

2025
Asset Management Plan

City of Cornwall

Cornwall
ONTARIO CANADA
A city with a world of possibilities

GEI Consultants

Table of Contents

Table of Contents ii
List of Tables v
List of Figures xiii
Definitions xxii
Acronyms and Abbreviations xxvii
1. Executive Summary 1
1.1. Introduction 1
1.2. State of the Infrastructure, Levels of Service and Lifecycle Management Strategy 2
1.3. Financial Strategy 5
1.4. Improvement Plan 9
2. Introduction 11
2.1. Objectives 12
2.2. Purpose 12
2.3. Scope 13
2.4. Timeframes 14
2.5. AMP Overview 14
3. Alignment with City Goals 21
3.1. Alignment with City Strategic Plan 22
3.2. Alignment with Asset Management Policy 23
3.3. Ontario Regulation 588/17 23
4. Arts and Cultural Services 26
4.1. Summary 26
4.2. Library and Museum Services 27
5. Community Recreation 41
5.1. Summary 41
5.2. Parks 42
5.3. Recreation 58
6. Emergency Services 75
6.1. Summary 76
6.2. Fire Services 76

6.3. Paramedic Services 92
6.4. Police Services 107
7. Environmental Services 121
7.1. Summary 122
7.2. Solid Waste Management Services 123
8. General Government 139
8.1. Summary 140
8.2. Administration 141
9. Housing Services 157
9.1. Summary 158
9.2. Community Housing 159
10. Senior Services 182
10.1. Summary 183
10.2. Long-Term Care 184
11. Public Transportation 201
11.1. Summary 202
11.2. Transit 203
12. Transportation Services 219
12.1. Summary 220
12.2. Road Network 221
12.3. Active Transportation 254
13. Utilities 267
13.1. Summary 268
13.2. Combined Sewer Collection System 270
13.3. Sanitary Sewer Collection System 287
13.4. Storm Sewer Collection System 306
13.5. Water Distribution Network 324
13.6. Wastewater Treatment 342
13.7. Water Treatment 357
14. Growth Considerations 371
14.1. Comprehensive Review Growth Analysis Study 371
14.2. Housing Needs Assessment 373

15. Financial Strategy 374
15.1. Introduction 374
15.2. Total Portfolio Summary 375
15.3. Capital and Maintenance Budget Forecasts 377
15.4. Total Funding Shortfall 382
15.5. Funding the Shortfall 388
15.6. Summary of Findings 390
16. Risks 391
17. Improvement Plan 393
17.1. General Asset Management 394
17.2. State of the Infrastructure 394
17.3. Levels of Service 395
17.4. Lifecycle Management Strategy 396
17.5. Financial Strategy 396

List of Tables

TABLE 1-1 AMP SCOPE (SERVICES AND SUBSERVICES) 1
TABLE 1-2 CONDITION AND LOS PERFORMANCE MEASURE BY SUBSERVICE 3
TABLE 1-3 LIFECYCLE ACTIVITY CATEGORIES AND DESCRIPTIONS 4
TABLE 1-4 IMPROVEMENT PLAN RECOMMENDATIONS – FUTURE AND NEW INITIATIVES 9
TABLE 2-1 CONDITION CATEGORY SCALE AND DEFINITIONS 16
TABLE 2-2 DATA COMPLETENESS DEFINITIONS 17
TABLE 2-3 DATA CONFIDENCE DEFINITIONS 17
TABLE 2-4 LIFECYCLE ACTIVITY CATEGORIES AND DESCRIPTIONS 19
TABLE 3-1: O.REG. 588/17 MILESTONES AND TIMELINES 23
TABLE 4-1: LIBRARY AND MUSEUMS ASSET SUMMARY 28
TABLE 4-2: LIBRARIES AND MUSEUMS ASSETS CONDITION DATA COLLECTION 30
TABLE 4-3: LIBRARIES AND MUSEUMS ASSETS CONDITION RATINGS 30
TABLE 4-4: LIBRARIES AND MUSEUM DATA CONFIDENCE 32
TABLE 4-5: LIBRARIES AND MUSEUM COMMUNITY LEVELS OF SERVICE 33
TABLE 4-6: LIBRARIES AND MUSEUMS TECHNICAL LEVELS OF SERVICE 33
TABLE 4-7: LIFECYCLE ACTIVITIES – LIBRARIES AND MUSEUMS FACILITIES 35
TABLE 4-8: LIBRARIES AND MUSEUMS BUDGET ANALYSIS 38
TABLE 5-1: PARKS ASSET SUMMARY 43
TABLE 5-2: PARKS ASSETS CONDITION DATA COLLECTION 46
TABLE 5-3: PARKS ASSETS CONDITION RATINGS 46
TABLE 5-4: PARKS DATA CONFIDENCE 48
TABLE 5-5: PARKS COMMUNITY LEVELS OF SERVICE 49
TABLE 5-6: PARKS TECHNICAL LEVELS OF SERVICE 50
TABLE 5-7: LIFECYCLE ACTIVITIES –FACILITIES 52
TABLE 5-8: LIFECYCLE ACTIVITIES – AESTHETIC FEATURES, FLEET, EQUIPMENT, LINEAR INFRASTRUCTURE, UTILITIES, AND RECREATIONAL AMENITIES 53
TABLE 5-9: PARKS BUDGET ANALYSIS 56
TABLE 5-10: RECREATION ASSET SUMMARY 59
TABLE 5-11: RECREATION ASSETS CONDITION DATA COLLECTION 62
TABLE 5-12: RECREATION ASSETS CONDITION RATINGS 62

TABLE 5-13: RECREATION DATA CONFIDENCE 65
TABLE 5-14: RECREATION COMMUNITY LEVELS OF SERVICE 66
TABLE 5-15: RECREATION TECHNICAL LEVELS OF SERVICE 67
TABLE 5-16: LIFECYCLE ACTIVITIES – RECREATION FACILITIES 69
TABLE 5-17: LIFECYCLE ACTIVITIES – RECREATION FLEET & EQUIPMENT 70
TABLE 5-18: RECREATION BUDGET ANALYSIS 73
TABLE 6-1: FIRE SERVICES ASSET SUMMARY 77
TABLE 6-2: FIRE SERVICES ASSETS CONDITION DATA COLLECTION 80
TABLE 6-3: FIRE SERVICES ASSETS CONDITION RATINGS 80
TABLE 6-4: FIRE SERVICES DATA CONFIDENCE 82
TABLE 6-5: FIRE SERVICES COMMUNITY LEVELS OF SERVICE 83
TABLE 6-6: FIRE SERVICES TECHNICAL LEVELS OF SERVICE 84
TABLE 6-7: LIFECYCLE ACTIVITIES – FIRE SERVICES FACILITIES 86
TABLE 6-8: LIFECYCLE ACTIVITIES – FLEET AND EQUIPMENT 87
TABLE 6-9: FIRE SERVICES BUDGET ANALYSIS 90
TABLE 6-10: PARAMEDIC SERVICES ASSET SUMMARY 92
TABLE 6-11: PARAMEDIC SERVICES ASSETS CONDITION DATA COLLECTION 95
TABLE 6-12: PARAMEDIC SERVICES ASSETS CONDITION RATINGS 95
TABLE 6-13: PARAMEDIC SERVICES DATA CONFIDENCE 97
TABLE 6-14: PARAMEDIC SERVICES COMMUNITY LEVELS OF SERVICE 98
TABLE 6-15: PARAMEDIC SERVICES TECHNICAL LEVELS OF SERVICE 99
TABLE 6-16: LIFECYCLE ACTIVITIES – PARAMEDIC SERVICES FACILITIES 101
TABLE 6-17: LIFECYCLE ACTIVITIES – PARAMEDIC SERVICES FLEET & EQUIPMENT 102
TABLE 6-18: PARAMEDICS SERVICES BUDGET ANALYSIS 105
TABLE 6-19: POLICE SERVICES ASSET SUMMARY 107
TABLE 6-20: POLICE SERVICES ASSETS CONDITION DATA COLLECTION 110
TABLE 6-21: POLICE SERVICES ASSETS CONDITION RATINGS 110
TABLE 6-22: POLICE SERVICES DATA CONFIDENCE 112
TABLE 6-23: POLICE SERVICES COMMUNITY LEVELS OF SERVICE 113
TABLE 6-24: POLICE SERVICES TECHNICAL LEVELS OF SERVICE 114
TABLE 6-25: LIFECYCLE ACTIVITIES – POLICE SERVICES FLEET & EQUIPMENT 116
TABLE 6-26: POLICE SERVICES BUDGET ANALYSIS 119

TABLE 7-1: SOLID WASTE MANAGEMENT SERVICES ASSET SUMMARY 124
TABLE 7-2: SOLID WASTE MANAGEMENT SERVICES ASSETS CONDITION DATA COLLECTION 127
TABLE 7-3: SOLID WASTE MANAGEMENT SERVICES ASSETS CONDITION RATINGS 127
TABLE 7-4: SOLID WASTE MANAGEMENT SERVICES DATA CONFIDENCE 129
TABLE 7-5: SOLID WASTE MANAGEMENT COMMUNITY LEVELS OF SERVICE 130
TABLE 7-6: SOLID WASTE MANAGEMENT TECHNICAL LEVELS OF SERVICE 131
TABLE 7-7: LIFECYCLE ACTIVITIES – SOLID WASTE MANAGEMENT FACILITIES 133
TABLE 7-8: LIFECYCLE ACTIVITIES – SOLID WASTE MANAGEMENT EQUIPMENT 134
TABLE 7-9: SOLID WASTE MANAGEMENT BUDGET ANALYSIS 137
TABLE 8-1: ADMINISTRATION SERVICES ASSET SUMMARY 142
TABLE 8-2: ADMINISTRATION ASSETS CONDITION DATA COLLECTION 146
TABLE 8-3: ADMINISTRATION ASSETS CONDITION RATINGS 146
TABLE 8-4: ADMINISTRATION DATA CONFIDENCE 148
TABLE 8-5: ADMINISTRATION COMMUNITY LEVELS OF SERVICE 149
TABLE 8-6: ADMINISTRATION TECHNICAL LEVELS OF SERVICE 149
TABLE 8-7: LIFECYCLE ACTIVITIES – ADMINISTRATION FACILITIES 151
TABLE 8-8: LIFECYCLE ACTIVITIES – ADMINISTRATION FLEET & EQUIPMENT 152
TABLE 8-9: ADMINISTRATION BUDGET ANALYSIS 155
TABLE 9-1: COMMUNITY HOUSING ASSET SUMMARY 160
TABLE 9-2: COMMUNITY HOUSING ASSETS CONDITION DATA COLLECTION 163
TABLE 9-3: COMMUNITY HOUSING ASSETS CONDITION RATINGS 163
TABLE 9-4: COMMUNITY HOUSING DATA CONFIDENCE 165
TABLE 9-5: PROJECTED HOUSEHOLD COUNT AND SPLIT BETWEEN INCOME CATEGORIES FOR LOW, MEDIUM, AND HIGH GROWTH SCENARIOS 168
TABLE 9-6: COMMUNITY HOUSING AND HOMELESSNESS PLAN VISIONS AND OBJECTIVES 169
TABLE 9-7: HOUSING SERVICES COMMUNITY LEVELS OF SERVICE 171
TABLE 9-8: HOUSING SERVICES TECHNICAL LEVELS OF SERVICE 172
TABLE 9-9: LIFECYCLE ACTIVITIES – FACILITIES 174
TABLE 9-10: LIFECYCLE ACTIVITIES – EQUIPMENT 175
TABLE 9-11: INTERNAL HOUSING AND EQUIPMENT BUDGET ANALYSIS 178
TABLE 10-1: LONG-TERM CARE ASSET SUMMARY 185
TABLE 10-2: LONG-TERM CARE ASSETS CONDITION DATA COLLECTION 187

TABLE 10-3: LONG-TERM CARE ASSETS CONDITION RATINGS 187
TABLE 10-4: LONG-TERM CARE DATA CONFIDENCE 189
TABLE 10-5: LONG-TERM CARE COMMUNITY LEVELS OF SERVICE 191
TABLE 10-6: LONG-TERM CARE TECHNICAL LEVELS OF SERVICE 192
TABLE 10-7: LIFECYCLE ACTIVITIES – FACILITIES 195
TABLE 10-8: LIFECYCLE ACTIVITIES – EQUIPMENT 196
TABLE 10-9: SENIOR HOUSING BUDGET ANALYSIS 199
TABLE 11-1: TRANSIT ASSET SUMMARY 204
TABLE 11-2: TRANSIT ASSETS CONDITION DATA COLLECTION 206
TABLE 11-3: TRANSIT ASSETS CONDITION RATINGS 206
TABLE 11-4: TRANSIT DATA CONFIDENCE 208
TABLE 11-5: TRANSIT COMMUNITY LEVELS OF SERVICE 209
TABLE 11-6: TRANSIT TECHNICAL LEVELS OF SERVICE 210
TABLE 11-7: LIFECYCLE ACTIVITIES – TRANSIT DEPOT 212
TABLE 11-8: LIFECYCLE ACTIVITIES – TRANSIT FLEET & EQUIPMENT 213
TABLE 11-9: TRANSIT BUDGET ANALYSIS 216
TABLE 12-1: ROAD NETWORK ASSET SUMMARY 222
TABLE 12-2: ROAD NETWORK ASSETS CONDITION DATA COLLECTION 227
TABLE 12-3: ROAD NETWORK SERVICES ASSETS CONDITION RATINGS 228
TABLE 12-4: ROAD CLASS CONDITION DISTRIBUTION BY LENGTH 230
TABLE 12-5: ROAD NETWORK DATA CONFIDENCE 230
TABLE 12-6: ROAD NETWORK COMMUNITY LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES 232
TABLE 12-7: ROAD NETWORK COMMUNITY LEVELS OF SERVICE – CITY OUTLINED 233
TABLE 12-8: ROAD NETWORK TECHNICAL LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES 234
TABLE 12-9: ROAD NETWORK TECHNICAL LEVELS OF SERVICE – CITY OUTLINED 235
TABLE 12-10: LIFECYCLE ACTIVITIES – MUNICIPAL STRUCTURES 237
TABLE 12-11: LIFECYCLE ACTIVITIES – ROADS 238
TABLE 12-12: LIFECYCLE ACTIVITIES – SMALL CULVERTS 240
TABLE 12-13: LIFECYCLE ACTIVITIES – TRAFFIC MANAGEMENT 241
TABLE 12-14: MUNICIPAL STRUCTURES BUDGET ANALYSIS 244
TABLE 12-15: ROADWAYS BUDGET ANALYSIS 248
TABLE 12-16: TRAFFIC MANAGEMENT BUDGET ANALYSIS 252

TABLE 12-17: ACTIVE TRANSPORTATION ASSET SUMMARY....255
TABLE 12-18: ACTIVE TRANSPORTATION ASSETS CONDITION DATA COLLECTION....257
TABLE 12-19: ACTIVE TRANSPORTATION SERVICES ASSETS CONDITION RATINGS....257
TABLE 12-20: ACTIVE TRANSPORTATION DATA CONFIDENCE....258
TABLE 12-21: ACTIVE TRANSPORTATION COMMUNITY LEVELS OF SERVICE....260
TABLE 12-22: ACTIVE TRANSPORTATION TECHNICAL LEVELS OF SERVICE....260
TABLE 12-23: ACTIVE TRANSPORTATION LIFECYCLE MANAGEMENT STRATEGIES....262
TABLE 12-24: ACTIVE TRANSPORTATION BUDGET ANALYSIS....265
TABLE 13-1: CSCS ASSET SUMMARY....270
TABLE 13-2: CSCS ASSETS CONDITION DATA COLLECTION....274
TABLE 13-3: CSCS ASSETS CONDITION RATINGS....274
TABLE 13-4: CSCS DATA CONFIDENCE....276
TABLE 13-5: CSCS COMMUNITY LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES....277
TABLE 13-6: CSCS COMMUNITY LEVELS OF SERVICE....277
TABLE 13-7: CSCS TECHNICAL LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES....278
TABLE 13-8: CSCS TECHNICAL LEVELS OF SERVICE....278
TABLE 13-9: LIFECYCLE ACTIVITIES – COMBINED SEWERS....280
TABLE 13-10: LIFECYCLE ACTIVITIES – CSO CHAMBER....281
TABLE 13-11: CSCS BUDGET ANALYSIS....284
TABLE 13-12: SANITARY SEWER COLLECTION SYSTEM ASSET SUMMARY....287
TABLE 13-13: SANITARY SEWER COLLECTION SYSTEM ASSETS CONDITION DATA COLLECTION....291
TABLE 13-14: SANITARY SEWER COLLECTION SYSTEM ASSETS CONDITION RATINGS....291
TABLE 13-15: SANITARY SEWER COLLECTION SYSTEM DATA CONFIDENCE....293
TABLE 13-16: SANITARY SEWER COLLECTION SYSTEM COMMUNITY LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES....295
TABLE 13-17: SANITARY SEWER COLLECTION SYSTEM COMMUNITY LEVELS OF SERVICE – CITY OUTLINED....296
TABLE 13-18: SANITARY SEWER COLLECTION SYSTEM TECHNICAL LEVELS OF SERVICE - MANDATORY O.REG. 588/17 MEASURES....297
TABLE 13-19: SANITARY SEWER COLLECTION SYSTEM TECHNICAL LEVELS OF SERVICE – CITY OUTLINED....298
TABLE 13-20: LIFECYCLE ACTIVITIES – SANITARY SEWERS AND FORCEMAINS....300
TABLE 13-21: LIFECYCLE ACTIVITIES – SANITARY PUMP STATIONS....301
TABLE 13-22: SANITARY SEWER COLLECTION SYSTEM BUDGET ANALYSIS....304

TABLE 13-23: STORM SEWER COLLECTION SYSTEM ASSET SUMMARY 306
TABLE 13-24: STORM SEWER COLLECTION SYSTEM ASSETS CONDITION DATA COLLECTION 309
TABLE 13-25: STORM SEWER COLLECTION SYSTEM ASSETS CONDITION RATINGS 310
TABLE 13-26: STORM SEWER COLLECTION SYSTEM DATA CONFIDENCE 312
TABLE 13-27: STORM SEWER COLLECTION SYSTEM COMMUNITY LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES 313
TABLE 13-28: STORM SEWER COLLECTION SYSTEM COMMUNITY LEVELS OF SERVICE – CITY OUTLINED 313
TABLE 13-29: STORM SEWER COLLECTION SYSTEM TECHNICAL LEVELS OF SERVICE - MANDATORY O.REG. 588/17 MEASURES 314
TABLE 13-30: STORM SEWER COLLECTION SYSTEM TECHNICAL LEVELS OF SERVICE – CITY OUTLINED 315
TABLE 13-31: LIFECYCLE ACTIVITIES – STORM SEWERS 317
TABLE 13-32: LIFECYCLE ACTIVITIES – OIL GRIT SEPARATORS 318
TABLE 13-33: LIFECYCLE ACTIVITIES – STORMWATER RETENTION PONDS 318
TABLE 13-34: STORM SEWER COLLECTION SYSTEM BUDGET ANALYSIS 322
TABLE 13-35: WATER DISTRIBUTION NETWORK ASSET SUMMARY 325
TABLE 13-36: WATER DISTRIBUTION NETWORK ASSETS CONDITION DATA COLLECTION 328
TABLE 13-37: WATER DISTRIBUTION NETWORK ASSETS CONDITION RATINGS 328
TABLE 13-38: WATER DISTRIBUTION NETWORK DATA CONFIDENCE 330
TABLE 13-39: WATER DISTRIBUTION NETWORK COMMUNITY LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES 331
TABLE 13-40: WATER DISTRIBUTION NETWORK COMMUNITY LEVELS OF SERVICE – CITY OUTLINED 332
TABLE 13-41: WATER DISTRIBUTION NETWORK TECHNICAL LEVELS OF SERVICE - MANDATORY O.REG. 588/17 MEASURES 333
TABLE 13-42: WATER DISTRIBUTION NETWORK TECHNICAL LEVELS OF SERVICE – CITY OUTLINED 333
TABLE 13-43: LIFECYCLE ACTIVITIES – WATERMAINS 336
TABLE 13-44: LIFECYCLE ACTIVITIES – RESERVOIRS AND STORAGE TANKS 337
TABLE 13-45: WATER DISTRIBUTION NETWORK BUDGET ANALYSIS 340
TABLE 13-46: WASTEWATER TREATMENT NETWORK ASSET SUMMARY 343
TABLE 13-47: WASTEWATER TREATMENT ASSETS CONDITION DATA COLLECTION 346
TABLE 13-48: WASTEWATER TREATMENT ASSETS CONDITION RATINGS 346
TABLE 13-49: WASTEWATER TREATMENT DATA CONFIDENCE 347
TABLE 13-50: WASTEWATER TREATMENT COMMUNITY LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES 349

TABLE 13-51: WASTEWATER TREATMENT COMMUNITY LEVELS OF SERVICE – CITY OUTLINED 349
TABLE 13-52: WASTEWATER TREATMENT TECHNICAL LEVELS OF SERVICE - MANDATORY O.REG. 588/17 MEASURES 350
TABLE 13-53: WASTEWATER TREATMENT TECHNICAL LEVELS OF SERVICE – CITY OUTLINED 350
TABLE 13-54: LIFECYCLE ACTIVITIES – WASTEWATER TREATMENT ASSETS 352
TABLE 13-55: WASTEWATER TREATMENT BUDGET ANALYSIS 355
TABLE 13-56: WATER TREATMENT NETWORK ASSET SUMMARY 357
TABLE 13-57: WATER TREATMENT ASSETS CONDITION DATA COLLECTION 359
TABLE 13-58: WATER TREATMENT ASSETS CONDITION RATINGS 360
TABLE 13-59: WASTEWATER TREATMENT DATA CONFIDENCE 361
TABLE 13-60: WATER TREATMENT COMMUNITY LEVELS OF SERVICE 363
TABLE 13-61: WATER TREATMENT TECHNICAL LEVELS OF SERVICE 363
TABLE 13-62: LIFECYCLE ACTIVITIES – WATER TREATMENT FACILITIES 365
TABLE 13-63: LIFECYCLE ACTIVITIES – PROCESSING EQUIPMENT 366
TABLE 13-64: WATER TREATMENT BUDGET ANALYSIS 369
TABLE 14-1 CITY OF CORNWALL POPULATION FORECAST 371
TABLE 14-2 CITY OF CORNWALL EMPLOYMENT FORECAST 372
TABLE 14-3: PROJECTED HOUSEHOLD COUNT AND SPLIT BETWEEN INCOME CATEGORIES FOR LOW, MEDIUM, AND HIGH GROWTH SCENARIOS 373
TABLE 15-1 REPLACEMENT VALUE AND CURRENT BACKLOG SUMMARY 376
TABLE 15-2 REPLACEMENT VALUE AND CURRENT BACKLOG SUMMARY – TAXATION 376
TABLE 15-3 REPLACEMENT VALUE AND CURRENT BACKLOG SUMMARY – WATER 377
TABLE 15-4 REPLACEMENT VALUE AND CURRENT BACKLOG SUMMARY – WASTEWATER 377
TABLE 15-5 CAPITAL AND MAINTENANCE BUDGET FORECASTS – TAXATION ($000,000'S) 379
TABLE 15-6 CAPITAL AND MAINTENANCE BUDGET FORECASTS - WATER ($000,000'S) 380
TABLE 15-7 CAPITAL AND MAINTENANCE BUDGET FORECASTS - WASTEWATER ($000,000'S) 381
TABLE 15-8 FUNDING SHORTFALL (RENEWAL) EQUIVALENT ANNUAL COSTS – TAXATION 383
TABLE 15-9 FUNDING SHORTFALL (RENEWAL) – EQUIVALENT ANNUAL COSTS – WATER 385
TABLE 15-10 FUNDING SHORTFALL (RENEWAL) – EQUIVALENT ANNUAL COSTS - WASTEWATER 387
TABLE 17-1 IMPROVEMENT PLAN RECOMMENDATIONS – GENERAL ASSET MANAGEMENT 394
TABLE 17-2 IMPROVEMENT PLAN RECOMMENDATIONS – STATE OF THE INFRASTRUCTURE 394
TABLE 17-3 IMPROVEMENT PLAN RECOMMENDATIONS – LEVELS OF SERVICE 395

TABLE 17-4 IMPROVEMENT PLAN RECOMMENDATIONS – LIFECYCLE MANAGEMENT STRATEGY 396
TABLE 17-5 IMPROVEMENT PLAN RECOMMENDATIONS – LIFECYCLE MANAGEMENT STRATEGY 397

List of Figures

FIGURE 1-1: ASSET VALUATION BY SERVICE AREA....2
FIGURE 1-2: SUMMARY OF OVERALL CONDITION....3
FIGURE 1-3: FINANCIAL FORECAST SCENARIOS SUMMARY – TAXATION....6
FIGURE 1-4: FINANCIAL FORECAST SCENARIOS SUMMARY – WATER....7
FIGURE 1-5: FINANCIAL FORECAST SCENARIOS SUMMARY – WASTEWATER....8
FIGURE 2-1: CITY OF CORNWALL ASSET HIERARCHY (SERVICES AND SUBSERVICES)....13
FIGURE 3-1: ASSET MANAGEMENT PROCESS....21
FIGURE 3-2: ASSET MANAGEMENT SYSTEM....22
FIGURE 4-1: ARTS AND CULTURAL SERVICES CONDITION AND REPLACEMENT VALUE SUMMARY....26
FIGURE 4-2: LIBRARY AND MUSEUM SERVICES ASSET HIERARCHY....27
FIGURE 4-3: LIBRARY AND MUSEUMS VALUATION DISTRIBUTION....28
FIGURE 4-4: LIBRARIES AND MUSEUM SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)....29
FIGURE 4-5 LIBRARIES AND MUSEUM INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS....29
FIGURE 4-6: ARTS AND CULTURE NETWORK CONDITION SUMMARY....31
FIGURE 4-7: LIBRARIES AND MUSEUMS CONDITION DISTRIBUTION BY ASSET CLASS....31
FIGURE 4-8: ARTS AND CULTURE ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST....37
FIGURE 4-9: ARTS AND CULTURE MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST....37
FIGURE 4-10: ARTS AND CULTURE BACKLOG SCENARIO PERFORMANCE FORECAST....37
FIGURE 4-11: ARTS AND CULTURE PROPOSED LOS SCENARIO PERFORMANCE FORECAST....37
FIGURE 4-12: LIBRARIES AND MUSEUMS SCENARIO ANALYSIS SUMMARY....39
FIGURE 5-1: COMMUNITY RECREATION CONDITION AND REPLACEMENT VALUE SUMMARY....41
FIGURE 5-2: PARKS ASSET HIERARCHY....42
FIGURE 5-3: MAP OF THE CITY'S PARKS....42
FIGURE 5-4: PARKS VALUATION DISTRIBUTION BY ASSET CATEGORY....44
FIGURE 5-5: PARKS SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)....44
FIGURE 5-6 PARKS ASSETS INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS....45
FIGURE 5-7: PARKS NETWORK CONDITION SUMMARY....47
FIGURE 5-8: PARKS CONDITION DISTRIBUTION BY ASSET CLASS....47
FIGURE 5-9: PARKS ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST....55
FIGURE 5-10: PARKS MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST....55

FIGURE 5-11: PARKS BACKLOG SCENARIO PERFORMANCE FORECAST 55
FIGURE 5-12: PARKS PROPOSED LOS SCENARIO PERFORMANCE FORECAST (MAINTAIN CURRENT LOS) 55
FIGURE 5-13: PARKS SCENARIO ANALYSIS SUMMARY 57
FIGURE 5-14: RECREATION ASSET HIERARCHY 58
FIGURE 5-15: RECREATION VALUATION DISTRIBUTION BY ASSET CATEGORY 60
FIGURE 5-16: RECREATION SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST) 60
FIGURE 5-17: RECREATION INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS 61
FIGURE 5-18: RECREATION NETWORK CONDITION SUMMARY 63
FIGURE 5-19: RECREATION CONDITION DISTRIBUTION BY ASSET CLASS 64
FIGURE 5-20: RECREATION ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 72
FIGURE 5-21: RECREATION MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 72
FIGURE 5-22: RECREATION BACKLOG SCENARIO PERFORMANCE FORECAST 72
FIGURE 5-23: RECREATION PROPOSED LOS SCENARIO PERFORMANCE FORECAST (MAINTAIN CURRENT LOS) 72
FIGURE 5-24: RECREATION SCENARIO ANALYSIS SUMMARY 74
FIGURE 6-1: EMERGENCY SERVICES CONDITION AND REPLACEMENT VALUE SUMMARY 76
FIGURE 6-2: FIRE SERVICES ASSET HIERARCHY 77
FIGURE 6-3: FIRE SERVICES VALUATION DISTRIBUTION BY ASSET CATEGORY 78
FIGURE 6-4: FIRE SERVICES SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST) 78
FIGURE 6-5 FIRE SERVICES ASSETS INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS 79
FIGURE 6-6: FIRE SERVICES CONDITION SUMMARY 80
FIGURE 6-7: FIRE SERVICES CONDITION DISTRIBUTION BY ASSET CLASS 81
FIGURE 6-8: FIRE SERVICES ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 89
FIGURE 6-9: FIRE SERVICES MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 89
FIGURE 6-10: FIRE SERVICES BACKLOG SCENARIO PERFORMANCE FORECAST 89
FIGURE 6-11: FIRE SERVICES PROPOSED LOS SCENARIO PERFORMANCE FORECAST 89
FIGURE 6-12: FIRE SERVICES SCENARIO ANALYSIS SUMMARY 90
FIGURE 6-13: PARAMEDIC SERVICES ASSET HIERARCHY 92
FIGURE 6-14: PARAMEDIC SERVICES VALUATION DISTRIBUTION BY ASSET CATEGORY 93
FIGURE 6-15: PARAMEDIC SERVICES SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST) 93
FIGURE 6-16: PARAMEDIC SERVICES INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS 94
FIGURE 6-17: PARAMEDIC SERVICES NETWORK CONDITION SUMMARY 95
FIGURE 6-18: PARAMEDIC SERVICES CONDITION DISTRIBUTION BY ASSET CLASS 96

