

This presentation premiered at WaterSmart Innovations

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PRIORITY GREEN Clarington

Building Liveable Neighbourhoods



Glen Pleasance Region of Durham





Durham Region





Durham Region & Clarington

- Just east of Toronto, Durham covers 1,000 mi²
- Clarington is the eastern most of the 8 counties that make up Durham Region
- Most of population concentrated along the northern shore of Lake Ontario
- 80% homes metered, rest on rural private wells
- Clarington's population will double in 20 years
- Without conservation, will cost \$210 million to expand the infrastructure over those 20 years
- Use water efficiency so we do not expand infrastructure in lock-step with growth



Durham & Clarington

- Durham is responsible for major roads, water and sewer infrastructure and water billing
- Clarington is responsible for all other municipal services including the majority of development approvals
- Clarington has had two iterations of a sustainability committee composed citizens
- Few tangible results, until this project

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- Three projects in one;
 - i) Transform development approvals to favour Green Developments
 - ii) Field test and monitor latest water & energy efficient technologies
 - iii) Change public attitudes concerning higher density residential
- Project to run through March 2015

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- Clarington pays salary of project coordinator and related supports
- Durham – defined water efficiency technologies & sub-metering, greywater water quality testing
- Provincial funding of \$217,000 from Ministry of Environment focused on defining BMPs in water efficiency and stormwater mitigation
- Federal funding from Federation of Canadian Municipalities' Green Municipal Fund; \$145,000
- Funding community outreach

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- Hired dedicated staff in April 2013
- to coordinate all 3 program components
- Survey of builders showed expedited approvals were valued over increased allotments or lower development charges
- Decided to pilot Expedited Approvals
- Changing the culture in Planning, Engineering & Building Inspection

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- Strong support from Mayor & Council
- Developed schedule of Green Best Management Practices (BMPs)
- Builders asked to choose minimum of 10 BMPs, all choose over 20 BMPs
- Mix of water and energy improvements
- Target to be 20% better than Code
- New Building Code January 2014: Toilets @1.28 Gpf, Showerheads @ 2 Gpm

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- 3 builders signed on, all innovators
- 2 SFD, third is building townhomes
- Water BMPs; 0.8 & 1.0 Gpf toilets, 3 *Recover* Greywater systems, ENERGY STAR *Most Efficient Clothes Washers*, drain pipe heat recovery, 1.2 Gpm showerheads, condensing hot water heater, hot water recirculation
- Energy BMPs; ERVs, 24" studs=20% > R-value, 96%/2 stage furnace, 14 SEER A.C.

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- 24" studs
- Called advanced framing
- Less wood
- More insulation
- 20% higher 'R' value
- Reduced thermal bridging

