Appendix D –

Economic Analysis

Shasta County - Estimated Cost to Jurisdiction of CAP Measure Implementation 2012-2020

Energy

Energy Efficiency				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	BE-1	Existing Buildings	A	Continue to promote PG&E incentives and energy conservation programs for older homes.	0	0	0	0	0%	0	0	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: NA	10,600	201	53
			B	Develop comprehensive public outreach campaign promoting energy-efficiency improvements.	312	12,000	0	15,000	25%	74,250	10,600	**Annual Labor:** Assume one staff time at 15% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $15k in outreach campaign costs (e.g. website, pamphlets, posters)			
	BE-2	New Commercial	A	Develop a priority permitting program for new residential projects that demonstrate 15% higher efficiency than Title 24 requirements.	52	2,000	0	18,000	0%	32,000	4,600	**Annual Labor:** Assume one staff time at 2.5% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $18k developing priority permitting program (e.g., cosulting fees, BOS hearing)	56,652	0	NA
	BE-3	Commercial Indoor Lighting	A	Discuss applicable rebates and incentive programs with building developers during the building permit phase	104	4,000	0	10,000	0%	38,000	5,400	**Annual Labor:** Assume one staff time at 5% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $10k in outreach campaign costs (e.g. website, pamphlets, posters)	9,400	24	392
			B	Provided targeted outreach to building owners/managers of large non-residential buildings	104	4,000	0	0	0%	28,000	4,000	**Annual Labor:** Assume one staff time at 5% FTE per year **Annual Direct:** NA **One-Time Direct**: NA			
	BE-4	Energy-Efficient Appliances	A	Collaborate with PG&E to promote existing financial incentives programs to encourage voluntary replacement of inefficient appliances with new ENERGY STAR appliances	52	2,000	0	10,000	25%	18,000	2,600	**Annual Labor:** Assume one staff time at 2.5% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $10k in outreach campaign costs (e.g. website, pamphlets, posters)	11,600	1,443	8
			B	Advertise energy-efficient appliance rebates at community events	52	2,000	10,000	0	25%	63,000	9,000	**Annual Labor:** Assumes one staff time at 2.5% FTE per year **Annual Direct:** Assumes $10k for community events costs per year (e.g., event fees, posters, handouts) **One-Time Direct**: NA			
	BE-5	Smart Grid Integration	A	Develop an outreach program with PG&E that informs property owners and businesses about smart grid and smart appliance technologies, as well as energy conservation opportunities using smart meter technology	104	4,000	0	10,000	25%	28,500	4,100	**Annual Labor:** Assumes one staff time at 5% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $10k in outreach campaign costs (e.g. website, pamphlets, posters)	46,704	1,214	38

Renewable Energy				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	BE-6	Solar Water Heaters	A	Work with PG&E and California Solar Initiative to develop an outreach program to maximize installation of solar hot water systems in residential and commercial buildings	130	5,000	0	12,000	25%	35,250	5,000	**Annual Labor:** Assumes one staff time at 6.3% FTE per year for overseeing outreach program **Annual Direct:** NA **One-Time Direct**: Assumes $12k in outreach campaign costs (e.g. website, pamphlets, posters)	11,100	886	13
			B	Encourage the use of California Solar Initiative, US EPA, PG&E, and other rebates for solar hot water heaters	0	0	0	0	0%	0	0	**Annual Labor:** Assumes costs covered by BE-6 Action A **Annual Direct:** NA **One-Time Direct**: NA			
			C	Streamline permitting (e.g., building, electric, plumbing) for solar hot water system installation	52	2,000	0	7,500	0%	21,500	3,100	**Annual Labor:** Assume one staff time at 2.5% FTE per year for additional counter time **Annual Direct:** NA **One-Time Direct**: Assumes $7.5k developing priority permitting program (e.g., consulting fees, BOS hearing) - *Note Split cost with BE-6 Action B*			
			D	Remove fees associated with installation of solar water heaters	78	3,000	0	0	0%	21,000	3,000	**Annual Labor:** Assume one staff time at 3.8% FTE per year **Annual Direct:** NA **One-Time Direct**: NA			
	BE-7	Solar PV Systems	A	Remove regulatory barriers to installation of PV systems	0	0	0	20,000	0%	20,000	2,900	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $20k developing priority permitting program (e.g., cosulting fees, BOS hearing)	12,000	6,315	2
			B	Provide streamlined permitting and waive permitting fees related to installation of PV systems	78	3,000	0	7,500	0%	28,500	4,100	**Annual Labor:** Assume one staff time at 3.8% FTE per year for additional counter time **Annual Direct:** NA **One-Time Direct**: Assumes 7.5k developing priority permitting program (e.g., consulting fees, BOS hearing) - Note Split cost with BE-6 Action C			
			C	Develop public outreach campaign that explains benefits of PV systems, highlights available rebates/incentives, explains PPAs and identifies solar service providers in the area	130	5,000	0	12,000	25%	35,250	5,000	**Annual Labor:** Assume one staff time at 6.3% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $12k in outreach campaign costs (e.g. website, pamphlets, posters)			
Subtotal					**1,248**	**48,000**	**10,000**	**122,000**	**NA**	**443,250**	**63,400**				