FIGURE 6-19: PARAMEDICS SERVICES ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST....104
FIGURE 6-20: PARAMEDICS SERVICES MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST....104
FIGURE 6-21: PARAMEDICS SERVICES BACKLOG SCENARIO PERFORMANCE FORECAST....104
FIGURE 6-22: PARAMEDICS SERVICES PROPOSED LOS SCENARIO PERFORMANCE FORECAST....104
FIGURE 6-23: PARAMEDICS SERVICES SCENARIO ANALYSIS SUMMARY....106
FIGURE 6-24: POLICE SERVICES ASSET HIERARCHY....107
FIGURE 6-25: POLICE SERVICES VALUATION DISTRIBUTION BY ASSET CATEGORY....108
FIGURE 6-26: POLICE SERVICES SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)....108
FIGURE 6-27: POLICE SERVICES INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS....109
FIGURE 6-28: POLICE SERVICES NETWORK CONDITION SUMMARY....111
FIGURE 6-29: POLICE SERVICES CONDITION DISTRIBUTION BY ASSET CLASS....111
FIGURE 6-30: POLICE SERVICES ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST....118
FIGURE 6-31: POLICE SERVICES MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST....118
FIGURE 6-32: POLICE SERVICES BACKLOG SCENARIO PERFORMANCE FORECAST....118
FIGURE 6-33: POLICE SERVICES PROPOSED LOS SCENARIO PERFORMANCE FORECAST....118
FIGURE 6-34: POLICE SERVICES SCENARIO ANALYSIS SUMMARY....120
FIGURE 7-1: ENVIRONMENTAL SERVICES CONDITION AND REPLACEMENT VALUE SUMMARY....122
FIGURE 7-2: SOLID WASTE MANAGEMENT SERVICES ASSET HIERARCHY....123
FIGURE 7-3: SOLID WASTE MANAGEMENT VALUATION DISTRIBUTION BY ASSET CATEGORY....125
FIGURE 7-4: SOLID WASTE MANAGEMENT SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)....125
FIGURE 7-5 SOLID WASTE MANAGEMENT ASSETS INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS....126
FIGURE 7-6: SOLID WASTE MANAGEMENT NETWORK CONDITION SUMMARY....128
FIGURE 7-7: SOLID WASTE MANAGEMENT CONDITION DISTRIBUTION BY ASSET CLASS....128
FIGURE 7-8: SOLID WASTE MANAGEMENT ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST....136
FIGURE 7-9: SOLID WASTE MANAGEMENT MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST....136
FIGURE 7-10: SOLID WASTE MANAGEMENT BACKLOG SCENARIO PERFORMANCE FORECAST....136
FIGURE 7-11: SOLID WASTE MANAGEMENT PROPOSED LOS SCENARIO PERFORMANCE FORECAST....136
FIGURE 7-12: SOLID WASTE MANAGEMENT SCENARIO ANALYSIS SUMMARY....138
FIGURE 8-1: GENERAL GOVERNMENT CONDITION AND REPLACEMENT VALUE SUMMARY....140
FIGURE 8-2: ADMINISTRATION ASSET HIERARCHY....141
FIGURE 8-3: MAP OF THE CITY'S MUNICIPAL FACILITIES....141
FIGURE 8-4: ADMINISTRATION SERVICES VALUATION DISTRIBUTION BY ASSET CLASS – FACILITIES....143

FIGURE 8-5: ADMINISTRATION SERVICES VALUATION DISTRIBUTION BY ASSET CLASS – FLEET & EQUIPMENT 143
FIGURE 8-6: ADMINISTRATION SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST) 144
FIGURE 8-7 ADMINISTRATION ASSETS INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS 145
FIGURE 8-8: ADMINISTRATION ASSETS CONDITION SUMMARY 147
FIGURE 8-9: ADMINISTRATION CONDITION DISTRIBUTION BY ASSET CLASS 147
FIGURE 8-10: ADMINISTRATION ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 154
FIGURE 8-11: ADMINISTRATION MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 154
FIGURE 8-12: ADMINISTRATION BACKLOG SCENARIO PERFORMANCE FORECAST 154
FIGURE 8-13: ADMINISTRATION PROPOSED LOS SCENARIO PERFORMANCE FORECAST 154
FIGURE 8-14: ADMINISTRATION SCENARIO ANALYSIS SUMMARY 156
FIGURE 9-1: HOUSING SERVICES CONDITION AND REPLACEMENT VALUE SUMMARY 158
FIGURE 9-2: HOUSING SERVICES ASSET HIERARCHY 159
FIGURE 9-3: MAP OF COMMUNITY HOUSING LOCATIONS 159
FIGURE 9-4: FACILITIES VALUATION DISTRIBUTION 161
FIGURE 9-5: FLEET AND EQUIPMENT VALUATION DISTRIBUTION 161
FIGURE 9-6: COMMUNITY HOUSING SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST) 162
FIGURE 9-7 COMMUNITY HOUSING INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS 162
FIGURE 9-8: COMMUNITY HOUSING CONDITION SUMMARY 164
FIGURE 9-9: COMMUNITY HOUSING CONDITION DISTRIBUTION BY ASSET CLASS 164
FIGURE 9-10: COMMUNITY HOUSING ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 177
FIGURE 9-11: COMMUNITY HOUSING MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 177
FIGURE 9-12: COMMUNITY HOUSING BACKLOG SCENARIO PERFORMANCE FORECAST 177
FIGURE 9-13: COMMUNITY HOUSING PROPOSED LOS SCENARIO PERFORMANCE FORECAST (MAINTAIN CURRENT LOS) 177
FIGURE 9-14: INTERNAL HOUSING AND EQUIPMENT SCENARIO ANALYSIS SUMMARY 180
FIGURE 10-1: SENIOR SERVICES CONDITION AND REPLACEMENT VALUE SUMMARY 183
FIGURE 10-2: SENIOR SERVICES ASSET HIERARCHY 184
FIGURE 10-3: LONG-TERM CARE ASSETS VALUATION DISTRIBUTION 185
FIGURE 10-4: LONG-TERM CARE SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST) 186
FIGURE 10-5: LONG-TERM CARE INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS 186
FIGURE 10-6: LONG-TERM CARE CONDITION SUMMARY 188
FIGURE 10-7: LONG-TERM CARE CONDITION DISTRIBUTION BY ASSET CLASS 188

FIGURE 10-8: LONG-TERM CARE ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 198
FIGURE 10-9: LONG-TERM CARE MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 198
FIGURE 10-10: LONG-TERM CARE BACKLOG SCENARIO PERFORMANCE FORECAST 198
FIGURE 10-11: LONG-TERM CARE PROPOSED LOS SCENARIO PERFORMANCE FORECAST 198
FIGURE 10-12: LONG-TERM CARE SCENARIO ANALYSIS SUMMARY 199
FIGURE 11-1: PUBLIC TRANSPORTATION CONDITION AND REPLACEMENT VALUE SUMMARY 202
FIGURE 11-2: TRANSIT ASSET HIERARCHY 203
FIGURE 11-3: MAP OF THE CITY'S TRANSIT NETWORK 203
FIGURE 11-4: TRANSIT VALUATION DISTRIBUTION 204
FIGURE 11-5: TRANSIT SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST) 205
FIGURE 11-6 TRANSIT INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS 205
FIGURE 11-7: TRANSIT NETWORK CONDITION SUMMARY 207
FIGURE 11-8: TRANSIT CONDITION DISTRIBUTION BY ASSET CLASS 207
FIGURE 11-9: TRANSIT ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 215
FIGURE 11-10: TRANSIT MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 215
FIGURE 11-11: TRANSIT BACKLOG SCENARIO PERFORMANCE FORECAST 215
FIGURE 11-12: TRANSIT PROPOSED LOS SCENARIO PERFORMANCE FORECAST 215
FIGURE 11-13: TRANSIT SCENARIO ANALYSIS SUMMARY 217
FIGURE 12-1: TRANSPORTATION SERVICES CONDITION AND REPLACEMENT VALUE SUMMARY 220
FIGURE 12-2: ROAD NETWORK ASSET HIERARCHY 221
FIGURE 12-3: MAP OF THE CITY'S TRANSPORTATION NETWORK 221
FIGURE 12-4: ROAD NETWORK VALUATION DISTRIBUTION 223
FIGURE 12-5: ROAD NETWORK SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST) 224
FIGURE 12-6: ROAD NETWORK SERVICE LIFE PROFILE BY ROAD CLASS (WEIGHTED BY REPLACEMENT COST) 225
FIGURE 12-7 ROAD NETWORK INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS 226
FIGURE 12-8: ROAD NETWORK CONDITION SUMMARY 228
FIGURE 12-9: ROAD NETWORK CONDITION DISTRIBUTION BY ASSET CLASS 229
FIGURE 12-10: ROAD NETWORK CONDITION DISTRIBUTION BY ROAD CLASS 229
FIGURE 12-11: MUNICIPAL STRUCTURES ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 243
FIGURE 12-12: MUNICIPAL STRUCTURES MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 243
FIGURE 12-13: MUNICIPAL STRUCTURES BACKLOG SCENARIO PERFORMANCE FORECAST 243
FIGURE 12-14: MUNICIPAL STRUCTURES PROPOSED LOS SCENARIO PERFORMANCE FORECAST 243

FIGURE 12-15: MUNICIPAL STRUCTURES SCENARIO ANALYSIS SUMMARY 245
FIGURE 12-16: ROADWAYS ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 247
FIGURE 12-17: ROADWAYS MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 247
FIGURE 12-18: ROADWAYS BACKLOG SCENARIO PERFORMANCE FORECAST 247
FIGURE 12-19: ROADWAYS PROPOSED LOS SCENARIO PERFORMANCE FORECAST 247
FIGURE 12-20: ROADWAYS SCENARIO ANALYSIS SUMMARY 249
FIGURE 12-21: TRAFFIC MANAGEMENT ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 251
FIGURE 12-22: TRAFFIC MANAGEMENT MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 251
FIGURE 12-23: TRAFFIC MANAGEMENT BACKLOG SCENARIO PERFORMANCE FORECAST 251
FIGURE 12-24: TRAFFIC MANAGEMENT PROPOSED LOS SCENARIO PERFORMANCE FORECAST 251
FIGURE 12-25: TRAFFIC MANAGEMENT SCENARIO ANALYSIS SUMMARY 253
FIGURE 12-26: ACTIVE TRANSPORTATION ASSET HIERARCHY 254
FIGURE 12-27: MAP OF CORNWALL'S RECREATIONAL PATHS AND BIKE LANES 254
FIGURE 12-28: ACTIVE TRANSPORTATION VALUATION DISTRIBUTION 255
FIGURE 12-29: ACTIVE TRANSPORTATION SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST) 256
FIGURE 12-30: ACTIVE TRANSPORTATION INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS 256
FIGURE 12-31: ACTIVE TRANSPORTATION CONDITION SUMMARY 257
FIGURE 12-32: ACTIVE TRANSPORTATION CONDITION DISTRIBUTION BY ASSET CLASS 258
FIGURE 12-33: SIDEWALK ACCESSIBILITY SUMMARY 258
FIGURE 12-34: ACTIVE TRANSPORTATION ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 264
FIGURE 12-35: ACTIVE TRANSPORTATION MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 264
FIGURE 12-36: ACTIVE TRANSPORTATION BACKLOG ANALYSIS PERFORMANCE FORECAST 264
FIGURE 12-37 ACTIVE TRANSPORTATION PROPOSED LOS SCENARIO PERFORMANCE FORECAST 264
FIGURE 12-38: ACTIVE TRANSPORTATION SCENARIO ANALYSIS SUMMARY 266
FIGURE 13-1: UTILITIES CONDITION AND REPLACEMENT VALUE SUMMARY 268
FIGURE 13-2: MAP OF THE CITY'S WASTEWATER AND STORM SEWER NETWORK 269
FIGURE 13-3: COMBINED SEWER COLLECTION SYSTEM ASSET HIERARCHY 270
FIGURE 13-4: COMBINED SEWER COLLECTION SYSTEM VALUATION DISTRIBUTION 271
FIGURE 13-5: CSCS SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST) 271
FIGURE 13-6: COMBINED SEWER SERVICE LIFE PROFILE BY PIPE MATERIAL (WEIGHTED BY REPLACEMENT COST) 272
FIGURE 13-7 CSCS INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS 273
FIGURE 13-8: CSCS CONDITION SUMMARY 274

FIGURE 13-9: CSCS CONDITION DISTRIBUTION BY ASSET CLASS 275
FIGURE 13-10: CSCS CONDITION DISTRIBUTION BY PIPE MATERIAL 275
FIGURE 13-11: CSCS ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 283
FIGURE 13-12: CSCS MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 283
FIGURE 13-13: CSCS BACKLOG SCENARIO PERFORMANCE FORECAST 283
FIGURE 13-14: CSCS PROPOSED LOS SCENARIO PERFORMANCE FORECAST 283
FIGURE 13-15: CSCS SCENARIO ANALYSIS SUMMARY 285
FIGURE 13-16: SANITARY SEWER COLLECTION SYSTEM ASSET HIERARCHY 287
FIGURE 13-17: SANITARY SEWER COLLECTION SYSTEM VALUATION DISTRIBUTION 288
FIGURE 13-18: SANITARY SEWER COLLECTION SYSTEM SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST) ... 288
FIGURE 13-19: SANITARY SEWER SERVICE LIFE PROFILE BY PIPE MATERIAL (WEIGHTED BY REPLACEMENT COST) 289
FIGURE 13-20: SANITARY SEWER COLLECTION SYSTEM INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS 290
FIGURE 13-21: SANITARY SEWER COLLECTION SYSTEM CONDITION SUMMARY 292
FIGURE 13-22: SANITARY SEWER COLLECTION SYSTEM CONDITION DISTRIBUTION BY ASSET CLASS 292
FIGURE 13-23: SANITARY SEWER COLLECTION SYSTEM CONDITION DISTRIBUTION BY PIPE MATERIAL 293
FIGURE 13-24: SANITARY SEWERS ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 303
FIGURE 13-25: SANITARY SEWERS MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 303
FIGURE 13-26: SANITARY SEWERS BACKLOG ANALYSIS PERFORMANCE FORECAST 303
FIGURE 13-27 SANITARY SEWERS PROPOSED LOS SCENARIO PERFORMANCE FORECAST 303
FIGURE 13-28: SANITARY SEWER COLLECTION SYSTEM SCENARIO ANALYSIS SUMMARY 305
FIGURE 13-29: STORM SEWER COLLECTION SYSTEM ASSET HIERARCHY 306
FIGURE 13-30: STORM SEWER COLLECTION SYSTEM VALUATION DISTRIBUTION 307
FIGURE 13-31: STORM SEWER COLLECTION SYSTEM SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST) 307
FIGURE 13-32: STORM SEWER SERVICE LIFE PROFILE BY PIPE MATERIAL (WEIGHTED BY REPLACEMENT COST) 308
FIGURE 13-33: STORM SEWER COLLECTION SYSTEM INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS 309
FIGURE 13-34: STORM SEWER COLLECTION SYSTEM CONDITION SUMMARY 310
FIGURE 13-35: STORM SEWER COLLECTION SYSTEM CONDITION DISTRIBUTION BY ASSET CLASS 311
FIGURE 13-36: STORM SEWER COLLECTION SYSTEM CONDITION DISTRIBUTION BY PIPE MATERIAL 311
FIGURE 13-37: STORMWATER SEWER COLLECTION SYSTEM ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 321
FIGURE 13-38: STORMWATER SEWER COLLECTION SYSTEM MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 321

FIGURE 13-39: STORMWATER SEWER COLLECTION SYSTEM BACKLOG ANALYSIS PERFORMANCE FORECAST.....321
FIGURE 13-40 STORMWATER SEWER COLLECTION SYSTEM PROPOSED LOS SCENARIO PERFORMANCE FORECAST.....321
FIGURE 13-41: STORM SEWER COLLECTION SYSTEM SCENARIO ANALYSIS SUMMARY.....323
FIGURE 13-42: WATER DISTRIBUTION NETWORK ASSET HIERARCHY.....324
FIGURE 13-43: MAP OF THE CITY'S WATER DISTRIBUTION NETWORK.....324
FIGURE 13-44: WATER DISTRIBUTION NETWORK VALUATION DISTRIBUTION.....325
FIGURE 13-45: WATER DISTRIBUTION NETWORK SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST).....326
FIGURE 13-46: WATERMAIN SERVICE LIFE PROFILE BY PIPE MATERIAL (WEIGHTED BY REPLACEMENT COST).....326
FIGURE 13-47: WATER DISTRIBUTION NETWORK INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS.....327
FIGURE 13-48: WATER DISTRIBUTION NETWORK CONDITION SUMMARY.....328
FIGURE 13-49: WATER DISTRIBUTION NETWORK CONDITION DISTRIBUTION BY ASSET CLASS.....329
FIGURE 13-50: WATER DISTRIBUTION NETWORK CONDITION DISTRIBUTION BY PIPE MATERIAL.....329
FIGURE 13-51: WATER DISTRIBUTION NETWORK ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST.....339
FIGURE 13-52: WATER DISTRIBUTION NETWORK MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST.....339
FIGURE 13-53: WATER DISTRIBUTION NETWORK BACKLOG ANALYSIS PERFORMANCE FORECAST.....339
FIGURE 13-54 WATER DISTRIBUTION NETWORK PROPOSED LOS SCENARIO PERFORMANCE FORECAST.....339
FIGURE 13-55: WATER DISTRIBUTION NETWORK SCENARIO ANALYSIS SUMMARY.....341
FIGURE 13-56: WASTEWATER TREATMENT ASSET HIERARCHY.....342
FIGURE 13-57: WASTEWATER TREATMENT VALUATION DISTRIBUTION.....343
FIGURE 13-58: WASTEWATER TREATMENT SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST).....344
FIGURE 13-59: WASTEWATER TREATMENT INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS.....345
FIGURE 13-60: WASTEWATER TREATMENT CONDITION SUMMARY.....346
FIGURE 13-61: WASTEWATER TREATMENT CONDITION DISTRIBUTION BY ASSET CLASS.....347
FIGURE 13-62: WASTEWATER TREATMENT ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST.....354
FIGURE 13-63: WASTEWATER TREATMENT MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST.....354
FIGURE 13-64: WASTEWATER TREATMENT BACKLOG ANALYSIS PERFORMANCE FORECAST.....354
FIGURE 13-65 WASTEWATER TREATMENT PROPOSED LOS SCENARIO PERFORMANCE FORECAST.....354
FIGURE 13-66: WASTEWATER TREATMENT SCENARIO ANALYSIS SUMMARY.....356
FIGURE 13-67: WATER TREATMENT ASSET HIERARCHY.....357
FIGURE 13-68: WATER TREATMENT VALUATION DISTRIBUTION.....358
FIGURE 13-69: WATER TREATMENT SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST).....358
FIGURE 13-70: WATER TREATMENT INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS.....359

FIGURE 13-71: WATER TREATMENT CONDITION SUMMARY 360
FIGURE 13-72: WATER TREATMENT CONDITION DISTRIBUTION BY ASSET CLASS 361
FIGURE 13-73: WATER TREATMENT ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST 368
FIGURE 13-74: WATER TREATMENT MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST 368
FIGURE 13-75: WATER TREATMENT BACKLOG ANALYSIS PERFORMANCE FORECAST 368
FIGURE 13-76 WATER TREATMENT PROPOSED LOS SCENARIO PERFORMANCE FORECAST 368
FIGURE 13-77: WATER TREATMENT SCENARIO ANALYSIS SUMMARY 370
FIGURE 14-1: CITY OF CORNWALL POPULATION FORECAST 371
FIGURE 14-2: CITY OF CORNWALL EMPLOYMENT FORECAST 372
FIGURE 15-1: FINANCIAL FORECAST SCENARIOS SUMMARY – TAXATION 384
FIGURE 15-2: FINANCIAL FORECAST SCENARIOS SUMMARY - WATER 386
FIGURE 15-3: FINANCIAL FORECAST SCENARIOS SUMMARY - WASTEWATER 388

Definitions

Asset

An item, thing or entity that has potential or actual value to an organization. The value can be tangible or intangible, financial or non-financial, and includes consideration of risks and liabilities.

Asset Category

A category of municipal infrastructure assets that is an aggregate of assets. The third level of the City's asset hierarchy.

Asset Hierarchy

A logical digital index of assets and asset information. An asset hierarchy is used to classify assets into groups of similar characteristics or functions. The City's asset hierarchy featured in this AMP is a service-centric hierarchy that has the primary objective of describing the relationship between services provided by the City and the infrastructure assets that support those services.

Asset Management (AM)

Planned actions and coordinated activities of an organization to optimally and sustainably manage its assets that will enable the assets to provide the desired level of service in a sustainable way, while managing the risk at the lowest life-cycle cost. It encompasses all asset types, tangible or intangible, individual components or complex systems, and all activities involved in the asset's lifecycle from acquisition/creation, through maintenance to renewal or disposal.

Asset Management Plan (AMP)

A strategic document that states how a group of assets is to be managed over a period of time. The plan describes the characteristics and condition of infrastructure assets, the levels of service expected from them, planned actions to ensure the assets are providing the expected level of service, and financial strategies to implement the planned actions.

Asset Management Policy

Mandated requirements, overall intentions/principles and framework for control of asset management. An Asset Management Policy guides the overall direction of the asset management system, providing direction to the appropriate focus and level of asset management practice expected. It shall establish key principles, overall vision for the program, and align other municipal plans.

Asset Management Strategy

Documents the intended approach by which the assets and other resources will be used to achieve the agreed upon objectives within the agreed Policy framework. It provides clear direction, intentions and rationale. It also identifies the organizational readiness, including identification of barriers and appropriate implementation plans to overcome the barriers.

Building Together – Guide for Municipal Asset Management Plans

A document, released by the Government of Ontario, which explains the importance and the features of an AMP. It is organized into four (4) main parts:

- Part 1: Context;
- Part 2: Asset Management Planning;
- Part 3: The elements of a detailed AMP; and,
- Part 4: Conclusion.

Capital Asset Threshold

The value of the infrastructure asset at or above which an organization will capitalize the asset's value and below which the organization will expense the asset's value.

Community (Customer) Levels of Service (LOS)

Community Levels of Service (also known as Customer Levels of Service) measures are typically expressed in non-technical terms and describe the general public's understanding of services being provided by infrastructure systems. Community LOS measures are typically related to the service that is provided by the overall system supporting the service delivery, rather than the specific assets.

Core Asset

Includes any municipal infrastructure asset (as per O. Reg 588/17) that is a:

- water asset that relates to the collection, production, treatment, storage, supply or distribution of drinking water;
- wastewater asset that relates to the collection, transmission, treatment or disposal of wastewater, including any wastewater asset that from time to time manages stormwater;
- stormwater management asset that relates to the collection, transmission, treatment, retention, infiltration, control or disposal of stormwater;
- road; or,
- bridge or culvert.

Current Replacement Value

The amount that an entity would have to pay to replace an asset of the same function and capacity at the present time, according to its current worth, including costs related to removal, installation, excavation, design, engineering, contingencies, disposal, material and labour.

Deterioration Curve

A mathematical representation used to model and predict the change in condition of an asset over time. These curves can be plotted on a graph, with the x-axis representing time (age), and the y-axis representing condition values (or ratings).

Estimated Service Life (ESL)

The estimated period of time (usually in years) that an asset is in use or is expected to be available for use, assuming perfect construction and general maintenance is carried out. ESLs may vary according to material type or functional component.

Infrastructure

The physical structures and associated facilities that form the foundation of development, and by or through which a public service is provided.

Infrastructure Deficit

A spending shortfall in comparison to an established need. This can include the accumulated deficit that results year over year due to financial shortfalls.

Key Performance Indicator (KPI)

A quantifiable measure used to evaluate the success of an organization, employee, asset, etc. in meeting objectives for performance.

Level of Service (LOS)

The parameters or combination of parameters that reflect the social, political, economic, and environmental outcomes the organization delivers. Level of service statements describe the outputs or objectives of the organization's activities that are intended to be delivered to the community.

Lifecycle

The entire process of an asset's journey within an organization, from the initial planning and acquisition to its eventual disposal or replacement.

Lifecycle Activity

Activities undertaken with respect to an infrastructure asset over its service life, including constructing, maintaining, renewing, operating, and decommissioning, and all engineering and design work associated with those activities.

Lifecycle Cost

The total cost of ownership over the life of an asset. This may include but is not limited to capital costs, operating costs, maintenance costs, renewal costs, replacement costs, environmental costs, and user delay.

Lifecycle Management Strategy

The set of planned actions that will enable the assets to provide the desired levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost.

Long-Term Financial Plan

A plan that projects a forecast of financial performance and position over a period of at least five years. The Long-Term Financial Plan should be consistent with actions required to implement strategies proposed in other plans/documents.

Maintenance

Activities that allow assets meet their required performance objectives, including regularly scheduled inspection and activities associated with unexpected or unplanned events.

Non-core Asset

All other municipally owned assets not included in the definition of a core asset (as per O. Reg 588/17).

Non-infrastructure Lifecycle Activities

Actions, studies, master plans or policies that are not capital in nature, which result in the lowering of costs and/or extend the useful life of an asset.

Ontario Regulation (O.Reg.) 588/17

Under the Infrastructure for Jobs and Prosperity Act, 2015, principles are set out by the provincial government to regulate asset management planning for municipalities. On December 27, 2017, O. Reg. 588/17 was released which regulates asset management planning for municipal infrastructure.

Preventive Maintenance

Regular, routine or regularly scheduled maintenance activities that are intended to keep assets in good working order and prevent or minimize unplanned failures or downtime.

Proposed Level of Service

The future standard of service an organization plans to deliver through its assets. These levels are defined by the parameters or combination of parameters that reflect the social, political, economic, and environmental outcomes the organization delivers to the community. These statements describe the outputs or objectives of the organization's activities and outline how reliable, safe, and accessible the services should be, taking into account community needs, regulatory requirements, available funding and achievability.

Public

Residents and business in the City of Cornwall, stakeholders or other interested parties.

Rehabilitation

Significant repairs designed to extend the life of an asset. Rehabilitation activities are considered Renewal activities.

Remaining Useful Life

Time left (usually in years) in the asset before it is considered failed, usually related to an anticipated failure mode.

Renewal

Major rehabilitation or replacement of an existing asset to an equivalent capacity, function and/or performance. Renewals typically include rehabilitations or replacements.

Replacement

The removal and reinstallation or reconstruction of an asset with a new asset of an equivalent capacity, function and/or performance.

Risk

The effect of uncertainty on an organization's objectives. It considers financial, socioeconomic and financial variables and is determined by assigning a numeric rating for the likelihood of an asset failing and the consequence if it does.

Risk Management Strategy

A Risk Management Strategy details the methodology and framework used to assess an asset portfolio. It details the methodology and results used to assign Probability of Failure, Consequence of Failure and Risk Ratings to assets, which assists in understanding asset criticality, and prioritizing assets for rehabilitation or replacement.

State of the Infrastructure

An overview of the current value, age, condition, and data maturity of municipal assets, giving the organization a clear picture of the world of assets around them.

Technical Levels of Service (LOS)

Technical LOS are technical measures applied against assets and overall systems that define the performance requirements to support Community Levels of Service and are used to determine which criteria will be used to drive business decisions. Technical LOS are often expressed in quantitative or numerical terms.

Acronyms and Abbreviations

Acronym or Abbreviation	Meaning
AM	Asset Management
AHP	Affordable Housing Program
AMHI	Area Median Household Income
AMP	Asset Management Plan
AODA	Accessibility for Ontarians with Disabilities Act
BCA	Building Condition Assessment
CCTV	Closed-Circuit Television
CMHC	Canada Mortgage and Housing Corporation
CP	Community Paramedicine
CPR	Cardiopulmonary Resuscitation
CSA	Canadian Standards Association
CSCS	Combined Sewer Collection System
CSO	Combined Sewer Overflow
CSP	Corrugated Steel Pipe (CSP)
DSS	Decision Support System
EMS	Emergency Medical Services
ESL	Estimated Service Life
FADM	Facility Accessibility Design Manual
FCI	Facility Condition Index
FS	Financial Strategy
GIS	Geographic Information Systems
HNA	Housing Needs Assessment
HRP	Housing Revitalization Plan
HVAC	Heating, Ventilation, and Air Conditioning
IT	Information Technology
KPI	Key Performance Indicator
LC	Lifecycle
LED	Light-Emitting Diode
LOS	Level(s) of Service
MECP	Ministry of the Environment, Conservation and Parks
MMS	Minimum Maintenance Standards

Acronym or Abbreviation	Meaning
MTO	Ministry of Transportation
NAASCO	National Association of Sewer Service Companies
OCIF	Ontario Community Infrastructure Fund
OFM	The Office of the Fire Marshal
O. Reg. 588/17	Ontario Regulation 588/17
OSIM	Ontario Structure Inspection Manual
PACP	Pipeline Assessment Certification Program
PCR	Pavement Condition Rating
PLOS	Proposed Level(s) of Service
PM	Preventative Maintenance
ROW	Right of Way
SCADA	Supervisory Control and Data Acquisition
SDG	Stormont, Dundas and Glengarry
SFCIP	Senior Friendly Community Implementation Plan
SI	Service Improvement
SOTI	State of the Infrastructure
SOGR	State of Good Repair
WPI	Watermain Performance Index
WPP	Water Purification Plant
WWTP	Wastewater Treatment Plant

1. Executive Summary

1.1. Introduction

The City of Cornwall's 2025 Asset Management Plan (AMP) provides the City's plan to responsibly manage its assets. The City's assets within the scope of this AMP are valued at approximately $3.78 Billion.

This AMP formally documents the state of infrastructure of in-scope assets. It documents level of service (LOS) measures being tracked against each service area, lifecycle strategies applied to the assets, and the funding and financial strategy required to balance LOS and reduce risk. This Plan links organizational objectives and the LOS needed to achieve them, the asset management (AM) activities and processes performed to provide the intended LOS to the community and the cost of implementing those strategies.

The scope of this AMP includes assets across following services and subservices:

TABLE 1-1 AMP SCOPE (SERVICES AND SUBSERVICES)

Service	Subservice(s)
Arts & Cultural Services	Library Services, Museum
Community Recreation	Parks, Recreation
Emergency Services	Fire Services, Paramedic Services, Police Services
Environmental Services	Solid Waste Management Services
General Government	Administration (Facilities, Fleet and Equipment)
Housing Services	Community Housing
Public Transportation	Transit
Senior Services	Long-Term Care
Transportation Services	Road Network (including Parking Services), Active Transportation
Utilities	Combined Sewer Collection System, Sanitary Sewer Collection System, Wastewater Treatment, Storm Sewer Collection System, Water Distribution Network, Water Treatment

The structure of this AMP is based on the Province of Ontario Guide: Building Together – Guide for Municipal Asset Management Plans and meets the requirements of O.Reg. 588/17. The following subsections report on the major asset management analyses that founded this AMP.

1. **State of Infrastructure (within each Service section):** details information on the current asset valuations, inventories, condition, age and estimated service life, supported by asset data. Data sources, confidence and assumptions are also provided.

2. **Levels of Service (within each Service section):** details the measures and key performance indicators (KPIs) that the City tracks to ensure it is providing adequate service to the community. LOS are subdivided into Community LOS and Technical LOS.
3. **Lifecycle Management Strategy (within each Service section):** details the lifecycle activities that the City undertakes to maintain its assets in a state of good repair and meet its service level objectives. It also details the forecasting analysis completed in this AMP to understand financial needs into the future.
4. **Financial Strategy (Section 15):** provides a financial analysis on the costs required for the City to meet service level objectives, backlogs in asset-related capital needs, full lifecycle costing of assets, and strategies to address shortfalls/backlogs and maintain service levels.

In addition to these sections, the AMP also discusses the methods in which it is aligned with City objectives and goals, considerations to account for growth, and an improvement plan, which will assist the City in identifying initiatives to continually improve its asset management processes.

1.2. State of the Infrastructure, Levels of Service and Lifecycle Management Strategy

The City's portfolio of assets covered in this AMP is valued at approximately $3.78 billion. The following figure illustrates a breakdown of the asset valuation by major service area.

