Chapter 11

Implementation Plan

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The Regional Municipality of Durham

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11. Implementation Plan

11.1 Schedule

An overview of the projects is provided in Figure 11.1 to accompany the schedule.

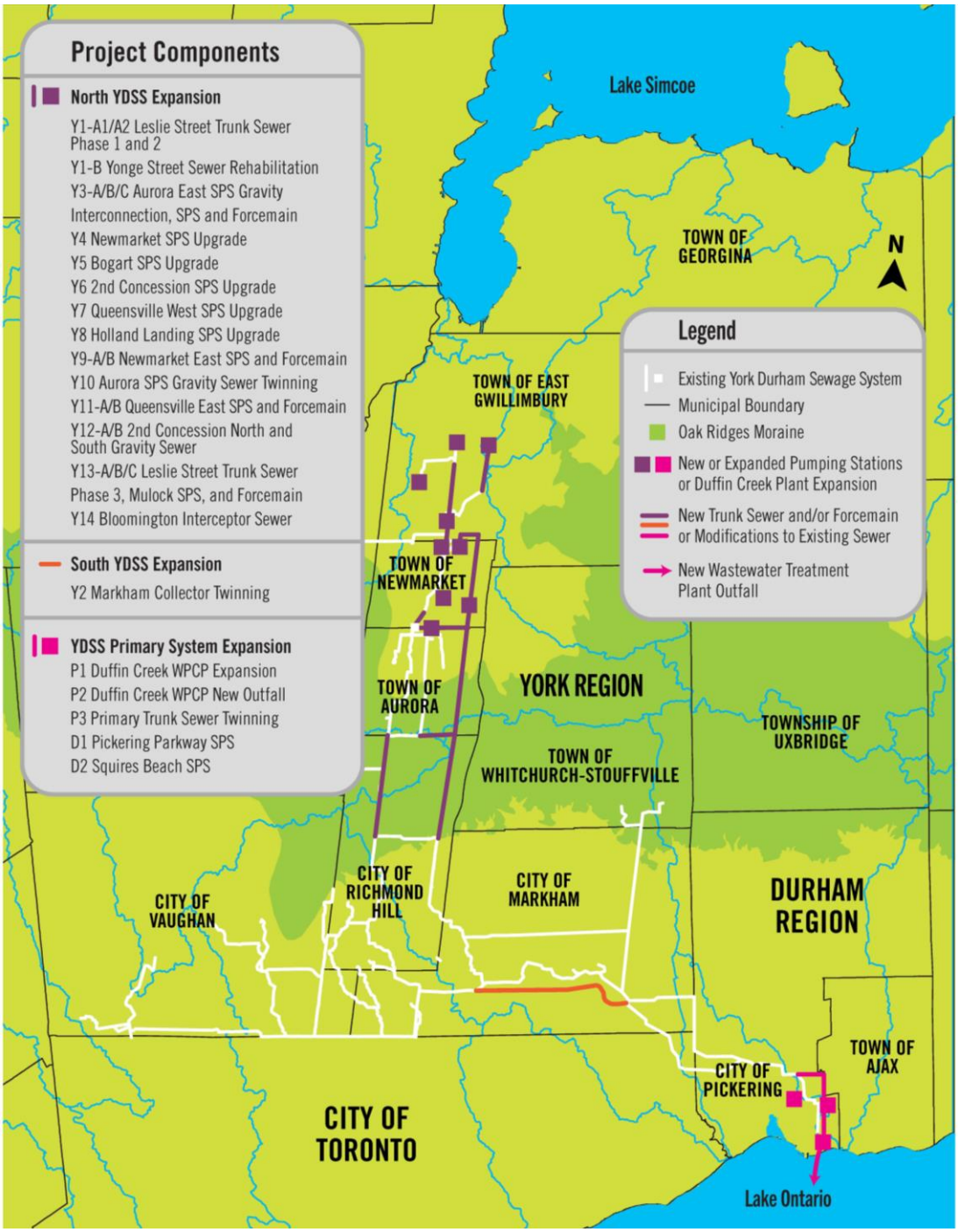

Figure 11.1 **Project Report Components**

This report presents predicted timing required for planning, design and construction activities associated with each project. The overall York Region Sewage Works Project is divided into the following three geographic areas:

– North York Durham Sewage System (YDSS) Expansion
– South YDSS Expansion
– YDSS Primary System Expansion.

The projects within each geographic area are grouped into the following phases based on providing capacity required to accommodate forecasted growth:

– Phase 1: Projects provide capacity to accommodate planned growth to 2031.
– Phase 2: Projects provide capacity to accommodate planned growth to 2041.
– Phase 3: Projects provide capacity to accommodate planned growth to 2051.

