

Durham Water & Wastewater Capacity Assessment

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21-036

Purpose of Study

Determine Impact of following on Rated Capacity

- Sunvale Subdivision
- Broos Subdivision
- Redeveloped Rockwood Terrace
- Un-named Subdivision 1
- Un-named Subdivision 2
- Infilling/Redevelopment
- Provincial Policy Impact

Rated Capacity

WTP : 3011 m³/day based on Maximum Day

WWTP: 2184 m³/day based on Average Day

Note:

- (1) Water Distribution System and Wastewater Collection System do not have provincial capacity limitation
- (2) Booster Pumping Station & Bruce Street Sewage Pumping Station do have capacity limitations

Current Rated Capacity Utilization

WTP: 1603 m³/day or 53%

WWTP: 1123 m³/day or 51%

Note:

- (1) Very high water demand in 2014-2015 were neglected as “Unusual Situations”

Broos & Sunvale Subdivisions

	Sunvale	Broos
Number of Units	247	205
Population Forecast	765	631
Water Needs	688 m ³ /day	568 m ³ /day
Wastewater	355 m ³ /day	290 m ³ /day

Remaining Rated Capacity After Sunvale & Broos

WTP 152 m³/day

WWTP 416 m³/day

Future Development Needs

Rockwood Terrace

- 128 beds vs 100 existing
- 40 assisted living units with kitchenette
 - 50% units to have double occupancy
- 60 units (subsidized and affordable) for rental

Un-Named Subdivision 1

- 100 units
- Start in 2024. Completion 2028

Future Development Needscontinued

Un-Named Subdivision 2

- 200 units
- Start in 2026. Completion 2030

Infill/Redevelopment

- Assumed 6 additional single residential units/year
- Trend to continue for 10 years or total 60 units

Future Development Needscontinued

Provincial Policy Impact

- Will lead to increase in density
- Consequently increase in water and wastewater needs
- Assumed 8% of existing 1145 service connections or 92 units over next 10 years
- Units to be 2 person/dwelling unit

Future Development Needscontinued

	Water (m³/day)	Wastewater (m³/day)
Rockwood Terrace	189.2	103.6
Un-named Subdivision 1	270	145
Un-named Subdivision 2	540	290
Infill/Redeveloped Existing Properties	108	54
Provincial Policy Impact	<u>165.6</u>	<u>82.8</u>
Total	1270.8	675.4

Impact of Committed & Future Developments

	WTP (m³/day)	WWTP (m³/day)
Rated Capacity	3011	2184
Current Utilization	(1603)	(1123)
Less Sunvale & Broos	(1257)	(645)
Less Future Developments	(1270.8)	(675.4)
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Shortfall in rated Capacity	(1119.8)	(259.4)

Figure 8.1
Illustration of Depletion of WTP Capacity Based on 50 and 100 New Residences/Year
Durham WTP, West Grey