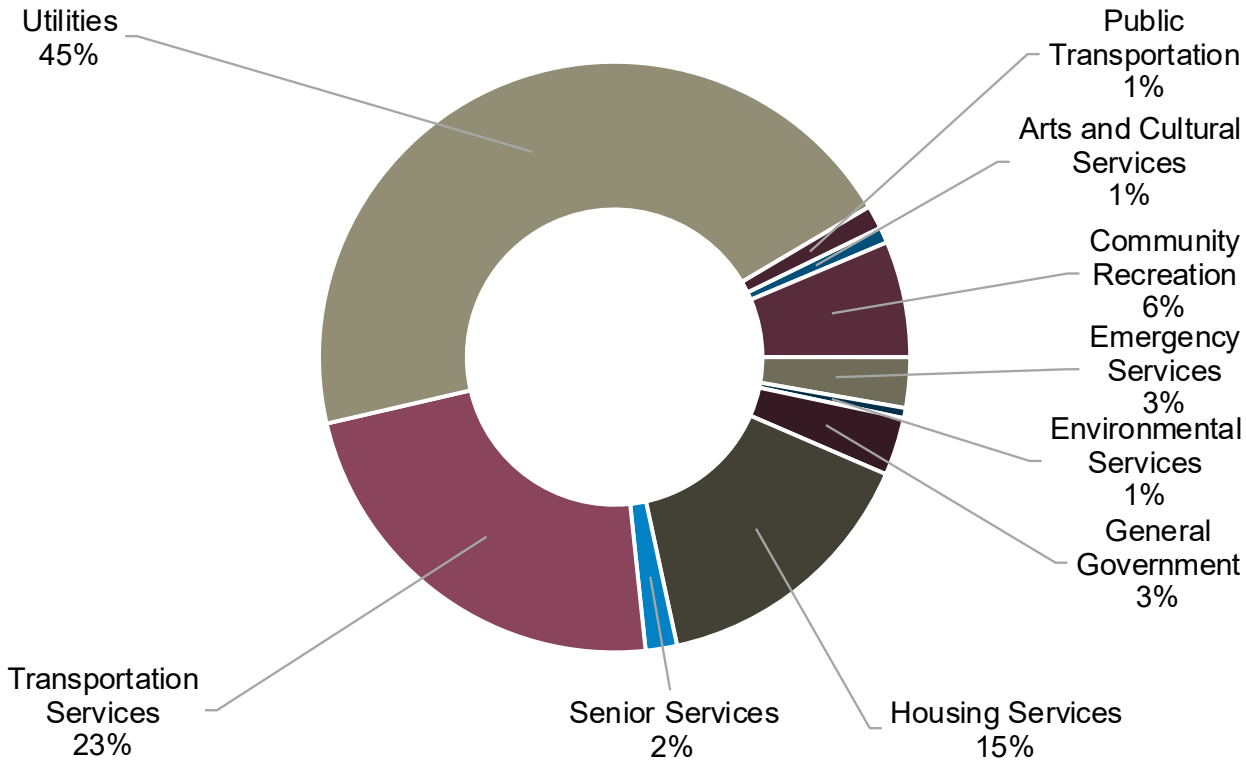


FIGURE 1-1: ASSET VALUATION BY SERVICE AREA

The average age of the City's assets is 39 years, and the average estimated service life is 73 years. Although age is not necessarily an indicator of condition, it does often have a relationship to it. The overall condition of the City's assets is "Good". A distribution of the assets is illustrated in the figure below.

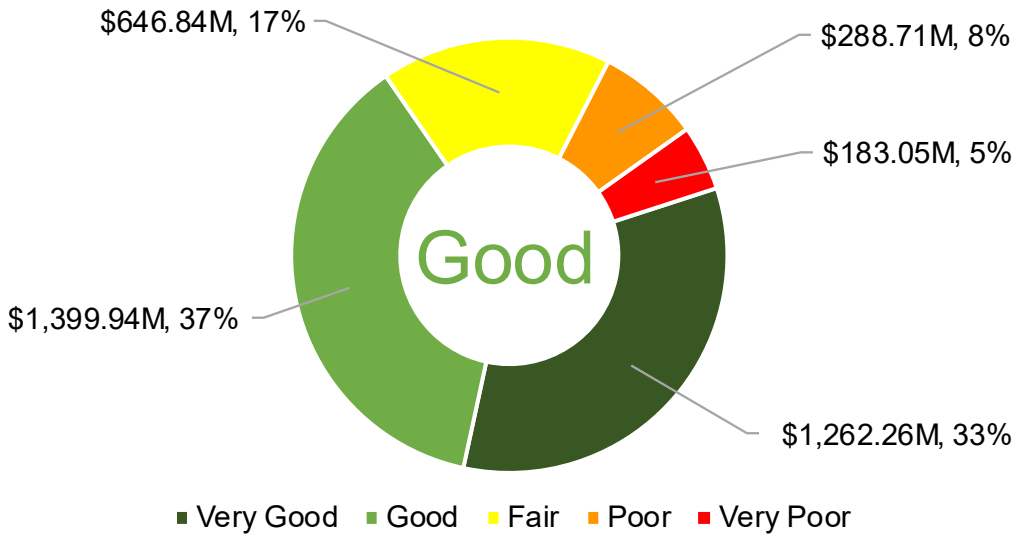


FIGURE 1-2: SUMMARY OF OVERALL CONDITION

The City has developed a suite of levels of service measures that measure several aspects of asset performance. All asset classes have a performance measure that is based on asset condition – which is the percentage of assets in poor or better condition. The following table provides a summary of each service area, its average condition, and the value of this performance measure.

TABLE 1-2 CONDITION AND LOS PERFORMANCE MEASURE BY SUBSERVICE

Service	Subservice	Average Condition	Percentage of Assets that Meet LOS
Arts and Cultural Services	Library Services	Good	100%
Arts and Cultural Services	Museums	Good	100%
Community Recreation	Parks	Good	95%
Community Recreation	Recreation	Very Good	100%
Emergency Services	Fire Services	Good	99%
Emergency Services	Paramedic Services	Good	99%
Emergency Services	Police Services	Good	88%
Environmental Services	Solid Waste Management Services	Good	100%
General Government	Administration	Good	98%

Service	Subservice	Average Condition	Percentage of Assets that Meet LOS
Housing Services	Community Housing	Good	100%
Public Transportation	Transit	Good	96%
Senior Services	Long Term Care	Good	97%
Transportation Services	Road Network	Good	88%
Transportation Services	Active Transportation	Good	100%
Utilities	Combined Sewer Collection System	Good	88%
Utilities	Sanitary Sewer Collection System	Very Good	95%
Utilities	Storm Sewer Collection System	Very Good	96%
Utilities	Water Distribution Network	Fair	84%
Utilities	Wastewater Treatment	Good	93%
Utilities	Water Treatment	Fair	93%

The City's Lifecycle Strategy is the set of planned actions performed on assets to provide LOS in a sustainable way, while managing risk, at the lowest lifecycle cost. The following table summarizes the lifecycle activities the City enacts to continue to maintain service levels to the community.

TABLE 1-3 LIFECYCLE ACTIVITY CATEGORIES AND DESCRIPTIONS

Lifecycle Activity Category	Description
Non-Infrastructure Solutions	Actions or policies that can lower costs or extend asset life.
Operations and Maintenance Activities	Regularly scheduled inspection and maintenance, or repair and activities associated with unexpected events.
Renewal Activities (Rehabilitation)	Significant repairs designed to extend the life of the asset.
Renewal Activities (Replacement)	Activities that are expected to occur once an asset has reached the end of its useful life and renewal/rehabilitation is no longer an option.

Lifecycle Activity Category	Description
Disposals	Activities associated with disposing of an asset once it has reached the end of its useful life or is otherwise no longer needed by the municipality. Costs are typically combined with rehabilitation or replacement activities.
Service Improvement Activities	Planned activities to improve an asset's capacity, quality, and system reliability.
Growth Activities	Planned activities required to extend services to previously un-serviced areas - or expand services to meet growth demands.

Lifecycle models were developed to supplement these lifecycle strategies. These models are mathematical models that enable forecasting of asset renewal needs. The lifecycle models were tied together with the City's risk assessment framework and levels of service measures into a decision support system (DSS) model, which enabled the City to analyze the effect of different funding scenarios on performance. Four scenarios are reported in this AMP:

- **Scenario 1: Anticipated Budget** – Evaluates asset performance under the current 10-year expected expenditures that the City anticipates allocating towards a given asset grouping.
- **Scenario 2: Maintain Current LOS** – This scenario determines the cost that would be required to maintain LOS at current levels over a 10-year forecast period.
- **Scenario 3: Backlog Analysis** – This scenario evaluates the cost to address all asset needs, including existing backlog over a 10-year period.
- **Scenario 4: Proposed LOS** – This scenario was developed based on the evaluation of the first three scenarios to set an appropriate target (Proposed LOS) in consideration of cost, service delivery and risk.

1.3. Financial Strategy

The Asset Management analysis completed to support this AMP culminates with the Financial Strategy. The Financial Strategy is intended to assist the City with integrating asset management planning with financial budgeting.

The Financial Strategy forecasts the required annual expenditures for the City to perform the lifecycle activities in alignment with the lifecycle management strategies to maintain targeted LOS. Those lifecycle activities include:

- Non-infrastructure solutions;
- Renewal Activities (Rehabilitations and Replacements);
- Disposals;
- Service Improvement Activities;
- Growth Activities; and,
- Operations and Maintenance.

Each category includes the City's forecasted expenditures from its capital budget forecast to understand the full cost of maintaining service levels over the 10-year forecast period. Lifecycle activities forecasts will be compared to the capital budget forecasts to determine if an infrastructure gap is present. Strategies to address this gap will also be discussed.

Results from the financial analysis are subdivided into three categories:

- **Taxation:** Includes all asset classes except for Water and Wastewater assets.
- **Water:** Includes Water Distribution Network and Water Treatment assets.
- **Wastewater:** Includes Wastewater Treatment, Combined Sewer, Sanitary Sewer and Storm Sewer Collection System assets.

The summaries of the financial strategy scenarios for the Taxation, Water and Wastewater categories are provided in the following figures.

These figures illustrate the City's asset needs in a bar graph format. They show all forecasted lifecycle activities, and not just renewals. Bars illustrate the costs from the City's 10-year forecasts. The equivalent annual cost of these bars is illustrated as a solid line, labeled Scenario 1: Anticipated Budget, which utilizes the average of the first 3-years of the budget forecast (i.e. the period that the City has the most confidence in). The results of the forecasting scenarios are illustrated as dashed lines on the figure. The figure serves as a means to compare and contrast the scenario results. The equivalent annual costs of the City's anticipated budget (solid line) forecast, as well as other analyzed scenarios (dashed lines) are also plotted to compare and contrast the scenario results. Gaps are visualized by the difference between the City's anticipated budget (solid line), and the various scenarios (dashed lines).

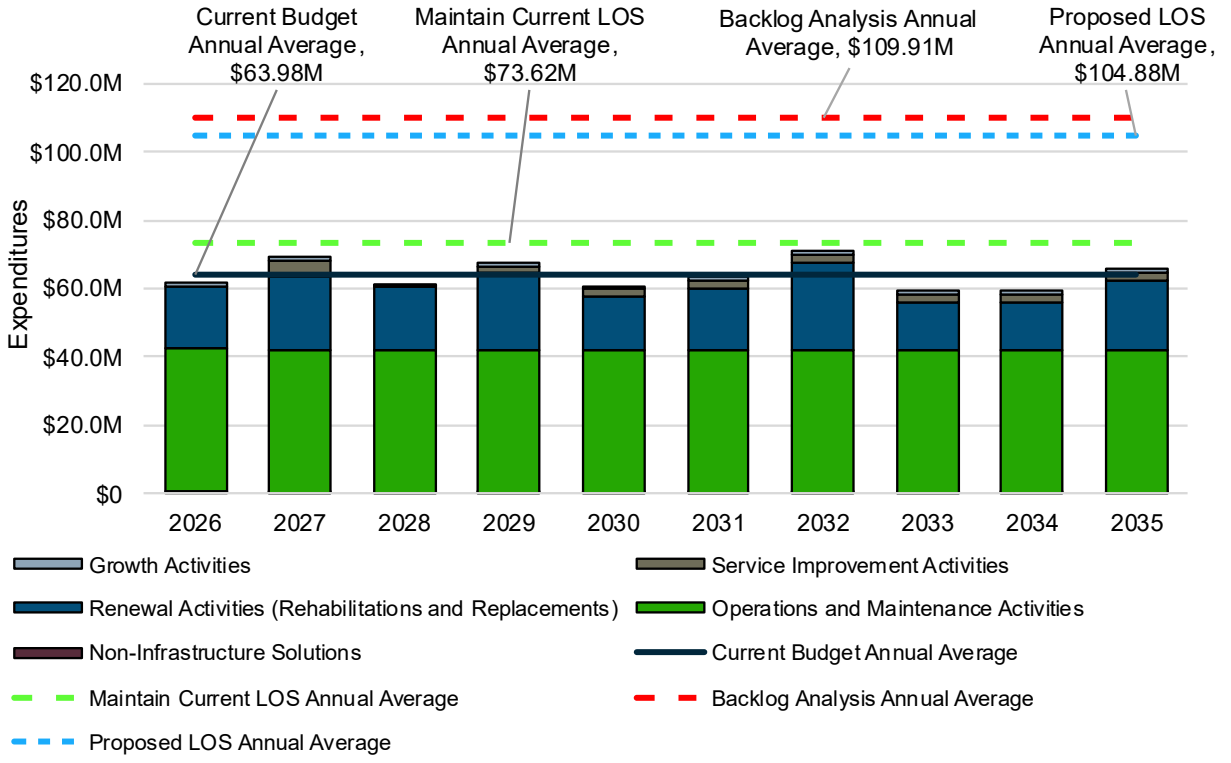


FIGURE 1-3: FINANCIAL FORECAST SCENARIOS SUMMARY – TAXATION

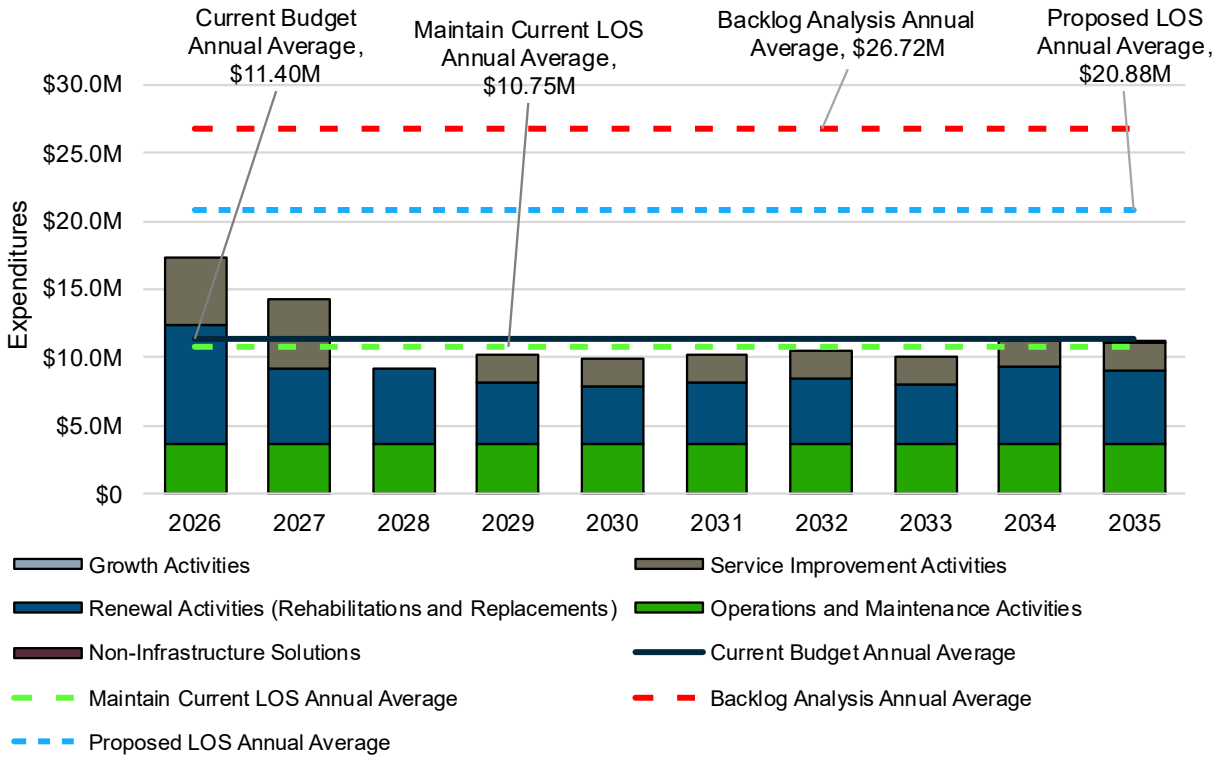


FIGURE 1-4: FINANCIAL FORECAST SCENARIOS SUMMARY – WATER

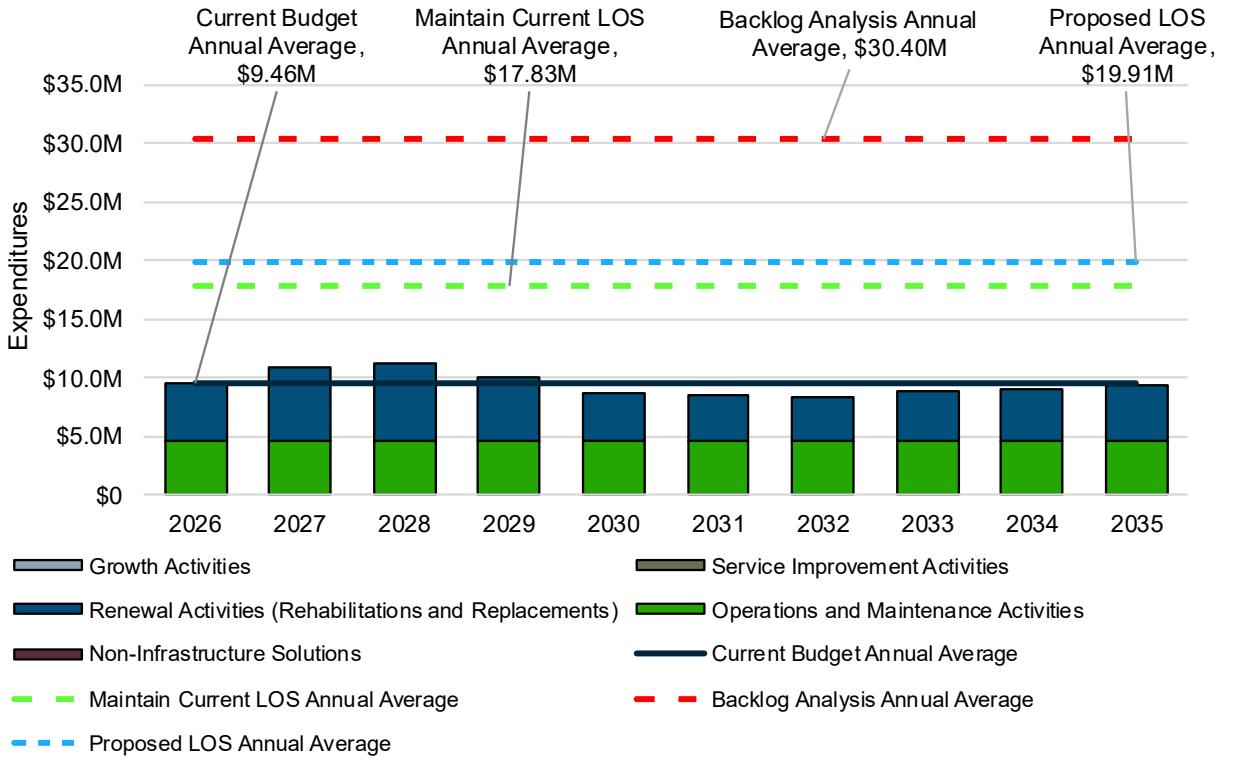


FIGURE 1-5: FINANCIAL FORECAST SCENARIOS SUMMARY – WASTEWATER

These analyses have identified a total annual funding shortfall of **$41.27 million** for the taxation category, **$9.47 million** for the water category; and **$10.45 million** for the wastewater category if the City wants to achieve their target LOS in the next 10 and 25 years.

The analysis was also completed to identify the costs to eliminate all backlog and anticipated future needs over the 10-year analysis period. The results of that analysis identified a total annual funding shortfall of **$45.93 million** for the taxation category, **$15.32 million** for the water category; and **$20.95 million** for the wastewater category.

Strategies to address potential infrastructure funding shortfalls are to increase overall net spending to improve the performance of assets, or to adjust expectations of asset performance. To increase spending, there are several options to consider:

- Modest increases to property taxation and water/wastewater user rates above-baseline revenue increases to fund the infrastructure funding shortfall.
- Seek funding from the Provincial or Federal governments to fund infrastructure. The City has been successful in securing grant funding in the past which has supported funding its backlog; however, it is not typically provided for renewal of assets. The City is hopeful that its past successes in securing grant funding will continue into the future. In fact, the development of this AMP may have a positive impact in the City's ability to secure additional funding. Although grant funding will be helpful, it should not be relied upon by the City, since it is not guaranteed.

- Draw from available reserves. A reserve analysis should be completed to identify the impact of this case. Reserves can assist in balancing shortfalls and excesses.
- Consider debt financing. The City has included anticipated future debt in its long-term financial forecast. Established through its Long-Term Financial Plan, the City practices prudent borrowing. Long-term financing is to be used for only capital projects that involve significant capital dollars (>$2.5M) and have a lifecycle greater than 20 years. Reserve funding based on lifecycle replacement should be considered for funding assets that do not meet these criteria.
- The City can consider allocating to reserves a minimum percentage (guidelines suggest 1.4%-4%) of the current replacement value of an asset to plan and provide for asset renewal over a lifecycle period.

Funding shortfalls may also be reduced by revisiting stakeholder objectives against affordability/willingness to pay. This should be considered in conjunction with an understanding of risks, as proposed investment plans should balance those against affordability and achievability of the City's financial plan.

1.4. Improvement Plan

Ontario Regulation 588/17 encourages municipalities to put an emphasis on a continuous improvement approach to asset management. Ensuring a living document requires monitoring and reporting on the implementation of asset plans to Council and staff.

Nineteen (19) improvement initiatives have been reported in this 2025 AMP. Several of these initiatives were first identified in the City's 2022 Asset Management Plan as well as the 2024 Asset Management Plan. The 2025 AMP provides a status update on those initiatives. Of the 19 initiatives, Table 1-4 summarizes eight (8) that are identified as "Future", meaning that the City has not yet commenced the initiative, or "New", meaning that this initiative was recently identified in the 2025 AMP, and is an initiative that the City should undertake immediately, or the City is anticipating to commence in the near future. The remaining initiatives have either been completed or are ongoing and are not included in Table 1-4 and can be found in Section 17.

TABLE 1-4 IMPROVEMENT PLAN RECOMMENDATIONS – FUTURE AND NEW INITIATIVES

Item	Description	Status
AM-2	Complete an assessment to understand the maturity of the organization's asset management practices. This can be used as a monitoring tool to record continual improvement activities detailed within this improvement plan.	Future
LOS-2	Continue to collect and update data to support future LOS measures that were identified in the City's LOS strategy, for which the City did not have available data to report on in this AMP.	Future
LOS-5	Complete internal and community engagement to ensure that proposed LOS align with the needs of the City and community.	Future
LC-2	Wherever possible, develop lifecycle models based on a review of historical asset data, as opposed to professional judgment.	Future

Item	Description	Status
FS-1	Implement a process to categorize project and budget data by certain attributes to assist in analyses, including asset class (or the City's asset hierarchy), lifecycle activity and other pertinent metrics.	Future
FS-2	Develop a standardized data format, such as a database or controlled data fields, to be able to utilize budget and project data for data analysis.	New
FS-3	Align projects in the capital budget to specific assets using asset IDs. This alignment should be done by asset ID, to better track costs and to compare project costs to renewal needs.	New
FS-4	Integrate AM Financial analysis into annual capital planning to better align asset needs with municipal budgeting	Future

2. Introduction

The City of Cornwall (the City) is a single-tier municipality located on the north shore of the St. Lawrence River. The City has a total land area of 64 square kilometres, where the majority of its 49,200 residents live within a 20 square kilometre urban area.

The City has been practicing asset management for several years through a dedicated group of staff that drive the implementation of Asset Management (AM) within the organization. Since it began its AM journey, the City has taken steps to ensure that asset management planning is integrated with day-to-day operations and decision-making. This has resulted in the development of several AMP documents, including in 2006, 2014, 2016, 2022 and 2024.

In January 2018, the Province of Ontario enacted Ontario Regulation 588/17 Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17). The regulation consists of guidelines and minimum requirements for municipal AMPs and policies in Ontario. In alignment with the regulation, in July 2019, the City adopted an Asset Management Policy that outlines the City's corporate commitment to the adoption of the asset management principles defined in the Infrastructure for Jobs and Prosperity Act, 2015. The Policy also illustrates how that in addition to the regulatory requirements, asset management is critical to support the City's Mission, Vision and Values.

In 2022, the City released its Asset Management Plan for Core Assets, in alignment with the regulation. To further advance the maturity of its AM program, the City issued the 2024 Asset Management Plan (AMP) to meet the 2024 requirements of O. Reg. 588/17. The AMP provided the City's plan to responsibly manage the majority of its non-core assets (and included select core assets), covering a portfolio of approximately $1.27 Billion of assets that provide municipal services that support the well-being of residents and businesses such as, arts and culture, community recreation, emergency services, solid waste management, housing services, and more.

To meet the final 2025 requirements of O.Reg. 588/17, this AMP has been developed to cover all core and non-core assets, with a total infrastructure value of $3.78 Billion. This 2025 AMP was developed through a collaborative effort amongst a range of individuals across the City within the following departments.

- Financial Services;
- Development Services;
- Facilities
- Infrastructure and Municipal Works;
- Cornwall Fire Service;
- Cornwall Police Service;
- Cornwall and SD&G Paramedic Services;
- Cornwall and SD&G Human Services
- Glen Stor Dun Lodge (Long-Term Care)
- Environmental Services – Water Services;
- Environmental Services – Wastewater Services;
- Environmental Services – Waste Management Services; and,
- Cornwall Public Library

These staff members provided data, information, knowledge, and insight to support the analysis for this AMP, as well as leveraging the City's 2019 Asset Management Policy. Furthermore, as part of this project and the requirements of O.Reg 588/17, the City will update its 2019 Asset Management Policy.

2.1. Objectives

This AMP was developed in compliance with O. Reg. 588/17 and the City's 2019 AM Policy. This AMP formally documents the state of infrastructure of in-scope assets. It documents LOS measures being tracked against each service area, lifecycle strategies applied to the assets, and the funding and financial strategy required to balance LOS and reduce risk. This Plan links organizational objectives and the LOS needed to achieve them, the AM activities and processes performed to provide the intended LOS to the community and the cost of implementing those strategies.

2.2. Purpose

The purpose of this AMP is to:

- Ensure that the City responds to current AMP regulatory requirements.
- Provide recommendations to meet future AMP regulatory requirements.
- Support the line of sight between council approved plans and initiatives and asset investment needs.
- Establish an AMP Framework that can be expanded in the future to include additional service areas and asset classes.
- Report on the current state of the City's infrastructure assets.
- Describe current LOS and identify proposed future LOS.
- Detail the current lifecycle management strategies that the city undertakes to maintain assets and minimize the probability of asset failure and loss of service.
- Forecast expenditures required to sustain current LOS for the next 10 years.
- Detail the City's financial strategy to sustain service levels through the management of its assets over the next 10 years.
- Quantify the gap (if any) between planned spending and forecasted expenditures.
- Provide recommendations to continually improve the City's AM practices, and the development of future AMPs.

2.3. Scope

The assets included within the scope of the City's 2025 AMP are illustrated in Figure 2-1. The assets are organized into an asset hierarchy that details the relationship between the assets and the services that they provide. The first two (2) levels of the hierarchy are illustrated in the following figure, which detail the services and subservices. More detailed asset hierarchies showing the asset categories and asset classes are provided in each service area's AMP section (Sections 0 to 0).



FIGURE 2-1: CITY OF CORNWALL ASSET HIERARCHY (SERVICES AND SUBSERVICES)

2.4. Timeframes

This AMP covers planning forecasts for a 10-year time horizon. O. Reg 588/17 requires municipalities to prepare an AMP at least once every five (5) years following the completion of its 2025 AMP. As part of the City's asset management approach, the City endeavors to review its AM practices on a more regular basis to continually assess appropriate levels of service and integrate improved condition assessment strategies so the AMP can be used to support long-term planning.

2.5. AMP Overview

The structure of this AMP is based on the guidelines of the Province of Ontario Guide: Building Together – Guide for Municipal Asset Management Plans. The scope of this AMP covers 9 different services and a total of 18 different subservices.

As part of this AMP development, the City has developed an asset hierarchy to organize its service areas and corresponding assets for reporting purposes in this AMP. An asset hierarchy is used to classify or group assets with similar characteristics or functions. In this AMP the hierarchy also provides the structure at which each of the sections and other major content is organized. The first four (4) levels of the City's asset hierarchy are generally reported in this AMP, and they include:

1. Service – details the major service area and may include one or multiple subservices.
2. Subservice – details the major operating group belonging to a service.
3. Asset Category – major groupings of assets within each subservice that are similar.
4. Asset Class – major grouping of assets that share similar functions.

Sections 0 to 0 within this AMP have been broken out by Service, with the following subsections provided for each Subservice.

1. State of Infrastructure
2. Levels of Service
3. Lifecycle Management Strategy
4. Funding the Lifecycle Activities
5. Findings

In these sections, the results of the AM analysis are reported down to the asset class level. Additional details on what is included in each of these sections is provided in the following subsections. Following these sections, the remaining sections of the AMP apply to all in-scope services/asset classes. These include:

1. Growth Considerations (Section 14)
2. Financial Strategy (Section 15)
3. Risks (Section 16)
4. Improvement Plan (Section 17)

2.5.1. State of the Infrastructure

The State of Infrastructure sections include the following information for each Subservice.

2.5.1.1. Asset Inventory and Valuation

O.Reg. 588/17 requires the City to report on a summary of its assets, as well as their total replacement value. The City's asset inventories supported the asset management and data analysis completed for this AMP. Each Subservice section details the inventories and total quantities of assets, by asset class that are included within this AMP. The AMP was supported by thousands of records of asset inventory data.

The replacement values of the assets are tied to the City's data. As part of the development of the previous 2024 AMP, the City completed building condition assessments of most of its facilities. During that exercise, current replacement costs of the facilities were identified. For assets that were not part of that assessment exercise, replacement costs were derived from existing inventories where available or supplemented by staff knowledge.

2.5.1.2. Age and Estimated Service Life

O.Reg. 588/17 requires the City to report on the average age of its assets. Age was also determined through asset data. By utilizing reported installation/construction dates in the data, the age of assets can be identified.

Of particular note is the methodology that is used to calculate age for an asset that is comprised of several subcomponents, such as a facility. For these types of assets, the average age is established by using a weighted average of the components. These components are weighted by replacement cost. In addition to average age, the average ESL of all assets is also reported. Average ESLs are weighted using the same methodology as age.

It is important to note that age is one indicator of the state of an asset but is not necessarily representative of asset condition or performance. In many cases an asset's age can exceed its service life, but it may still be in good condition and performing adequately.

2.5.1.3. Asset Condition

O.Reg. 588/17 requires the City to report on the condition of its assets, as well as the methodologies that the City utilizes to assess asset condition.

Generally, two methodologies were utilized for assets within the scope of this AMP.

1. **Condition Rating** – Where possible, assets were assigned condition ratings based on inspections or the tracking of known failures (e.g. watermain breaks).
2. **Life Consumed** – In cases where condition data is not available, the asset's age and ESL were used. For these cases, confidence in the actual condition of the asset may be low, since age is not always an indicator or predictor of condition.

Condition categories were assigned to all assets across each service area using a standardized and common 5-point categorical rating scale. Since methods for determining asset condition vary amongst different asset classes, all existing condition scores were converted to the common 5-point

categorical scale to provide a standardized and consistent basis for understanding asset condition. This scale also allows for benchmarking of the results against the values provided within the AMP. It is important to note that a condition category of "Very Poor" is defined as a point where intervention is required to the asset. That means, this value is an indicator that a significant renewal (and associated investment) into an asset is required.

The following table describes the condition rating categories reported in this AMP.