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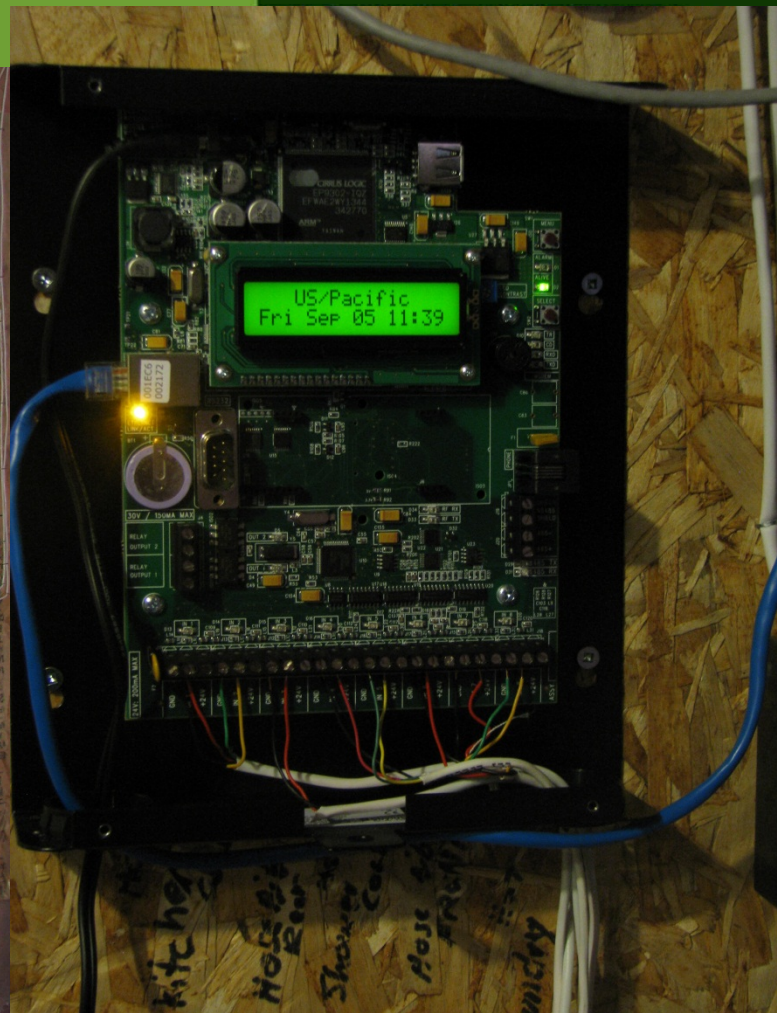
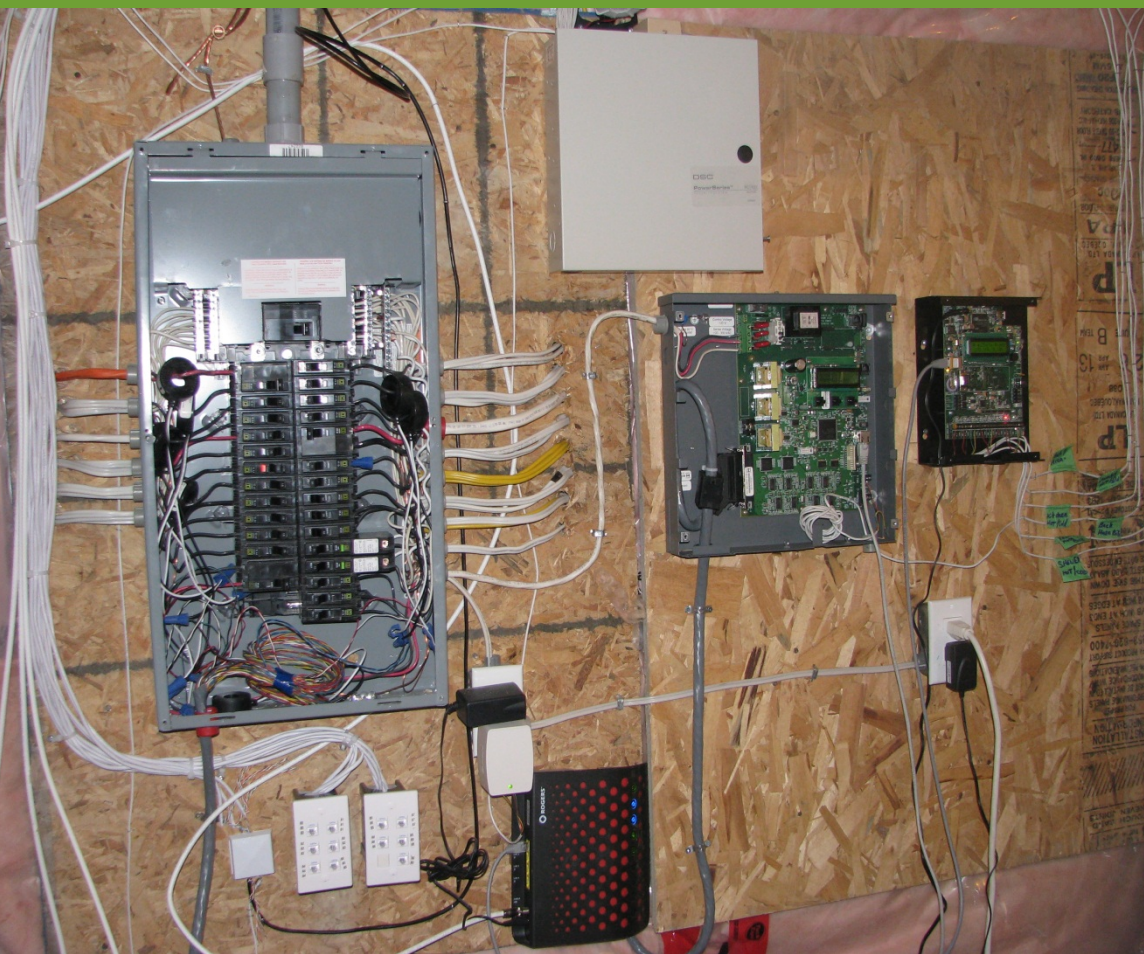
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- Minimum 6 homes, 2 per builder
- 'beyond code' upgrades paid by builder
- 9 water sub-meters & 8 electrical sub-meters/home
- Sub-metering \$6,000/home
- WiFi sub-meters to a dedicated website
- Minimum 4 months of monitoring data, some homeowners agreed to longer
- Quantify water & energy improvements, calc. ROI and GHG reductions

