

Water Conservation Programs: How Cities Can Save Money, Water, and Salmon

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Background

- Climate change alters stream hydrology leading to decreased summer-stream flows, which can harm salmon and lessen water availability for municipalities.
- High water-use can limit development and require investment in costly infrastructure.
- Water conservation programs can reduce water used by residents, prepare cities for low flows, and reduce impacts on salmon.
- Many larger cities have similar programs, but it is more difficult to implement in small cities.



Research Question

What conservation measures can cities use to effectively reduce water use?

Internship Methods

- Collaborated with City of Chehalis staff and the Chehalis Basin Partnership to create a WaterSmart Program.
- Used interviews, case-study analysis, literature review, and a survey to compile a list of possible recommendations.
- Presented these findings to City staff and other municipal workers.

Results

- Free handouts of low-use appliances, rebates, relandscaping, tiered water pricing, new infrastructure, and public outreach were found as successful measures in decreasing municipal water use.
- Specifically, relandscaping with native plants that can tolerate drought conditions (Figure 4), doing community outreach campaigns that demonstrate water as a public good, and implemented reclaimed water-use infrastructure are most effective.
- Political context and perceived water scarcity can impact participation in these programs, and this issue can be accounted for in outreach measures.
- Municipality employees were supportive of investment in new infrastructure (Figure 1), low-use appliance rebates (Figure 2), and frequent assessment of water rates, however, tiered water pricing (Figure 3), relandscaping with native plants, and voluntary reduced irrigation outreach were not broadly supported.