Solid Waste				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	SW-1	Lumber Waste Diversion	A	Adopt 75% lumber diversion ordinance applicable to residential and commercial construction and renovation projects	104	4,000	0	15,000	0%	43,000	6,100	**Annual Labor:** Assume one staff time at 5% FTE per year (e.g., site enforcement) **Annual Direct:** NA **One-Time Direct**: Assumes 15k developing ordinance (e.g., consulting fees, BOS hearing)	6,100	1,334	5
	SW-2	Methane Recovery	A	Complete installation of methane capture facilities at West Central Landfill	0	0	0	0	0%	0	0	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: No future cost estimated as already implemented	1,900	16,360	NA
			B	Evaluate future proposals for construction of landfill energy-to-gas system at West Central Landfill	0	0	0	18,000	25%	13,500	1,900	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes 18k for evaluation of proposals (e.g., staff and consulting fees, BOS hearing)			
	Subtotal				**104**	**4,000**	**0**	**33,000**	**NA**	**56,500**	**8,000**				
Water				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	W-1	Residential Fixture and Fittings Retrofit	A	Develop informational materials that describe benefits of installing high-efficiency water fixtures/appliances	52	2,000	0	10,000	25%	18,000	2,600	**Annual Labor:** Assumes one staff time at 2.5% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $10k in outreach campaign costs (e.g. website, pamphlets, posters)	3,600	94	38
			B	Identify water efficiency rebates or incentives applicable to unincorporated Shasta County residents	26	1,000	0	0	0%	7,000	1,000	**Annual Labor:** Assumes one staff time at 1.25% FTE per year **Annual Direct:** NA **One-Time Direct**: NA			
	Subtotal				**78**	**3,000**	**0**	**10,000**	**NA**	**25,000**	**3,600**				
Transportation				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	T-1	Bicycle Lane Expansion	A	Pursue funding to implement Bicycle Transportation Plan; construct proposed bicycle paths	416	16,000	68,800	2,092,380	50%	1,342,990	191,900	**Annual Labor:** Assumes one staff time at 20% FTE per year to oversee implementation **Annual Direct:** Assumes average of $1600/mile maintanence cost for bike path/lanes and 43 miles of new bike path by 2020. **One-Time Direct**: Assumes 43 miles of new bike infrastructure by 2020 and 20% of the new infrastructure will be class 1 bike path with a $214,100/mile construction cost and 80% of the new infrastructure will be class 2 bike lanes (requiring striping and signs) with a $7,300/mile construction cost	194,100	127	1,526
			B	Discuss benefits of providing end-of-trip facilities at large employment centers with project developers	39	1,500	0	5,000	0%	15,500	2,200	**Annual Labor:** Assumes one staff time at 1.9% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $5k in outreach materials (e.g. website, pamphlets)			
	T-2	Commute Trip Reduction	A	Develop a ride-matching website	104	4,000	4,800	20,000	25%	61,200	8,700	**Annual Labor:** Assumes one staff time at 5% FTE per year to oversee ride match program **Annual Direct:**Assumes $400/month management fee for rideshare website and software. **One-Time Direct**: Assumes $20k purchase costs for rideshare software	15,400	70	220
			B	Identify transit stops in high-activity areas that would benefit from additional enhancements (e.g., shelter, seating, electronic arrival/departure information)	0	0	0	25,000	25%	18,750	2,700	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes 25k for transit stop study (e.g., consulting fees)			
			C	Pursue funding for transit stop improvements	104	4,000	0	0	0%	28,000	4,000	**Annual Labor:** Assumes one staff time at 5% FTE per year to pursue grants **Annual Direct:** NA **One-Time Direct**: NA			
	Subtotal				**663**	**25,500**	**73,600**	**2,142,380**	**NA**	**1,466,440**	**209,500**				
Green Infrastructure				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	GI-1	Enhance Urban Forest	A	Work with PG&E to advertise the benefits of planting shade trees around buildings and parking lots	52	2,000	0	10,000	25%	18,000	2,600	**Annual Labor:** Assumes one staff time at 5% FTE per year to pursue grants **Annual Direct:** NA **One-Time Direct**: Assumes $10k in outreach campaign costs (e.g. website, pamphlets, posters)	32,652	30	1,088
	Subtotal				**52**	**2,000**	**0**	**10,000**	**NA**	**18,000**	**2,600**				

TOTAL COSTS 2012 - 2020	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost		Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
Cost	**2,145**	**82,500**	**83,600**	**2,317,380**	**NA**	**2,009,190**	**287,100**				
Additional FTE Staff	**1.03**										

Other Assumptions

Years of Implementation (2020-2013)	7
County Staff FTE Salary and Benefits	$ 80,000
FTE Hours per Year	2,080

NOTE: This analysis is only an estimate of measure implementation cost. The County and cities will work to foster partnerships and obtain grants to carry out these measures in a cost-effective manner.

