

SCHEDULE B – WASTEWATER (SANITARY)

1. IMP Growth Forecast and Capital Projects

The City IMP, supported by the Wastewater Master Plan, proposes wastewater servicing infrastructure for the Tewin Community with a 1500mm diameter ultimate gravity sewer (the Tunnel), extending from Tewin to the South Ottawa Tunnel, as depicted in Figure 1 below. The IMP identifies this ultimate gravity sewer as providing capacity for growth to 2101, supporting a population of approximately 110,000 people and 14,000 jobs¹.

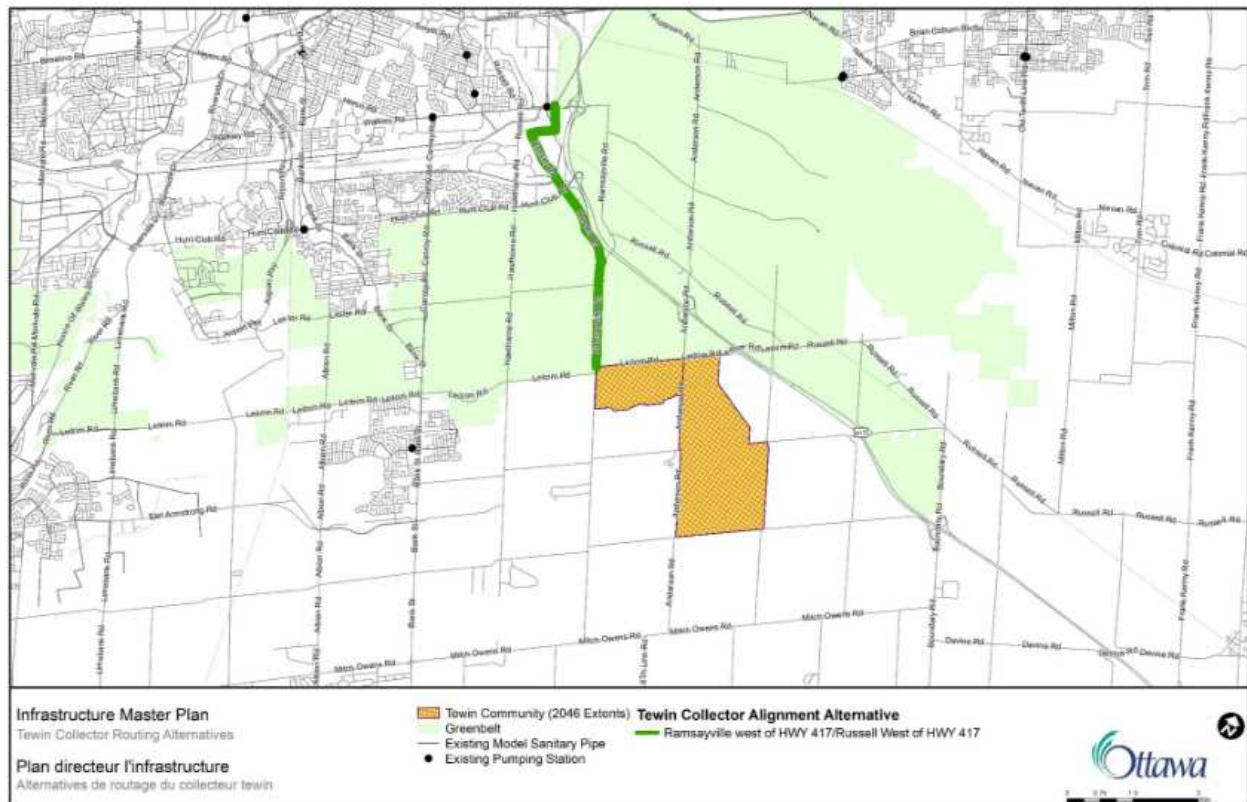


Figure 1. IMP Figure 8-3: Tewin Trunk Collector Sewer Routing Alternative

When considering the design capacity of a 1500mm diameter sewer, it is apparent that the growth projections in the IMP do not consume the total available capacity of the planned sewer as a 1500mm diameter sewer has a design capacity supportive of approximately 192,000 people and 30,000 jobs². The IMP bases growth on approximately 1,700 ha of new effective area by 2101, which if developed³ at 43 UPNH⁴ density prescribed by OPA 47 for urban and suburban development⁵ would produce growth forecasts of 101,000 population and 23,000 jobs⁶. This growth forecast,

¹ Sum of IMP Table 8-3 and Table 8-4 for Future Population and Future Employment projections.