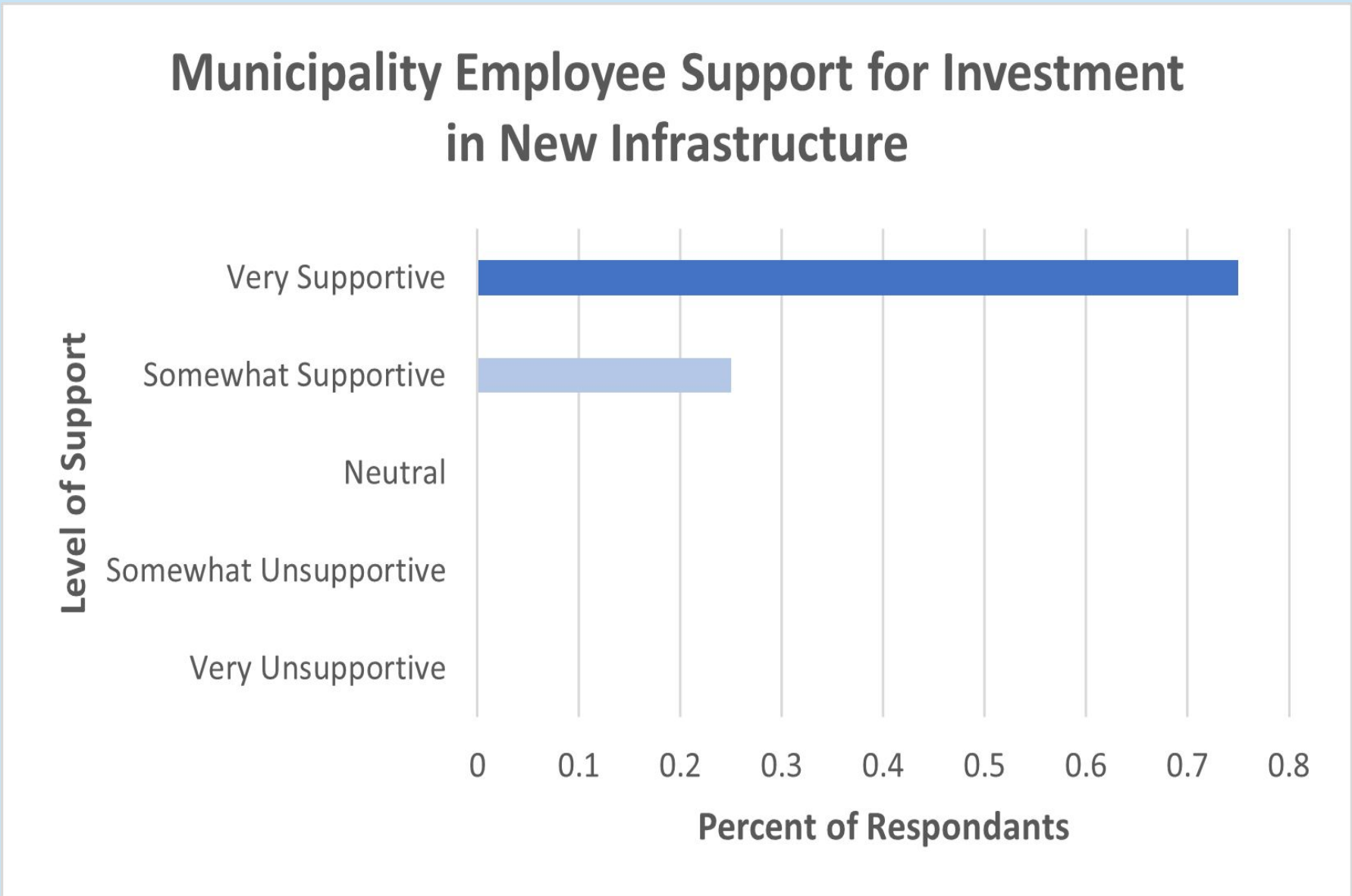


Figure 1: Responses for investment in new water infrastructure - the most supported option among municipality employees for conserving water.