To provide a clear understanding of timelines, an implementation schedule for the North YDSS Expansion projects is shown in Figure 11.2. Figure 11.3 shows the timeline for the South YDSS Expansion project, and the timelines for the YDSS Primary System Expansion projects are shown in Figure 11.4. The figures illustrate each project timeline from planning and design through to construction completion. The completion dates for Phase 3 projects are based on when the proposed infrastructure is required to provide capacity for planned growth to 2051. Actual in-service dates for infrastructure may vary as compared to dates shown in Figure 11.2, Figure 11.3 and Figure 11.4. The Regional Municipality of York (York Region) and the Regional Municipality of Durham (Durham Region) will continue monitoring the status of development in the communities and adjust the delivery timelines of each project component to accommodate the projected growth needs. In addition, availability of the local construction marketplace, timeline to obtain agency approvals and property acquisition are some other factors that could impact predicted dates.

Phase 1 includes critical infrastructure that may take priority over other projects due to each project's significance in meeting immediate population growth needs. For example, the Y1-A1 Leslie Street Trunk Sewer Phase 1 is a critical piece of new infrastructure being constructed along Leslie Street to accommodate the long-term growth in the Upper York Region. In the short term, the Y10 Aurora Sewage Pumping Station (SPS) Gravity Sewer Twinning and the Y12-B 2nd Concession South Gravity Sewer are the interim servicing projects providing capacity for immediate growth. York Region may focus resources on completing these critical projects over other Phase 1 projects, so capacity is available when needed.

Phase 2 includes infrastructure needed to accommodate continued growth in the Upper York Region and the P3 Primary Trunk Sewer Twinning, which provides capacity and redundancy for flows into the Duffin Creek Water Pollution Control Plant (WPCP).

Phase 3 includes infrastructure needed by 2041 to accommodate planned growth in York Region and Durham Region to 2051. Major long-term projects in Phase 3 include P1 Duffin Creek WPCP Expansion, P2 Duffin Creek WPCP New Outfall and Y2 Markham Collector Twinning.