City of Anderson - Estimated Cost to Jurisdiction of CAP Measure Implementation 2012-2020

Energy

Energy Efficiency			Actions		Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	BE-1	Existing Buildings	A	Partner with PG&E to promote and improve utility incentives for energy conservation programs for older homes and renovations.	52	2,000	0	10,000	0%	24,000	3,400	**Annual Labor:** Assume one staff time at 2.5% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $10k in outreach campaign costs (e.g. website, pamphlets, posters)	9,700	127	77
			B	Facilitate the use of energy efficient demonstration homes as an education and promotion tool.	52	2,000	0	5,000	0%	19,000	2,700	**Annual Labor:** Assume one staff time at 2.5% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $5k in outreach campaign costs (e.g. website, pamphlets, posters)			
			C	Consider development of a Property Assessed Clean Energy (PACE) program.	39	1,500	0	15,000	0%	25,500	3,600	**Annual Labor:** Assume one staff time at 1.9% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $15k developing PACE program (e.g., consulting fees, council hearing)			
	BE-2	New Construction	A	Partner with PG&E to promote and provide utility incentives for energy efficiency programs in new construction.	26	1,000	0	0	0%	7,000	1,000	**Annual Labor:** Assume one staff time at 1.3% FTE per year **Annual Direct:** NA **One-Time Direct**: NA	4,100	0	NA
			B	Develop a priority permitting program for new construction projects that demonstrate 15% higher efficiency than Title 24 requirements.	26	1,000	0	15,000	0%	22,000	3,100	**Annual Labor:** Assume one staff time at 1.3% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $15k developing priority permitting program (e.g., consulting fees, council hearing)			
	BE-3	Commercial Lighting	A	Partner with PG&E to promote and provide utility incentives for commercial interior lighting retrofits.	52	2,000	0	10,000	0%	24,000	3,400	**Annual Labor:** Assume one staff time at 2.5% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $10k in outreach campaign costs (e.g. website, pamphlets, posters)	8,500	183	46
			B	Discuss applicable rebates and incentive programs with building developers during the building permit phase	26	1,000	0	10,000	0%	17,000	2,400	**Annual Labor:** Assume one staff time at 1.3% FTE per year for additional counter time **Annual Direct:** NA **One-Time Direct**: NA			
			C	Provided targeted outreach to building owners/managers of large non-residential buildings	0	0	0	0	0%	0	0	**Annual Labor:** Assumes cost covered by Action BE-3 A **Annual Direct:** NA **One-Time Direct**: NA			
			D	Develop a parking lot and public area lighting-specific outreach program.	26	1,000	0	12,000	0%	19,000	2,700	**Annual Labor:** Assume one staff time at 1.3% FTE per year **Annual Direct:** NA **One-Time Direct:**Assumes $12k in outreach campaign costs (e.g. website, pamphlets, posters)			
	BE-4	Efficient Appliances	A	Collaborate with PG&E to promote existing financial incentives programs to encourage voluntary replacement of inefficient appliances with new ENERGY STAR appliances	26	1,000	0	10,000	25%	12,750	1,800	**Annual Labor:** Assume one staff time at 1.3% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $10k in outreach campaign costs (e.g. website, pamphlets, posters)	10,800	229	47
			B	Advertise energy-efficient appliance rebates at community events	52	2,000	10,000	0	25%	63,000	9,000	**Annual Labor:** Assumes one staff time at 2.5% FTE per year **Annual Direct:** Assumes $10k for community events costs per year (e.g., event fees, posters, handouts) **One-Time Direct**: NA			
	BE-5	Smart Grid Integration	A	Develop an outreach program that informs property owners and businesses about smart grid and smart appliance technologies, as well as energy conservation opportunities using smart meter technology.	39	1,500	0	10,000	25%	15,375	2,200	**Annual Labor:** Assumes one staff time at 1.9% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $10k in outreach campaign costs (e.g. website, pamphlets, posters)	29,114	711	41