TABLE 2-1 CONDITION CATEGORY SCALE AND DEFINITIONS

Category	Description	Life Consumed
Very Good	Asset is typically new or recently rehabilitated.	0% to 25%
Good	Condition is acceptable, generally in mid stage of service life. Asset may show preliminary signs of deterioration requiring attention or minor maintenance.	25% to 50%
Fair	Assets show general signs of deterioration that require attention and may require immediate maintenance.	50% to 75%
Poor	Asset is below standard condition and approaching the end of its service life. Ongoing monitoring and significant maintenance may be required.	75% to 100%
Very Poor	Asset is at or beyond service life and shows signs of advanced deterioration. Asset may exhibit signs of imminent failure that can affect service or increase risk. Condition may be critical. Extensive monitoring, rehabilitation and/or replacement may be required.	>100%

2.5.1.4. Data Maturity

Data maturity and confidence was assessed as part of the state of the infrastructure exercise. For each asset class, these assessments were made for key data fields required to support the AM analyses in this AMP including asset age, installation date, ESL, condition rating and replacement cost. Data was evaluated with respect to two (2) key evaluation metrics: completeness and confidence. Data completeness represents the percentage of filled records of the aforementioned key data fields. Data confidence refers to the accuracy and consistency of data. Note that the evaluation of data confidence applies to the City's data records only. It represents the City's evolution towards a data-driven analysis of state of infrastructure. In some cases, the City has detailed expert knowledge on the state of its infrastructure but has not recorded asset inventories or some data fields digitally. In these cases, the City might receive confidence scores of "Poor". These scores are not intended to be a reflection of the City's knowledge of its assets, only of the state of the City's data.

The following describes the values for data completeness and confidence, used in the evaluation of data maturity.

TABLE 2-2 DATA COMPLETENESS DEFINITIONS

Value	Description
Good	Most or all key data fields used in the AM analysis were complete
Fair	Some key data fields used in the AM analysis were complete
Poor	Little to no key data fields used in the AM analysis were complete in the provided datasets

TABLE 2-3 DATA CONFIDENCE DEFINITIONS

Value	Description
High	Data is based on sound records, procedures, investigations and analysis, documented properly and recognized as the best method of assessment
Medium	Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example some data is old, some documentation is missing and/or reliance is placed on unconfirmed reports or some extrapolation
Low	Data is based on sound records, procedures, investigations and analysis, documented properly and recognized as the best method of assessment

Data maturity is reported in tables within each Subservice section. The tables also provide commentary to support the data maturity evaluation.

2.5.2. Levels of Service

Levels of Service (LOS) are a measure of the degree to which an asset meets functional or user requirements. Typically, LOS are measured in terms of parameters that reflect social, political, environmental, and economic outcomes that an organization delivers. The LOS are organized into key service attributes that describe the service (for example reliable, quality and safe).

The LOS subsections within this AMP document the established LOS indicators for each service. These LOS were established by the City, however, certain LOS for core assets were prescribed by O. Reg. 588/17.

The City's LOS framework is presented in two tables within this AMP: the Community LOS Table and the Technical LOS Table. Each of these tables follow a slightly different structure but contain common elements that link them together. The structure of each table is as follows:

The Community LOS table consists of the following headings:

1. **Community Measures** identify specific areas of focus that can be measured to support each Subservice. The community measures were developed to identify the way that the community experience each service. They contain the key features of each service that are important to the community and those who experience the service. The Community Measures are linked to the Technical Measures that are provided in the Technical LOS table through the Service Attributes column.

2. **Service Attributes** consist of a phrase or multiple phrases that describe an important characteristic for each Subservice. Examples of Service Attributes include Safe, Reliable, Quality and Environmentally Sustainable. The listed Service Attributes are meant to cover important aspects of the service and be easy for the community/public to understand and recognize. They are linked to the community measures and attempt to describe each of the areas of focus that are related to the Community's experience of the service (i.e., the Community Measure).
3. **Performance** are descriptions that indicate the current performance for each Community Measure for the most recent complete calendar year (which is 2024 at the time of the initial framework development). These descriptions also indicate the future standard of performance that the City wants its infrastructure and services to achieve for each Community Measure. These measures are typically qualitative in nature and are written in language that relates to the community's experience.

The Technical LOS table consists of the following headings:

1. **Performance Measures** identify specific areas of focus that can be measured to support each Service Attribute. One or more performance measures can be listed for each Service Attribute. Each Performance Measure has been developed to be SMART (specific, measurable, achievable, relevant, and time-bound).
2. **Service Attributes** are the same Service Attributes that are listed in the Community LOS table. Where applicable, there are one or technical Performance Measures for each service attribute. As with the Community LOS table, the Service Attributes detail specific characteristics of each subservice that will be measured to support each Subservice.
3. **Assets** detail the applicable assets that each performance measure relates to. Performance measures may relate to one or more assets.
4. **Current Performance** are values that indicate the current performance for each performance measure for the most recent complete calendar year (which is 2024 at the time of the initial framework development). These values are typically quantitative in nature and support the qualitative "Current Performance" value of the community LOS table.
5. **Proposed Performance** are values that indicate the future standard of performance that the City wants its infrastructure and services to achieve for each performance measure.

The primary technical Performance Measure that was used to evaluate asset needs into the future is the "Percentage of Assets in Poor or Better Condition". This performance measure aligns with the City's Condition rating scales (See Table 2-1 for details).

2.5.2.1. Process for Setting Proposed LOS

O. Reg. 588/17 mandates the development of proposed LOS and the estimated costs to achieve them. This allows to the City to develop clear goals for service quality, helps prioritize investments and maintenance, and show the public what improvements will cost to deliver. In order to set proposed LOS with considerations for lifecycle strategies, risk, current condition, community expectations, data reliability, affordability, achievability, compliance and expert recommendations, the following process was completed:

1. Develop LOS metrics (2022 & 2024 AMPs)
2. Determine current performance & lifecycle management strategies (2022 & 2024 AMPs)
3. Conduct lifecycle management forecast to determine cost to maintain current LOS (2022 & 2024 AMPs)
4. Subject Matter Expert recommendations for proposed LOS (2025 AMP)
5. Proposed LOS presented to Council through the 2025 AMP

2.5.3. Lifecycle Management Strategy

The City's Lifecycle Strategy is the set of planned actions performed on assets to provide LOS in a sustainable way, while managing risk, at the lowest lifecycle cost. The Service sections document the specific lifecycle activities, unique to each subservice, that are performed to maintain service levels into the future.

Lifecycle activities are important as they work together to extend the asset life, reduce overall lifecycle costs, and achieve other objectives such as environmental goals and balancing risk. The asset lifecycle activities are detailed according to the categories provided in Table 2-4.

TABLE 2-4 LIFECYCLE ACTIVITY CATEGORIES AND DESCRIPTIONS

Lifecycle Activity Category	Description
Non-Infrastructure Solutions	Actions or policies that can lower costs or extend asset life.
Operations and Maintenance Activities	Regularly scheduled inspection and maintenance, or repair and activities associated with unexpected events.
Renewal Activities (Rehabilitation)	Significant repairs designed to extend the life of the asset.
Renewal Activities (Replacement)	Activities that are expected to occur once an asset has reached the end of its useful life and renewal/rehabilitation is no longer an option.
Disposals	Activities associated with disposing of an asset once it has reached the end of its useful life or is otherwise no longer needed by the municipality. Costs are typically combined with rehabilitation or replacement activities.
Service Improvement Activities	Planned activities to improve an asset's capacity, quality, and system reliability.
Growth Activities	Planned activities required to extend services to previously un-serviced areas - or expand services to meet growth demands.

2.5.4. Funding the Lifecycle Activities

The City has developed a series of lifecycle models, which were tied to asset data. The City's lifecycle models are integrated with the City's Risk Management Strategy and Levels of Service in a decision support system (DSS) model, which allowed the City to run various forecasting scenarios.

The analysis that supports this AMP produced multiple forecasting scenarios, four (4) of which are reported within each Service section. These scenarios provided insight on the City's current renewal status, and the LOS that the City would achieve under various budgetary or condition-based targets. The following are the four (4) scenarios that were analyzed:

- **Scenario 1: Anticipated Funding** – Evaluates asset performance under the current 10-year expected expenditures that the City anticipates to allocate towards a given class. The current budgets were obtained from the City's budget forecast. This is used to illustrate if anticipated funding is adequate to maintain service levels. It is used as a baseline scenario, which can be used to assess the other scenarios analyzed (detailed below).
- **Scenario 2: Maintain Current LOS** – This scenario determines the cost that would be required to maintain LOS at current levels over a 10-year forecast period. It utilizes the existing performance measures of the percentage of assets in poor or better condition as a target to project forward current performance related to service levels. Understanding the cost to maintain LOS at current levels is a requirement of O.Reg. 588/17.
- **Scenario 3: Backlog Analysis** – This scenario evaluates the cost to address all asset needs, including existing backlog over a 10-year period. The purpose of this analysis is to assist the City in understanding backlogs and future asset needs based on lifecycles and can be used as a comparator to anticipated budget and the cost to maintain current LOS scenarios.
- **Scenario 4: Proposed LOS** – This scenario evaluates the proposed performance targets established by the City to achieve over a 10-year period or 25-year period. The City has committed to meet the proposed LOS by the end of 25 years for water treatment, water distribution network, sanitary sewers, traffic management, roadways, and active transportation assets. The proposed LOS for all other asset classes are to be met by the end of 10 years. These proposed performance targets were determined through prior discussions with key stakeholders, review of the current backlog, and an assessment of whether these proposed performance targets are affordable and achievable. This scenario is a requirement of O.Reg. 588/17.

The results of these scenarios helped inform the City's Financial Strategy. These scenarios provided analysis and insight on the City's spending needs with respect to asset renewals (i.e. rehabilitations and replacements). The Financial Strategy goes further and includes costs associated with other lifecycle activities including non-infrastructure solutions, operations and maintenance, service improvement activities and growth activities.

As noted above, the City has completed an analysis of various other scenarios that are not included within this AMP, including scenarios that look beyond the minimum required 10-year forecast period to understand needs beyond the minimum requirements of O.Reg. 588/17.

2.5.5. Findings

The Findings sections provide a short summary of the overall AM analysis for each Subservice's section. This may include findings in overall valuations, age profiles, conditions, LOS performance as well as brief lifecycle modelling and financial scenario results.

3. Alignment with City Goals

The City has developed an AM Framework that illustrates the key AM processes and their integration in the City's AM Program. The City's AM process is illustrated in Figure 3-1.

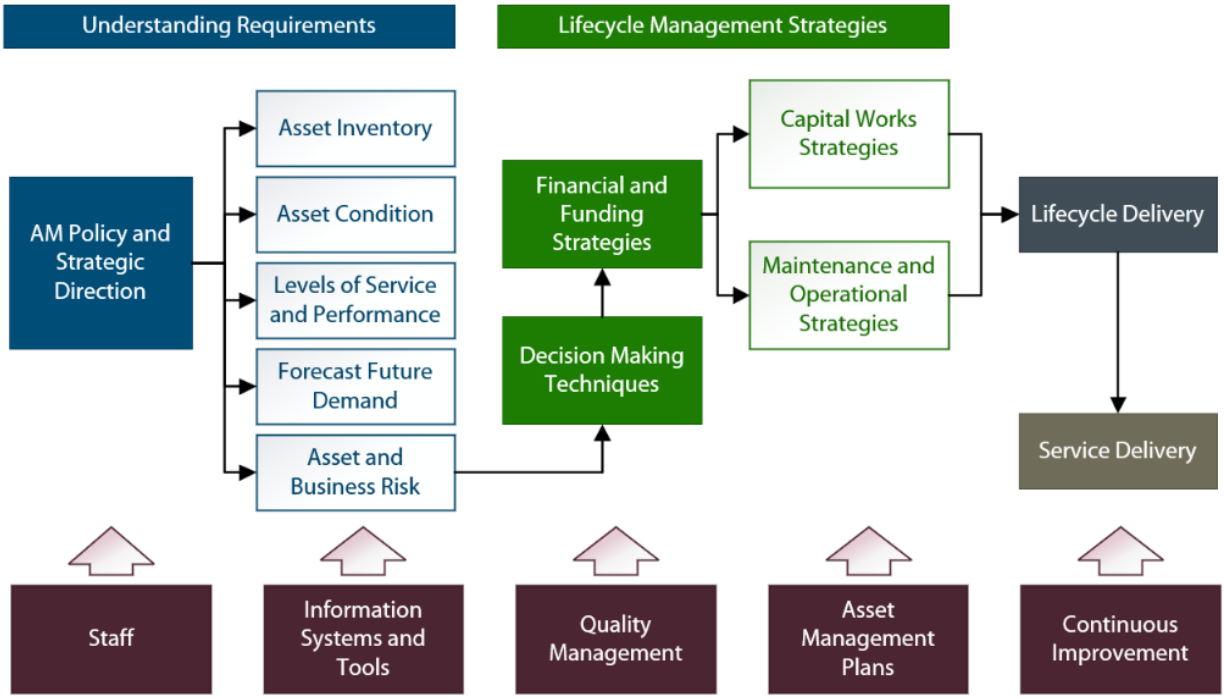


FIGURE 3-1: ASSET MANAGEMENT PROCESS

A key part of asset management within an organization is the concept of an Asset Management System. An AM System is a management system that describes how asset management will be enacted and achieved in the organization. The City's AM system is illustrated in Figure 3-2.

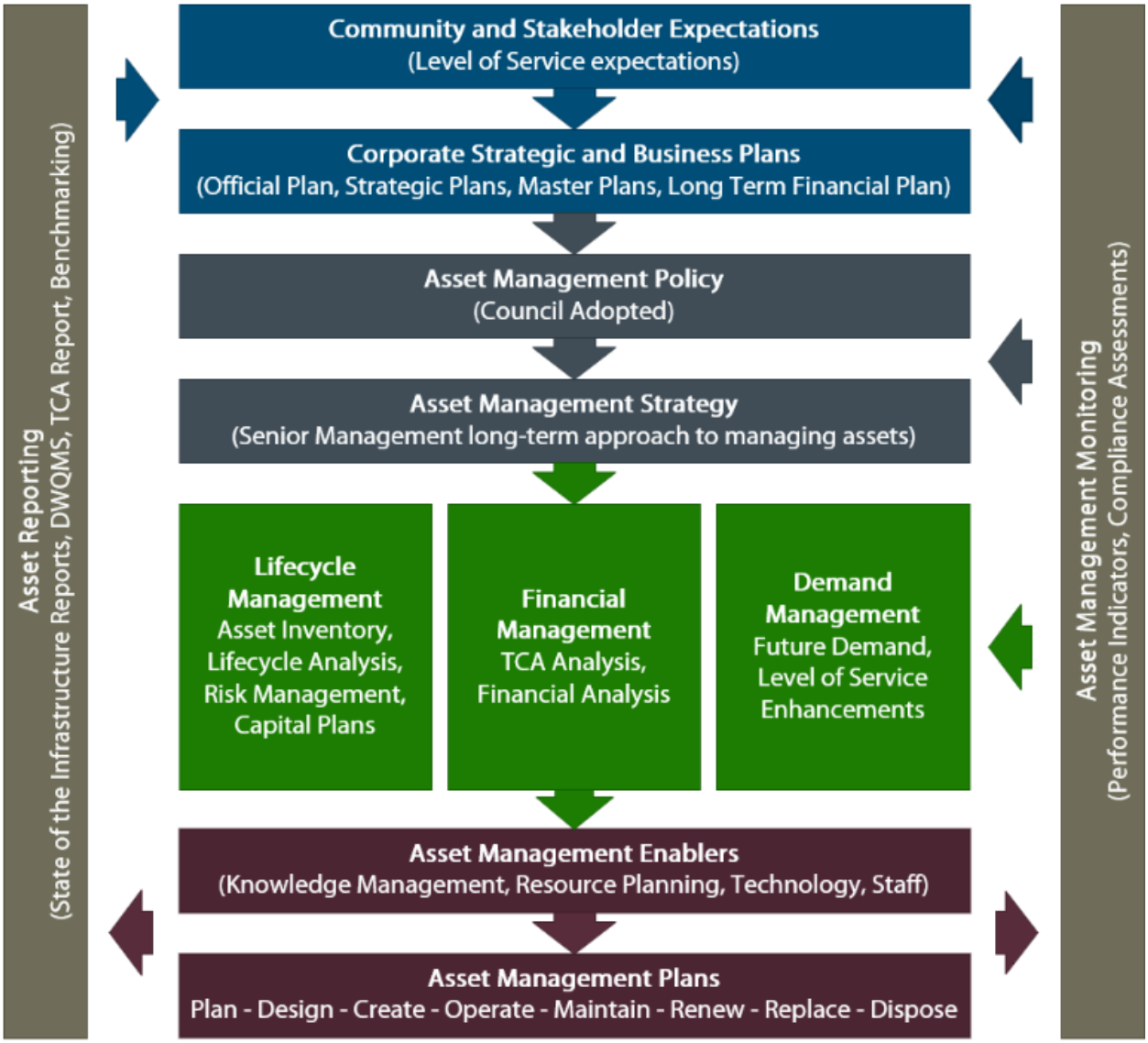


FIGURE 3-2: ASSET MANAGEMENT SYSTEM

Subsections 3.1, 3.2 and 3.3 discuss how this AMP aligns with the City's goals, within the context of its AM framework.

3.1. Alignment with City Strategic Plan

The City's strategic plan sets out its strategic priorities for 2022– 2026. These strategic priorities are:

1. Pillar 1: Housing for All
2. Pillar 2: Community Connections
3. Pillar 3: Achieve Net-Zero by 2050
4. Pillar 4: Cornwall – Future Ready

This AMP has alignment with these priorities. By having a service-centric approach, this AMP focuses on the community's experience of the services provided by the City through its assets. Levels of service have a community-centric focus, as well as an environmental focus in many cases, aligned with

Pillar 3. By ensuring that assets are managed to support services to support the community; the City can ensure that it plans for the future.

Furthermore, this AMP details the financial strategies that the City will enact to provide service levels, including those related to both growth and renewal of assets, in line with pillars 2 and 4.

3.2. Alignment with Asset Management Policy

In 2019, the City finalized their AM Policy with the policy statement to "support the City of Cornwall's commitment of focusing its infrastructure efforts on managing risk, addressing priorities and costs in regard to short and long-term infrastructure needs."

Along with the City's AM Policy, this AMP is a major component in the City's overall AM System. This AMP is aligned with the AM Policy's vision by:

- Providing a service-centric approach to asset management planning.
- Developing standardized and consistent frameworks for understanding LOS, risk and lifecycle strategies.
- Providing the City with the information it needs to make infrastructure investment decisions to balance lifecycles, provide service, prioritize needs and minimize risks at the lowest possible costs.
- Supporting sustainability by taking a risk-centric and full lifecycle approach to financial strategies, lifecycle forecasts and infrastructure investment decisions.
- Providing the information to support prudent financial planning and decision-making.
- Complying with regulatory requirements, including the requirements of O.Reg. 588/17.

Following this 2025 AMP, the City will update and revise its 2019 AM Policy where necessary to ensure its current practices continue to align with the Policy.

3.3. Ontario Regulation 588/17

On January 1, 2018, Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure came into effect. The regulation sets out requirements for municipal asset management planning to help municipalities better understand their infrastructure needs and inform infrastructure planning and investment decisions.

The regulation will be phased in over six years and in 2025 will culminate in the development of an AMP that addresses the future investment needs for all infrastructure assets owned by the City.

Key legislative deadlines for all Ontario municipalities are provided in the following table.

TABLE 3-1: O.REG. 588/17 MILESTONES AND TIMELINES

Date	Milestone	City of Cornwall Status
July 1, 2019	Prepare and publish a strategic Asset Management Policy.	Completed

Date	Milestone	City of Cornwall Status
July 1, 2022	Develop enhanced AMPs that include the cost to maintain current service levels covering core infrastructure assets.	Completed
July 1, 2024	Expand enhanced AMPs that include the cost to maintain current service levels covering all infrastructure assets.	Completed
July 1, 2025	Expand AMPs to provide further details on all infrastructure assets, including proposed service levels and the revenue and expenditure plan to achieve the proposed service levels (if greater than current service levels).	Completed herein
July 1, 2030 and every 5 years onwards	Review and update the AMP to comply with all of the previous requirements and milestones established in O.Reg 588/17.	Ongoing

This AMP has been developed in line with the requirements of O.Reg. 588/17 and meets the requirements for the July 1, 2025 milestone. This AMP addresses these requirements as follows:

- It applies to all of the City's assets that were included in both the City's 2022 AMP and 2024 AMP.
- It details both the current and proposed performances for Community and Technical LOS, as specified in O.Reg. 588/17.
- It includes a summary, replacement costs, average age, and condition.
- It includes a description of the City's approach to assessing the condition of assets.
- It includes a description of the lifecycle activities that need to be undertaken in order to maintain current LOS, as well as risks associated with those activities.
- It includes population and employment forecasts.
- It includes the estimated capital expenditures and operating costs related to the lifecycle activities required to maintain current LOS and accommodate growth.
- It applies a 10-year horizon to these activities and projections.
- It is supported by the best available and most current data that is available at the City.



Arts and Cultural Services

City of Cornwall

Cornwall
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4. Arts and Cultural Services

4.1. Summary

The City of Cornwall provides Arts and Cultural Services that play a vital role in fostering community identity, lifelong learning, creativity, and cultural enrichment. Core services within this category include the City's Library Services and Museum, which serve as key community hubs for education, cultural preservation, and public engagement.

These facilities and the assets that support them—enable access to knowledge, local history, and global perspectives. Library services provide access to literature, digital resources, community learning programs, and spaces for public engagement, supporting literacy, social connection, and innovation. The Museum safeguards Cornwall's cultural heritage by preserving artefacts, documents, and exhibits that illustrate the City's history and its contributions to the region.

An overall summary of the replacement value and condition of the assets within this service (for this 2025 plan) is provided below in Figure 4-1. Subsection 4.2 provides further details on the asset classes within the Library and Museum services. The current list of facilities does not include the highly anticipated Arts Centre which, upon completion, will further enhance the Arts and Culture services offered to residents.



	Replacement Value	Condition
Library Services	$30.4 Million	Good
Museum	$2.3 Million	Good
Arts & Cultural Services Total	$32.8 Million	Good

FIGURE 4-1: ARTS AND CULTURAL SERVICES CONDITION AND REPLACEMENT VALUE SUMMARY

4.2. Library and Museum Services

This section outlines the current state of the infrastructure, levels of service, lifecycle management strategies and the ways the City funds the lifecycle activities in order to provide its library and museum services to the residents of Cornwall. Figure 4-2 shows the asset hierarchy for the Libraries and Museum services.



FIGURE 4-2: LIBRARY AND MUSEUM SERVICES ASSET HIERARCHY



4.2.1. State of Infrastructure

This section outlines the state of infrastructure for Cornwall's library and museum assets. This includes asset inventory and valuation, age and estimated service life, asset condition, data sources and data maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

4.2.1.1. Asset Inventory and Valuation

The replacement cost for the City's libraries and museums asset portfolio is approximately $32.75 million and is summarized in Table 4-1 and Figure 4-3. The analysis in this asset management plan is based on the components of the assets within the facilities, and not the overall facility.

TABLE 4-1: LIBRARY AND MUSEUMS ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Facilities ($32.8M)		
Libraries	1 Facility	$30.44M
Museums	2 Facilities	$2.32M
Total		**$32.75M**

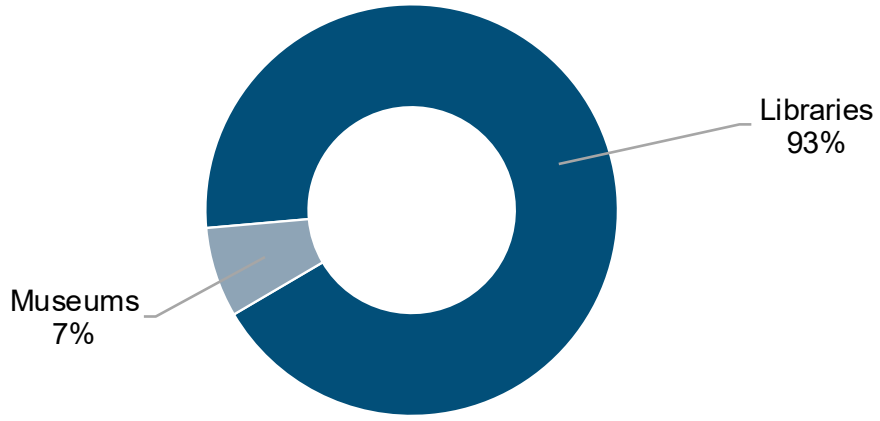


FIGURE 4-3: LIBRARY AND MUSEUMS VALUATION DISTRIBUTION

4.2.1.2. Age and Estimated Service Life

The average age of components of the City's libraries and museums is 33 years old, while the average ESL is 52 years. Figure 4-4 provides a breakdown of the ages by asset class.

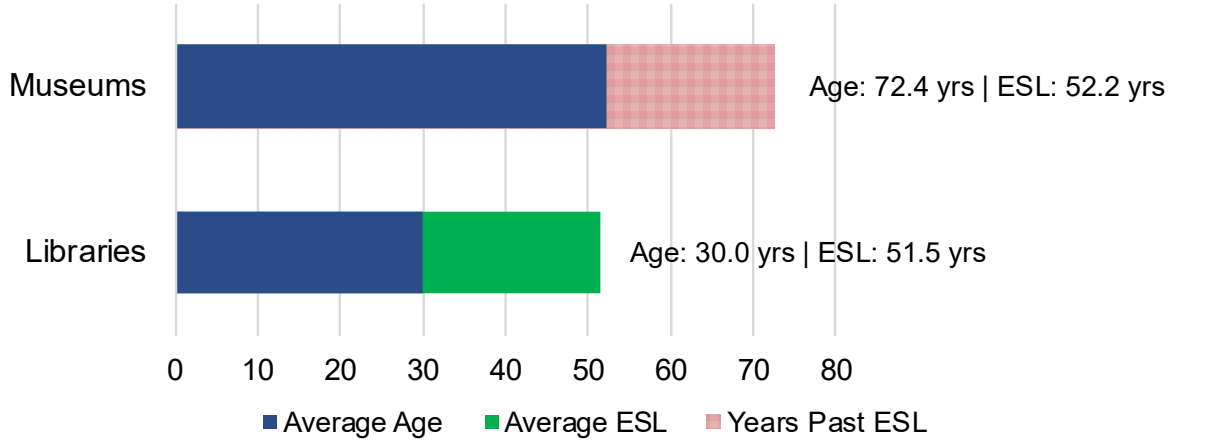


FIGURE 4-4: LIBRARIES AND MUSEUM SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 4-5 captures the installation decades in which the various asset classes were acquired and or installed by the City's libraries and museum services. The installation decades represented in Figure 4-5 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029).

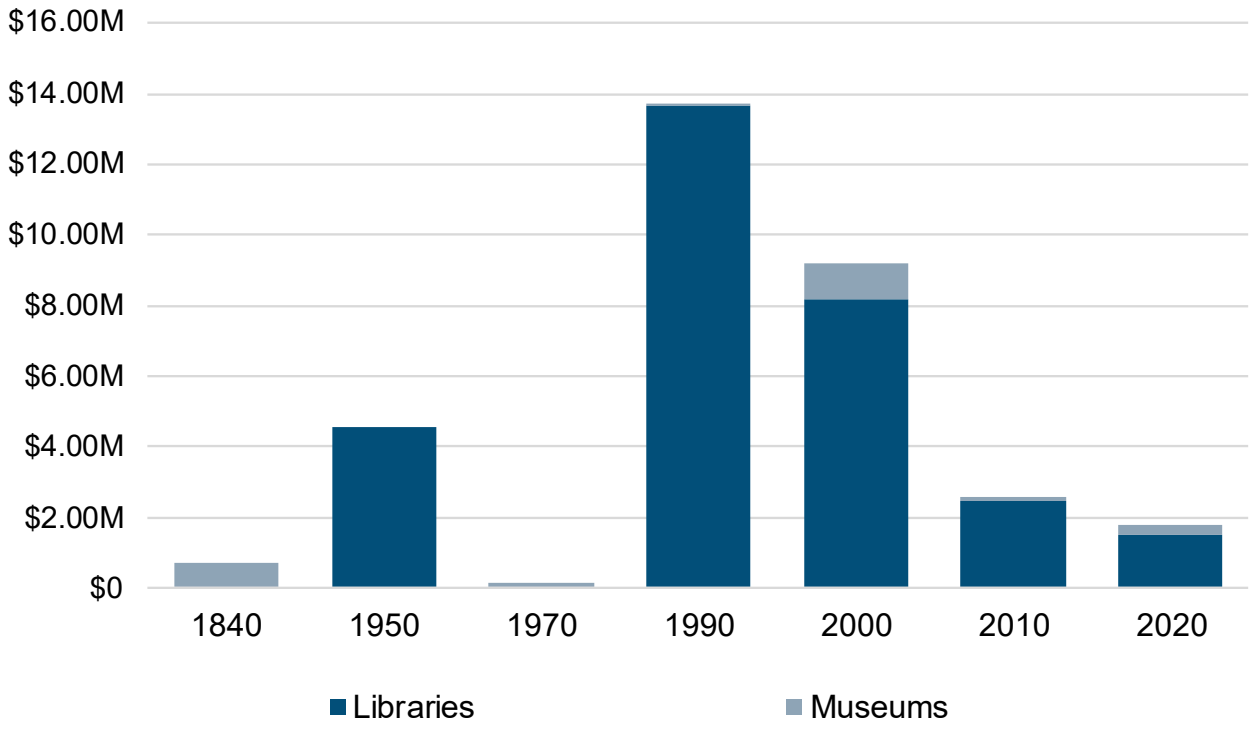


FIGURE 4-5 LIBRARIES AND MUSEUM INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

During the 1950s, the City constructed its library, followed by substantial additions from the1990s and 2000s. With the average age of the City's libraries and museum assets being 33 years old and the average ESL of 50 years, a bulk of renewals and rehabilitations are likely to be due in approximately 17 years.

4.2.1.3. Asset Condition

The City has recently completed building condition assessments (BCAs) of the majority of its facilities in preparation for this Asset Management Plan. The BCA study identified current and future needs for all building elements within the City's facilities. Each facility element was given a condition rating based on remaining life, current state and functionality, based on expert opinion. These factors make up the condition ratings outlined for facility elements, found in Table 4-3.

Table 4-2 and Table 4-3 provide a summary of the approaches used to collect data and assess condition of the City's Arts and Cultural Services assets.

TABLE 4-2: LIBRARIES AND MUSEUMS ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• **Libraries** • **Museums**	Building Condition Assessments	Every 5-years (min)

TABLE 4-3: LIBRARIES AND MUSEUMS ASSETS CONDITION RATINGS

Category	Libraries and Museums (Facility Element Condition)
Very Good	1
Good	2
Fair	3
Poor	4
Very Poor	5

Overall, the City's library and museums are in good condition. Majority of assets are in Good, followed by Very Good and Fair condition, resulting in an average condition of "Good". A breakdown of the libraries and museums condition profile as a whole can be found in Figure 4-6.

