LAND SUBSIDENCE
What It Means and Why It Matters

When excessive groundwater is pumped from underground aquifers, the ground can slowly sink. This phenomenon, called land subsidence, can severely damage vital infrastructure, disrupt community services, and even permanently reduce groundwater storage capacity.

Think of an aquifer like a mattress: when full, it holds its shape. If too much water is removed, the internal material can compress, causing the surface to sink. Once compressed, it cannot return to its original height, and some storage space is permanently lost.

While other parts of California have struggled with land subsidence, the Wyandotte Creek Subbasin has not—and the Groundwater Sustainability Agency (GSA) is committed to keeping it that way.

What Is Land Subsidence, and Why Does It Matter to You?

Land subsidence happens when the ground slowly sinks due to excessive groundwater pumping. It can impact:

- **Your Commute:** Crack roads or bridges.
- **Canals and Utilities:** Damage building foundations, disrupt essential utilities or surface water deliveries.
- **The Subbasin's Water Future:** Permanently reduce the underground space where groundwater is stored.
- **Costs:** Require costly repairs to damaged infrastructure.

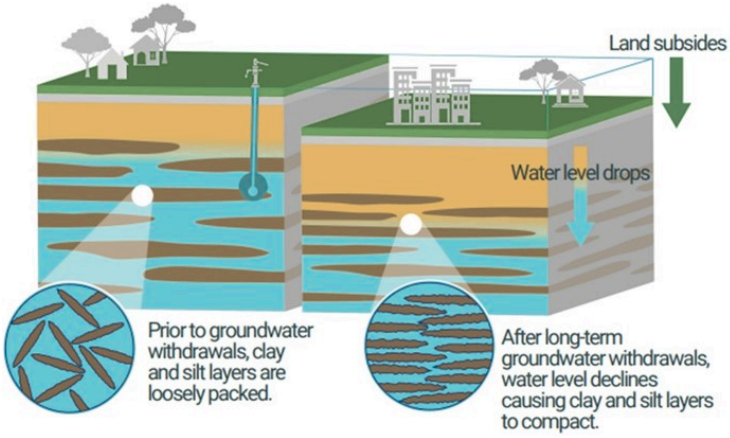

Photo Credit: California Department of Water Resources

How Land Subsidence Is Measured

In the Wyandotte Creek Subbasin, groundwater levels are used to track the risk of land subsidence. If groundwater levels remain within safe ranges, the ground is much less likely to sink. Here's how it's measured:

Our Healthy Target: Measurable Objective
Our target groundwater level, based on historical data. It reflects the level we want to maintain to stay sustainable.

Problem Point: Undesirable Result
Happens if pumping causes the ground to sink enough to damage critical infrastructure like roads, railways, or irrigation systems.

Warning Level: Minimum Threshold
If two representative monitoring wells in a designated area fall below the minimum threshold (the protective water level limit) for two consecutive non-dry years (years that are not classified by the state as Dry or Critically Dry).

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Wyandotte Creek
GROUNDWATER SUSTAINABILITY AGENCY

How Wyandotte Creek Stays Sustainable

Preventing the ground from sinking protects the roads, bridges, canals, and utilities that Wyandotte Creek communities, farms, and emergency services depend on every day. It's a fundamental part of managing groundwater sustainably, ensuring everyone in the subbasin avoids costly, long-term damage.

What We're Doing to Prevent Subsidence

Proactive Management: Using groundwater levels to manage and prevent subsidence risk.

Consistent Monitoring: Continuously monitoring with GPS data and collaborating with state agencies.

Reporting Progress: Regularly sharing our findings in the Annual Reports and Groundwater Sustainability Plan Periodic Evaluation (next evaluation due in 2027).

How the GSA Monitors the Ground

Even though subsidence hasn't been observed here, the GSA is not taking any chances. It monitors the ground using satellite and ground-based measurement methods:

- **Satellite Technology (InSAR)**: The GSA uses satellite data from the Department of Water Resources to measure ground changes across the entire subbasin.
- **Ground-Based Stations (GPS)**: The GSA has one GPS station located in the subbasin, providing ground elevation data. It also analyzes regional data from specialized instruments called extensometers in nearby areas.

So far, these tools confirm that the ground remains stable and subsidence is unlikely, thanks to steady groundwater levels and the natural geology that resists compaction.

The GSA's work to prevent land subsidence is funded through the California Department of Water Resources' Sustainable Groundwater Management Grant Program (2024-2026).

How You Can Help Protect Wyandotte Creek's Groundwater

Support Smart Pumping
Support efforts to reduce over-pumping of groundwater.

Stay Informed
Keep up-to-date on local water quality reports and community discussions.

Get Involved
Visit www.wyandottecreekgsa.com to learn more and help protect your groundwater!

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