Renewable Energy			Actions		Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	BE-6	Solar Water Heaters	A	Work with PG&E and California Solar Initiative to develop an outreach program to maximize installation of solar hot water systems in residential and commercial buildings.	52	2,000	0	10,000	25%	18,000	2,600	**Annual Labor:** Assumes one staff time at 2.5% FTE per year for overseeing outreach program **Annual Direct:** NA **One-Time Direct**: Assumes $7.5k in outreach campaign costs (e.g. website, pamphlets, posters)	5,700	56	101
			B	Streamline permitting (e.g., building, electric, plumbing) for solar hot water system installation.	0	0	0	15,000	0%	15,000	2,100	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $15k developing streamlined permitting program (e.g., consulting fees, Council hearing)			
			C	Encourage the use of California Solar Initiative, US EPA, PG&E, and other rebates for solar hot water heaters.	26	1,000	0	0	0%	7,000	1,000	**Annual Labor:** Assume one staff time at 1.3% FTE per year for additional counter time **Annual Direct:** NA **One-Time Direct**: NA			
	Subtotal				**494**	**19,000**	**10,000**	**122,000**	**NA**	**288,625**	**41,000**				

Solid Waste				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	SW-1	Enhanced Organic Waste Diversion	A	Enhance implementation of existing recycling and composting programs through education and outreach, including specific enhanced yard waste and construction and demolition waste diversion programs.	130	5,000	0	12,000	0%	47,000	6,700	**Annual Labor:** Assumes one staff time at 6.3% FTE per year for overseeing outreach program and C&D site enforcement **Annual Direct:** NA **One-Time Direct**: Assumes $12k in outreach campaign costs (e.g. website, pamphlets, posters)	10,900	159	68
			B	Incorporate waste reduction measures into future solid waste and recycling franchise agreements.	0	0	0	0	0%	0	0	**Annual Labor:** Assumes cost neutral **Annual Direct:** NA **One-Time Direct**: NA			
			C	Explore implementation of a commercial recycling program to divert commercial solid waste.	65	2,500	0	12,000	0%	29,500	4,200	**Annual Labor:** Assumes one staff time at 3.1% FTE per year for overseeing program **Annual Direct:** NA **One-Time Direct**: Assumes $12k in outreach campaign costs (e.g. website, pamphlets, posters)			
	SW-2	Methane Recovery	A	Consult with County staff to verify the installed methane capture system at the West central Landfill achieves the estimated 75% control efficiency.	0	0	0	0	0%	0	0	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: No future cost estimated as already implemented	0	3,319	NA
	Subtotal				**195**	**7,500**	**0**	**24,000**	**NA**	**76,500**	**10,900**				
Transportation				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	T-1	Mixed Use Development	A	Conduct a community visioning process to identify the goals for commercial center retrofits and new mixed-use centers, and recommend sites with the highest potential.	0	0	0	25,000	50%	12,500	1,800	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $25k for visioning process and report (e.g., consulting fees, staff support, Council hearing)	7,000	821	9
			B	Create streamlined permitting process for higher density and mixed-use developments.	0	0	0	18,000	50%	9,000	1,300	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $18k for development of higher density/mixed use streamlining program (e.g., consulting fees, staff support, Council hearing)			
			C	Develop commercial center retrofit and mixed-use development design guidelines.	0	0	0	55,000	50%	27,500	3,900	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $55k for development of design guidelines (e.g., consulting fees, staff support, Council hearing)			
	T-2	Bicycle Lane Expansion	A	Continue to pursue grant funding opportunities to implement the Anderson Bicycle Transportation Plan.	104	4,000	0	0	0%	28,000	4,000	**Annual Labor:** Assumes one staff time at 5% FTE per year to pursue grant funding **Annual Direct:** NA **One-Time Direct**: NA	57,200	23	2,534
			B	Establish standards for the ratio of bicycle lanes and paths to mile of road	39	1,500	0	5,000	0%	15,500	2,200	**Annual Labor:** Assumes one staff time at 1.9% FTE per year additional counter time **Annual Direct:** NA **One-Time Direct**: Assumes $5k developing standards (e.g., consulting fees, Council hearing)			
			C	Develop design guidelines and design standards to promote installation of bicycle infrastructure.		0	0	25,000	0%	25,000	3,600	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $25k developing guidelines and standards (e.g., consulting fees, Council hearing)			
			D	Develop appropriate bicycle infrastructure for high traffic street segments and intersections.	156	6,000	32,000	352,800	50%	309,400	44,200	**Annual Labor:** Assumes one staff time at 7.5% FTE per year to oversee implementation **Annual Direct:** Assumes average of $1600/mile maintanence cost for bike path/lanes and 10 miles of new bike path by 2020. **One-Time Direct**: Assumes 20 miles of new bike infrastructure by 2020 and 5% of the new infrastructure will be class 1 bike path with a $214,100/mile construction cost and 95% of the new infrastructure will be class 2 bike lanes (requiring striping and signs) with a $7,300/mile construction cost.			
			E	Implement a bicycle way finding / signage program.	0	0	0	45,000	50%	22,500	3,200	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $45k developing wayfinding/ signage program (e.g., planning and implementation)			
	T-3	Pedestrian Environment Enhancements	A	Pursue Safe Routes-to-School and other funding for construction of new sidewalks, bicycle lanes, school crossings, traffic control, and roadway improvements.	260	10,000	25,000	300,000	50%	272,500	38,900	**Annual Labor:** Assumes one staff time at 12.5% FTE per year to oversee implementation **Annual Direct:**Assumes $25K annual maintanence costs **One-Time Direct**: Assumes $300k initial cost of improvements	46,900	781	60
			B	Identify existing gaps in sidewalk infrastructure within the City and develop implementation plan to remove gaps and other barriers to pedestrian connectivity in the community.	0	0	0	25,000	75%	6,250	900	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes 25k for sidewalk gap analysis (e.g., consulting fees)			
			C	Pursue grant funding for the repair and improvement of existing sidewalks, the completion of any gaps in the sidewalk network.	104	4,000	0	0	0%	28,000	4,000	**Annual Labor:** Assumes one staff time at 5% FTE per year to pursue grant funding **Annual Direct:** NA **One-Time Direct**: NA			
			D	Develop ordinance that requires new discretionary projects to develop multiuse, when feasible.	26	1,000	0	15,000	0%	22,000	3,100	**Annual Labor:** Assumes one staff time at 1.3% FTE per year additional counter time **Annual Direct:** NA **One-Time Direct**: Assumes $15k developing ordinance (e.g., consulting fees, Council hearing)			