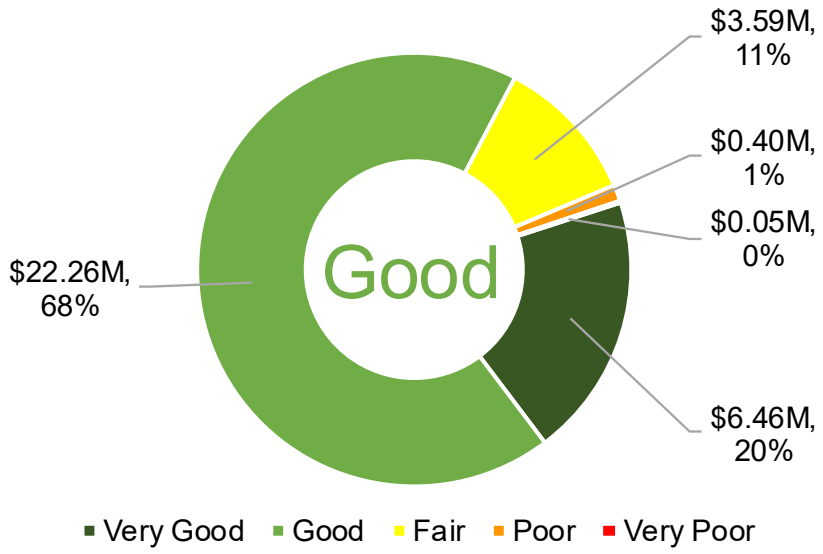


FIGURE 4-6: ARTS AND CULTURE NETWORK CONDITION SUMMARY

A breakdown of each asset classes' condition profile within the asset portfolio can be found in Figure 4-7. Currently, museums have a small portion of assets that will need to be addressed soon, with the rest of assets being in Very Good to Fair condition. Like museums, library assets are overall in a state of good repair, with a small fraction that needs to be addressed currently and some that will be due soon.

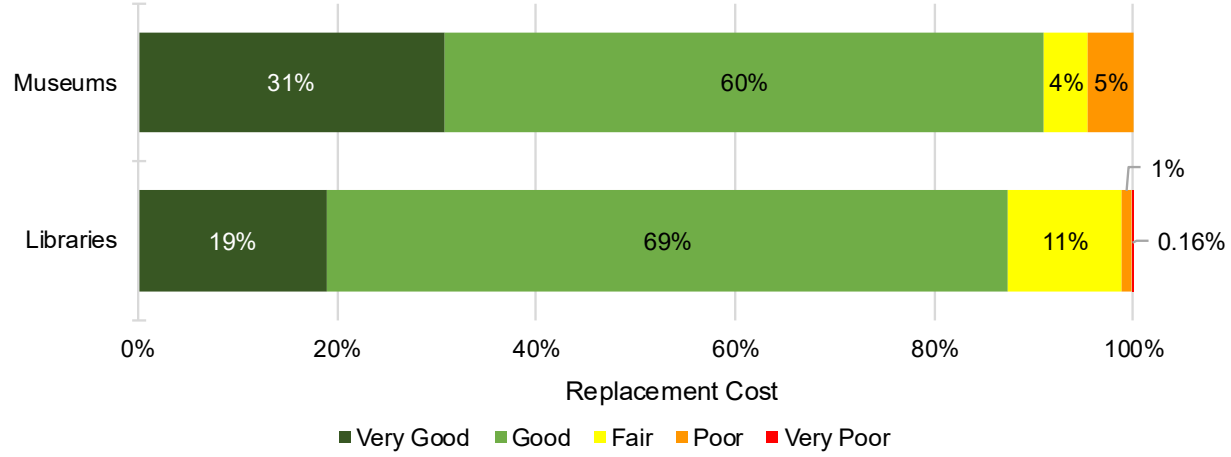


FIGURE 4-7: LIBRARIES AND MUSEUMS CONDITION DISTRIBUTION BY ASSET CLASS

4.2.1.4. Data Sources and Maturity

Table 4-4 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 4-4: LIBRARIES AND MUSEUM DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Library	Good	High	The City's library was assessed in 2024, which provided the City with a complete and high confidence dataset.
Museums	Good	High	The City's museums were assessed in 2024, which provided the City with a complete and high confidence dataset.

4.2.2. Levels of Service

The City's Library and Museums aim to provide spaces where the community can learn, gain knowledge and consume information. These services contribute to a vibrant and welcoming community, ensuring that current and future generations can explore, learn, and connect through arts, culture, and shared history. To achieve this, the service is measured by reliability, safety and accessibility.

Community and technical levels of service can be found in Table 4-5 and Table 4-6 on the following pages.

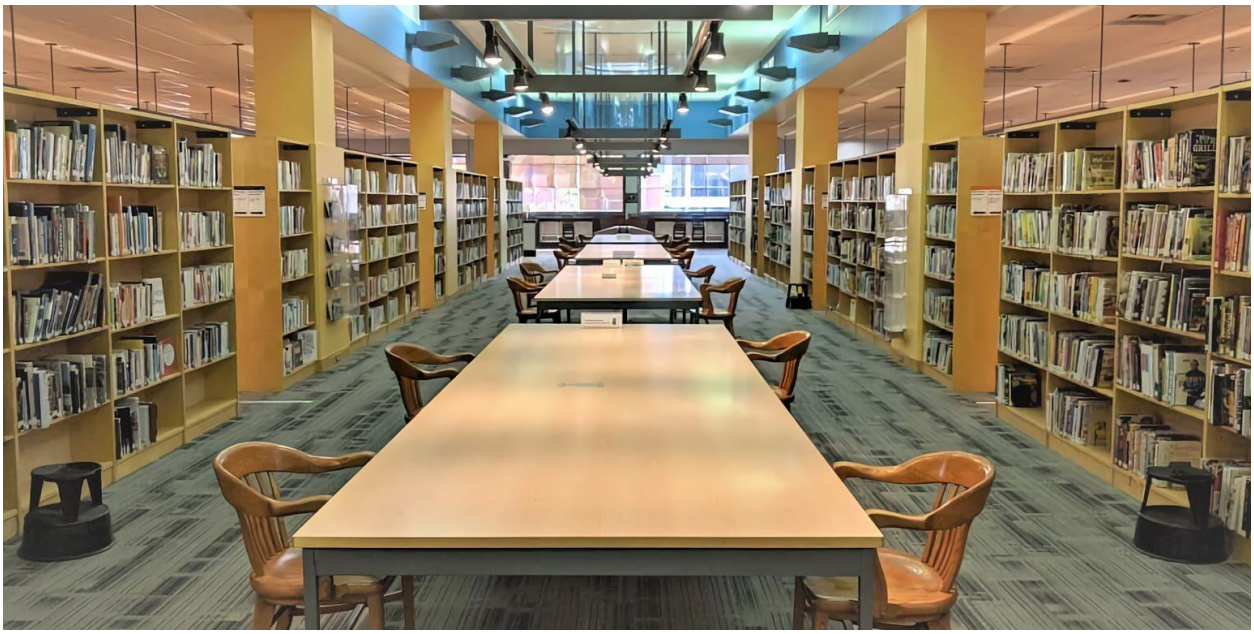


TABLE 4-5: LIBRARIES AND MUSEUM COMMUNITY LEVELS OF SERVICE

Community Measures	Performance
Service Attributes: **Safe; Reliable**	
Library/Museums are open as required, safe for occupants and clean.	Libraries continue to function as post disaster buildings and they are open for emergency use, such as in heat waves. They will also remain available to support programming and other functions.
Service Attributes: **Accessible**	
Library/Museums are accessible by all types of users.	The City will be commissioning an accessibility audit, which will define needs and targets and make facilities accessible when opportunities arise (retrofits, etc.). All new libraries are constructed to the latest Accessibility for Ontarians with Disabilities Act (AODA) standards and the City will continue to improve accessibility where the opportunities arise.

TABLE 4-6: LIBRARIES AND MUSEUMS TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of Library facility components in poor or better condition	Library	99%	Maintain
Percentage of Museum facility components in poor or better condition	Museums	100%	Maintain

4.2.3. Lifecycle Management Strategy

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's libraries and museums and the assets they're responsible for. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery. Effective management and upkeep of these cultural assets ensures that residents and visitors continue to benefit from accessible, meaningful, and diverse cultural experiences. Ongoing investment in building infrastructure, technology, collections management, and public programming helps the City preserve its heritage, promote inclusivity, and strengthen civic pride—while supporting tourism, community development, and overall quality of life.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship. Table 4-7 summarize the various lifecycle activities that the City undertakes to ensure that its libraries and museums continue to support the services they provide.





TABLE 4-7: LIFECYCLE ACTIVITIES – LIBRARIES AND MUSEUMS FACILITIES

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Building condition assessment program	Every 5-years (min)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Major equipment or structural building component replacement	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new facilities in new subdivisions or expansion of existing facilities to accommodate for increased demand and population growth.	As identified through growth and development studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

4.2.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 4.2.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 4-7. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's Financial Strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 4-8, Figure 4-9, Figure 4-10 and Figure 4-11 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

Using the budget analysis and the outputs from the scenario forecasts, the City was able to compare the different spending levels to achieve the outcomes for all other scenarios. Table 4-8 provides an average annual spend by lifecycle activity category for the next 10 years that the City anticipates spending on its Arts and Cultural assets, as well as the investment requirements for the other forecasted scenarios. This allowed the City to understand the funding gaps between the different scenarios and begin thinking about ways to close these gaps and propose targets where necessary.

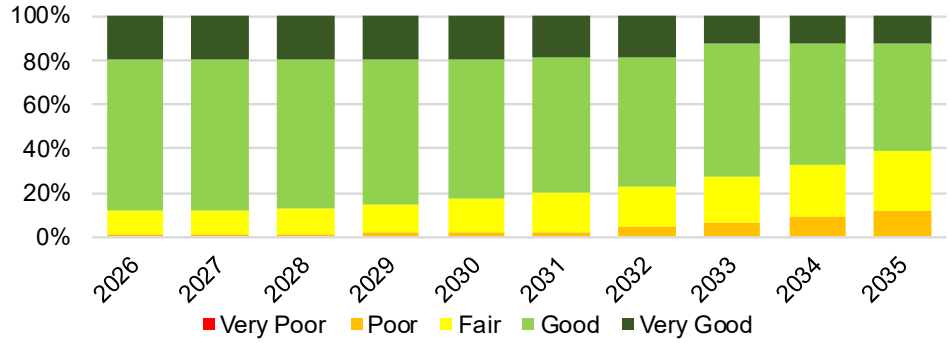


FIGURE 4-8: ARTS AND CULTURE ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

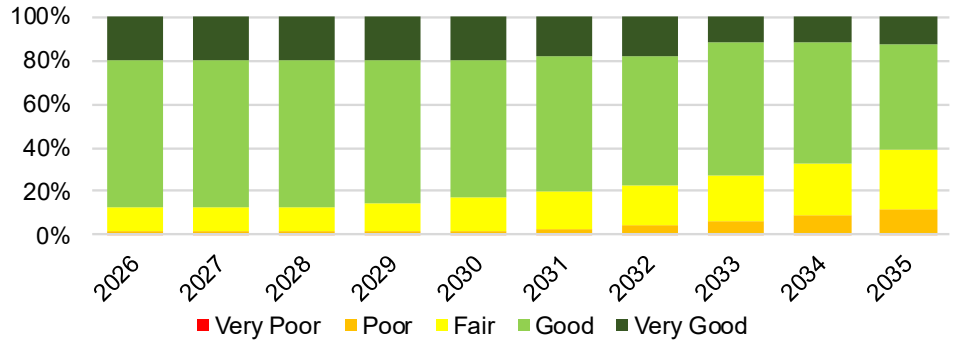


FIGURE 4-9: ARTS AND CULTURE MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

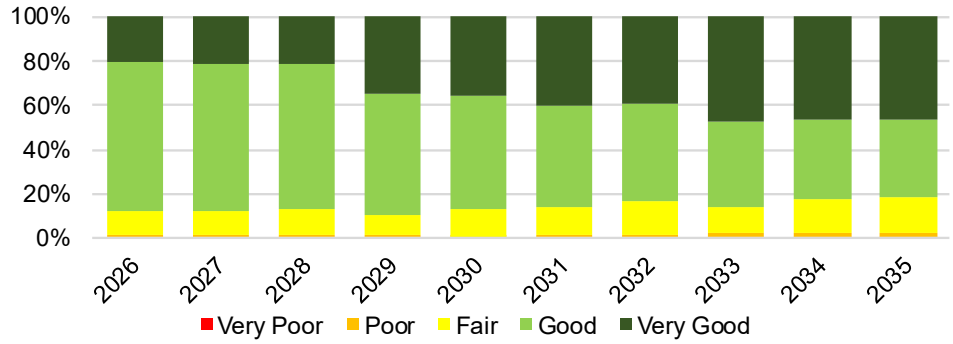


FIGURE 4-10: ARTS AND CULTURE BACKLOG SCENARIO PERFORMANCE FORECAST

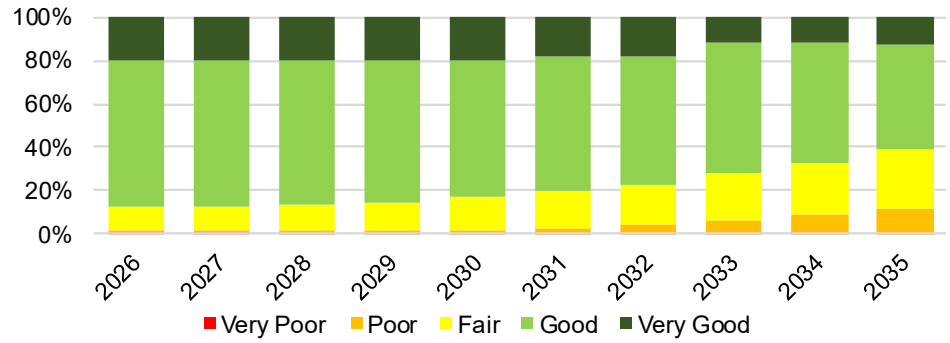


FIGURE 4-11: ARTS AND CULTURE PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 100% of the City's Arts and Cultural assets meet the LOS of being in poor or better condition. Under the current anticipated capital budget of $0.40 million annually in renewals for the next 10 years the libraries and museums portfolio is expected to maintain in overall level of service, resulting in 100% of assets meeting the LOS of assets in poor or better condition. To maintain this portfolio of 100% of assets meeting LOS, it was determined the City would need to spend an annual average of $0.09 million in renewals. To eliminate all the backlog in libraries and museums, and to keep 100% of assets in poor or better condition, it would cost an average annual of $0.61 million in renewals according to the Backlog Analysis. Using the results of the scenarios as well as analyzing the capital budget for the next 10 years, the City determined that it would propose to maintain its current service levels.

Table 4-8 and Figure 4-12 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for libraries and museums assets.

TABLE 4-8: LIBRARIES AND MUSEUMS BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$2.41M	$2.41M	$2.41M	$2.41M
Service Improvements	$0	$0	$0	$0
Growth Activities	$0	$0	$0	$0
Renewal & Replacement	**$0.40M**	**$0.09M**	**$0.61M**	**$0.09M**
Total Lifecycle Expenditures	**$2.81M**	**$2.50M**	**$3.02M**	**$2.50M**
Total Infrastructure Gap		**No Gap**	**$0.21M**	**No Gap**

The analysis shows that the City's anticipated budget for this service area is largely aligned with the funding required to maintain the current and proposed LOS. Annual lifecycle expenditures under the anticipated budget total approximately $2.81 million. There is currently no gap to maintain the assets at the current LOS which the City has determined as the proposed LOS.

The bars on the Figure 4-12 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

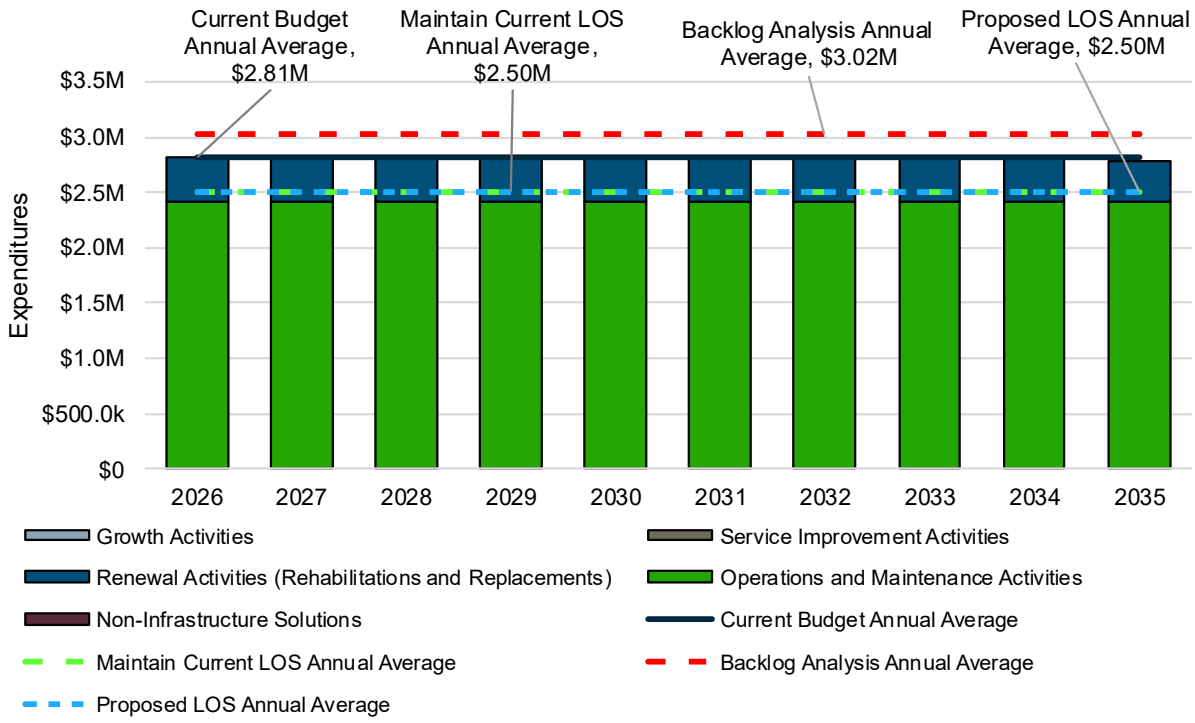


FIGURE 4-12: LIBRARIES AND MUSEUMS SCENARIO ANALYSIS SUMMARY

While there is currently no funding gap to support either the existing or proposed levels of service, it is recommended that the City continue to review and refine the data from the BCA. Ongoing updates will help ensure the information remains accurate and valuable for informed decision-making and future planning initiatives.

4.2.5. Findings

Overall, the City maintains its arts and cultural assets in good condition, with 100% of assets meeting the LOS threshold of being in poor or better condition. With the recent BCA completed on the City's facilities, data completeness and confidence is high for libraries and museums. The City should continue to maintain and update its BCA data as work is completed on its Arts and Cultural facilities and subsequently as condition changes for their respective components.

The results of the 10-year forecasts indicate that the City's current anticipated budget is sufficient to maintain service levels over the forecasting period. Thus, to balance cost, risk and levels of service, the City proposed to maintain current service levels since its budget will allow it to do so.



Community Recreation

City of Cornwall

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5. Community Recreation

5.1. Summary

The City of Cornwall's Community Recreation Service encompasses the delivery of Parks and Recreation programs, and public spaces that support active lifestyles, community connection, and overall well-being. These services play a vital role in enhancing quality of life by offering residents and visitors diverse opportunities to enjoy the outdoors, participate in organized and casual recreational activities, and access safe, inclusive, and vibrant community spaces.

Assets within this service area include parks, trails, playgrounds, sports fields, waterfront amenities, and related infrastructure. These spaces enable a range of activities such as sports, cultural programming, fitness and wellness programs, leisure play, community gatherings, and passive recreation. Together, they contribute to a healthy, connected, and active community, while supporting tourism, environmental stewardship, and economic development.

An overall summary of the replacement value and condition of the assets within this service (for this 2025 plan) is provided below in Figure 5-1. Subsection 5.2 and Subsection 5.3 provide further details on the asset classes within the Community Recreation service.

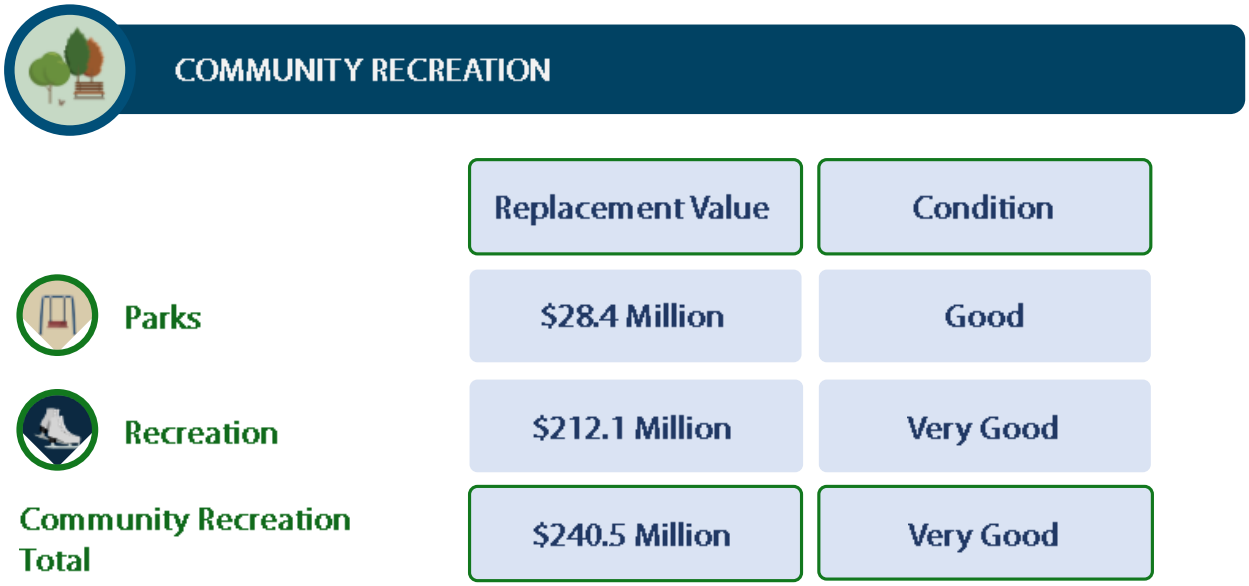


FIGURE 5-1: COMMUNITY RECREATION CONDITION AND REPLACEMENT VALUE SUMMARY

5.2. Parks

This section outlines the current state of the infrastructure, levels of service, lifecycle management strategies and the ways the City funds the lifecycle activities in order to provide its parks services to the residents of Cornwall. Figure 5-2 shows the asset hierarchy for the City's parks, while Figure 5-3 captures the locations of Municipal owned and operated parks.

Parks

Aesthetic Features
- Clock Tower

Facilities
- Maintenance Workshop
- Marina Dock walls
- Shed

Fleet & Equipment
- Machinery

Linear Infrastructure & Utilities
- Fencing, Lights, Recreational Pathways

Recreational Amenities
- Ball Field
- Band Shell
- Furnishing
- Parks
- Playgrounds
- Pool
- Pool House
- Skateboard Parks
- Splash Pad Building
- Tennis Court
- Washroom

FIGURE 5-2: PARKS ASSET HIERARCHY

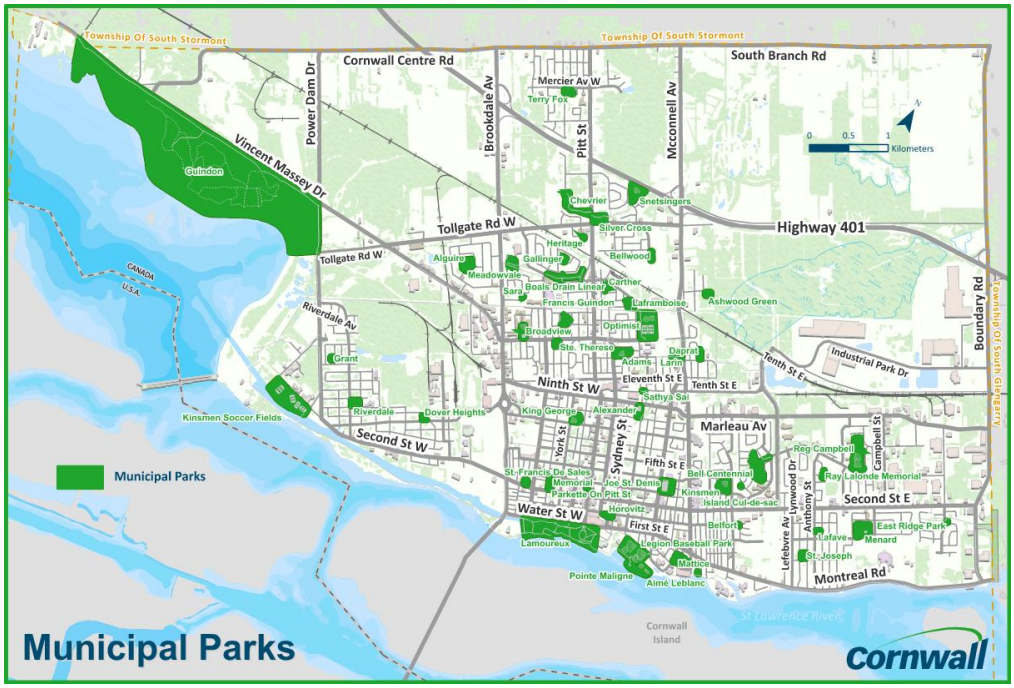


FIGURE 5-3: MAP OF THE CITY'S PARKS

5.2.1. State of Infrastructure

This section outlines the state of infrastructure for Cornwall's parks assets. This includes asset inventory and valuation, age and estimated service life, asset condition, data sources and data maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

5.2.1.1. Asset Inventory and Valuation

The replacement cost for the City's parks asset portfolio is approximately $28.44 million and is summarized in Table 5-1 and Figure 5-4.

TABLE 5-1: PARKS ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Aesthetic Features ($0.33M)		
Clock Tower	1 Assets	$0.33M
Facilities ($3.39M)		
Maintenance Workshop	1 Facility	$1.41M
Marina	1 Facility	$1.54M
Marina Dock Walls	2 Assets	$0.12M
Shed	2 Facilities	$0.32M
Linear Infrastructure and Utilities ($3.90M)		
Fencing	8 Assets	$2.64M
Lights	70 Assets	$1.26M
Recreational Amenities ($20.81M)		
Ball Field	7 Assets	$0.14M
Band Shell	54 Elements	$1.77M
Furnishing	123 Assets	$0.55M
Parks	9 Facilities	$0.10M
Playground	73 Assets	$5.06M
Pool	1 Asset	$2.11M
Pool House	5 Facilities	$7.99M
Skateboard Parks	2 Facilities	$0.16M
Splash Pad Building	2 Facilities	$1.00M
Tennis Court	8 Facilities	$0.28M
Washroom	202 Assets	$1.65M
Total		**$28.44M**

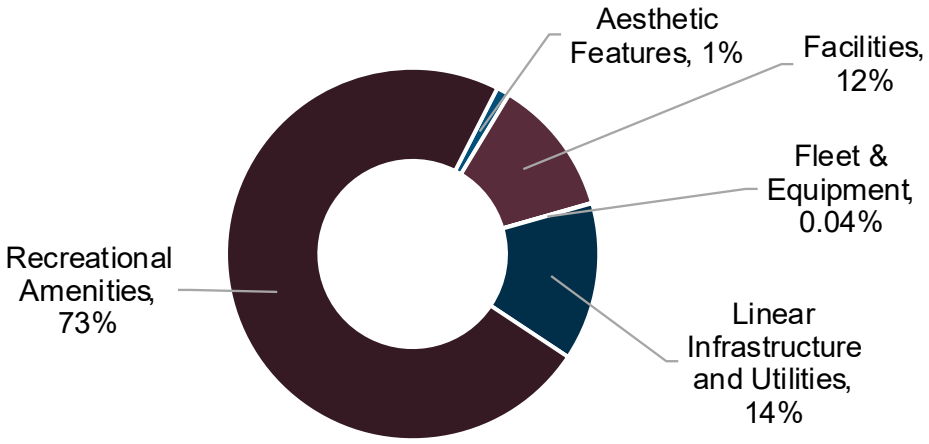


FIGURE 5-4: PARKS VALUATION DISTRIBUTION BY ASSET CATEGORY

5.2.1.2. Age and Estimated Service Life

The average age of the City's parks assets is 33 years old, while the average ESL is 41 years. Figure 5-5 provides a breakdown of the ages by asset class.

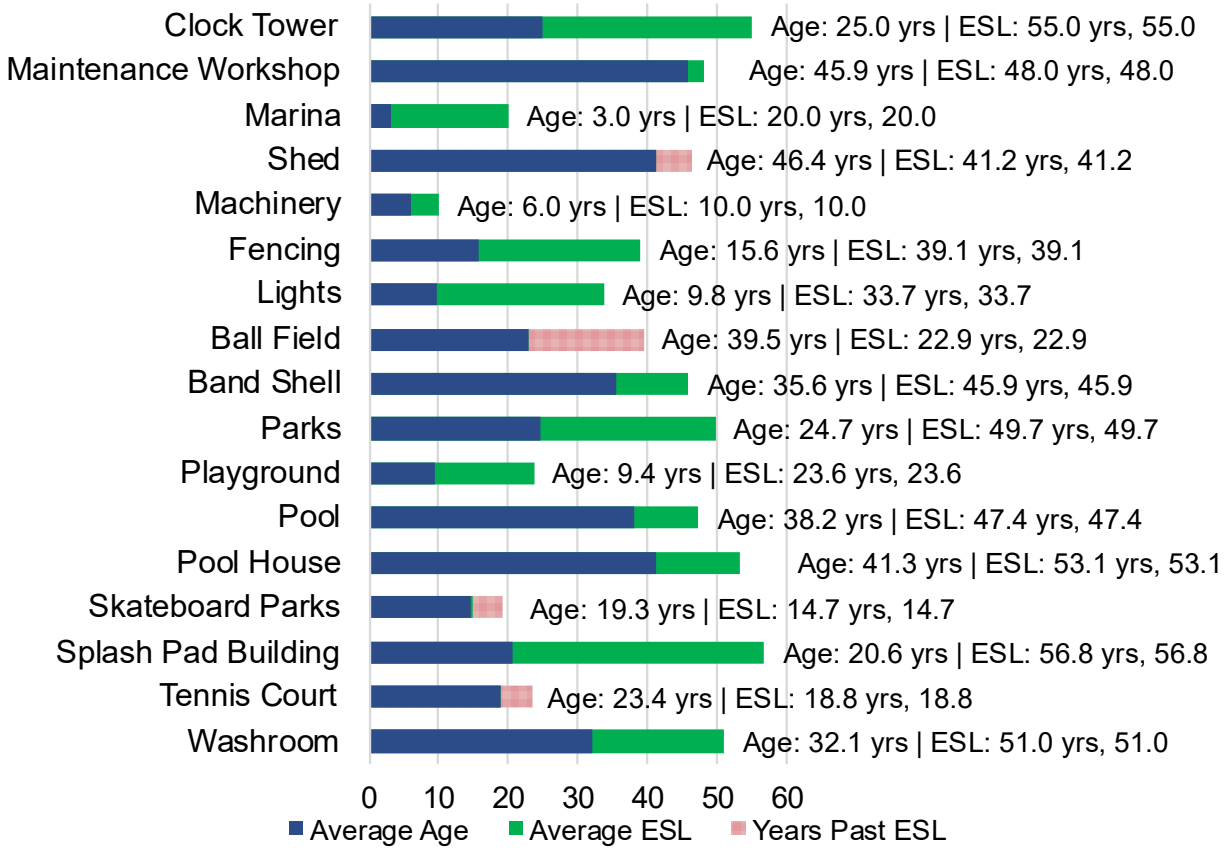


FIGURE 5-5: PARKS SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 5-6 captures the installation decades in which the various asset classes were acquired and or installed by the City's Parks services. The installation decades represented in Figure 5-6 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029).

