City of Hamilton:

Smart Hydrants Produce Excellent Results in Identifying Leaks

Identifying the Problem: Non-Surfacing Leaks

The City of Hamilton Water System provides water to 535,000 residents and several surrounding city centers. The Woodward treatment facility produces 900,000 m^3/day (200 MGD) servicing 144,683 service connections distributing through 2,031km (1,262 miles) of water mains.

The City deployed 10 hydrant.AI devices in Pressure District 5 (PD5) where there was a known history of water main breaks. It was suspected leaks would drain away into the shale substrate and not immediately surface. The intent was to study if Digital Water Solutions could identify and address these non-surfacing leaks before they became more problematic, expensive breaks. (Fig 1)

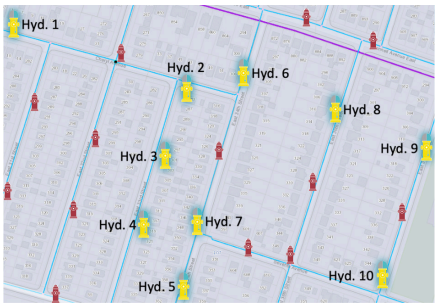

Fig 1. hydrant.AI installations in Hamilton PD5

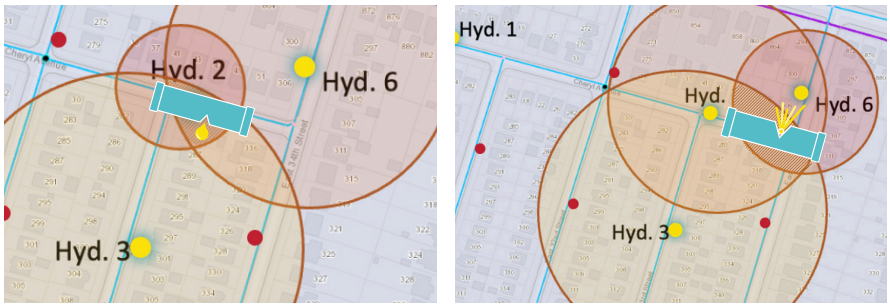

Fig 2. AI Leak Locations according to: Hydrant 2 (left); and Hydrant 6 (right)

Initial Success: Finding the Leaks

Within a month the AI feature level on hydrant.AI devices in the area (particularly around Hydrants 2 and 6) led the Digital Water team to suspect with a high level of confidence that one or more leaks were present. (Fig 2)

Further Success: Localized Leak Detection & Repairs

The City was notified of the situation and a crew was dispatched to investigate and conduct repairs. Two separate leaks were isolated and repaired in the area identified by Digital Water Solutions. Throughout the repair period, sharp, sudden drops in the AI features indicated the completion of major repair milestones (Fig 3 & Fig 4)

The consistent drop in AI feature level across all hydrants in the immediate vicinity at the end of the repair period suggests that all the identified leaks were successfully repaired. It is notable that comparison of the new AI feature baseline to the pre-leak baseline suggests that the initial leak was likely a progression of a pre-existing leak.

The City of Hamilton was able to act quickly to these non-surfacing leaks which were identified and localized by the Digital Water Solutions hydrant.AI technology. Our device data and AI capabilities provided the insights the City needed to act quickly to reduce water loss and repair these leaks before they surfaced which could have potentially caused further damage.

The actual leak photographed during repair

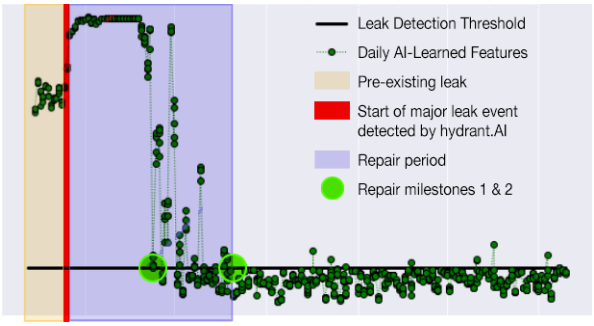

Fig 3. AI leak detection results on Hydrant 2

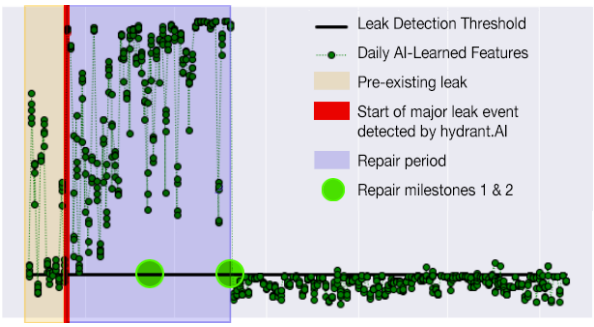

Fig 4. AI leak detection results on Hydrant 6