Transportation - Continued				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions			
	T-4	Commute Trip Reduction	A	Develop a ride-matching website	52	2,000	4,800	20,000	25%	50,700	7,200	**Annual Labor:** Assumes one staff time at 2.5% FTE per year to oversee ride match program **Annual Direct:**Assumes $400/month management fee for rideshare website and software. **One-Time Direct**: Assumes $20k purchase costs for rideshare software	12,300	20	615
			B	Identify transit stops in high-activity areas that would benefit from additional enhancements (e.g., shelter, seating, electronic arrival/departure information)	0	0	0	15,000	25%	11,250	1,600	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes 15k for transit stop study (e.g., consulting fees)			
			C	Pursue funding for transit stop improvements	91	3,500	0	0	0%	24,500	3,500	**Annual Labor:** Assumes one staff time at 4.4% FTE per year to pursue grants **Annual Direct:** NA **One-Time Direct**: NA			
	Subtotal				**832**	**32,000**	**61,800**	**900,800**	**NA**	**864,600**	**123,400**				
Green Infrastructure				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	GI-1	Urban Forest	A	Develop outreach program to advertise the benefits of planting shade trees around buildings and parking lots.	52	2,000	0	10,000	25%	18,000	2,600	**Annual Labor:** Assumes one staff time at 2.5% FTE per year to pursue grants **Annual Direct:** NA **One-Time Direct**: Assumes $10k in outreach campaign costs (e.g. website, pamphlets, posters)	24,500	50	490
			B	Evaluate the carbon sequestration potential of planned urban forestry projects.	0	0	0	20,000	0%	20,000	2,900	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $20k for carbon analysis (e.g. consultant fees)			
			C	Indentify potential locations and plant trees within the downtown commercial district.	0	0	13,333	40,000	0%	133,333	19,000	**Annual Labor:** In this action labor is included in Annual Direct Cost **Annual Direct:** Assume $100 per tree per year and 200 trees **One-Time Direct**: Assumes $200 per tree and 200 new trees planted			
	Subtotal				**52**	**2,000**	**13,333**	**70,000**	**NA**	**171,333**	**24,500**				

TOTAL COSTS 2012 - 2020	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost		Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
Cost	**1,573**	**60,500**	**85,133**	**1,116,800**	**NA**	**1,401,058**	**199,800**				
Additional FTE Staff	**0.76**										

Other Assumptions

Years of Implementation (2020-2013)	7
City Staff FTE Salary and Benefits	$ 80,000
FTE Hours per Year	2,080

NOTE: This analysis is only an estimate of measure implementation cost. The County and cities will work to foster partnerships and obtain grants to carry out these measures in a cost-effective manner.

