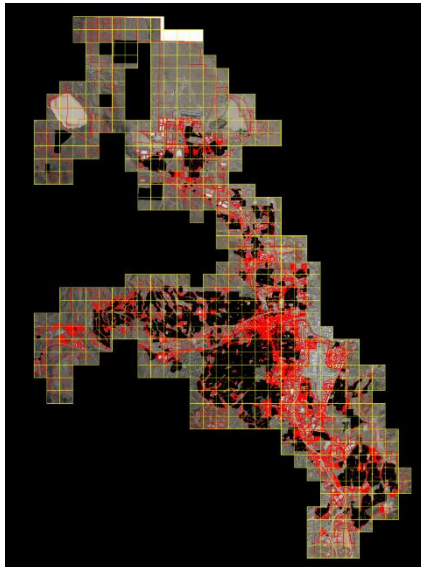
Impervious Surface

- Most commonly used metric for stormwater fees is **impervious area**.
 - » Impervious surfaces are those covered by a hard material through which rainwater cannot pass, such as buildings and parking lots.
 - » Nexus to stormwater cost drivers (quantity of runoff and degraded water quality)

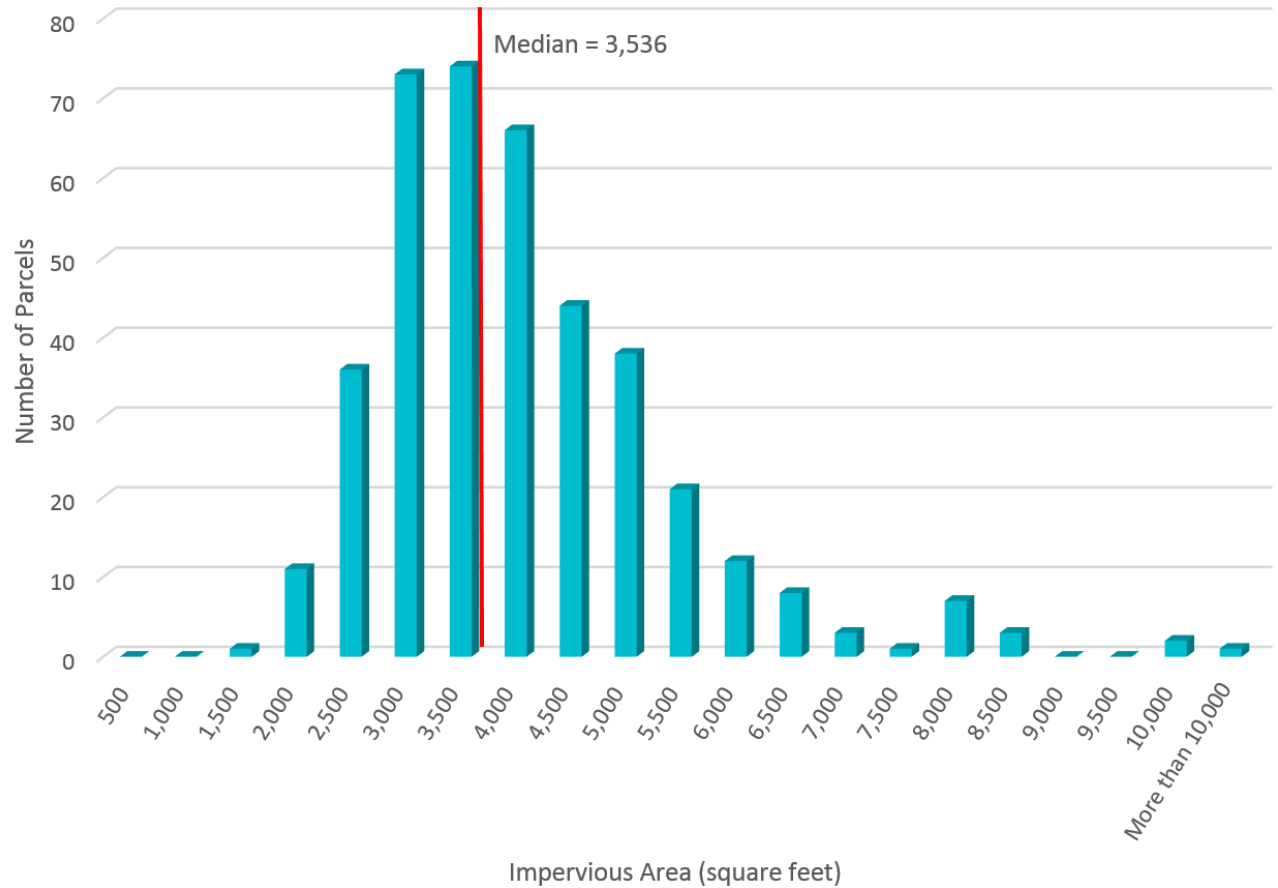


Units of Service

- Estimation process
 - » Single family residential parcels were determined by digitizing the impervious area of a sample of properties
 - » Non-single family residential properties were estimated using a visual approach
- Equivalent Residential Unit (ERU)
 - » Determined from the single family residential sample
 - » 1 ERU = 3,536 square feet



Units of Service



Units of Service – Estimated Totals

Property Type	
Residential	
Number of Parcels	55,014
ERUs	55,014
Non-Residential	
Number of Parcels	30,454
Impervious Area (square feet)	376 Million – 407 Million
ERUs	95,855 - 126,557



Examples

- Target Shopping Center
- Reno High School
- O'Brien Middle School
- Dodson Elementary School
- Our Lady of the Snows Church and School



Example – Target Shopping Center

- Impervious Surface Area = 1,057,571 sq. ft. (300 ERUs)
- Rate range (per month) = \$1,020 - \$2,580



Example – Reno High School

- Impervious Surface Area = 995,624 sq. ft. (282 ERUs)
- Rate range (per month) = \$959 - \$2,425



Example – O’Brien Middle School

- Impervious Surface Area = 539,338 sq. ft. (153 ERUs)
- Rate range (per month) = \$520 - \$1,316



Example – Dodson Elementary School

- Impervious Surface Area = 130,846 sq. ft. (37 ERUs)
- Rate range (per month) = \$126 - \$318



Example – Our Lady of the Snows Church

- Impervious Surface Area = 73,199 sq. ft. (21 ERUs)
- Rate range (per month) = \$71 - \$181



Peer Utilities



Peer Utilities

- The industry best practice is a rate structure of measured impervious area.
- Majority (92%) of utilities use actual and/or effective impervious area as the basis of stormwater fees.
- Single Family Residential Rate Structures