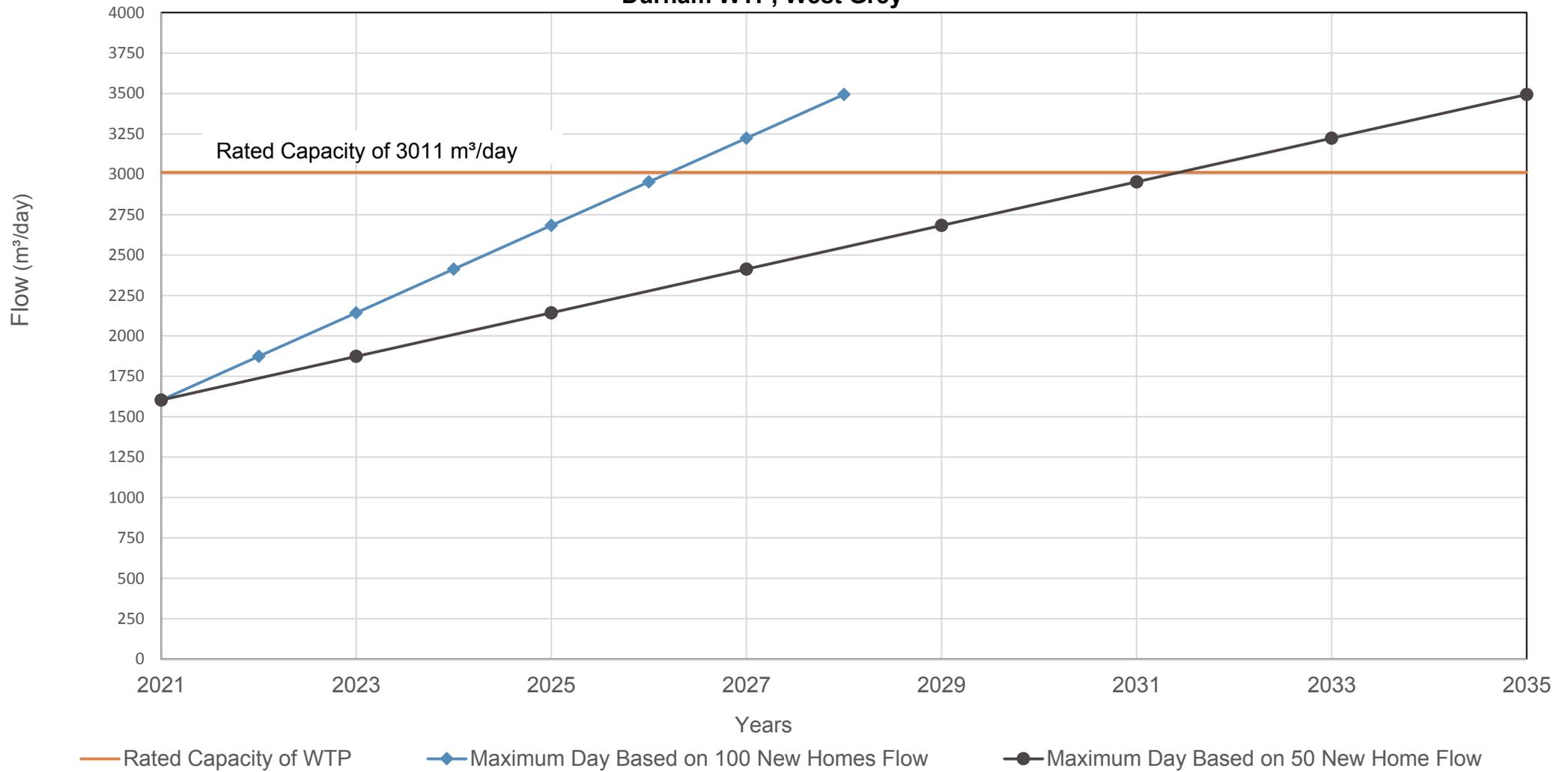
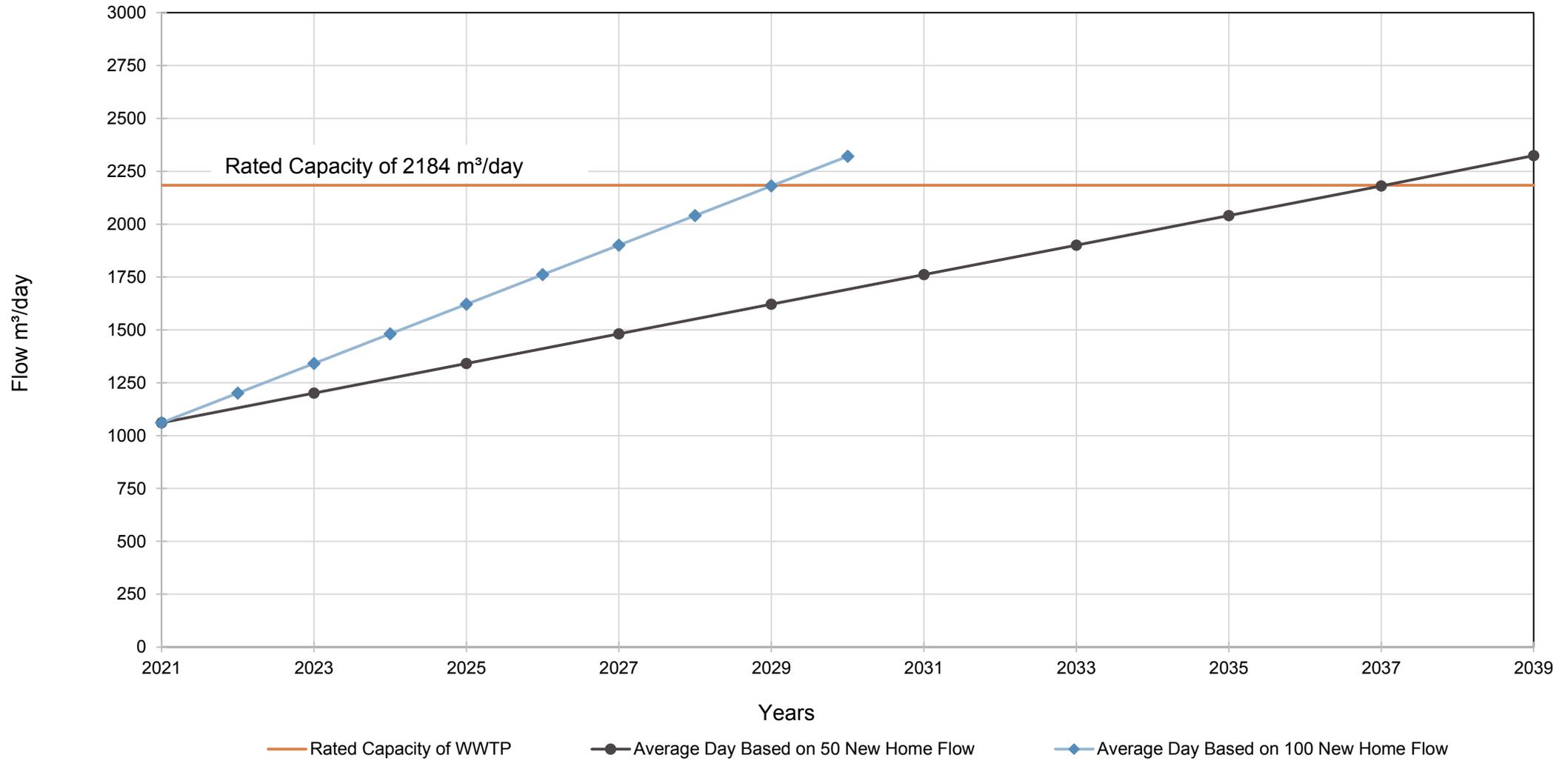