City of Shasta Lake - Estimated Cost to Jurisdiction of CAP Measure Implementation 2012-2020

Energy

Energy Efficiency				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
BE-1	Existing Buildings	A	Continue to promote and improve utility incentives for energy conservation programs for older homes and renovations through One-Stop Permit Center.	0	0	0	0	0%	0	0	**Annual Labor:** Assumes continuation of current Shasta Lake Electric initiatives **Annual Direct:** NA **One-Time Direct**: NA	2,700	25	109
		B	Facilitate the use of energy efficient demonstration homes as an education and promotion tool.	52	2,000	0	5,000	0%	19,000	2,700	**Annual Labor:** Assume one staff time at 2.5% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $5k in outreach campaign costs (e.g. website, pamphlets, posters)			
BE-2	New Construction	A	Continue to promote and provide utility incentives for energy efficiency programs in new residential buildings through One-Stop Permit Center.	0	0	0	0	0%	0	0	**Annual Labor:** Assumes continuation of current Shasta Lake Electric and City initiatives **Annual Direct:** NA **One-Time Direct**: NA	3,100	0	NA
		B	Develop a priority permitting program for new residential projects that demonstrate 15% higher efficiency than Title 24 requirements.	26	1,000	0	15,000	0%	22,000	3,100	**Annual Labor:** Assume one staff time at 1.3% FTE per year **Annual Direct:** NA **One-Time Direct**: Assumes $15k developing priority permitting program (e.g., consulting fees, council hearing)			
BE-3	Commercial Lighting	A	Continue to promote and provide utility incentives for commercial interior lighting retrofits.	0	0	0	0	0%	0	0	**Annual Labor:** Assumes continuation of current Shasta Lake Electric initiatives **Annual Direct:** NA **One-Time Direct**: NA	2,700	137	20
		B	Develop a parking lot and public area lighting-specific outreach program.	26	1,000	0	12,000	0%	19,000	2,700	**Annual Labor:** Assume one staff time at 1.3% FTE per year **Annual Direct:** NA **One-Time Direct**:Assumes $12k in outreach campaign costs (e.g. website, pamphlets, posters)			
BE-4	Efficient Appliances	A	Continue community educational outreach and distribution of information regarding efficient appliances and utility rebate programs through the One Stop Permit Center.	0	0	0	0	0%	0	0	**Annual Labor:** Assumes continuation of current Shasta Lake Electric and City initiatives **Annual Direct:** NA **One-Time Direct**: NA	0	173	0
		B	Continue the Kill-a-Watt program.	0	0	0	0	0%	0	0	**Annual Labor:** Assumes continuation of current Shasta Lake Electric and City initiatives **Annual Direct:** NA **One-Time Direct**: NA			

Renewable Energy				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
BE-5	Solar Water Heaters	A	Work with California Solar Initiative to develop an outreach program to maximize installation of solar hot water systems in residential buildings.	52	2,000	0	8,000	0%	22,000	3,100	**Annual Labor:** Assumes one staff time at 2.5% FTE per year for overseeing outreach program **Annual Direct:** NA **One-Time Direct**: Assumes $8k in outreach campaign costs (e.g. website, pamphlets, posters) Assumes cost sharing with BE- 6 Action A.	5,200	254	20
		B	Streamline permitting (e.g., building, electric, plumbing) for solar hot water system installation.	0	0	0	15,000	0%	15,000	2,100	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $15k developing streamlined permitting program (e.g., consulting fees, Council hearing)			
BE-6	Solar PV Systems	A	Review City regulations, ordinances, and codes to identify and remove, when appropriate, any barriers to solar system installation.	0	0	0	20,000	0%	20,000	2,900	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $20k developing priority permitting program (e.g., consulting fees, Council hearing)	6,000	867	7
		B	Develop a solar outreach campaign that encourages property owners to install PV systems and participate in PPA agreements with solar service providers.	52	2,000	0	8,000	0%	22,000	3,100	**Annual Labor:** Assumes one staff time at 2.5% FTE per year for overseeing outreach program **Annual Direct:** NA **One-Time Direct**: Assumes $8k in outreach campaign costs (e.g. website, pamphlets, posters) Assumes cost sharing with BE- 7 Action B			
Subtotal				**208**	**8,000**	**0**	**83,000**	**NA**	**139,000**	**19,700**				

Water

Water				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions
W-1	Water Efficiency and Conservation	A	Continue to provide information to the public on water conservation measures through the City's One-Stop Permit Center.	0	0	0	0	0%	0	0	**Annual Labor:** Assumes continuation of current City initiatives **Annual Direct:** NA **One-Time Direct**: NA
		B	Continue to use automated water meter system to gather hourly data and review usage patterns and notfiy customers abnormal water usage.	0	0	0	0	0%	0	0	**Annual Labor:** Assumes continuation of current City initiatives **Annual Direct:** NA **One-Time Direct**: NA
		C	Ensure compliance with the Water Efficient Landscape Ordinance (Shasta Lake Municipal Code Chapter 15.10) by providing Application Checklists to developers and assisting with explaining requirements of the Code.	26	1,000	0	0	0%	7,000	1,000	**Annual Labor:** Assumes one staff time at2.5% FTE per year additional counter time **Annual Direct:** NA **One-Time Direct**: NA