² Refer to Appendix B for DSEL's calculation of available capacity.

³ Net residential area assumed to be 50% of net developable (effective) area.

⁴ OPA 47 states a range of 40 to 60 UPNH, the Mid-2024 Greenfield Residential Land Survey averaged 43 UPNH in the previous two years.

⁵ Table 3b of City of Ottawa Official Plan Amendment No. 47.

⁶ Assuming 3.04 PPU, and a population-to-job ratio of 0.227 consistent with IMP Table 8-3.

including Tewin's UBE Lands and Post-Period Lands, would consume approximately 80% of the available capacity of the Tunnel. These areas and population projections are summarized in Table 1.

Area Designations	Population Forecast	Employment Forecast
UBE Lands (2046)	35,700	5,700
Tewin Post-Period Lands (PPB)	16,100	2,500
Future Expansion Lands	101,060	22,940
Tunnel Service Area	152,860	31,140

Table 1. Tunnel Population and Employment Forecast.

Considering the IMP's approximate 1,700 ha of new effective area and a land efficiency of 50%, which is common for greenfield development in the City of Ottawa, the area serviceable by the Tunnel may exceed 2800 ha of gross land area. Figure 2 demonstrates the theoretical area which is serviceable by the Tunnel based on the minimum densities of the IMP planned growth area and a desktop study of topography and anticipated sewer inverts – this area may be defined as the Tunnel Service Area. The Tunnel Service Area is expected to be confirmed as part of the City-led Municipal Class Environmental Assessment, and would be reflected in a future ASDC Background Study.