Figure 8.2
Illustration of Depletion of WWTP Capacity Based on 50 and 100 New Residences/Year
Durham, West Grey



Water Audit Results

- Difference between Water Supplied and Wastewater Treated at WWTP:
Varies from 73 m³/day to 516 m³/day
- Past 3 years indicated variation from
332 – 516 m³/day
- Indication of water loss through leaky distribution system

Water Audit Resultscontinued

- Difference between Water Supplied and Water Reading by Water Meters:

Varies from 340 m³/day to 551 m³/day

- Another confirmation of water loss through leaky distribution system

Other Impacts of Future Growth

- Not investigated in this study
- Watermains in certain areas may be insufficient to supply required flows at adequate pressure
 - will require WaterCAD Modelling for identification
- Sanitary sewer in certain areas may be insufficient to collect required wastewater flows
 - will require SewerCAD Modelling for identification
- Sewage Pumping Station may require capacity enhancement

Next Steps: Water

- Leak Detection Survey – Completed
- Investigate New Source of water supply
- Implement watermain replacement programme based on age, material and water breaks history
- Stop water wastage from ± 15 houses that leave taps running
- Monitor Water Records every 2 years
 - To determine Broos and Sunvale impact
- Water Distribution Modelling

Next Steps: Wastewater

- Undertake smoke testing of entire collection system
- CCTV inspection of “select” sanitary sewers
- Implement manhole inspection programme
- Sanitary Sewers upgrading programme
 - Replacement or
 - Rehabilitation by CIPP Lining
- Monitor Sewage Flow Records every 2 years
- Collection System Modelling
- Investigation to enhance WWTP and SPS capacity

Thank you!

GSS Engineering Consultants thank the council members and staff of the Municipality of West Grey