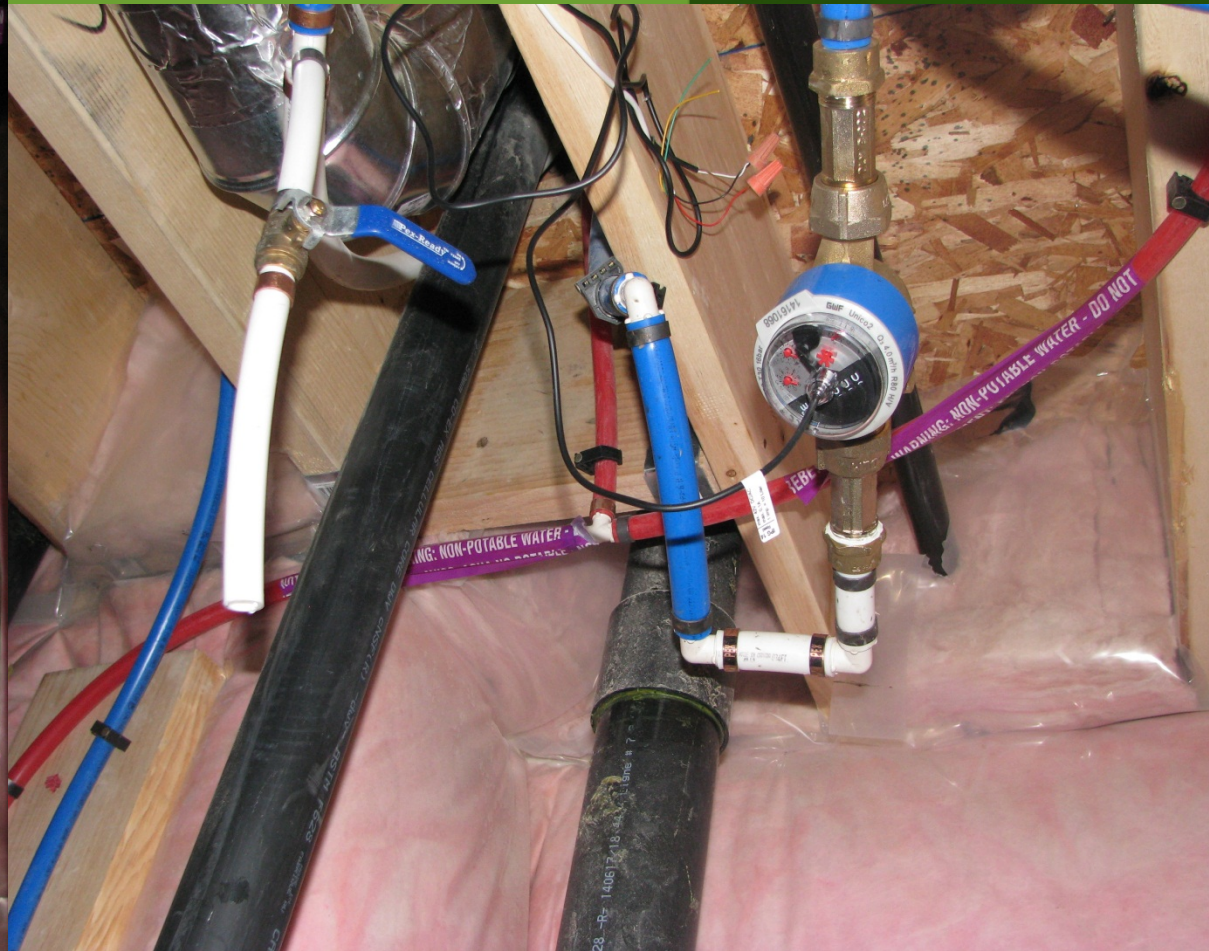
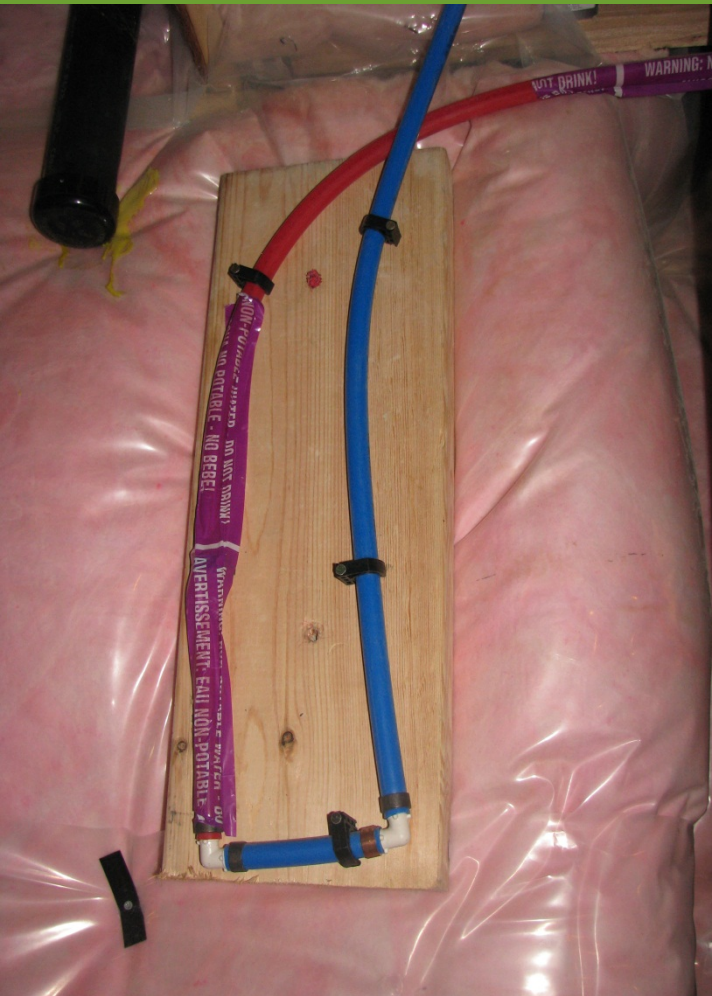
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