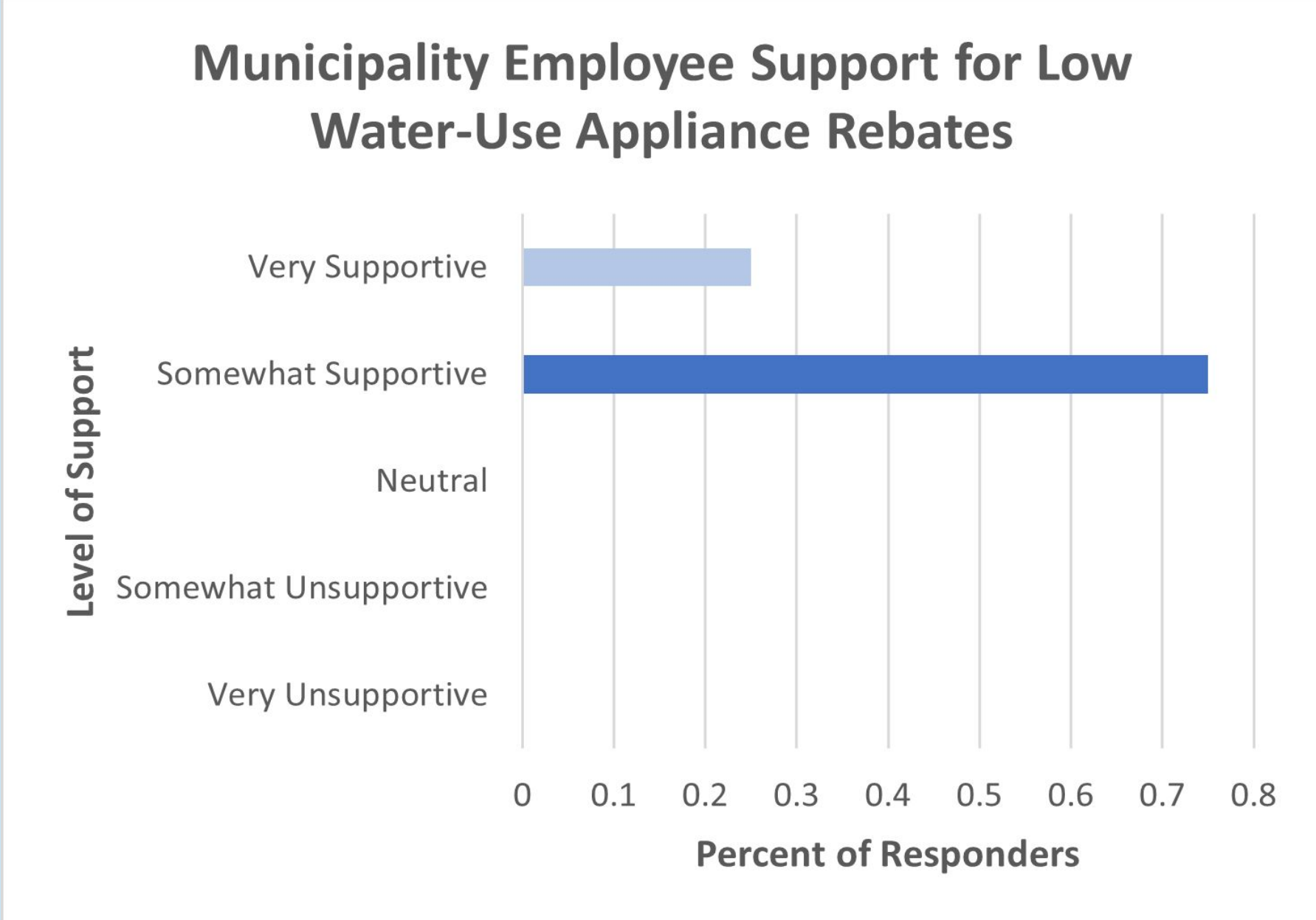


Figure 2: Offering residential water-users rebates for low-use appliances was the most supported low-cost option, mostly somewhat supportive.