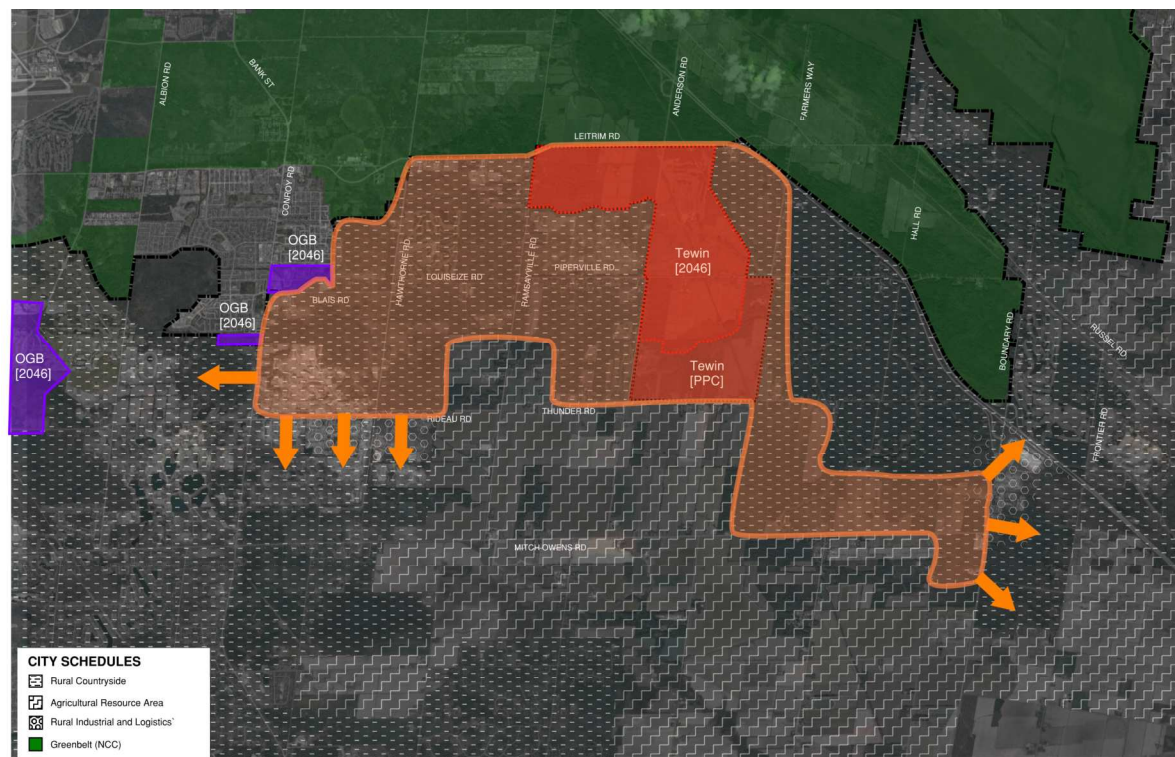


Figure 2. Potential Tunnel Benefiting Area [To Be Confirmed via Municipal Class Environmental Assessment]

2. Proposed Capital Projects

The proposed phased wastewater servicing solution for Tewin includes two integrated infrastructure systems: (1) a pump station leading to a forcemain and gravity sewer sized with consideration for development within the Tewin UBE Lands, and (2) the IMP-proposed ultimate gravity sewer. It is technically important to have a phased project, as minimum cleansing velocities are required for any large tunnel to avoid sedimentation and costly maintenance programs, and to allow for the implementation of planned upgrades to the South Ottawa Tunnel and ROPEC to receive sewage from Tewin and other growth areas in the City. An allowance for a sanitary upgrade is provided as a precautionary measure, should the Green's Creek Collector sewer be identified with capacity constraints – this is expected to be confirmed as part of the City-led Municipal Class Environmental Assessment, and would be carried forward and refined in a future ASDC Background Study, if required.

The Phase 1 projects are depicted in Figure 3 below.

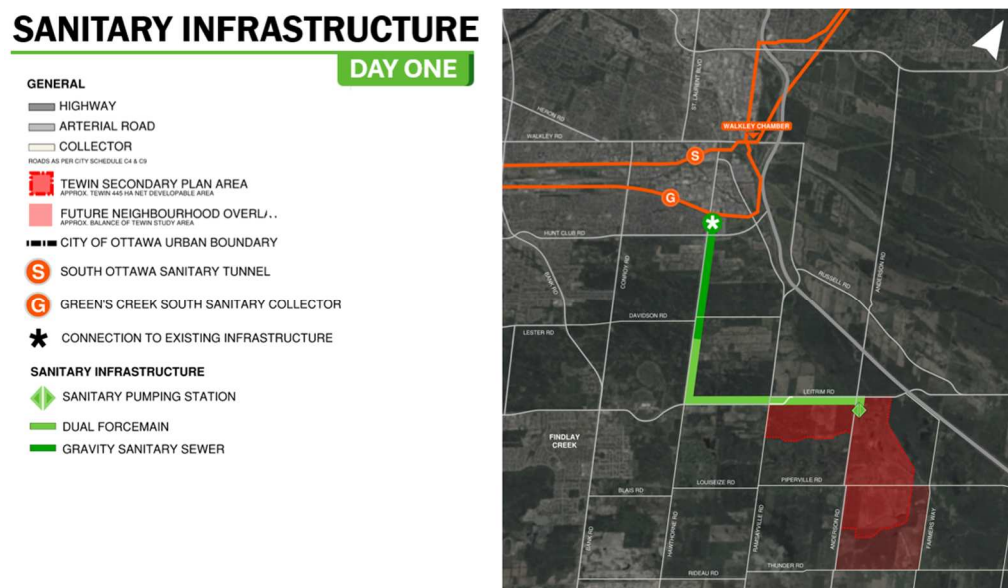


Figure 3. Day 1 Wastewater Infrastructure.

The second phase project, the IMP's Tunnel, is depicted in Figure 4 below. The Phase 1 pumpstation would be decommissioned after the Phase 2 tunnel is commissioned, since Tewin's flows would then be contributing directly to the tunnel, allowing for cleansing velocities to be achieved Day 1.