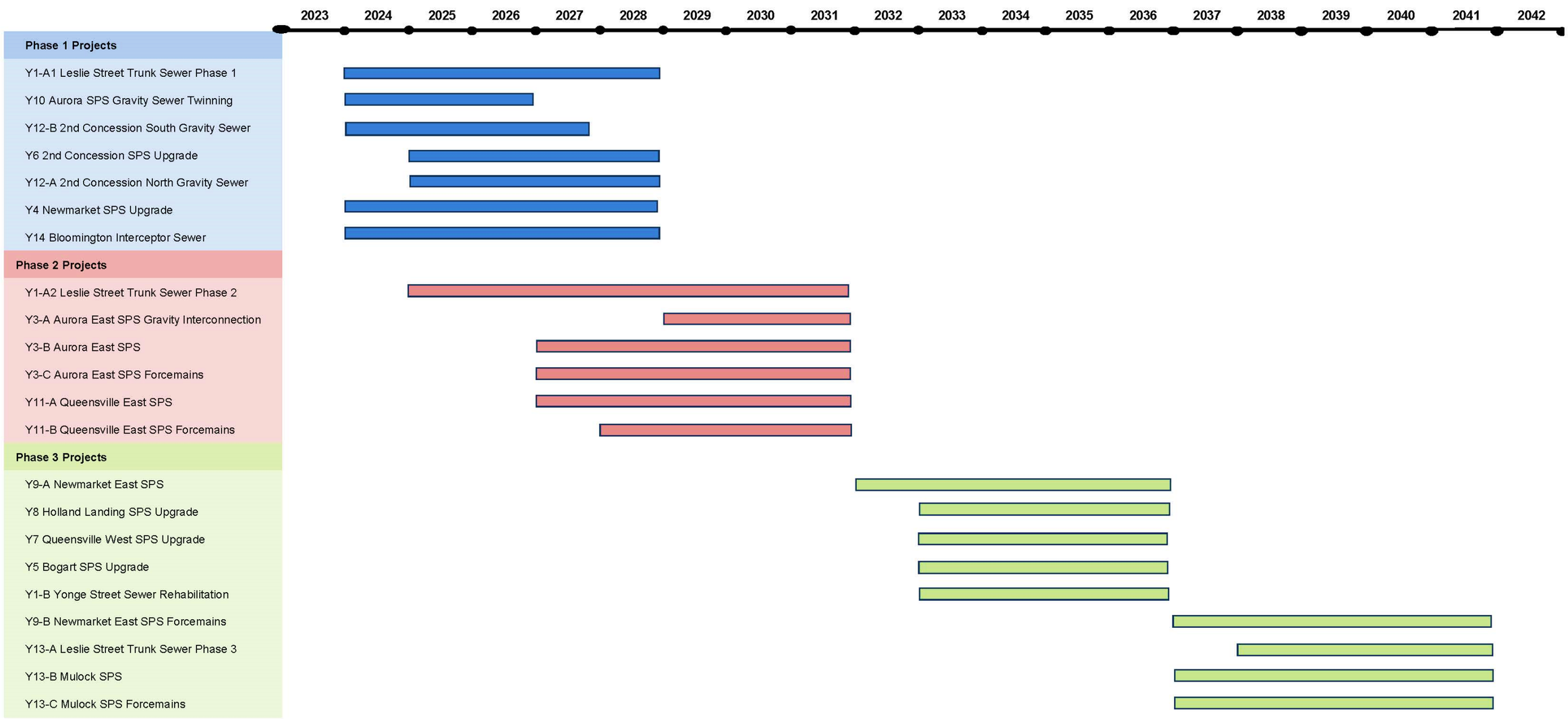

Figure 11.2 **North YDSS Expansion Timeline of Predicted Project Completion**

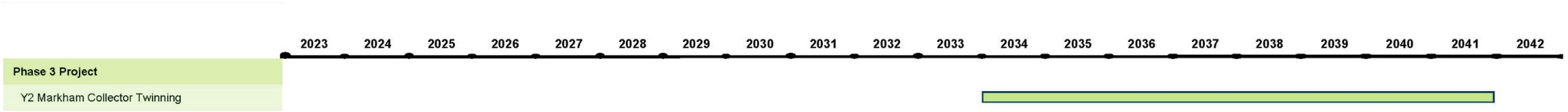

Figure 11.3 **South YDSS Expansion Timeline of Predicted Project Completion**

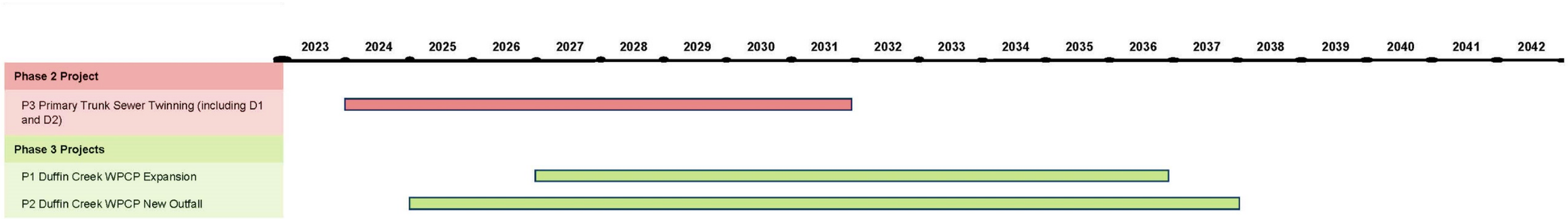

Figure 11.4 **YDSS Primary System Expansion Timeline of Predicted Project Completion**

11.2 Overview of Additional Impacts and Mitigations

Each project was evaluated based on its stand-alone impacts and mitigations. Staging of the works where work zones are in proximity of other project work zones may result in added impacts beyond the individual project impact. This includes potential for cumulative traffic impacts as well as environmental impacts. Projects planned to be constructed at the same time, during which the local area will incur the impacts of both projects simultaneously, are discussed below.

Where linear projects are occurring within the right of way (ROW) on intersecting streets or parallel streets, there is an increased impact on traffic and the environment. This occurs with the following projects:

– Y1-A1 Leslie Street Tunk Sewer Phase 1 and Y14 Bloomington Interceptor Sewer:
  - These two projects interface at the intersection of Leslie Street and Bloomington Avenue; consideration will need to be made for modelling traffic with lane reductions at both locations and assessing the resulting impacts to determine traffic management requirements.
  - Both projects will require dewatering; the design should assess hydrogeological and natural heritage impacts from both projects at the same time.
  - Consideration should be made during the design of the contract interface to further mitigate impacts on the environment; for example, consideration of using the same shaft at the interface of the works could further mitigate impacts on the environment; construction staging and in-service requirements may make bundling of projects prohibitive; however, this should be assessed during design; key to evaluating contract interfaces is assessing work zone restrictions required to maintain time and space separation.
– Y12-A 2nd Concession South Gravity Sewer and Y-12B 2nd Concession North Gravity Sewer:
  - These projects are a continuation of one another, running along Yonge Street; during design, the total construction zone of both projects should be evaluated when determining traffic management approaches.
  - Both projects are anticipated to require dewatering and may be discharged to the same receiver; the design should evaluate the environmental impacts of dewatering assuming simultaneous construction.

The projects listed below are instances where new SPS and associated forcemains are constructed at the same time. Traffic impacts from projects occurring simultaneously are minor, as the SPS projects are predominately within private property. It is noted, however, that there will be an increase in construction traffic within the areas with simultaneous projects relative to each project's individual traffic impact.