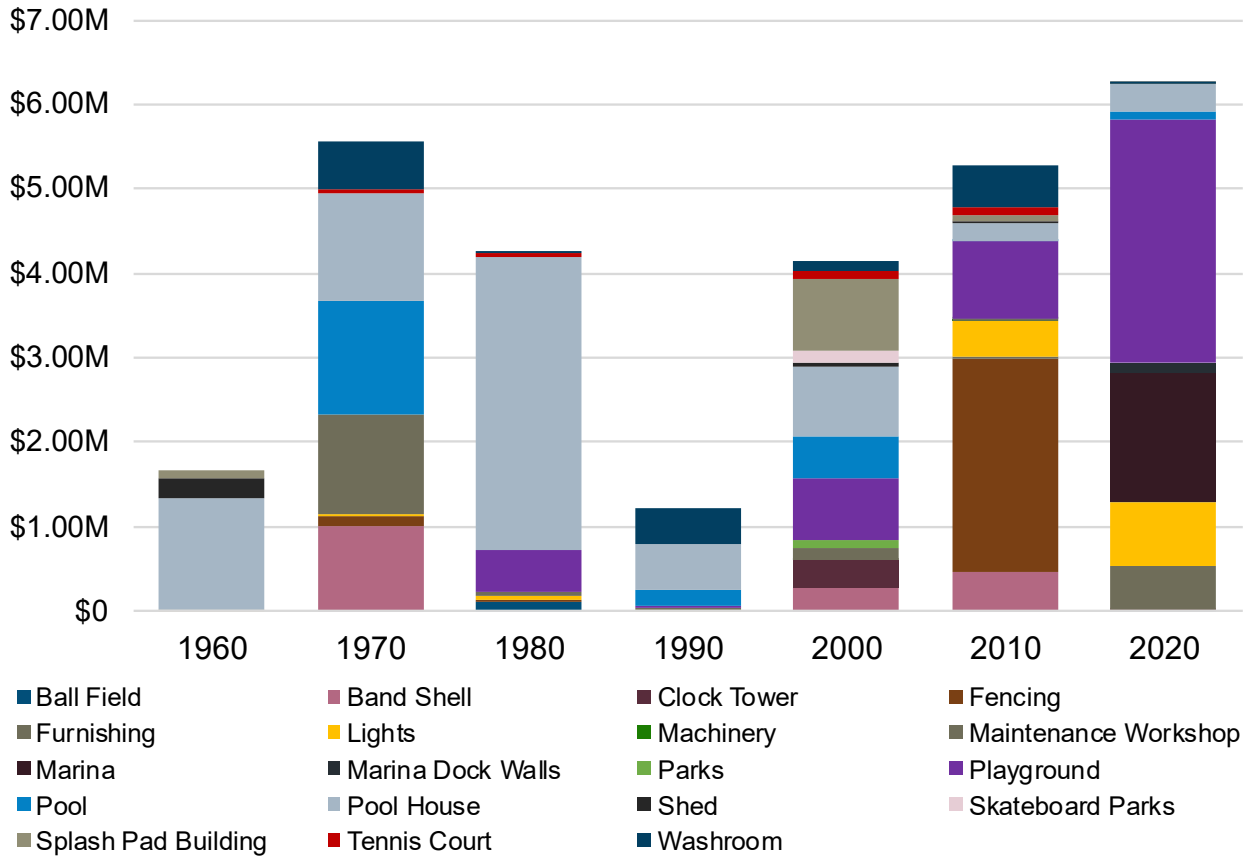


FIGURE 5-6 PARKS ASSETS INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

During the 1970s and 1980s, the City greatly expanded its parks portfolio, with substantial additions from the 2000s to the 2020s. With the average age of the City's Parks assets being 27 years old and the average ESL of 41 years, a bulk of renewals and rehabilitations are likely to be due in approximately 14 years.

5.2.1.3. Asset Condition

The City has recently completed building condition assessments (BCAs) on the majority of its facilities in preparation for this Asset Management Plan. The BCA study identified current and future needs for all building elements within the City's facilities. Each facility element was given a condition rating based on remaining life, current state and functionality, based on expert opinion. These factors make up the condition ratings outlined for facility elements, found in Table 5-3.

For fleet, equipment and other assets, the City bases its understanding of asset needs on remaining service life. This metric was provided by City staff and represents the City's experts best understanding of the approximate timing that asset replacement is required.

Table 5-2 and Table 5-3 provide a summary of the approaches used to collect data and assess condition of the City's parks assets.

TABLE 5-2: PARKS ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• Facilities	Building Condition Assessments	Every 5-years (min)
• Aesthetic Features • Fleet and Equipment • Linear Infrastructure and Utilities • Recreational Amenities	Assets are reviewed by subject matter experts and assigned a remaining life, based on visual assessments. Where this wasn't possible, condition was understood by asset age and life consumed.	Annually, or as deemed appropriate by subject matter experts.

TABLE 5-3: PARKS ASSETS CONDITION RATINGS

Category	Facility Element Condition	Aesthetic Features, Fleet and Equipment, Linear Infrastructure and Utilities, Recreational Amenities (Remaining Life)	Life Consumed
Very Good	1	100% - 75%	0% - 25%
Good	2	75% - 50%	25% - 50%
Fair	3	50% - 25%	50% - 75%
Poor	4	25% - 0%	75% - 100%
Very Poor	5	< 0%	> 100%

Overall, the City's parks are in good condition. Majority of assets are in Very Good and Good condition, followed by Fair, Poor and Very Poor condition, resulting in an average condition of "Good". A breakdown of the parks condition profile is provided in Figure 5-7. A breakdown of each asset classes' condition profile within the asset portfolio can be found in Figure 5-8.

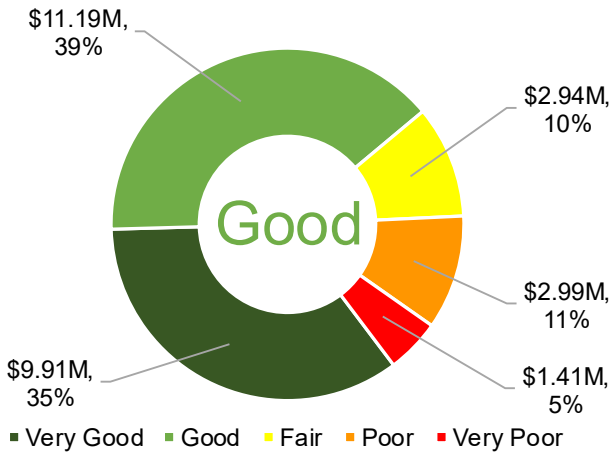


FIGURE 5-7: PARKS NETWORK CONDITION SUMMARY

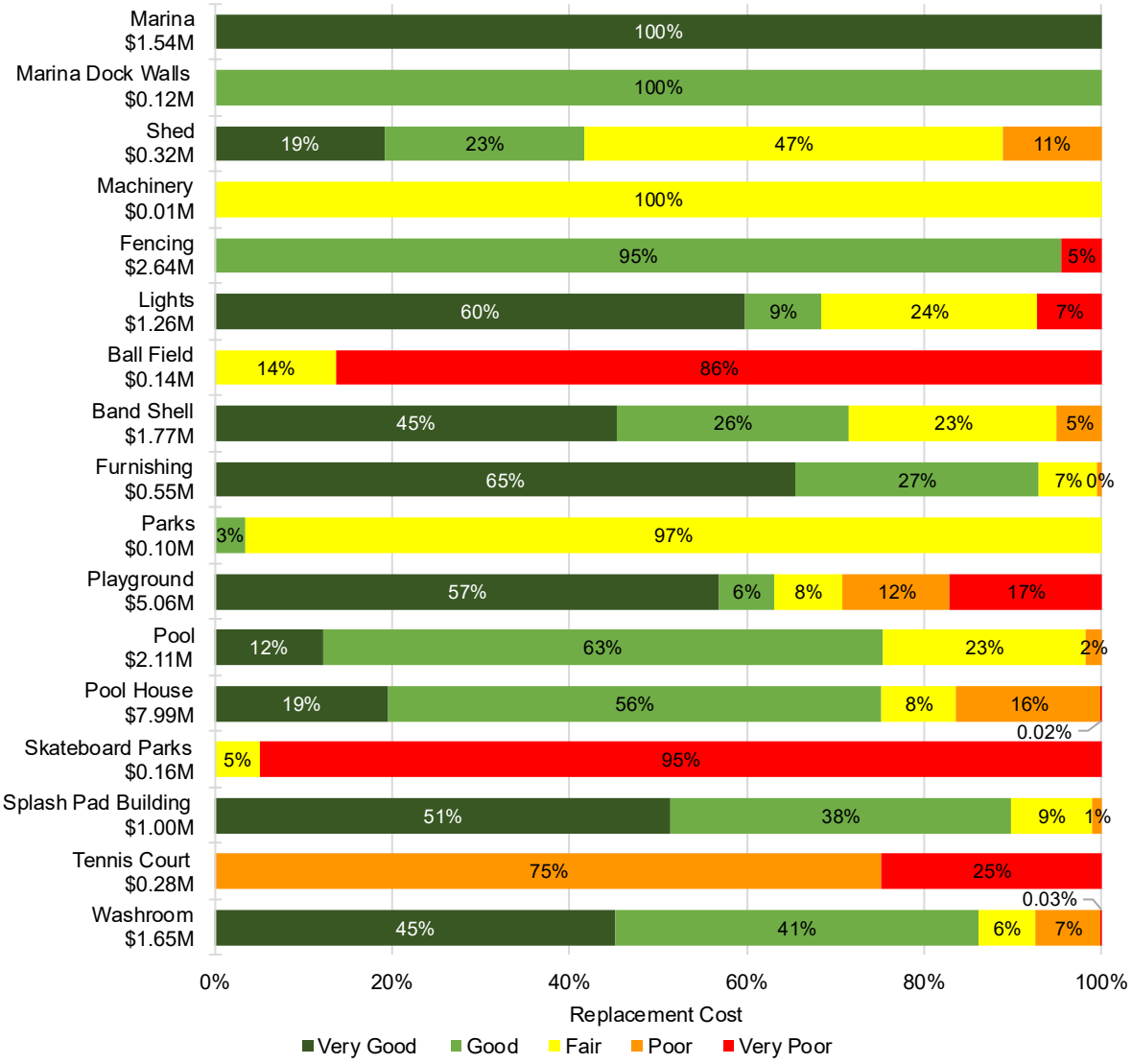


FIGURE 5-8: PARKS CONDITION DISTRIBUTION BY ASSET CLASS

Currently, the majority of parks assets are in Very Good to Fair condition, with small portions in Poor and Very Poor. About 5% of assets need to be addressed in linear infrastructure and utilities, and approximately 6% need addressing in recreational amenities. Fleet and equipment assets are overall in Fair condition, while some facilities and recreational amenities will be due for renewal soon. Figure 5-8 displays the condition distributions by the various asset classes the City's parks are responsible for.

5.2.1.4. Data Sources and Maturity

Table 5-4 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 5-4: PARKS DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Facilities (with BCAs)	Good	High	These assets were assessed in 2024, which provided the City with a complete and high confidence dataset.
All Other Assets	Good	Low	Asset data in many cases was supplemented by staff judgment. In many cases, condition was well understood by staff, but in others, an understanding of condition was based on age alone.

5.2.2. Levels of Service

The City of Cornwall's Parks Department aims to provide accessible and high-quality parks that enable residents of all ages to lead healthy and active lives by responding to unique community needs and by working strategically and collaboratively in the delivery of park services. This is achieved through ensuring grounds are safe, clean, accessible and available to those who want to use them.

Community and technical levels of service can be found in Table 5-5 and Table 5-6 on the following pages.

TABLE 5-5: PARKS COMMUNITY LEVELS OF SERVICE

Community Measures	Performance
Service Attributes: **Safe**	
Grounds are safe, lots of green/open space. Security (well-lit, open spaces)	**Current:** 44 public parks and open spaces, totaling approximately 321.6 hectares. 50% of parks are lit. **Proposed:** 46 public parks and open spaces, totaling approximately 350 hectares. 50% of parks to be lit.
Service Attributes: **Shine**	
Park cleanliness (park washrooms, park amenities, etc.)	City parks to remain well maintained and cared for. Grass cutting and garbage removal to continue to be contracted out.
Service Attributes: **Accessible, Available**	
Parks and amenities are accessible by all residents and are available to all residents who want to use them. The right types of amenities are available to people who want/need them.	Parks located within 800 m of neighbourhoods, are accessible and have a variety of amenities
Service Attributes: **Available**	
Parks and amenities are available and safe for the public's use.	The City will regularly inspect its parks and playgrounds, addressing any issues in a prompt fashion. The lifecycle condition of park assets continues to be monitored and addressed through capital projects on a priority-basis.

TABLE 5-6: PARKS TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: Reliable			
Percentage of Assets in Poor or Better Condition	Aesthetic Features	100%	Maintain
Percentage of Assets in Poor or Better Condition	Facilities	96%	Maintain
Percentage of Assets in Poor or Better Condition	Fleet & Equipment	100%	Maintain
Percentage of Assets in Poor or Better Condition	Linear Infrastructure & Utilities	95%	Maintain
Percentage of Assets in Poor or Better Condition	Recreational Amenities	94%	Maintain
Annual number of days of unplanned park amenity downtime	All	30 days	Improve
Service Attribute: Safe			
Percentage of park assets that meet regulatory criteria (CSA, AODA, Public Health)	All	All parks are CSA approved; 50% of Parks are AODA compliant	Maintain
Annual number of asset-related incidents (minor, major, critical)	All	5-10 incidents (minor)	Maintain
Service Attribute: Available			
Number of bookings in parks (for picnics, sports fields, etc.)	All	9,764	Maintain
Number of community parks per capita	All	0.6 parks per 10,000 people (3 community parks)	Maintain
Percentage of community parks within 800m radius of communities	All	100%	Maintain
Number of parks per capita	All	9.2 parks per 10,000 people (46 parks)	Maintain

5.2.3. Lifecycle Management Strategy

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's parks and the assets they're responsible for. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery.

Effective lifecycle management of these assets is essential to ensuring long-term service delivery and maintaining high-quality recreational experiences. This includes regular maintenance, upgrades, rehabilitation, and replacement of infrastructure to ensure safety, accessibility, and functionality. Ongoing investment in parks and recreation assets also helps the City respond to evolving community needs, support inclusive programming, meet accessibility standards, and enhance resilience in the face of climate change and increased use of outdoor spaces.

Through these efforts, the City of Cornwall continues to foster a welcoming and engaging community environment where residents of all ages and abilities can enjoy recreational opportunities, build social connections, and experience the environmental, physical, and cultural benefits of well-maintained public spaces.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship. Table 5-7 and Table 5-8 summarize the various lifecycle activities that the City undertakes to ensure that its parks continue to support the services they provide.





TABLE 5-7: LIFECYCLE ACTIVITIES –FACILITIES

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Building condition assessment program	Every 5-years (min)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Major equipment or structural building component replacement	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new facilities in new subdivisions or expansion of existing facilities to accommodate for increased demand and population growth.	As identified through growth and development studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

TABLE 5-8: LIFECYCLE ACTIVITIES – AESTHETIC FEATURES, FLEET, EQUIPMENT, LINEAR INFRASTRUCTURE, UTILITIES, AND RECREATIONAL AMENITIES

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	Where feasible
Replacement of assets at end of life.	As required
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Purchase/procurement of additional equipment and fleet assets to support population growth or service expansion	As identified by staff or through studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

5.2.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 5.2.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 5-7 and Table 5-8. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's Financial Strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 5-9, Figure 5-10, Figure 5-11, and Figure 5-12 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis, and Proposed LOS Scenarios, respectively.

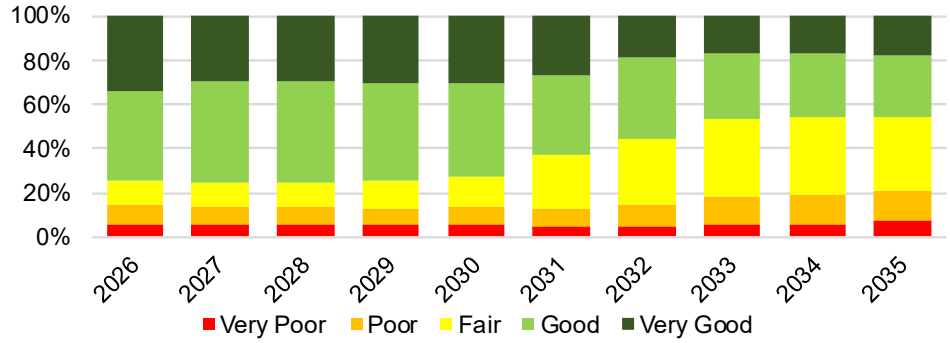


FIGURE 5-9: PARKS ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

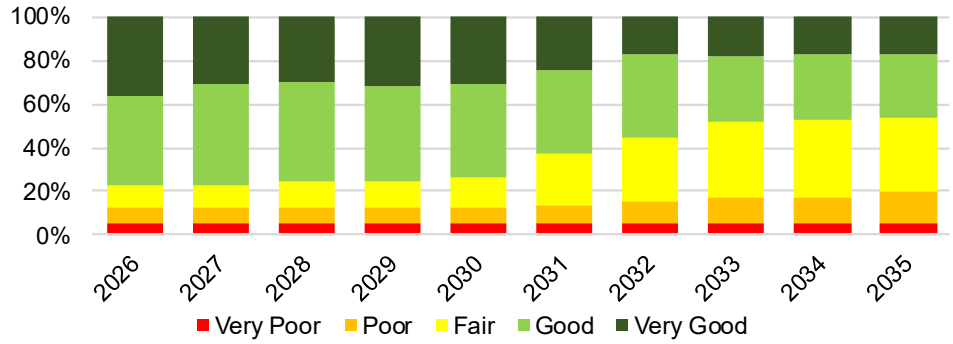


FIGURE 5-10: PARKS MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

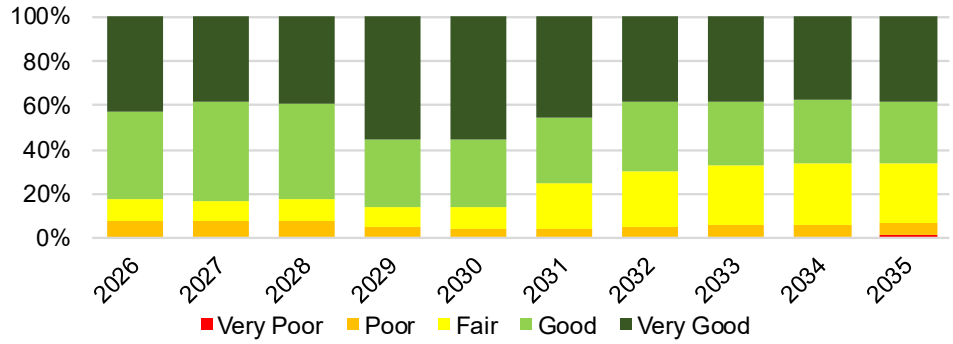


FIGURE 5-11: PARKS BACKLOG SCENARIO PERFORMANCE FORECAST

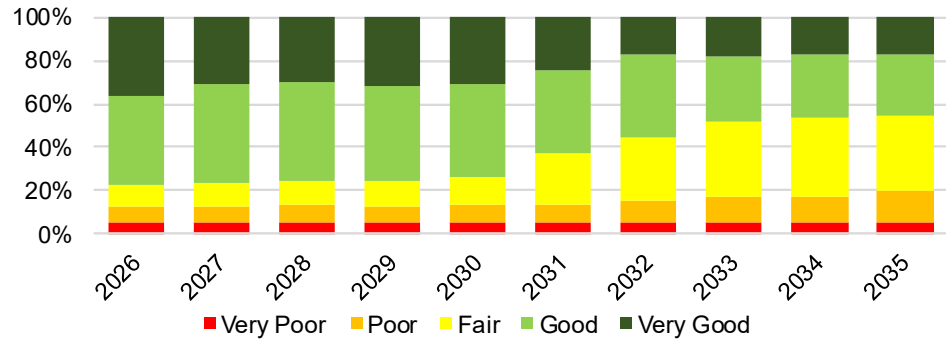


FIGURE 5-12: PARKS PROPOSED LOS SCENARIO PERFORMANCE FORECAST (MAINTAIN CURRENT LOS)

Currently, 95% of the City's parks assets meet the LOS of being in poor or better condition. Under the current anticipated capital budget of $0.28 million annually in renewals for the next 10 years the parks portfolio is expected to decrease in overall level of service, resulting in 92% of assets meeting the LOS of assets in poor or better condition. To maintain this portfolio of 95% of assets meeting LOS, it was determined the City would need to spend an annual average of $0.35 million in renewals. To eliminate all the backlog in parks assets, and to keep 100% of assets in poor or better condition, it would cost an average annual of $4.70 million in renewals according to the Backlog Analysis for the next 10 years. Using the results of the scenarios as well as analyzing the capital budget for the next 10 years, the City determined that it would propose to maintain its current service levels in order to balance risk, cost and LOS.

Table 5-9 and Figure 5-13 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for parks assets.

TABLE 5-9: PARKS BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$1.74M	$1.74M	$1.74M	$1.74M
Service Improvements	$0.0070M	$0.0070M	$0.0070M	$0.0070M
Growth Activities	$0.02M	$0.02M	$0.02M	$0.02M
Renewal & Replacement	**$0.28M**	**$0.35M**	**$4.70M**	**$0.35M**
Total Lifecycle Expenditures	**$2.05M**	**$2.11M**	**$4.01M**	**$2.11M**
Total Infrastructure Gap		**$0.07M**	**$1.97M**	**$0.07M**

The analysis indicates that the City's anticipated budget for Community Recreation Services totals approximately $2.05 million annually, closely aligned with the investment required to maintain the current and proposed levels of service ($2.11 million). This results in a relatively small annual funding gap of $0.07 million for both scenarios, suggesting that current investment levels are generally sufficient to sustain service delivery, with only modest additional funding required for long-term alignment.

Operations & Maintenance represents the largest portion of annual spending at $1.74M, reinforcing the ongoing effort required to support daily service delivery, facility upkeep, safety, and program readiness. Investment in service improvements and growth activities remains low, reflecting stable service levels and limited expansion needs within this service area at this time.

The bars on Figure 5-13 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

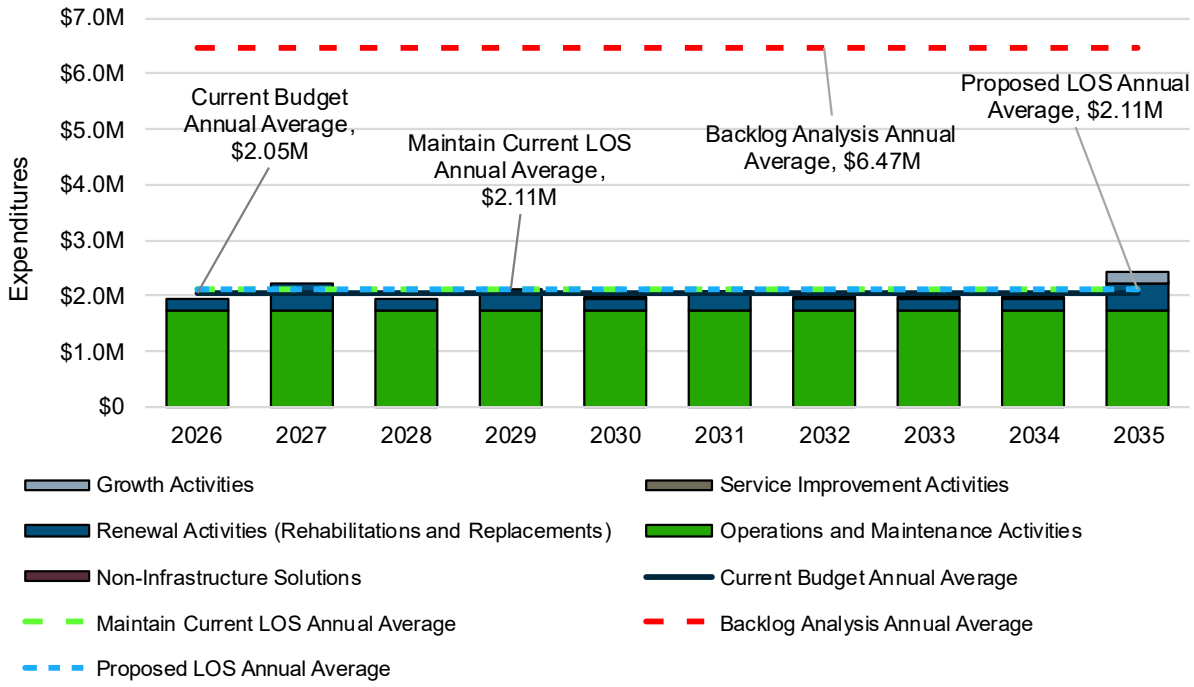


FIGURE 5-13: PARKS SCENARIO ANALYSIS SUMMARY

5.2.5. Findings

Overall, the City maintains its parks assets in good condition, with 95% of assets meeting the LOS threshold of being in poor or better condition. With the recent BCA completed on the City's facilities, data completeness and confidence is high, while for the remainder of parks assets was rated as low in confidence. The City should continue to maintain and update its BCA data as work is completed on its parks facilities and subsequently as condition changes for their respective components. Furthermore, the City should explore methods in which to improve the collection and maintenance on the rest of their asset data.

The results of the 10-year forecasts indicate that the City's current anticipated budget is not sufficient to maintain service levels over the forecasting period, resulting in a slight decrease in service levels. However, the gap between anticipated budget and maintain current LOS is $0.07 million. Thus, to balance cost, risk and levels of service, the City proposed to maintain current service levels by means of slight increases to their renewals and rehabilitation budget.

5.3. Recreation

The City of Cornwall's Community Recreation Service encompasses the delivery of Recreation programs, facilities, and public spaces that support active lifestyles, community connection, and overall well-being.

The City of Cornwall's recreation asset portfolio includes a diverse range of facilities, equipment, and support systems that enable the delivery of community recreation programs and services. These assets include indoor and outdoor recreation facilities. Supporting these facilities is a variety of specialized equipment and information technology systems that ensure safe, efficient operations and enhanced user experiences. The portfolio also includes fleet and operational equipment—such as ice resurfacers, lawn and turf maintenance equipment, utility vehicles, and other service equipment—used to maintain recreation spaces and support programming. Together, these assets enable the City to provide accessible, safe, and high-quality recreation spaces and services for residents and visitors, contributing to community health, social connection, and quality of life.

This section outlines the current state of the infrastructure, levels of service, lifecycle management strategies and the ways the City funds the lifecycle activities in order to provide its recreation services to the residents of Cornwall. Figure 5-14 shows the asset hierarchy for the City's recreation services.

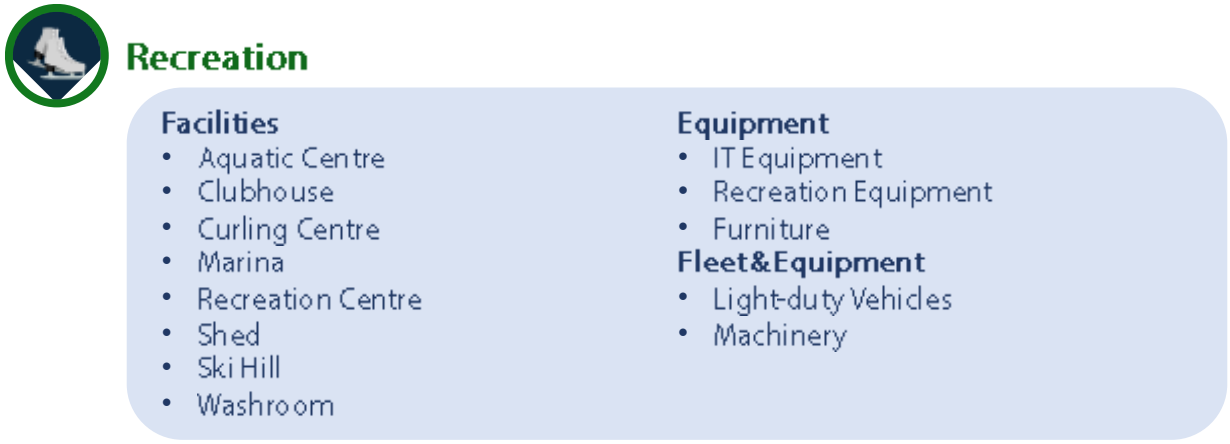


FIGURE 5-14: RECREATION ASSET HIERARCHY

5.3.1. State of Infrastructure

This section outlines the state of infrastructure for Cornwall's recreation assets. This includes asset inventory and valuation, age and estimated service life, asset condition, data sources and data maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

5.3.1.1. Asset Inventory and Valuation

The replacement cost for the City's recreation asset portfolio is approximately $212.10 million and is summarized in Table 5-10 and Figure 5-15.

TABLE 5-10: RECREATION ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Equipment ($0.97M)		
Furniture	117 Assets	$0.54M
IT Equipment	3 Assets	$0.39M
Recreation Equipment	18 Assets	$0.05M
Facilities ($209.37M)		
Aquatic Centre	1 Facility	$21.64M
Clubhouse	1 Facility	$0.88M
Curling Centre	1 Facility	$18.16M
Marina	3 Facilities	$3.18M
Recreation Centre	7 Facilities	$163.84M
Shed	1 Facility	$0.04M
Ski Hill	1 Facility	$0.41M
Washroom	3 Facilities	$1.22M
Fleet & Equipment ($1.76M)		
Light-duty Vehicles	2 Assets	$0.02M
Machinery	13 Assets	$1.74M
Total		$212.10M

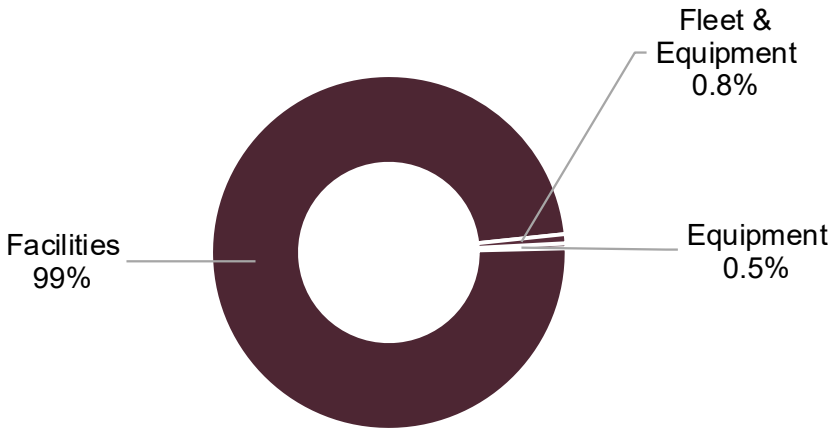


FIGURE 5-15: RECREATION VALUATION DISTRIBUTION BY ASSET CATEGORY

5.3.1.2. Age and Estimated Service Life

The average age of the City's recreation assets is 22 years old, while the average ESL is 50 years. Figure 5-16 provides a breakdown of the ages by asset class.