SANITARY INFRASTRUCTURE

ULTIMATE

- GENERAL**
- HIGHWAY
 - ARTERIAL ROAD
 - COLLECTOR
 - ROADS AS PER CITY SCHEDULE C4 & C9
 - TEWIN SECONDARY PLAN AREA
APPROX. TEWIN 440 HA NET DEVELOPABLE AREA
 - FUTURE NEIGHBOURHOOD OVERLAY
APPROX. BALANCE OF TEWIN STUDY AREA
 - CITY OF OTTAWA URBAN BOUNDARY
 - S SOUTH OTTAWA SANITARY TUNNEL
 - G GREEN'S CREEK SOUTH SANITARY COLLECTOR
 - * CONNECTION TO EXISTING INFRASTRUCTURE
- SANITARY INFRASTRUCTURE**
- SANITARY PUMPING STATION
 - 1500Ø IMP ULTIMATE TUNNEL
 - DAY ONE SANITARY DECOMMISSIONED

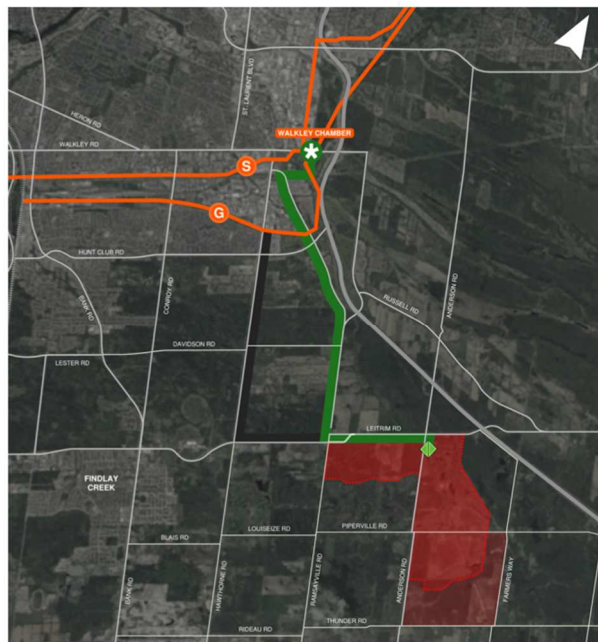


Figure 4. Ultimate Tunnel Wastewater Infrastructure.

The cost estimates for the Phase 1 and Phase 2 projects are listed in Table 2 below, based on Class D estimated provided by DSEL derived from the project details in the Master Servicing Study. As noted above, upgrades to the South Ottawa Tunnel and ROPEC are expected to be required to accommodate the phase 2 Tunnel flows; some of these projects are considered in the current city-wide Development Charge Background Study, and additions and refinements stemming from the City's long-term planning related to the use of existing infrastructure are expected to be captured in future city-wide Development Charge Background Study updates. This work extends beyond the benefiting Tewn or Tunnel Service Area, affecting the majority of planned growth areas in the City.

Project Type	Timing	Gross Project Cost (2025)	Projects Funding Through ASDCs
Phase 1 – Pump Station and Related Sewers	2027-2029	\$101.2 M ⁷	-Pump station within Tewn Community -Dual Forcemain and gravity sewer from Pump Station to Green's Creek Collector
Phase 2 – IMP Proposed Ultimate Gravity Sewer	Post-2046	\$235.9 M ⁸	-The IMP-proposed ultimate gravity sewer from the Tewn boundary to the South Ottawa Tunnel

Table 2. Sanitary DC-Eligible Projects.

⁷ Cost estimate provided by DSEL.

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3. Financial Principles

In the context of the Tewin Financial Plan, fairness and equity will be achieved by distributing costs amongst benefiting parties, based on the proportion of capacity used in the ultimate wastewater system. For clarity, this approach aligns with the Flow Ratio Approach as outlined in the IMP's Appendix H – Method for Calculating Benefit to Existing.

4. Funding Mechanism

The capital projects listed in Table 2 will be funded through an Area Specific Development Charge applicable to the Tunnel Service Area – this ASDC will be referred to as the Southeastern Wastewater Tunnel ASDC. The costs included in the ASDC will be for Phase 1 and Phase 2 projects, and the population and employment projections considered in determining the ASDC will be for that planned for the Tunnel Service Area.

The Tewin Landowners will front-end the Phase 1 pump station and related sewers identified in Table 2, with either: prompt recoveries collected through the Southeastern Tunnel ASDC, or credits to be received by the Tewin Landowners for development within the UBE Lands up to the DC-eligible amount of the Phase 1 project, with priority over the Phase 2 project if it is in service prior to the Phase 1 front-ended costs being recovered by the front-ending party.