Water - Continued				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions			
	W-1	Water Efficiency and Conservation **Continued**	D	Provide information to property owners and developers at the One-Stop Permit Center regarding the design, installation, management and maintenance of water efficient landscapes.	26	1,000	0	5,000	0%	12,000	1,700	**Annual Labor:** Assumes one staff time at 1.3% FTE per year additional counter time **Annual Direct:** NA **One-Time Direct**: Assumes $5k in outreach campaign costs (e.g. website, pamphlets, posters)	4,400	0	NA
			E	Provide information regarding installation of graywater and rainwater systems for landscape irrigation and appropriate indoor applications through the One-Stop Permit Center.	26	1,000	0	5,000	0%	12,000	1,700	**Annual Labor:** Assumes one staff time at 1.3% FTE per year additional counter time **Annual Direct:** NA **One-Time Direct**: Assumes $5k in outreach campaign costs (e.g. website, pamphlets, posters)			
	Subtotal				**78**	**3,000**	**0**	**10,000**	**NA**	**31,000**	**4,400**				

Solid Waste				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	SW-1	Enhanced Organic Waste Diversion	A	Enhance implementation of existing recycling and composting programs through education and outreach, including specific enhanced yard waste and construction and demolition waste diversion programs.	130	5,000	0	12,000	0%	47,000	6,700	**Annual Labor:** Assumes one staff time at 6.3% FTE per year for overseeing outreach program and C&D site enforcement **Annual Direct:** NA **One-Time Direct**: Assumes $12k in outreach campaign costs (e.g. website, pamphlets, posters)	10,900	118	93
			B	Incorporate waste reduction measures into future solid waste and recycling franchise agreements.	0	0	0	0	0%	0	0	**Annual Labor:** Assumes cost neutral **Annual Direct:** NA **One-Time Direct**: NA			
			C	Implement a commercial recycling program to divert commercial solid waste.	65	2,500	0	12,000	0%	29,500	4,200	**Annual Labor:** Assumes one staff time at 3.1% FTE per year for overseeing program **Annual Direct:** NA **One-Time Direct**: Assumes $12k in outreach campaign costs (e.g. website, pamphlets, posters)			
	SW-2	Methane Recovery	A	Consult with County staff to verify the installed methane capture system at the West central Landfill achieves the estimated 75% control efficiency.	0	0	0	0	0%	0	0	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: No future cost estimated as already implemented	0	2,551	NA
	Subtotal				**195**	**7,500**	**0**	**24,000**	**NA**	**76,500**	**10,900**				

Transportation				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	T-1	Mixed Use Development	A	Update General Plan to incorporate healthy community goals and policies.	0	0	0	75,000	50%	37,500	5,400	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $75k for GP update (e.g., consulting fees, staff support, Council hearing)	12,400	290	43
			B	Conduct a community visioning process to identify the goals for commercial center retrofits and new mixed-use centers, and recommend sites with the highest potential.	0	0	0	25,000	50%	12,500	1,800	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $25k for visioning process and report (e.g., consulting fees, staff support, Council hearing)			
			C	Create streamlined permitting process for higher density and mixed-use developments.	0	0	0	18,000	50%	9,000	1,300	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $18k for development of higher density/mixed use streamlining program (e.g., consulting fees, staff support, Council hearing)			
			D	Develop commercial center retrofit and mixed-use development design guidelines.	0	0	0	55,000	50%	27,500	3,900	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $55k for development of design guidelines (e.g., consulting fees, staff support, Council hearing)			
	T-2	Bicycle Lane Expansion	A	Continue to pursue grant funding opportunities to implement the Shasta Lake Bike Plan. For example, continue to pursue grant funding through Healthy Shasta to identify appropriate public locations for the installation of Healthy Shasta bicycle racks.	104	4,000	0	0	0%	28,000	4,000	**Annual Labor:** Assumes one staff time at 5% FTE per year to pursue grant funding **Annual Direct:** NA **One-Time Direct**: NA	57,200	14	4,192
			B	Establish standards for the ratio of bicycle lanes and paths to mile of road.	39	1,500	0	5,000	0%	15,500	2,200	**Annual Labor:** Assumes one staff time at 1.9% FTE per year additional counter time **Annual Direct:** NA **One-Time Direct**: Assumes $5k developing standards (e.g., consulting fees, Council hearing)			
			C	Complete design guidelines and design standards to promote installation of bicycle infrastructure.		0	0	25,000	0%	25,000	3,600	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $25k developing guidelines and standards (e.g., consulting fees, Council hearing)			
			D	Develop appropriate bicycle infrastructure for high traffic street segments and intersections.	156	6,000	32,000	352,800	50%	309,400	44,200	**Annual Labor:** Assumes one staff time at 7.5% FTE per year to oversee implementation **Annual Direct:** Assumes average of $1600/mile maintanence cost for bike path/lanes and 10 miles of new bike path by 2020. **One-Time Direct**: Assumes 20 miles of new bike infrastructure by 2020 and 5% of the new infrastructure will be class 1 bike path with a $214,100/mile construction cost and 95% of the new infrastructure will be class 2 bike lanes (requiring striping and signs) with a $7,300/mile construction cost.			