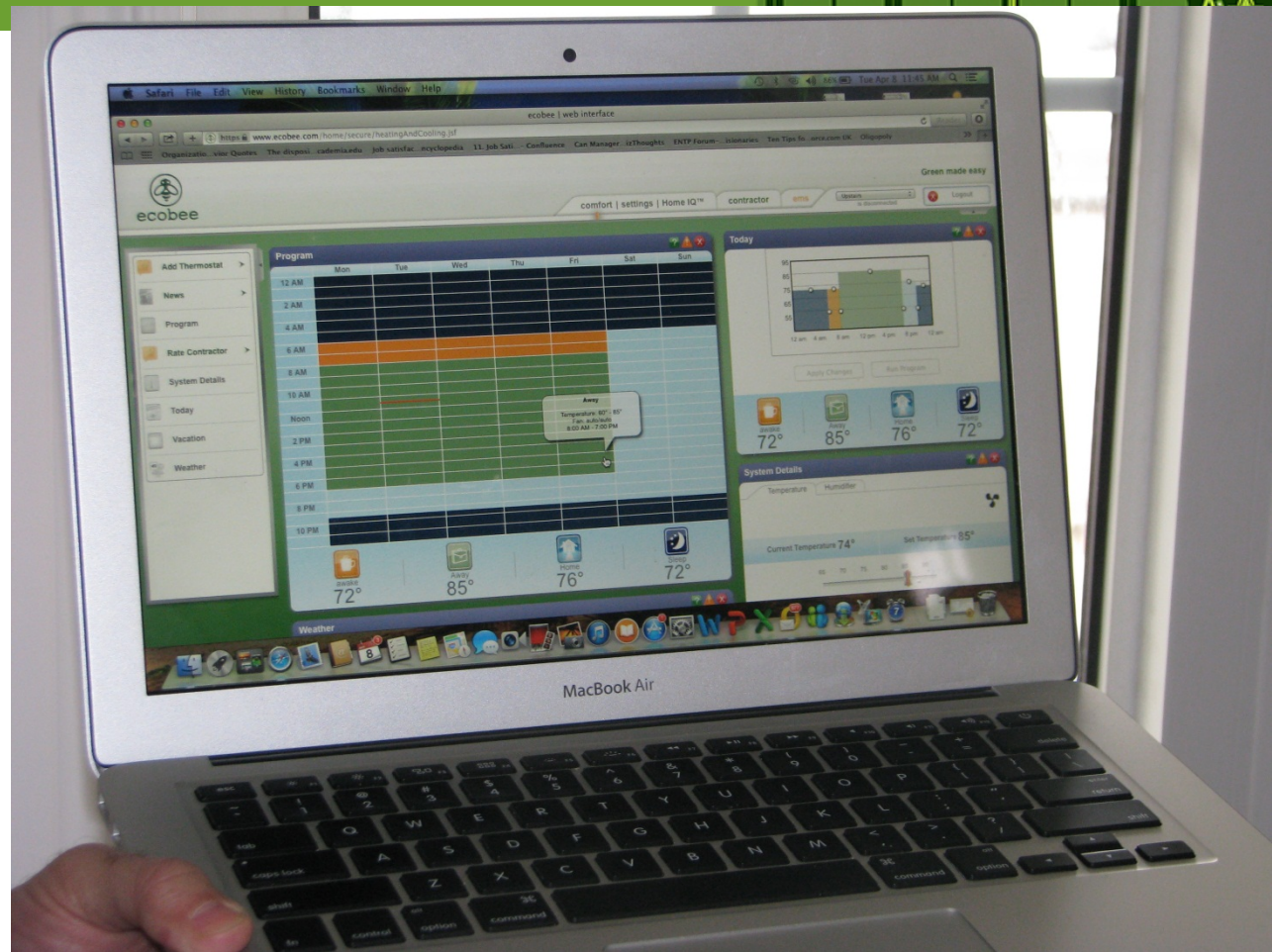
- Water sub-meter tucked away in the basement
- Each meter is hard-wired into *Obvius* data acquisition server