The Southeastern Tunnel ASDC will accumulate after front-ending is paid off such that there is a balance available for Phase 2 at the planned start of that project. A cash flow projection is included in Figure 5, and the anticipated funding reserve for Phase 2 in 2046 is approximately \$4.9M.

Day One Capital Costs - Ultimate Capital Costs -										
Year	SDE	Opening Balance	Non-Inflated	Non-Inflated	Capital Cost (Inflated)	ASDC Rate	Revenues	Interest on Opening	Closing Balance	
2030	667	-	\$	101,221,079	\$	101,221,079	\$ 7,632	\$ 5,086,861		\$ 96,134,218
2031	667 -	96,134,218	\$	-	\$	-	\$ 7,823	\$ 5,214,033		\$ 90,920,185
2032	667 -	90,920,185	\$	-	\$	-	\$ 8,018	\$ 5,344,384		\$ 85,575,801
2033	667 -	85,575,801	\$	-	\$	-	\$ 8,219	\$ 5,477,993		\$ 80,097,808
2034	667 -	80,097,808	\$	-	\$	-	\$ 8,424	\$ 5,614,943		\$ 74,482,865
2035	667 -	74,482,865	\$	-	\$	-	\$ 8,635	\$ 5,755,317		\$ 68,727,548
2036	667 -	68,727,548	\$	-	\$	-	\$ 8,851	\$ 5,899,200		\$ 62,828,348
2037	667 -	62,828,348	\$	-	\$	-	\$ 9,072	\$ 6,046,680		\$ 56,781,669
2038	667 -	56,781,669	\$	-	\$	-	\$ 9,299	\$ 6,197,847		\$ 50,583,822
2039	667 -	50,583,822	\$	-	\$	-	\$ 9,531	\$ 6,352,793		\$ 44,231,029
2040	667 -	44,231,029	\$	-	\$	-	\$ 9,769	\$ 6,511,613		\$ 37,719,417
2041	667 -	37,719,417	\$	-	\$	-	\$ 10,014	\$ 6,674,403		\$ 31,045,014
2042	667 -	31,045,014	\$	-	\$	-	\$ 10,264	\$ 6,841,263		\$ 24,203,751
2043	667 -	24,203,751	\$	-	\$	-	\$ 10,521	\$ 7,012,295		\$ 17,191,456
2044	667 -	17,191,456	\$	-	\$	-	\$ 10,784	\$ 7,187,602		\$ 10,003,854
2045	667 -	10,003,854	\$	-	\$	-	\$ 11,053	\$ 7,367,292		\$ 2,636,562
2046	667 -	2,636,562	\$	-	\$	-	\$ 11,329	\$ 7,551,474		\$ 4,914,912
2047	1,103	\$ 4,914,912	\$	\$ 235,860,891	\$ 358,890,239	\$ 11,613	\$ 12,804,139	\$ 122,873	\$	\$ 341,048,316
2048	1,103 -	\$ 341,048,316	\$	-	\$	-	\$ 11,903	\$ 13,124,242	\$	\$ 341,566,006
2049	1,103 -	\$ 341,566,006	\$	-	\$	-	\$ 12,201	\$ 13,452,348	\$	\$ 341,776,298
2050	1,103 -	\$ 341,776,298	\$	-	\$	-	\$ 12,506	\$ 13,788,657	\$	\$ 341,658,694
2051	1,103 -	\$ 341,658,694	\$	-	\$	-	\$ 12,818	\$ 14,133,373	\$	\$ 341,191,668
2052	1,103 -	\$ 341,191,668	\$	-	\$	-	\$ 13,139	\$ 14,486,708	\$	\$ 340,352,627
2053	1,103 -	\$ 340,352,627	\$	-	\$	-	\$ 13,467	\$ 14,848,875	\$	\$ 339,117,857
2054	1,103 -	\$ 339,117,857	\$	-	\$	-	\$ 13,804	\$ 15,220,097	\$	\$ 337,462,474
2055	1,103 -	\$ 337,462,474	\$	-	\$	-	\$ 14,149	\$ 15,600,600	\$	\$ 335,360,374
2056	1,103 -	\$ 335,360,374	\$	-	\$	-	\$ 14,503	\$ 15,990,615	\$	\$ 332,784,174