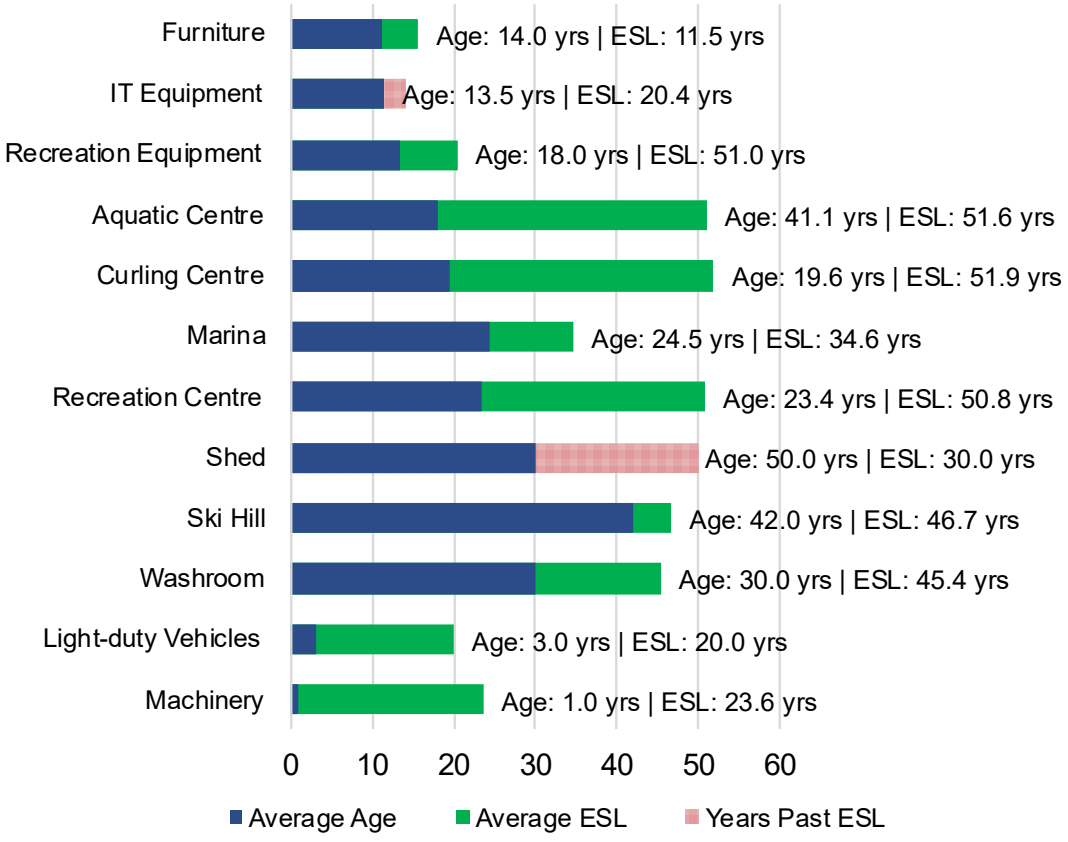


FIGURE 5-16: RECREATION SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 5-17 captures the installation decades in which the various asset classes were acquired and or installed by the City's Community Recreation services. The installation decades represented in Figure 5-17 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029).

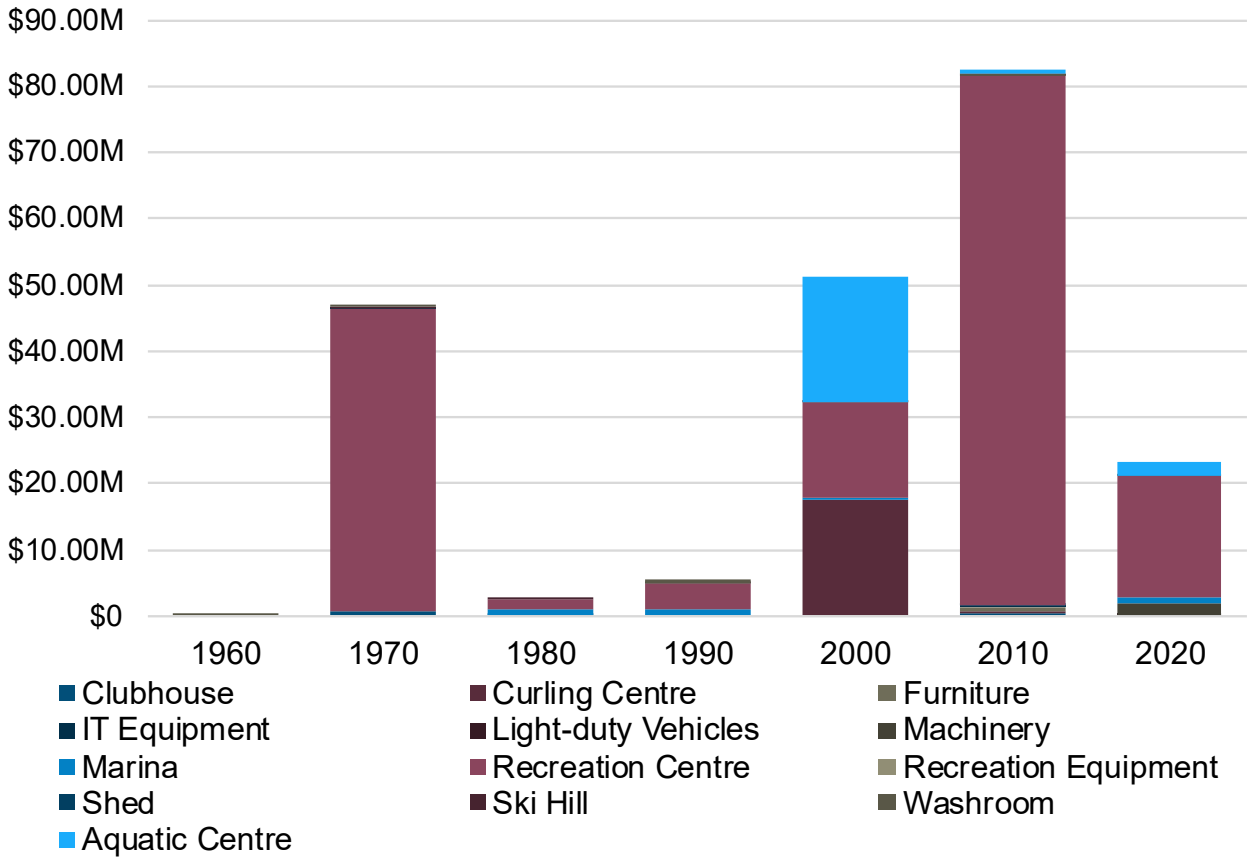


FIGURE 5-17: RECREATION INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

During the 1970s, the City constructed its recreation centre, followed by substantial additions from the 1990s and 2000s. With the average age of the City's recreation assets being 22 years old and the average ESL of 50 years, a bulk of renewals and rehabilitations are likely to be due in approximately 28 years.

5.3.1.3. Asset Condition

The City has recently completed building condition assessments (BCA's) of the majority of its facilities in preparation for this Asset Management Plan. The BCA study identified current and future needs for all building elements within the City's facilities. Each facility element was given a condition rating based on life consumed, current state and functionality, based on expert opinion. These factors make up the condition ratings outlined for facility elements, found in Table 5-12.

Table 5-11 and Table 5-12 provide a summary of the approaches used to collect data and assess condition of the City's recreation assets.

TABLE 5-11: RECREATION ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• **Facilities**	Building Condition Assessments	Every 5-years (min)
• **Fleet and Equipment**	Assets are reviewed by subject matter experts and assigned a remaining life, based on visual assessments. Where this wasn't possible, condition was understood by asset age and life consumed.	Annually, or as deemed appropriate by subject matter experts.

TABLE 5-12: RECREATION ASSETS CONDITION RATINGS

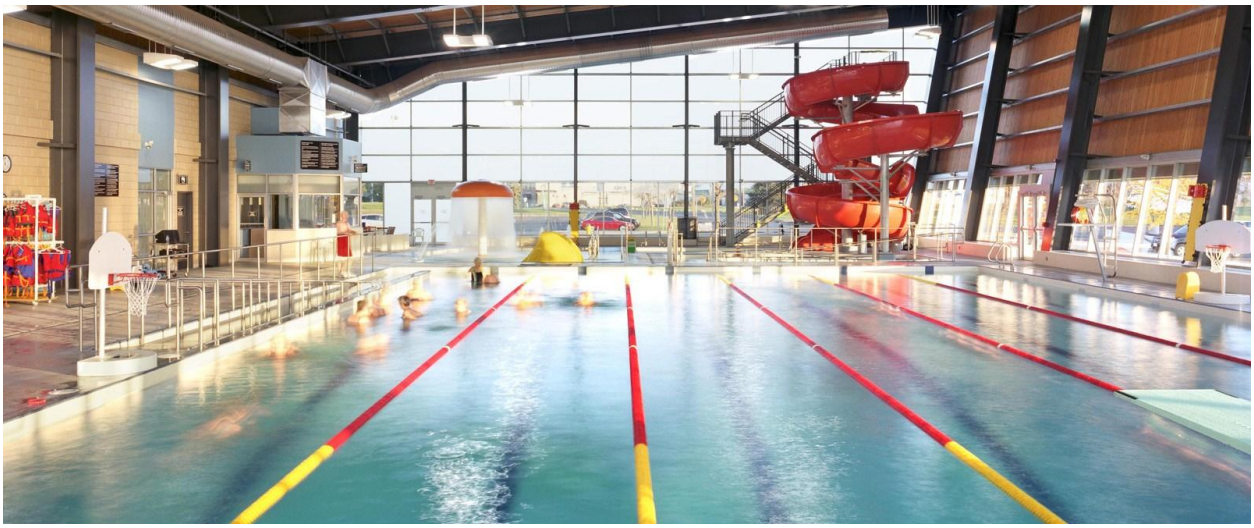
Category	Vehicles and Equipment (Remaining Life)	Facility Element Condition	Life Consumed
Very Good	100% - 75%	1	0% - 25%
Good	75% - 50%	2	25% - 50%
Fair	50% - 25%	3	50% - 75%
Poor	25% - 0%	4	75% - 100%
Very Poor	< 0%	5	> 100%

Overall, the City's recreation assets are in very good condition. Majority of assets are in Good, followed by Very Good and Fair condition, resulting in an average condition of "Very Good". A breakdown of the recreation assets condition profile as a whole can be found in Figure 5-18.



FIGURE 5-18: RECREATION NETWORK CONDITION SUMMARY

A breakdown of each asset classes' condition profile within the asset portfolio can be found in Figure 5-19.



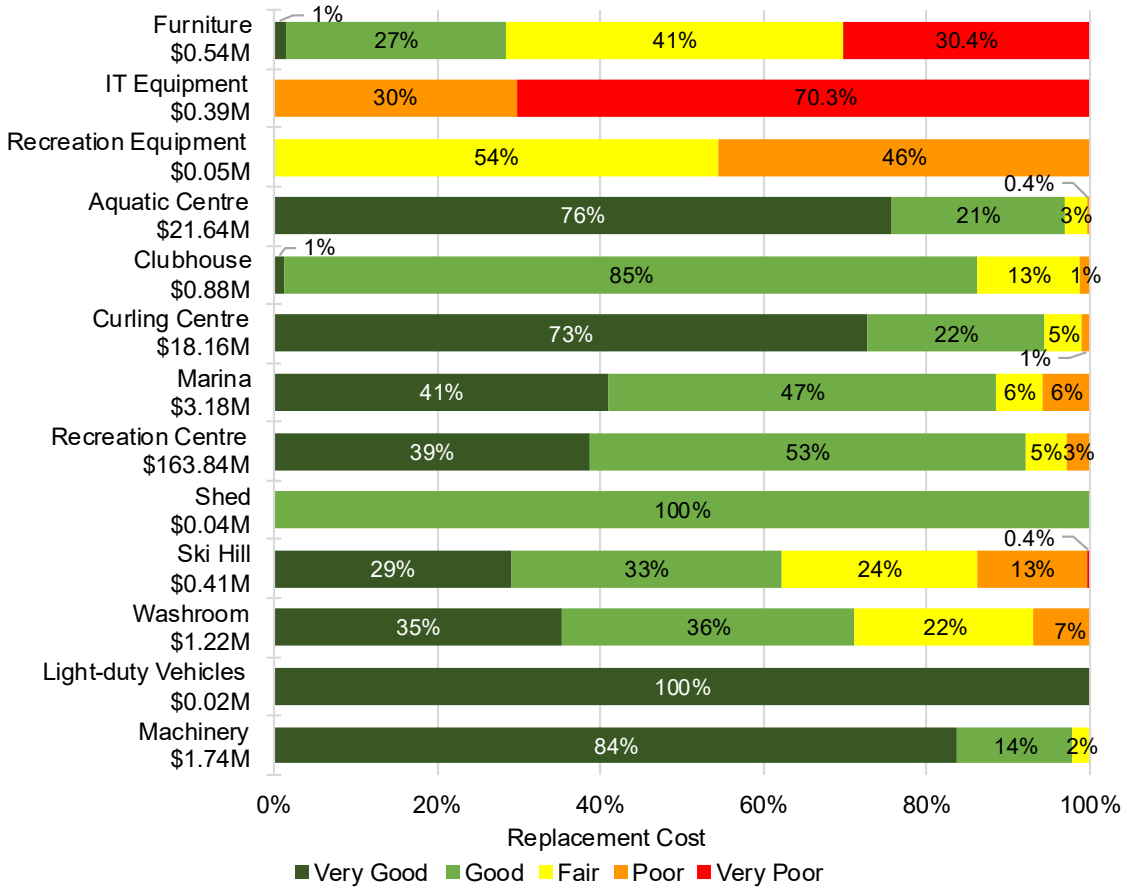


FIGURE 5-19: RECREATION CONDITION DISTRIBUTION BY ASSET CLASS

Currently, IT equipment and furniture have the highest portion of assets in Very Poor condition, meaning they need to be addressed as soon as possible. However, all other asset classes Recreation Services is responsible for are overall within their service lives.



5.3.1.4. Data Sources and Maturity

Table 5-13 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 5-13: RECREATION DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Facilities	Good	High	These assets were assessed in 2024, which provided the City with a complete and high confidence dataset.
Fleet and Equipment	Good	Low	Asset data in many cases was supplemented by staff judgment. In many cases, condition was well understood by staff, but in others, an understanding of condition was based on age and life consumed alone.

5.3.2. Levels of Service

The city of Cornwall's Recreation Services aim to provide accessible and high-quality recreation that enables residents of all ages to lead healthy and active lives by responding to unique community needs and by working strategically and collaboratively in the delivery of recreation services. This is achieved through ensuring grounds are safe, clean, accessible and available to those who want to use them.

Community and technical levels of service can be found in Table 5-14 and Table 5-15 on the following pages.



TABLE 5-14: RECREATION COMMUNITY LEVELS OF SERVICE

Community Measures	Performance
Service Attributes: **Quality**	
Customers can use facilities for the programming they need.	Facilities can house a number of sports, activities, events that customers are requesting.
Service Attributes: **Accessible, Available**	
Facilities are accessible by all residents and provide sufficient amenities, equipment, and programs.	Facilities to remain accessible. Increase in programming for youth but continued investment and additions are needed.
Service Attributes: **Safe**	
Recreation facilities are safe	Recreation facilities will continue to be inspected on an ongoing basis. Policy and procedures are followed, inspections completed and deficiencies reported for action.
Service Attributes: **Reliable**	
Facilities remain open and in a state of good repair, ensure that they are available to provide services to the community	The City programs capital works to ensure that repairs and retrofits are completed and that the facility can remain open to the public.

TABLE 5-15: RECREATION TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of Assets in Poor or Better Condition	Fleet	100%	Maintain
Percentage of Assets in Poor or Better Condition	Equipment	84%	Maintain
Percentage of Assets in Poor or Better Condition	Facilities	100%	Maintain
Service Attribute: **Safe**			
Annual number of asset-related incidents (minor, major, critical)	All	100	Improve (decrease number of incidents)
Service Attribute: **Available**			
Number of bookings in recreation facilities.	All	315,563	Improve (increase number of bookings)
Number of registrations	All	3,312	Improve (increase number of registrations)
Number of Recreation Centres per capita	All	0.6 rec centres per 10,000 people (3 rec centres)	Maintain (3 recreation centres; improvements and expansions to existing centres)

5.3.3. Lifecycle Management Strategy

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's recreation services and the assets they're responsible for. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery.

Effective lifecycle management of these assets is essential to ensuring long-term service delivery and maintaining high-quality recreational experiences. This includes regular maintenance, upgrades, rehabilitation, and replacement of infrastructure to ensure safety, accessibility, and functionality. Ongoing investment in parks and recreation assets also helps the City respond to evolving community needs, support inclusive programming, meet accessibility standards, and enhance resilience in the face of climate change and increased use of outdoor spaces.

Through these efforts, the City of Cornwall continues to foster a welcoming and engaging community environment where residents of all ages and abilities can enjoy recreational opportunities, build social connections, and experience the environmental, physical, and cultural benefits of well-maintained public spaces.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship. Table 5-16 and Table 5-17 summarize the various lifecycle activities that the City undertakes to ensure that its recreation assets continue to support the services they provide.



TABLE 5-16: LIFECYCLE ACTIVITIES – RECREATION FACILITIES

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Building condition assessment program	Every 5-years (min)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Major equipment or structural building component replacement	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new facilities in new subdivisions or expansion of existing facilities to accommodate for increased demand and population growth.	As identified through growth and development studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

TABLE 5-17: LIFECYCLE ACTIVITIES – RECREATION FLEET & EQUIPMENT

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	Where feasible
Replacement of assets at end of life.	As required
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Purchase/procurement of additional equipment and fleet assets to support population growth or service expansion	As identified by staff or through studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

5.3.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 5.3.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 5-16 and Table 5-17. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's Financial Strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 5-20, Figure 5-21, Figure 5-22, and Figure 5-23 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis, and Proposed LOS Scenarios, respectively.

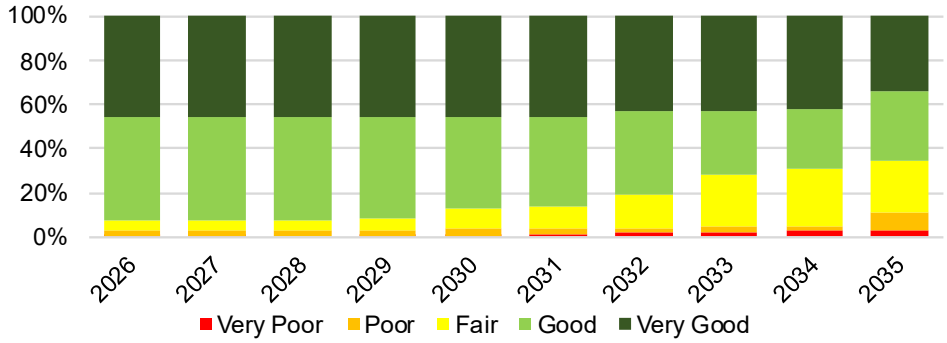


FIGURE 5-20: RECREATION ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

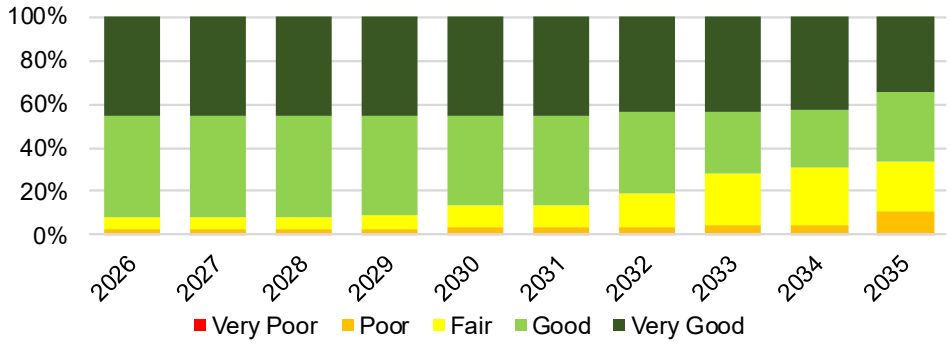


FIGURE 5-21: RECREATION MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

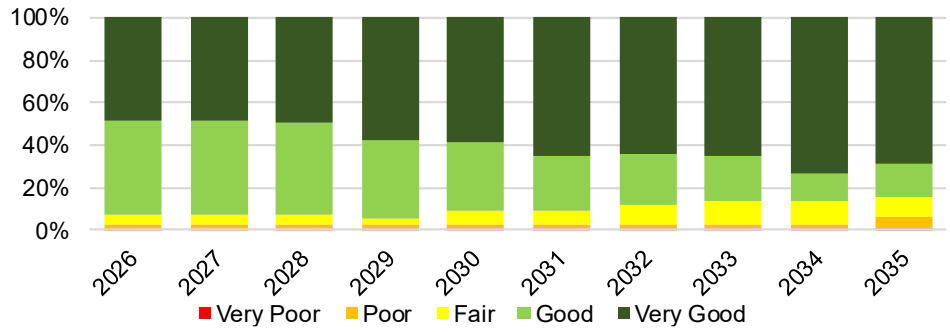


FIGURE 5-22: RECREATION BACKLOG SCENARIO PERFORMANCE FORECAST

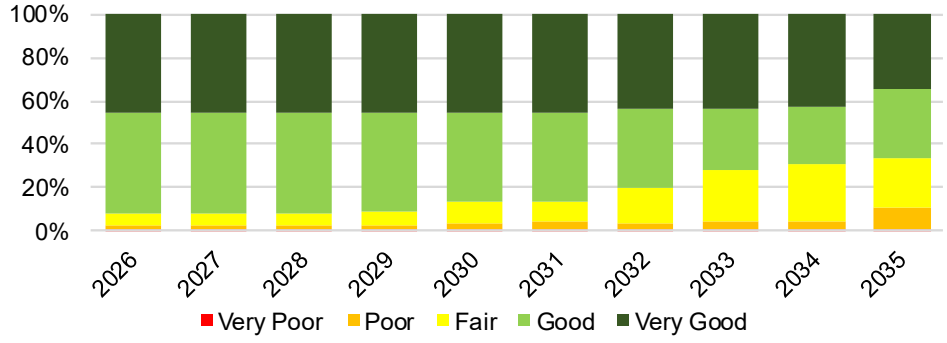


FIGURE 5-23: RECREATION PROPOSED LOS SCENARIO PERFORMANCE FORECAST (MAINTAIN CURRENT LOS)

Currently, 100% of the City's recreation assets meet the LOS of being in poor or better condition. Under the current anticipated capital budget of $0.42 million annually in renewals for the next 10 years the recreation asset portfolio is expected to decrease slightly in overall level of service, resulting in 97% of assets meeting the LOS of assets in poor or better condition. To maintain this portfolio of 100% of assets meeting LOS, it was determined the City would need to spend an annual average of $0.97 million in renewals. To eliminate all the backlog in recreation assets, and to keep 100% of assets in poor or better condition, it would cost an average annual of $5.70 million in renewals according to the Backlog Analysis. Using the results of the scenarios as well as analyzing the capital budget for the next 10 years, the City determined that it would propose to maintain its current service levels.

Table 5-18 and Figure 5-24 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for recreation assets.

TABLE 5-18: RECREATION BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$5.15M	$5.15M	$5.15M	$5.15M
Service Improvements	$0.05M	$0.05M	$0.05M	$0.05M
Growth Activities	$0.0040M	$0.0040M	$0.0040M	$0.0040M
Renewal & Replacement	**$0.42M**	**$0.97M**	**$5.70M**	**$0.97M**
Total Lifecycle Expenditures	**$5.63M**	**$6.17M**	**$10.90M**	**$6.17M**
Total Infrastructure Gap		**$0.55M**	**$5.28M**	**$0.55M**

The lifecycle expenditure analysis highlights the financial planning required to sustain and improve infrastructure services across the four key scenarios. Operations and Maintenance remain the backbone of service delivery for Recreation services. To maintain current service levels, and avoid long-term deterioration, an additional $0.55 million is needed. However fully addressing the infrastructure backlog would require a substantial investment increase, emphasizing the importance of prioritizing renewal and replacement planning.

The bars on the Figure 5-24 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

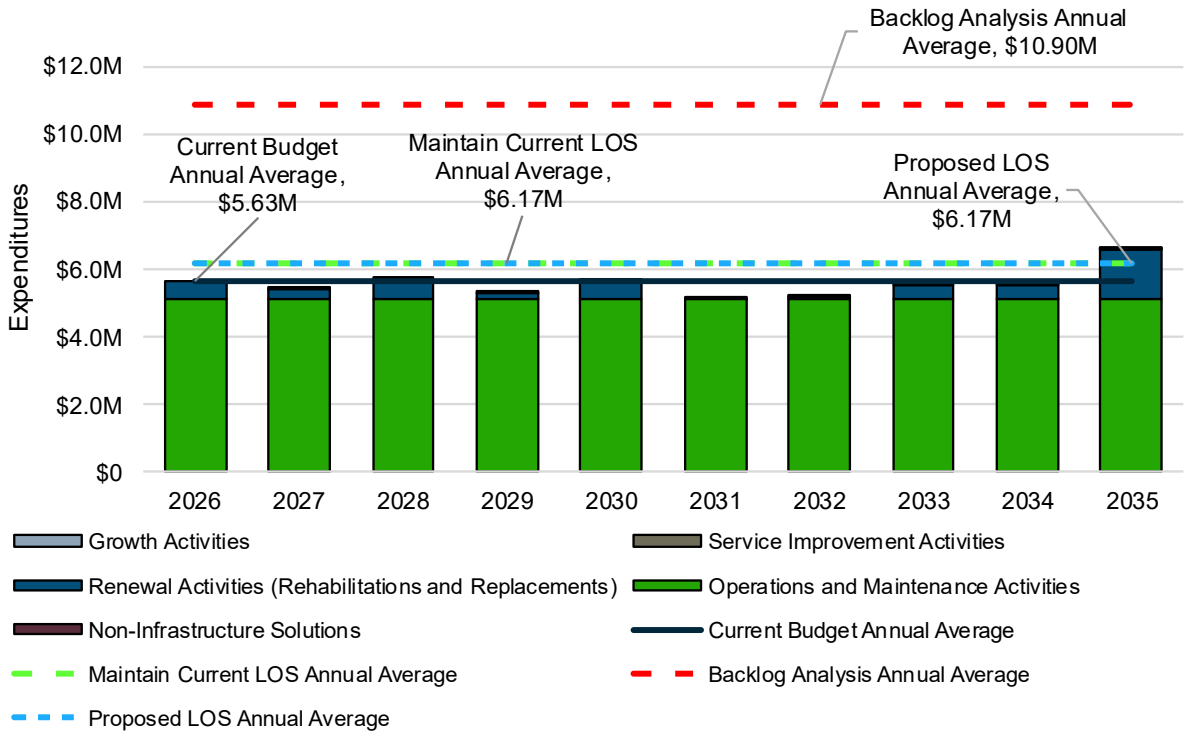


FIGURE 5-24: RECREATION SCENARIO ANALYSIS SUMMARY

5.3.5. Findings

Overall, the City maintains its recreation assets in very good condition, with 100% of assets meeting the LOS threshold of being in poor or better condition. With the recent BCA completed on the City's facilities, data completeness and confidence is high for recreation facilities. The City should continue to maintain and update its BCA data as work is completed on all its facilities and subsequently as condition changes for their respective components.

The results of the 10-year forecasts indicate that the City's current anticipated budget is not sufficient to maintain service levels over the forecasting period. The current gap between the anticipated budget and the proposed LOS budget is approximately $0.55 million each year. The backlog analysis highlighted needs over the next 10 years both by asset condition data as well as recommendations from the most recently completed BCA on all the City's facilities. As a result, the total lifecycle investment needed each year is approximately $10.90 million. It was concluded that the City would further evaluate the results of BCA to better gauge the essential work needed to eliminate the backlog. As a result, since the gap between the current anticipated budget and the maintain current LOS was only $0.55 million, the City proposed to maintain its current levels of service in order to balance cost, risk and levels of service.



Emergency Services

City of Cornwall

Cornwall
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6. Emergency Services

6.1. Summary

The City's Emergency Services include Fire, Paramedic, and Police Services, which play a vital role in maintaining the safety, health, and well-being of the community. These services are responsible for providing a timely and coordinated response to emergencies, ensuring the protection of life, property, and the environment.

An overall summary of the replacement value and condition of the assets within this service area is provided below in Figure 6-1. Subsections 6.2 to 6.4 provide further details on the asset classes within each subservice.

EMERGENCY SERVICES

	Replacement Value	Condition
Fire Services	$63.2 Million	Good
Paramedic Services	$34.8 Million	Good
Police Services	$6.5 Million	Fair
Emergency Services Total	$105.5 Million	Good

FIGURE 6-1: EMERGENCY SERVICES CONDITION AND REPLACEMENT VALUE SUMMARY

6.2. Fire Services

The City of Cornwall is responsible for providing fire services for its residents. This service is supported by a variety of assets, including fire stations, emergency response equipment, service response vehicles, emergency response vehicles, non-emergency equipment, and IT equipment. The City is responsible for maintaining these assets. Figure 6-2 provides a summary of the assets reported within this subsection.

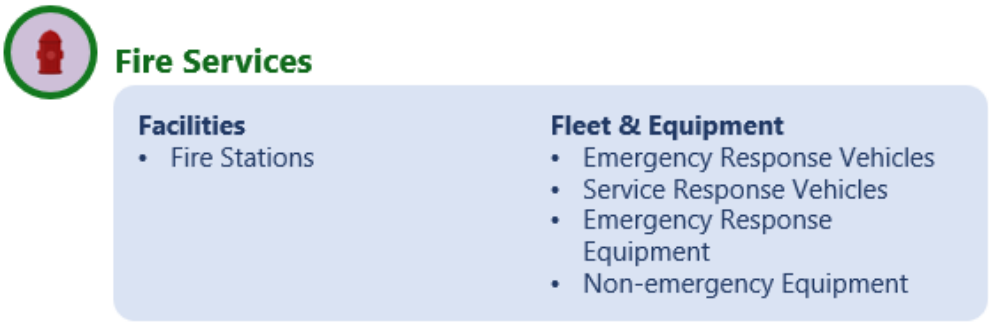


FIGURE 6-2: FIRE SERVICES ASSET HIERARCHY

6.2.1. State of Infrastructure

This section outlines the state of infrastructure for Cornwall's Fire Services assets. This includes asset inventory and valuation, age and estimated service life, the condition of assets and data sources and maturity in which this information was retrieved from.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

6.2.1.1. Asset Inventory and Valuation

The replacement cost for the City's Fire Services asset portfolio is approximately $63.21 million and is summarized in Table 6-1 and Figure 6-3.

TABLE 6-1: FIRE SERVICES ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Facilities ($32.99M)		
Fire Stations	3 Facilities	$32.99M
Fleet & Equipment ($30.22M)		
Emergency Response Equipment	1,467 Asset(s)	$8.50M
Emergency Response Vehicles	7 Asset(s)	$17.20M
Non-emergency Equipment	379 Asset(s)	$2.73M
Service Response Vehicles	17 Asset(s)	$1.78M
Total		**$63.21M**

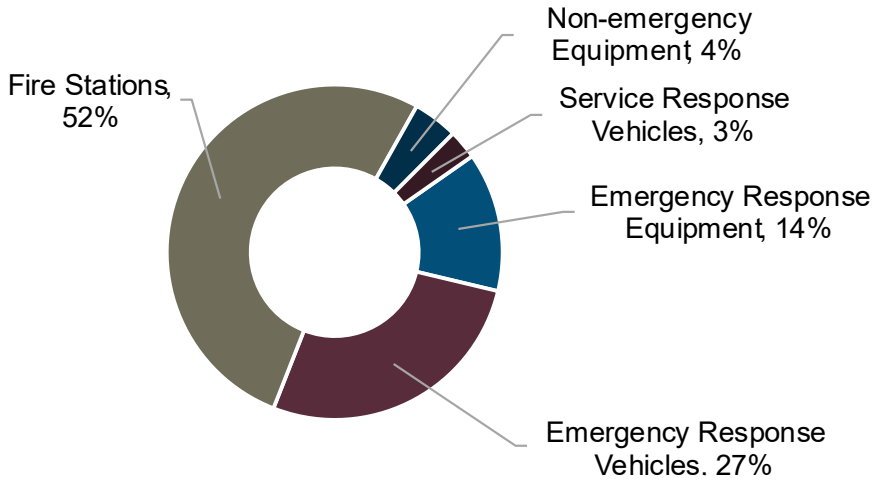


FIGURE 6-3: FIRE SERVICES VALUATION DISTRIBUTION BY ASSET CATEGORY

6.2.1.2. Age and Estimated Service Life

The average age of the City's Fire Services assets is 14 years old, while the average ESL is 34 years. Figure 6-4 provides a breakdown of the average ages by asset class.