Consideration should be made during the design of the contract interface to further mitigate impacts on the environment. For example, consideration for using the same shaft required for linear construction as the wet well construction. This may mean bundling projects to be completed as one construction tender. Construction staging and in-service requirements may make bundling of projects prohibitive; however, this should be assessed during design. Key to evaluating contract interfaces is assessing work zone restrictions required to maintain time and space separation.

The new SPS and forcemain projects include:

– Y3-A Aurora East SPS Gravity Interconnection, Y3-B Aurora East SPS and Y3-C Aurora East SPS Forcemains
– Y11-A Queensville East SPS and Y11-B Queensville SPS Forcemains
– Y9-A Newmarket East SPS and Y9-B Newmarket East SPS
– Y13-B Mulock SPS and Y13-C Mulock SPS Forcemains
– D1 Pickering Parkway SPS and Forcemains
– D2 Squires Beach SPS and Forcemains.

11.3 Cost Summary

This report presents the high-level estimated total costs for construction of the York Region Sewage Works Project, broken down for each individual project. This estimate was prepared based on 2023 Canadian dollars, without allowance for future labour or material cost increases.

The capital cost estimate developed for the York Region Sewage Works Project in this report is a Class 5 cost estimate as defined by the Association for Advancement of Costing Engineering (AACE) International classification system. AACE estimate methodology and estimate basis were followed. The estimate presented reflects the probable cost obtained for the Greater Toronto Area and is a determination of fair market value for the proposed scope of work. Allowances and mark-ups were also included in the estimate for additional items such as design contingency, construction contingency, design, property acquisition and future investigations. The Harmonized Sales Tax (HST) is not included in the cost estimate.

A Class 5 range of -50% to +100% is recommended to reflect the uncertainty of the available information used to develop the estimates for each individual project. A summary of the total Project cost for North YDSS Expansion is provided in Table 11.1. Table 11.2 provides the total Project cost for South YDSS Expansion, and a summary of the total Project cost for YDSS Primary System Expansion is provided in Table 11.3.

Each table includes a cost estimate range for the total capital cost. The lower end of the range is –50% of the construction cost plus allowances. The upper end of the range for the North YDSS Expansion projects and YDSS Primary System Expansion projects was adjusted to account for there being multiple projects and that not all project costs will end up being at the upper end of the cost range.

Table 11.1 Summary of Class 5 Cost Estimation for North YDSS Expansion Infrastructure Components

North YDSS Expansion Infrastructure	Capital cost ($CAD 2023) ($1,000,000)
Y1-A1: Leslie Street Trunk Sewer Phase 1	571
Y1-A2: Leslie Street Trunk Sewer Phase 2	519
Y1-B: Yonge Street Sewer Rehabilitation	108
Y3-A: Aurora East SPS Gravity Interconnection	17
Y3-B: Aurora East SPS	134
Y3-C: Aurora East SPS Forcemains	238
Y4: Newmarket SPS Upgrade (existing plant flows)	15
Y5: Bogart SPS Upgrade	8
Y6: 2nd Concession SPS Upgrade	19
Y7: Queensville West SPS Upgrade	10
Y8: Holland Landing SPS Upgrade	7
Y9-A: Newmarket East SPS	134
Y9-B: Newmarket East SPS Forcemains	164
Y10: Aurora SPS Gravity Sewer Twinning	53
Y11-A: Queensville East SPS	19
Y11-B: Queensville East SPS Forcemains	16
Y12-A: 2nd Concession North Gravity Sewer	31
Y12-B: 2nd Concession South Gravity Sewer	137
Y13-A: Leslie Street Trunk Sewer Phase 3	191
Y13-B: Mulock SPS	134
Y13-C: Mulock SPS Forcemains	166
Y14: Bloomington Interceptor Sewer	73
Total capital cost ($CAD 2023)	**2,764**
(Cost estimate range)	(1,600 to 3,950)

Table 11.2 Summary of Class 5 Cost Estimation for South YDSS Expansion Infrastructure Components

South YDSS Expansion Infrastructure	Capital cost ($CAD 2023) ($1,000,000)
Y2: Markham Collector Twinning	600
Total capital cost ($CAD 2023)	**600**
(Cost estimate range)	(370 to 1,000)

Table 11.3 Summary of Class 5 Cost Estimation for YDSS Primary System Infrastructure Components

YDSS Primary System Expansion Infrastructure	Capital cost ($CAD 2023) ($1,000,000)
P1: Duffin Creek WPCP Expansion	686
P2: Duffin Creek WPCP New Outfall	318
P3: Primary Trunk Twinning	551
D1: Pickering Parkway SPS	211
D2: Squires Beach SPS	125
Total capital cost ($CAD 2023)	**1,891**
(Cost estimate range)	(1,200 to 2,950)

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