Transportation - Continued				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions			
	T-2	Bicycle Lane Expansion **Continued**	E	Implement a bicycle way finding / signage program.	0	0	0	45,000	50%	22,500	3,200	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $45k developing wayfinding/ signage program (e.g., planning and implementation)			
	T-3	Pedestrian Environment Enhancements	A	Pursue Safe Routes-to-School and other funding for construction of new sidewalks, bicycle lanes, school crossings, traffic control, and roadway improvements.	260	10,000	25,000	300,000	50%	272,500	38,900	**Annual Labor:** Assumes one staff time at 12.5% FTE per year to oversee implementation **Annual Direct:**Assumes $25K annual maintanence costs **One-Time Direct**: Assumes $300k initial cost of improvements	46,900	31	1,522
			B	Identify existing gaps in sidewalk infrastructure within the City and develop implementation plan to remove gaps and other barriers to pedestrian connectivity in the community.	0	0	0	25,000	75%	6,250	900	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes 25k for sidewalk gap analysis (e.g., consulting fees)			
			C	Pursue grant funding for the repair and improvement of existing sidewalks, the completion of any gaps in the sidewalk network.	104	4,000	0	0	0%	28,000	4,000	**Annual Labor:** Assumes one staff time at 5% FTE per year to pursue grant funding **Annual Direct:** NA **One-Time Direct**: NA			
			D	Develop ordinance that requires new discretionary projects to develop multiuse, when feasible.	26	1,000	0	15,000	0%	22,000	3,100	**Annual Labor:** Assumes one staff time at 1.3% FTE per year additional counter time **Annual Direct:** NA **One-Time Direct**: Assumes $15k developing ordinance (e.g., consulting fees, Council hearing)			
	Subtotal				**689**	**26,500**	**57,000**	**940,800**	**NA**	**815,650**	**116,500**				

Green Infrastructure				Actions	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost	Assumptions	Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
	GI-1	Enhance Urban Forest	A	Develop outreach program to advertise the benefits of planting shade trees around buildings and parking lots.	52	2,000	0	10,000	25%	18,000	2,600	**Annual Labor:** Assumes one staff time at 2.5% FTE per year to pursue grants **Annual Direct:** NA **One-Time Direct**: Assumes $10k in outreach campaign costs (e.g. website, pamphlets, posters)	24,500	190	129
			B	Evaluate the carbon sequestration potential of planned urban forestry projects.	0	0	0	20,000	0%	20,000	2,900	**Annual Labor:** NA **Annual Direct:** NA **One-Time Direct**: Assumes $20k for carbon analysis (e.g. consultant fees)			
			C	Indentify potential locations and plant trees within the downtown commercial district.	0	0	13,333	40,000	0%	133,333	19,000	**Annual Labor:** In this action labor is included in Annual Direct Cost **Annual Direct:** Assume $100 per tree per year and 200 trees **One-Time Direct**: Assumes $200 per tree and 200 new trees planted			
	Subtotal				**52**	**2,000**	**13,333**	**70,000**	**NA**	**171,333**	**24,500**				

TOTAL COSTS 2012 - 2020	Annual Labor Hours	Annual Labor Cost	Annual Direct Cost	One Time Direct Cost	% External Funded	Total 2012-2020 Cost	Annual Cost		Total Measure Cost	Measure GHG Reduction Potential	Cost Effectiveness (Annual Cost/ Annual MT CO_2e)
Cost	**1,144**	**44,000**	**70,333**	**1,117,800**	**NA**	**1,202,483**	**171,600**				
Additional FTE Staff	**0.55**										

Other Assumptions

Years of Implementation (2020-2013)		7
City Staff FTE Salary and Benefits	$	80,000
FTE Hours per Year		2,080

NOTE: This analysis is only an estimate of measure implementation cost. The County and cities will work to foster partnerships and obtain grants to carry out these measures in a cost-effective manner.