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- Number of suppliers donated equip
- Ecobee smart thermostats
- Stealth 08. Gpf toilets
- Panasonic Whisper ENERGY STAR bathroom fans



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- Field Test to define the relative value of the different BMPs
- Real world savings – drain pipe heat recovery; claim 35% of heat energy recoverable (retail for \$600)..?
- Greywater systems being metered at inflow, outflow & potable top-up
- Outflow water quality being analyzed

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- Greywater system harvests shower and bath water
- Treats and returns to flush toilets
- Automatically cleans
- Tracks water savings
- Canplas unit will retail for about \$2,000



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- Minimum 6" topsoil
- Permeable walkways
- Native plantings
- Swales to retain stormwater
- Lot level only
- Neighbourhood stormwater mgmt. already decided



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- Homes built to 2006 Ontario Building Code use 50 Gcd (indoor use only)
- Homes built to 2012 (Jan. 2014) Ontario Building Code (OBC) use 40 Gcd
- Green Permit Clarington target is 32 Gcd or 20% reduction, a target we hope to exceed
- Energy target of 15% beyond 2012 OBC

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- ***Preliminary Field results...***
- Initial house closings to be June-July
- Sixth and final home closed October 4th
- Waiting on water use data to accrue
- Jeffrey Homes is building next phase of 20 homes using same Priority Green Clarington (PGC) specification
- Marketing PGC label, on sale Sept.27

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- ***Preliminary Field results...***
- Energy field tests yielded range; 13 - 29% better than code (ave; 21% - target; 15%)
- Projected utility savings range; \$305 - \$668/year (submetering = actual savings)
- Three builders had 8, 9 & 13 energy eff. attributes Better Than Code
- Better wall & basement insulation, ERV vs. HRV, duct sealing, air tightness...

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- To the scary part; Community Outreach!
- Province of Ontario mandates intensification via the *Places to Grow Act*
- Town of Courtice is built out, cannot build anymore single-family dwellings
- On frontline of Clarington's intensification
- Intensification = townhomes, condos apartments...
- 1 builder in Courtice, 2 in Bowmanville

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- Intensification brings out the Nimbys
- Petition against an *apartment* at my door
- Added another challenge to project
- Opposition to intensification is widespread
- Public consultation essential to project success and developments that follow
- Where do our kids find housing?
- How to stop 'sprawling' over our best farmland?

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- Hired a communications consultant to do community outreach
- Address the contradiction between environmental preservation and opposition to multi-res
- Higher Densities bring benefits of more amenities; better transit, walk-ability...
- Visioning walks with Nimbys

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- Completed community survey
- Contradiction between craving natural environment, opposing sprawl, YET also opposing intensification !?
- Have begun outreach at public events
- Facilitated meetings and visioning with opponents to begin in November 2014
- This component to be completed in March 2015

Challenges in Ontario

- Convincing Infrastructure Ontario to use a portion of grant money for quantified water efficiency as well as trad. infras.
- Reducing water allocation for new homes to reflect today's increased efficiencies
- Updating Billing to work with conservation
- Measure cost of infrastructure growth with & without conservation to show financial benefits of water efficiency
- See; *AWE's Conservation Limits Rate Increases for a Colorado Utility* (Nov.2013)

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Fusion
LANDSCAPING GUIDE FOR HOMEOWNERS



your DREAM

Home

Fusion Interiors

WHERE STYLE AND CONSERVATION COME TOGETHER



Thank You



○ Questions?

Glen.pleasance@durham.ca

*Roman Aquaducts,
Pamplona, Spain*