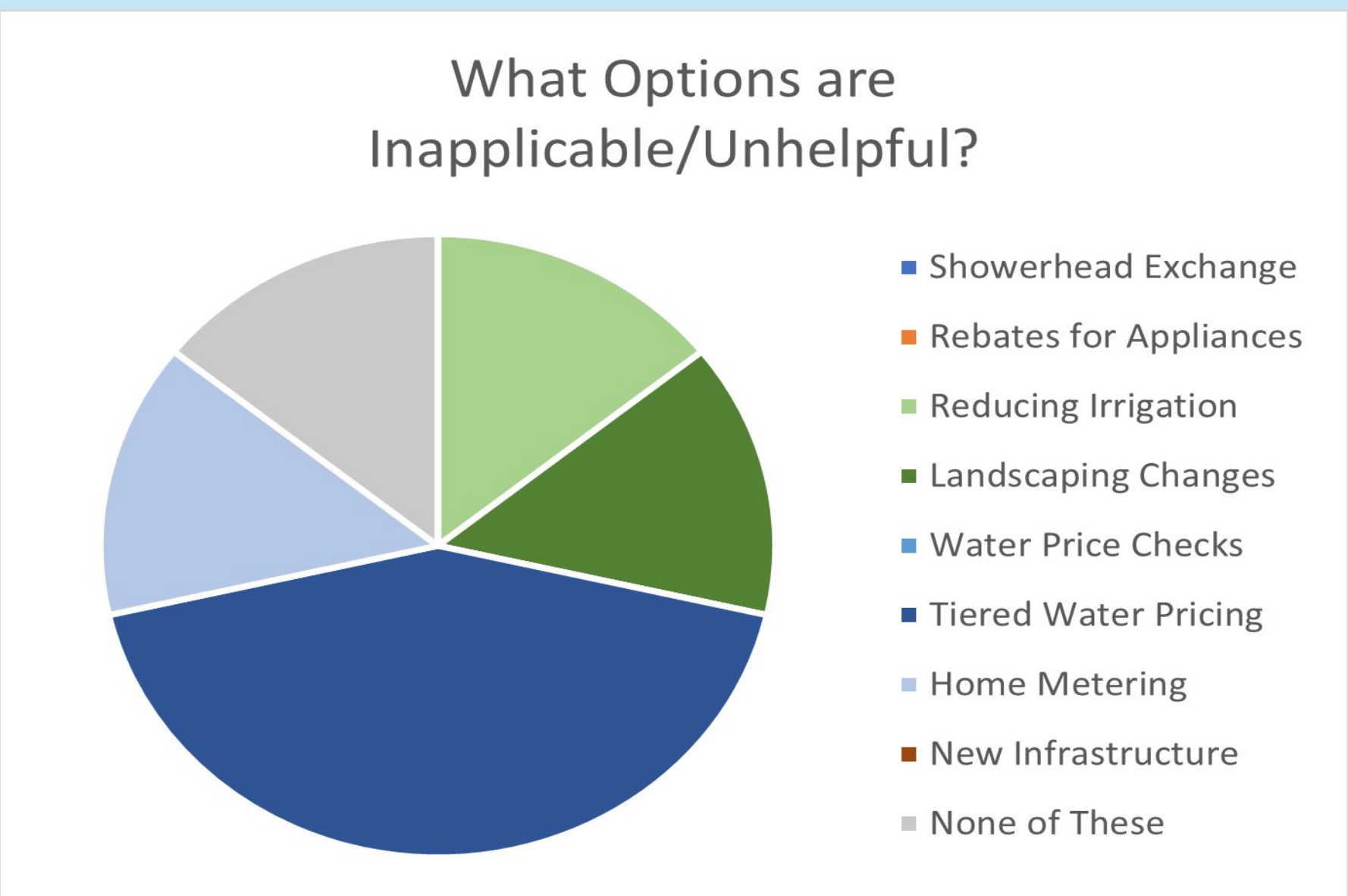


Figure 3: Even though tiered water pricing (shown in dark blue) was popular in the literature, it was considered an unhelpful option by municipal employees, which may be due to the political difficulty of changing water-rate structures.

Type	Name	Latin Name	Description	Conditions
Shrub	Baldhip Rose	Rosa gymnocarpa	Attractive plant. Small pink flowers that fall in the early season.	Moist-dry. Sun or part-shade.
Shrub	Golden Currant	Ribes aureum	Edible berries. Good for wildlife, such as hummingbirds.	Moist-dry. Sun or part-shade.
Shrub	Nootka Rose	Rosa nutkana	Attractive large blossoms. Great for landscaping and restoration.	Moist-dry. Sun or part-shade.
Scrub	Serviceberry	Amelanchier alnifolia	White flowers with small apples. Provides winter-browse for birds.	Moist-dry. Sun or part-shade.
Scrub	Silver Buffaloberry	Shepherdia argentea	Small white flowers. Provides food for wildlife. Drought-resistant.	Moist-dry. Full sun.
Scrub	Wood's Rose	Rosa woodsii	Many branched native rose. Fantastic for honey bees.	Moist-dry. Part shade-full sun

Figure 4: List of Western Washington native plants created to inform Chehalis staff and residents on how to have drought resistant landscape that requires less water overall.

Significance

- The City of Chehalis is using grant funding to implement a partial conservation program based off the findings of this report.
- To start, the city will relandscape key focal points in the city, which will include a sign with information about water conserving landscape.
- Public events for the city will include tables providing information about water conservation goals of the city, which will include free water saving kits for residents.
- Future POE interns may focus on specific outreach measures and education efforts based on this research.
- This will communicate water conservation options to residents, leading to greater engagement in water conservation programs.
- Consequential reductions in use can benefit salmon populations.
- Broader findings from this research can be implemented into the city's plans.

Acknowledgements

I would like to thank Kirsten Harma, Emily Hovis, and Jill Anderson for constant direction and advice.

I would also like to thank my supportive POE peers, my friends, and my parents.