 - » Majority (54%) of utilities have a uniform flat rate
 - » One-third of utilities employ a tiered residential rate structure



Peer Utilities - Demographics

Entity	Population	Gross Area (Square miles)	Median Household Income
Irving, TX	240,373	67.02	\$ 58,196
Modesto, CA	214,221	36.87	\$ 54,024
Stockton, CA	310,496	61.67	\$ 48,396
Salt Lake City, UT	200,544	111.11	\$ 54,009
Carson City, NV	54,745	144.66	\$ 49,341
Aurora, CO	366,623	154.73	\$ 58,343
Norfolk, VA	244,703	54.12	\$ 47,137
Boulder, CO	107,125	24.66	\$ 64,183
Tacoma, WA	213,418	49.72	\$ 55,506
Sparks, NV	100,888	35.76	\$ 58,120
Dallas, TX	1,197,816	385.8	\$ 67,382
Louisville, CO	21,128	8.09	\$ 69,945
Lakewood, CO	154,958	42.87	\$ 52,960



Peer Utilities - Single Family Approaches*

Entity	Rate Structure Type	Avg. Monthly Bill
Irving, TX	Fee dependent on lot size and residential property type	\$3.00 - \$10.48
Modesto, CA	Fee based on Residential lot size	\$1.65 - \$4.85
Stockton, CA	Flat rate of 1 ERU for all SFRs, multifamily units, and apartment residences	\$2.10
Salt Lake City, UT	Fee dependent on lot size and residential property type	\$4.94 - \$9.88
Carson City, NV	Fee dependent on Single family residential or multi-family residential	\$5.69 – \$29.33
Aurora, CO	Flat fee for Single-Family Residential, additional fee per dwelling unit for multi-family residential	\$ 10.46
Washoe Co, NV	Flat fee – North Spanish Springs Flood Detention Facility	\$9.31
Norfolk, VA	Flat daily rate for SFR billed monthly, plus \$1.00 per account per month admin charge.	\$ 11.71
Boulder, CO	Three flat tiers based on parcel size plus service charge of \$2.50	\$ 18.11
Tacoma, WA	Fee based on lot size and density of development plus proximity to the waterfront.	\$8.88 - \$ 54.89
Sparks, NV	River Protection Charge and a portion of sewer/drainage fee	\$ 14.51
Dallas, TX	Tiered residential. 4 tiers - based on impervious area.	\$ 8.51
City of Louisville, CO	Flat fee single family residential	\$ 4.40
City of Lakewood, CO	Flat fee for single family residential and multi-family residential	\$ 3.85

