



Residential Development Infrastructure for Phased Projects

Miranda provides decentralized water and wastewater systems that support rapid residential development in suburban and outlying communities where traditional infrastructure is limited, unavailable, or economically unfeasible.



A Growing Development Challenge

Residential development often unfolds in phases, while infrastructure is typically designed for full buildout. This mismatch is increasingly limiting how projects move forward as water and wastewater systems struggle to keep pace with housing demand. Across many regions, high-potential sites remain idle due to servicing constraints, municipal capacity issues, or lack of utility access. These areas are often near key amenities such as schools and employment centers, making them prime locations for new communities. To unlock this potential, developers need decentralized systems that operate independently and meet regulatory access requirements.

Where Residential Development Is Most Constrained

Out of Reach from Central Infrastructure



In suburban growth corridors across the United States and Canada, developers are pursuing land located just outside existing municipal service areas. In regions surrounding the Greater Toronto Area, for example, subdivisions remain on hold because water and sewer extensions require long-term planning and significant upfront investment. These sites are often near schools, jobs, and transportation routes, but without water infrastructure, construction cannot proceed.

Municipal Systems at or Near Capacity



In midsize cities in Ontario with populations between 80,000 and 300,000, as well as in many similar communities in Southern California, utilities are operating close to their limits. Municipalities are restricting new development approvals until infrastructure can be expanded. Even fully approved subdivisions face delays caused by limited wastewater treatment capacity or constrained water allocations. These setbacks stall housing delivery and increase project risk.

Permitting Barriers and Outdated Policies



In many regions, inconsistent permitting processes and legacy regulations slow residential development. Before recent changes in Ontario, private or communal servicing options were often discouraged or denied. Today, updated land use policies and municipal planning guidelines are creating new pathways for decentralized systems, helping developers align with standards and secure approvals faster.

Groundwater That Requires Treatment



In areas where groundwater is present but does not meet safety or quality requirements, development opportunities remain unrealized. This is common in rural municipalities across Alberta and in desert-adjacent regions of Arizona, where water sources often contain salinity, excess minerals, or microbial contaminants. To enable development in these areas, developers require treatment systems that meet public health guidelines and deliver household-ready water.



How Miranda Helps Solve Residential Development Challenges

Miranda provides modular, decentralized water and wastewater systems that empower developers to build where traditional infrastructure cannot reach. By combining advanced treatment systems, flexible deployment models, and remote monitoring, Miranda helps accelerate permitting, meet regulatory requirements, and make land viable for development. Our engineering team works directly with developers to design customized solutions that support sustainable growth, reduce upfront capital risks, and ensure long-term system performance.



Miracell®

Miracell® is a decentralized wastewater treatment system ideal for residential developments with strict water quality and regulatory requirements. Using proven Rotating Biological Contactor (RBC) technology, it integrates disinfection and ultrafiltration to produce safe, reusable water. Its modular design allows phased installation, serving early lots first and expanding as needed. This aligns capital investment with home sales revenue.

Miracell® integrates with SmartCell Control, Miranda's remote monitoring platform that provides real-time performance data and automated alerts. This reduces the need for on-site supervision while ensuring reliable system performance.



R/OCell®

R/OCell® is Miranda's decentralized reverse osmosis system that delivers potable water from low-quality groundwater, brackish water, or seawater. Available in Mobile, Railmount, and Flex configurations, it adapts to a range of site conditions and community sizes.

Each system integrates SmartCell Control, enabling remote access to real-time data, performance insights, and maintenance alerts. This reduces operational burden while ensuring consistent water quality throughout a development.

R/OCell® supports developers working in areas without centralized infrastructure or with poor groundwater quality. When paired with Miracell®, it forms a complete water and wastewater system that enables residential development on land previously considered unserviceable.

Filtration Systems



In many regions, groundwater is present but not immediately suitable for household use due to issues like turbidity, hardness, or taste. Miranda's Filtration Systems provide compact, efficient treatment options that improve water quality for residential

developments without the need for large-scale infrastructure.

These systems include ultrafiltration units that remove pathogens and particulates, as well as sand and activated carbon filters that address sediment, chlorine byproducts, and aesthetic concerns. SmartCell Control is integrated to allow remote performance monitoring, simplifying system management for developers and operators. Whether used as standalone solutions or in combination with Miracell®, Miranda's filtration technologies help developers meet safety, aesthetic, and regulatory requirements for groundwater-fed communities.



Align Infrastructure with Phased Residential Development

Residential growth often stalls when infrastructure cannot keep pace with how projects actually unfold. Whether planning a subdivision beyond city limits or expanding in high-demand areas, Miranda Water Technologies enables development with decentralized systems that address servicing gaps and support phased delivery.

Miranda's modular and compliant systems support projects from initial approvals through to final buildout. Designed for flexibility and scale, they help accelerate timelines, reduce capital risk, and meet evolving regulatory requirements. Whether for 20 homes or 2,000, we partner directly with developers and municipalities to deliver sustainable water infrastructure where new housing is needed most.

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