2057	1,103 -	\$ 332,784,174	\$	-	\$	-	\$ 14,865	\$ 16,390,380	\$	\$ 329,705,161
2058	1,103 -	\$ 329,705,161	\$	-	\$	-	\$ 15,237	\$ 16,800,139	\$	\$ 326,093,228
2059	1,103 -	\$ 326,093,228	\$	-	\$	-	\$ 15,618	\$ 17,220,143	\$	\$ 321,916,815
2060	1,103 -	\$ 321,916,815	\$	-	\$	-	\$ 16,008	\$ 17,650,646	\$	\$ 317,142,841
2061	1,103 -	\$ 317,142,841	\$	-	\$	-	\$ 16,408	\$ 18,091,913	\$	\$ 311,736,642
2062	1,103 -	\$ 311,736,642	\$	-	\$	-	\$ 16,819	\$ 18,544,210	\$	\$ 305,661,897
2063	1,103 -	\$ 305,661,897	\$	-	\$	-	\$ 17,239	\$ 19,007,816	\$	\$ 298,880,557
2064	1,103 -	\$ 298,880,557	\$	-	\$	-	\$ 17,670	\$ 19,483,011	\$	\$ 291,352,768
2065	1,103 -	\$ 291,352,768	\$	-	\$	-	\$ 18,112	\$ 19,970,086	\$	\$ 283,036,793
2066	1,103 -	\$ 283,036,793	\$	-	\$	-	\$ 18,565	\$ 20,469,339	\$	\$ 273,888,926
2067	1,103 -	\$ 273,888,926	\$	-	\$	-	\$ 19,029	\$ 20,981,072	\$	\$ 263,863,411
2068	1,103 -	\$ 263,863,411	\$	-	\$	-	\$ 19,505	\$ 21,505,599	\$	\$ 252,912,349
2069	1,103 -	\$ 252,912,349	\$	-	\$	-	\$ 19,992	\$ 22,043,239	\$	\$ 240,985,604
2070	1,103 -	\$ 240,985,604	\$	-	\$	-	\$ 20,492	\$ 22,594,320	\$	\$ 228,030,708
2071	1,103 -	\$ 228,030,708	\$	-	\$	-	\$ 21,004	\$ 23,159,178	\$	\$ 213,992,759
2072	1,103 -	\$ 213,992,759	\$	-	\$	-	\$ 21,529	\$ 23,738,157	\$	\$ 198,814,312
2073	1,103 -	\$ 198,814,312	\$	-	\$	-	\$ 22,068	\$ 24,331,611	\$	\$ 182,435,274
2074	1,103 -	\$ 182,435,274	\$	-	\$	-	\$ 22,619	\$ 24,939,901	\$	\$ 164,792,783
2075	1,103 -	\$ 164,792,783	\$	-	\$	-	\$ 23,185	\$ 25,563,399	\$	\$ 145,821,096
2076	1,103 -	\$ 145,821,096	\$	-	\$	-	\$ 23,764	\$ 26,202,484	\$	\$ 125,451,456
2077	1,103 -	\$ 125,451,456	\$	-	\$	-	\$ 24,358	\$ 26,857,546	\$	\$ 103,611,968
2078	1,103 -	\$ 103,611,968	\$	-	\$	-	\$ 24,967	\$ 27,528,985	\$	\$ 80,227,462
2079	1,103 -	\$ 80,227,462	\$	-	\$	-	\$ 25,592	\$ 28,217,209	\$	\$ 55,219,351
2080	1,103 -	\$ 55,219,351	\$	-	\$	-	\$ 26,231	\$ 28,922,639	\$	\$ 28,505,486
2081	1,103 -	\$ 28,505,486	\$	-	\$	-	\$ 26,887	\$ 29,645,705	\$	\$ 0

Figure 5. Southeastern Tunnel ASDC Cash Flow.

5. Example of Magnitude of Development Charges

The Southeastern Wastewater Tunnel ASDC to fund the phased implementation of Phase 1 and Phase 2 infrastructure identified in Table 2 is projected to be approximately \$7,632 per SDU for all participants in the ASDC. By comparison, OGB's area specific charges are \$3,527 per single dwelling unit and Richmond Sanitary Sewer area specific charges are \$15,536 per single dwelling unit.