* Property on a 10,000 sq. ft. lot with 4,000 sq. ft. of impervious area

Peer Utilities – Non-Single Family Approaches*

Entity	Rate Structure Type	Avg. Monthly Bill
Irving, TX	Fee based on zoning codes and lot size.	\$9.00 - \$540.01
Modesto, CA	Fee based on property type. Per acre charge. Commercial	\$3.76 - \$35.67
Stockton, CA	Fee based on property type and density of development. Commercial Property assumed 90% density of development. ERU = 2,347 ft of IA	\$11.10 - \$16.11
Salt Lake City, UT	ERU = 2,500	\$24.70
Aurora, CO	Fee based on class and floor space	\$43.42
Washoe Co, NV	Flat fee – North Spanish Springs Flood Detention Facility	\$9.31
Norfolk, VA	Daily rate per 2,000 sq. ft. of IA billed monthly, plus \$1.00 per account per month admin charge.	\$45.28
Boulder, CO	Base charge plus an impervious square foot rate, subject to a minimum	\$70.90
Tacoma, WA	Fee based on lot size, density of development, and proximity to waterfront.	\$10.11 - \$102.13
Sparks, NV	River Protection Charge, per 1,000 gallons of water usage (assume 10,000 gallons)	\$16.70
Carson City, NV	Multifamily res, flat fee	\$29.33
Dallas, TX	Fee per 1,000 sq. ft. of IA	\$23.04
City of Louisville, CO	Rate per 3,500 square feet of impervious area	\$16.92
City of Lakewood, CO	Rate per 2,250 sq. ft. of impervious area	\$20.53

* Property on a 20,000 sq. ft. lot with 12,000 sq. ft. of impervious area and 10,000 gallons of usage

How a utility succeeds



Recommendations



Funding Scenarios / Alternatives

Existing Program with Dedicated Funding / Utility

- » \$2 Million / year in projects accomplished
- » Large projects take several years
- » Create Utility / Separate Dedicated Funding
- » Existing Engineering Staff: 1 Associate Civil, 1 Project Coordinator
- » **Add: Utility Administration Staff (3 FTEs)**
- » **\$3-4 / ERU / month (Reduce sewer bill ~\$2-3/month)**

Projects Completed in 25 years, Pay-as-you-go

- » **Add: 1 Associate Civil Eng. , 1 Eng. Technician, Utility Administration**
- » **\$9 / ERU / month (Reduce sewer bill ~\$4/month)**

Projects Completed in 20 years, Mix Pay-Go and debt

- » **Add: 1 Senior Civil Engineer, 2 associate Civil Engineers, 1 Project Coordinator, 2 Engineering Technicians, Utility Administration**
- » **\$8/ ERU / month (Reduce sewer bill ~ \$4/ month)**



Recommendations

- Dedicated Stormwater Funding Source
- Implementation of a Stormwater Fee based on Impervious Area
- \$9 / month / ERU Reduce Sewer Bill \$4.00
- Billing on the Sewer Bill
- Incorporate Administrative and Data Maintenance Costs
- Consider Potential Future NPDES Costs
- Allow adequate time to set up rate hearings



Next Steps



Next Steps

- Define the Rate Structure
- Develop Impervious Area Data
- Link the Stormwater billing data to the Sewer Billing System
- Establish enterprise and rate ordinances as necessary



Rate hearing process and timeline

- Process can vary
- Typical process includes:
 - › Notifications of public and businesses
 - › Business Impact Statement
 - › Workshops/ Public Hearing(s)
 - › Ordinance establishing the utility
 - First and Second reading
 - › Ordinance establishing rates
 - Rates are often captured in the budget ordinance





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Thank you!

Contact:

Keith Reading

919 780 9151 / kreading@raftelis.com

Henrietta Locklear

919 260 5714 / hlocklear@raftelis.com