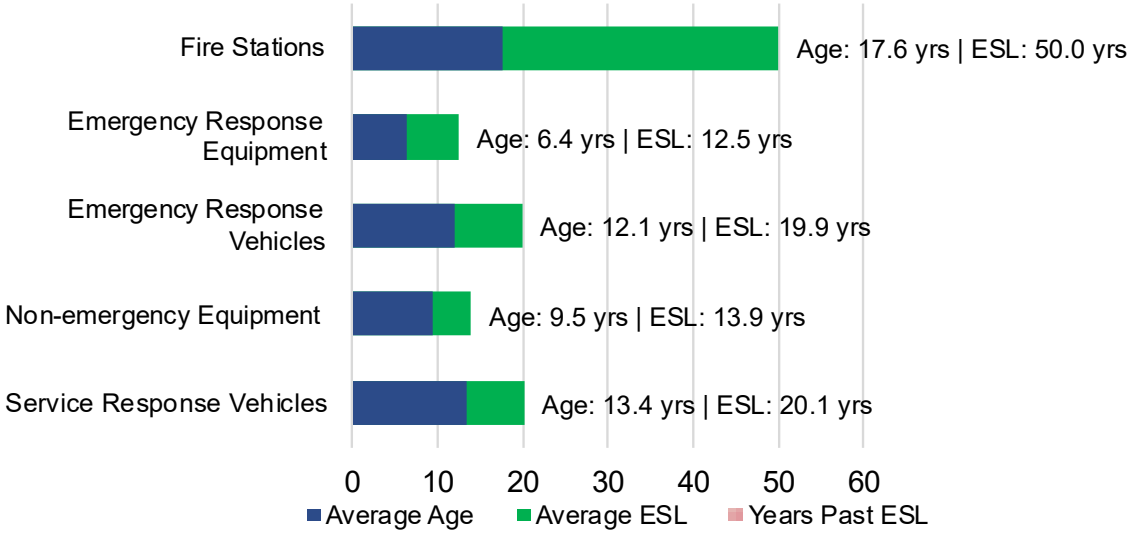


FIGURE 6-4: FIRE SERVICES SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 6-5 captures the installation decades in which the various asset classes were acquired and or installed by the City's Fire Services. The installation decades represented in Figure 6-5 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029).

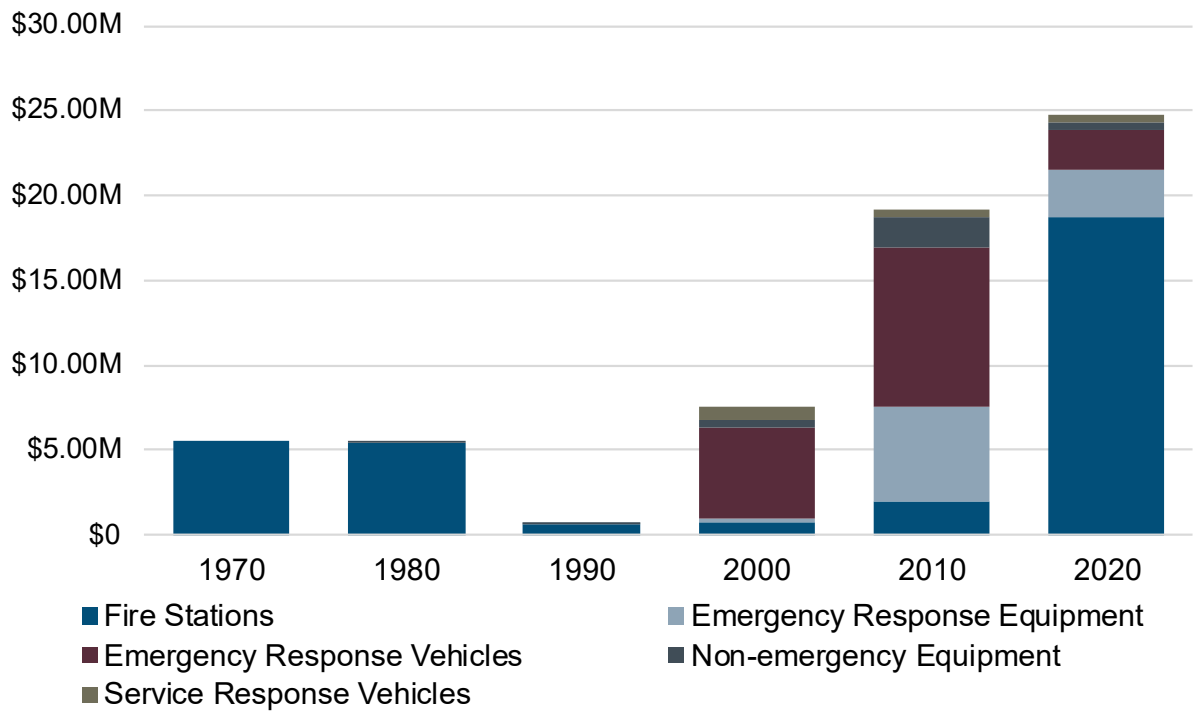


FIGURE 6-5 FIRE SERVICES ASSETS INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

During the 1970s and 1980s, the City constructed several fire stations, followed by substantial additions to the Fire Services asset portfolio from the 2010s and 2020s. With the average age of the City's Fire Services assets being 14 years old and the average ESL of 34 years, a bulk of renewals and rehabilitations are likely to be due in approximately 20 years.

6.2.1.3. Asset Condition

The City has recently completed building condition assessments (BCAs) of the majority of its facilities in preparation for this Asset Management Plan. The BCA study identified current and future needs for all building elements within the City's facilities. Building elements were evaluated based on their current condition, as well as remaining life based on expert opinion. This information was then taken into account, and each facility element was given a score between one (Very good condition) to five (Very poor condition). Thus, a whole facility's condition was calculated based on an average condition of all its components' condition, weighted by replacement cost.

For vehicles and equipment, the City bases its understanding of asset needs on remaining service life. This metric was provided by City staff and represents the City's experts best understanding of the approximate timing that asset replacement is required. For many Fire Services assets, replacement timing (i.e. service life) is regulated, and the City must replace certain emergency equipment assets within these regulated timelines.

Table 6-2 and Table 6-3 provide a summary of the approaches used to collect data and assess condition of the City's Fire Services assets.

TABLE 6-2: FIRE SERVICES ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• Facilities	Building Condition Assessments	Every 5-years (min)
• Fleet and Equipment	Assets are reviewed by subject matter experts and assigned a remaining life, based on visual assessments. Where this wasn't possible, condition was understood by asset age and life consumed.	Annually, or as deemed appropriate by subject matter experts.

TABLE 6-3: FIRE SERVICES ASSETS CONDITION RATINGS

Category	Facility Element Condition	Fleet and Equipment (Remaining Life)	Life Consumed
Very Good	1	100% - 75%	0% - 25%
Good	2	75% - 50%	25% - 50%
Fair	3	50% - 25%	50% - 75%
Poor	4	25% - 0%	75% - 100%
Very Poor	5	< 0%	> 100%

Overall, the City's Fire Services assets are in good condition. A breakdown of the Fire Services condition profile as a whole can be found in Figure 6-6.

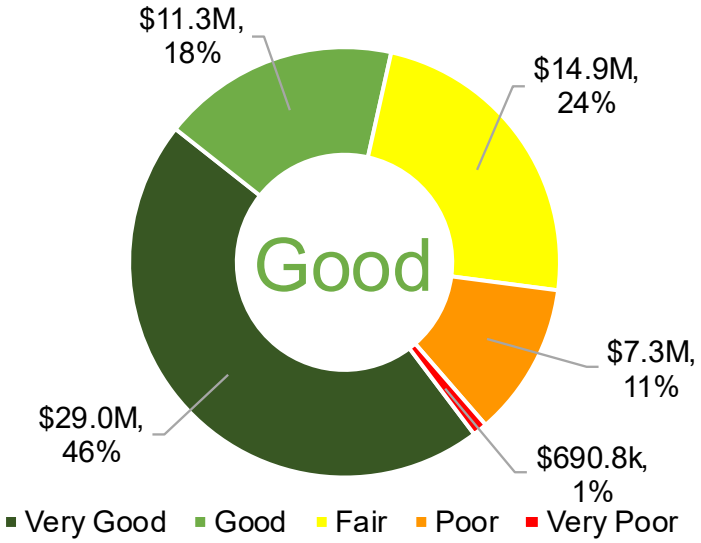


FIGURE 6-6: FIRE SERVICES CONDITION SUMMARY

A breakdown of each asset classes' condition profile within the asset portfolio can be found in Figure 6-7. Currently, the majority of Fire Services assets are in Very Good to Fair condition, with smaller portions in Poor and Very Poor. Fleet and equipment assets are overall in Fair condition with about 2% of assets needing to be addressed. Facility assets are overall in Very Good condition.

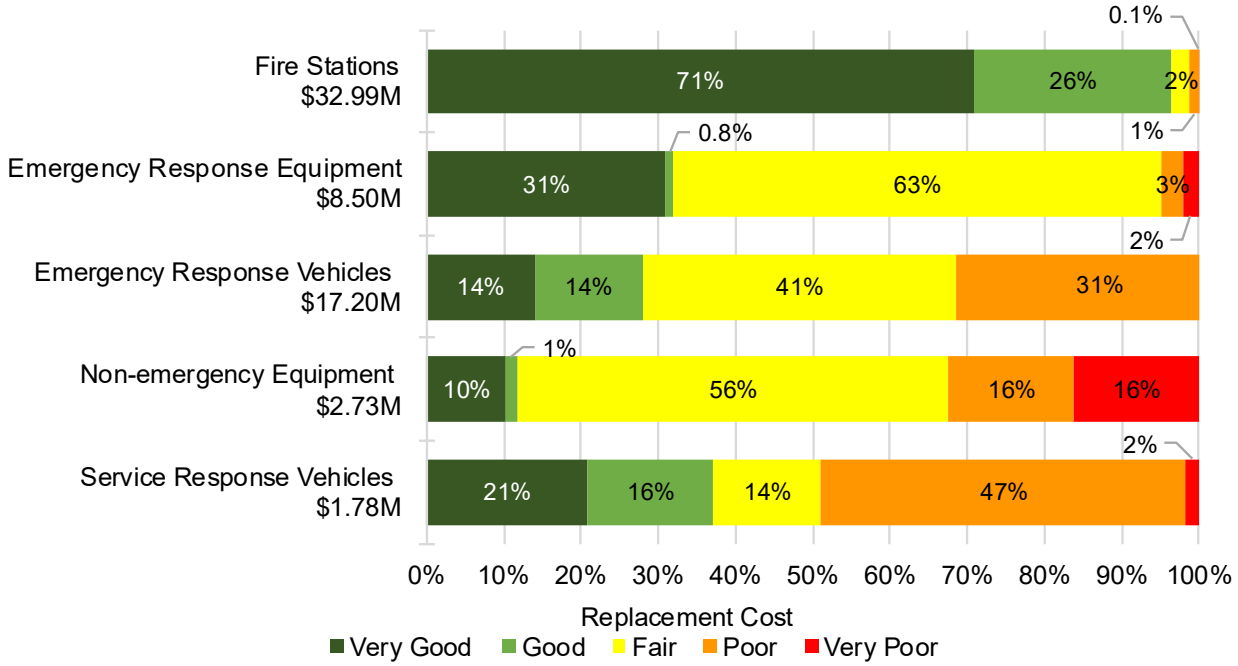


FIGURE 6-7: FIRE SERVICES CONDITION DISTRIBUTION BY ASSET CLASS



6.2.1.4. Data Sources and Maturity

Table 6-4 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 6-4: FIRE SERVICES DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Fire Stations	Good	High	These assets were assessed in 2024, which provided the City with a complete and high confidence dataset.
Emergency Response Equipment	Good	High	Condition was assessed based on age and life consumed, with City Staff reviewing accuracy of the data.
Emergency Response Vehicles	Good	High	Condition was assessed based on age and life consumed, with City Staff reviewing accuracy of the data.
Non-emergency Equipment	Good	High	Condition was assessed based on age and life consumed, with City Staff reviewing accuracy of the data.
Service Response Vehicles	Good	High	Condition was assessed based on age and life consumed, with City Staff reviewing accuracy of the data.

6.2.2. Levels of Service

Cornwall's Fire Services are proud of their past and excited for the future. They pledge to be at the forefront of emergency service excellence and fire service leadership. To achieve unparalleled service, Fire Services measure this by assessing the amount of protection, prevention, education, innovation and implementation of new technologies, response time and environmental measures. Community and technical levels of service for Cornwall's Fire Services can be found in Table 6-5 and Table 6-6 below.

TABLE 6-5: FIRE SERVICES COMMUNITY LEVELS OF SERVICE

Community Measures	Performance
Service Attributes: **Reliable**	
Protection – Fire Services protects lives, property, and the environment from the effects of various hazards.	Fire Services will continue to ensure all staff are properly trained and equipped with the appropriate equipment and tools to effectively respond to all types of emergencies.
Service Attributes: **Availability, Reliable, Safe**	
Prevention – actively working towards preventing fires	Fire Services currently undertakes prevention work and will continue to through Public Fire and Life Safety Education and awareness, business licenses permits, building inspections, public inquires and fire code enforcement.
Service Attributes: **Availability, Reliable, Safe**	
Education – actively educating the public about fire safety	Fire Services undertakes education work and will continue to through Public Fire and Life Safety Education and awareness, business licenses permits, building inspections, public inquires and fire code enforcement
Service Attributes: **Availability, Reliable, Safe**	
Technology innovation and data enablement provides more readiness to respond to all types of emergencies.	Fire Services evaluates and implements technological equipment advancements such as drones, IPAD Apps and Software, Next Gen 911 system 2025. Fire Services will continue to evaluate and implement technological equipment advancements such as drones, IPAD Apps and Software, Next Gen 911 system 2026.
Service Attributes: **Reliable**	
Response time – emergencies are responded to in a timely manner	Fire Services ensures its fleet, equipment, personnel are adequate to maintain response times. It continues to monitor and report on response times via annual reports and OFM Response Data.
Service Attributes: **Environmentally Conscious**	
Environmental Measure – Investigating Eco friendly alternative products	Fire Services currently aligns and will continue to align with strategic planning corporately to meet emissions requirements for fleet and internally reviews products where applicable.

TABLE 6-6: FIRE SERVICES TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute:			
Percentage of Assets in Poor or Better Condition	Facilities	100%	Maintain
Percentage of Assets in Poor or Better Condition	Fleet	100%	Maintain
Percentage of Assets in Poor or Better Condition	Equipment	94%	Improve to 95%
Annual Inspections, Regulations and acts, Standards	Fleet	Provincial Compliance with MTO (Safety) Mechanical division	Maintain
Fire apparatus spare ratio	Fleet	Non front run apparatus scheduled. 1 Aerial, 2 Pumps, 1 Tahoe	Maintain
Service Attribute: Available			
Annual number of fire service calls	All	1,720	Maintain
Annual number of fire safety programs completed	All	Constant - Public Fire and life safety, Fire Prevention and Fire Code Enforcement	Maintain
Service Attribute: Regulatory			
Percentage of Assets within regulatory standards	Fleet	100%	Maintain
Service Attribute: Environmental			
Percentage of fleet that are zero emission vehicles	Fleet	5%	Improve to 53%

6.2.3. Lifecycle Management Strategy

Lifecycle activities are essential to sustaining the long-term functionality, reliability, and resilience of the City of Cornwall's Fire Services and the diverse assets that support them. These activities guide asset management practices across each stage of the lifecycle—from acquisition and operation to renewal and eventual replacement—ensuring efficient, safe, and cost-effective delivery of emergency response services.

By applying best practices in asset management, including proactive maintenance, regular inspections, and timely rehabilitation or replacement, the City can extend the useful life of its fire stations, fleet, and specialized equipment while minimizing service disruptions and costly reactive repairs. Lifecycle strategies also help mitigate risks associated with asset failure, ensuring that emergency response times, firefighter safety, and community protection are maintained.

Typical lifecycle activities for Fire Services assets include routine inspection, maintenance, preventative maintenance, regular testing and calibration of equipment. These lifecycle activities ensure that the City's Fire Services assets remain in good condition, capable of supporting the operational demands of emergency response and community safety. They also inform long-term capital planning and investment prioritization. Table 6-7 and Table 6-8 summarize the various lifecycle activities that the City undertakes to ensure that its Fire Services continue to support the services they provide.



TABLE 6-7: LIFECYCLE ACTIVITIES – FIRE SERVICES FACILITIES

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Building condition assessment program	Every 5-years (min)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Major equipment or structural building component replacement	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new facilities in new subdivisions or expansion of existing facilities to accommodate for increased demand and population growth.	As identified through growth and development studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

TABLE 6-8: LIFECYCLE ACTIVITIES – FLEET AND EQUIPMENT

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	Where feasible
Replacement of assets at end of life.	As required
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Purchase/procurement of additional equipment and fleet assets to support population growth or service expansion	As identified by staff or through studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

6.2.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 6.2.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 6-7 and Table 6-8. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's Financial Strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 6-8, Figure 6-9, Figure 6-10, and Figure 6-11 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

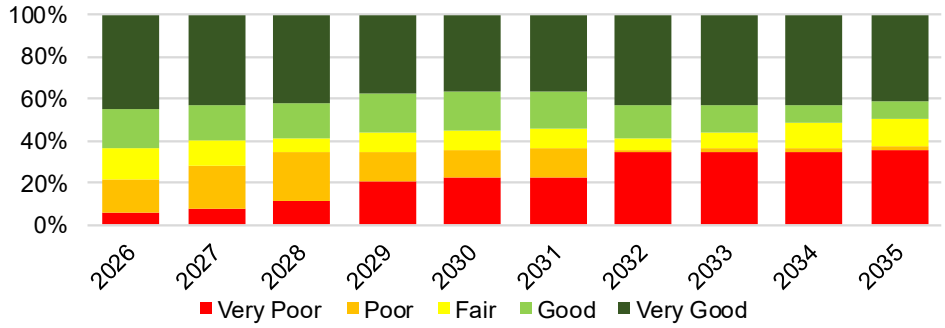


FIGURE 6-8: FIRE SERVICES ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

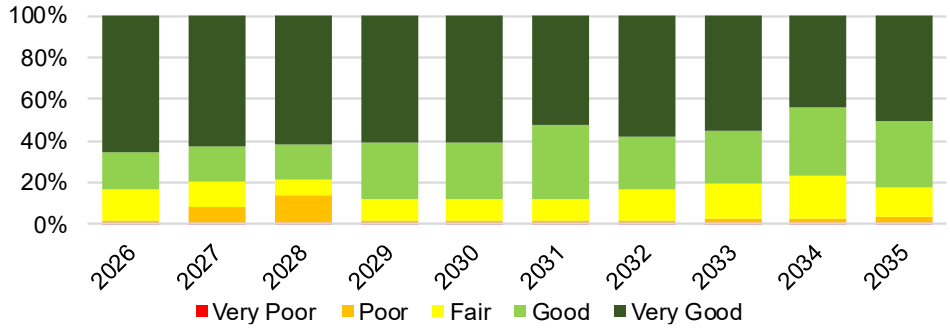


FIGURE 6-9: FIRE SERVICES MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

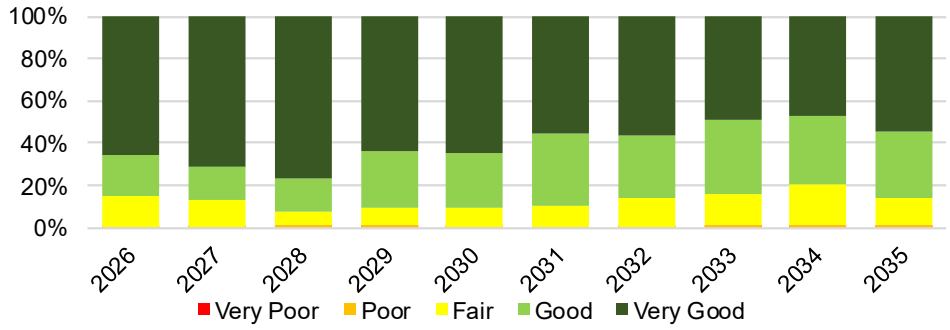


FIGURE 6-10: FIRE SERVICES BACKLOG SCENARIO PERFORMANCE FORECAST

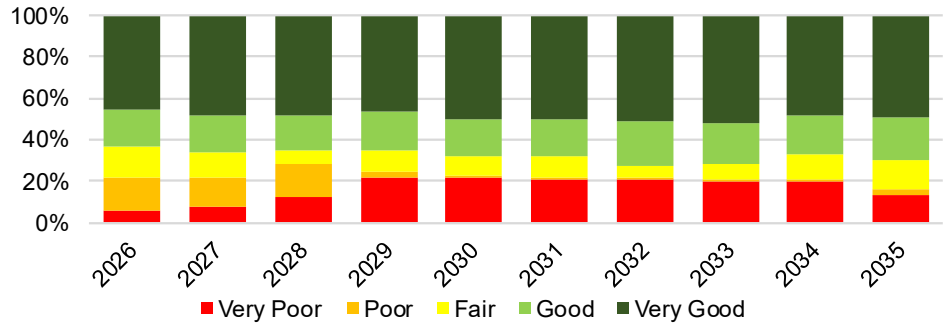


FIGURE 6-11: FIRE SERVICES PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 99% of the City's Fire Services assets meet the LOS of being in poor or better condition. Under the current anticipated capital budget of $0.70 million annually in renewals for the next 10 years the Fire Services portfolio is expected to decrease in overall level of service, resulting in 65% of

assets meeting the LOS of assets in poor or better condition. To maintain this portfolio of 99% of assets meeting LOS, it was determined the City would need to spend an annual average of $3.26 million in renewals. To eliminate all the backlog in Fire Services, and to keep 100% of assets in poor or better condition, it would cost an average annual of $3.75 million in renewals according to the Backlog Analysis for the next 10 years. Using the results of the scenarios as well as analyzing the capital budget for the next 10 years, the City determined that it would propose to spend an annual average of $1.9M on asset needs in order to balance risk, cost and LOS.

Table 6-9 and Figure 6-12 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for Fire Services assets. The bars on the Figure 6-12 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

TABLE 6-9: FIRE SERVICES BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$0.62M	$0.62M	$0.62M	$0.62M
Service Improvements	$0	$0	$0	$0
Growth Activities	$0.03M	$0.03M	$0.03M	$0.03M
Renewal & Replacement	**$0.70M**	**$3.26M**	**$3.75M**	**$1.90M**
Total Lifecycle Expenditures	$1.36M	$3.92M	$4.41M	$2.55M
Total Infrastructure Gap		$2.56M	$3.05M	$1.20M

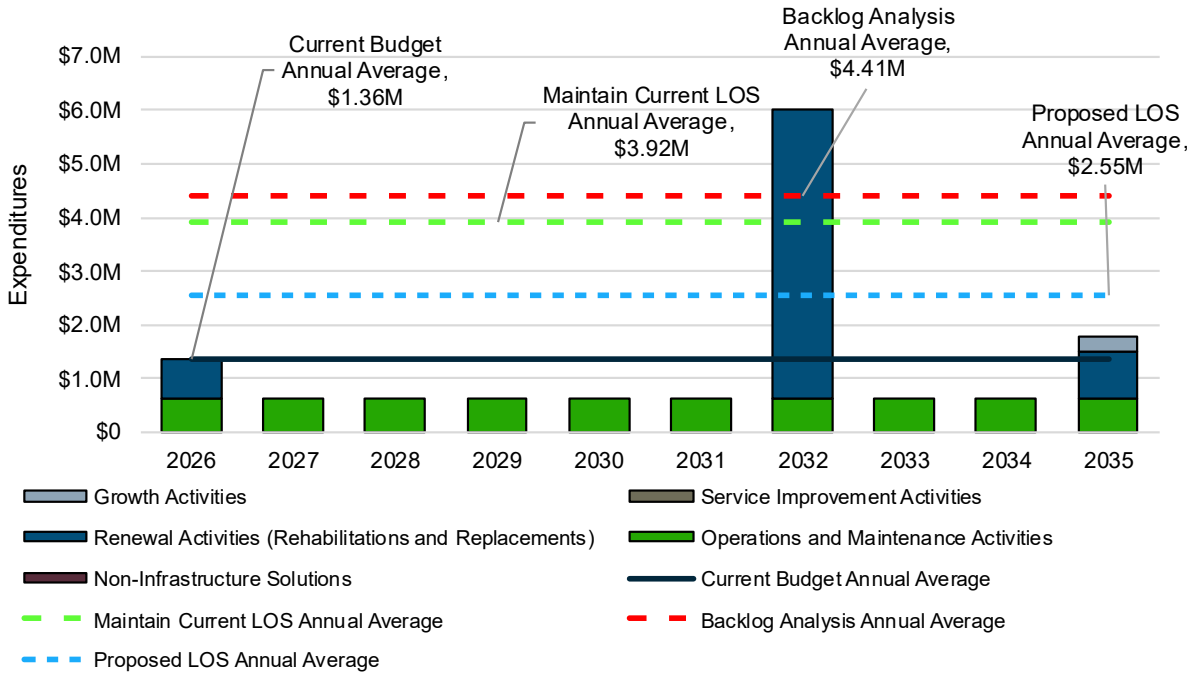


FIGURE 6-12: FIRE SERVICES SCENARIO ANALYSIS SUMMARY

6.2.5. Findings

Overall, the City maintains its Fire Services assets in good condition, with 99% of assets meeting the LOS threshold of being in poor or better condition. With the recent BCA completed on the City's facilities, data completeness and confidence is high, while for the remainder of Fire Services assets was also rated as high in confidence. The City should continue to maintain and update its BCA data as work is completed on its Fire Services facilities and subsequently as condition changes for their respective components. Furthermore, the City should continue to explore methods in which to improve the collection and maintenance on the rest of their asset data.

The results of the 10-year forecasts indicate that the City's current anticipated budget is not sufficient to maintain service levels over the forecasting period. Under the current anticipated budget, the overall service levels of assets meeting the LOS of poor or better condition are expected to decrease from 99% to 65%. To balance cost, risk and levels of service, the City proposed to increase their renewals and rehabilitation budget and spend an annual average of $1.9M on asset needs.

6.3. Paramedic Services

Cornwall's Paramedic Services is responsible for providing help to residents with urgent health emergencies. In order to provide these services to the public, assets such as emergency response vehicles and equipment, the EMS base, service response vehicles, and other equipment are used. The city is responsible for maintaining these assets. Figure 6-13 provides a summary of the assets reported within this subsection.



Paramedic Services

Facilities
- EMS Bases

Fleet & Equipment
- Emergency Response Equipment
- Emergency Response Vehicles
- Non-emergency Equipment
- Service Response Vehicles

FIGURE 6-13: PARAMEDIC SERVICES ASSET HIERARCHY

6.3.1. State of Infrastructure

This section outlines the state of infrastructure for Cornwall's Paramedic Services assets. This includes asset inventory and valuation, age and estimated service life, asset condition, data sources and data maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

6.3.1.1. Asset Inventory and Valuation

The replacement cost for the City's paramedics asset portfolio is approximately $34.79 million and is summarized in Table 6-10 and Figure 6-14.

TABLE 6-10: PARAMEDIC SERVICES ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Facilities ($26.16M)		
EMS Bases	1 Facility	$26.16M
Fleet & Equipment ($8.63M)		
Emergency Response Equipment	627 Asset(s)	$3.34M
Emergency Response Vehicles	16 Asset(s)	$4.16M
Non-emergency Equipment	2 Asset(s)	$0.01M
Service Response Vehicles	8 Asset(s)	$1.12M
Total		**$34.79M**

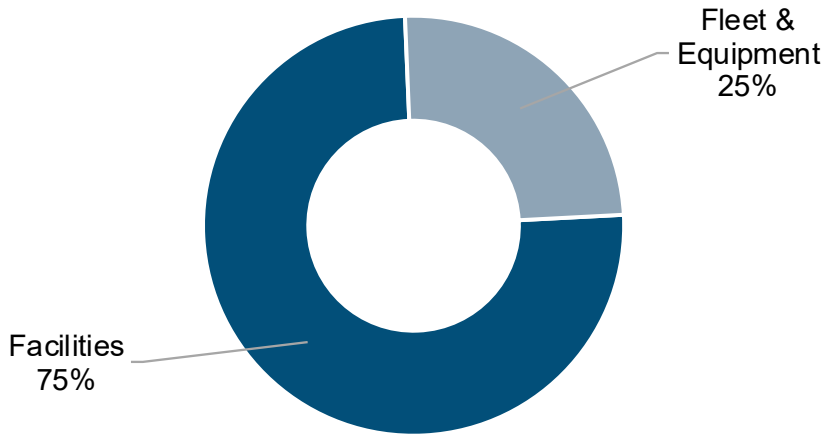


FIGURE 6-14: PARAMEDIC SERVICES VALUATION DISTRIBUTION BY ASSET CATEGORY

6.3.1.2. Age and Estimated Service Life

The average age of the City's Paramedic Services assets is 11 years old, while the average ESL is 38 years. Figure 6-15 provides a breakdown of the ages by asset class.

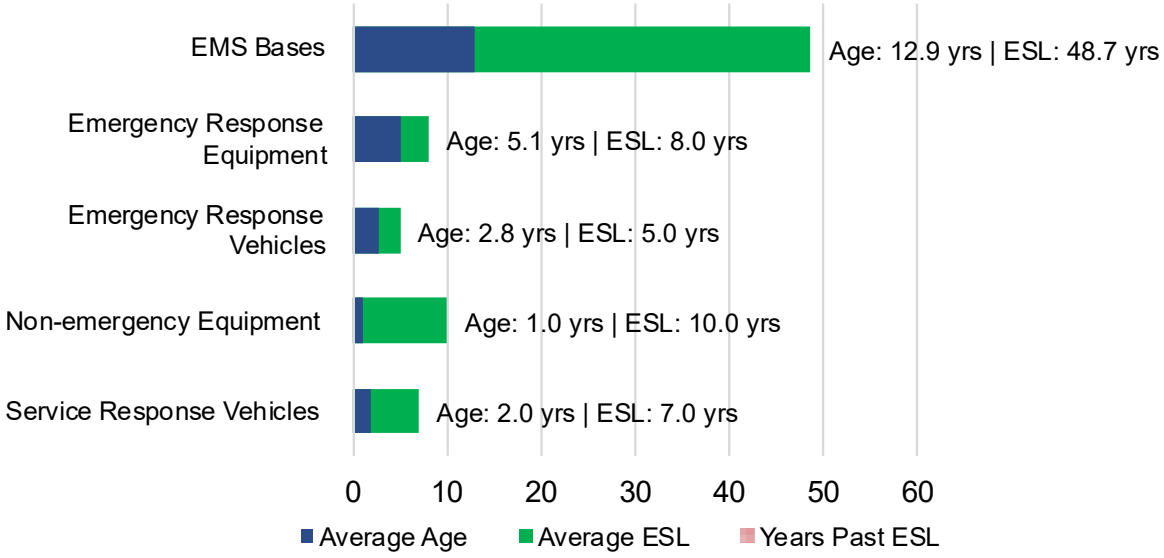


FIGURE 6-15: PARAMEDIC SERVICES SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 6-16 captures the installation decades in which the various asset classes were acquired and or installed by the City's Paramedic Services. The installation decades represented in Figure 6-16 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029).

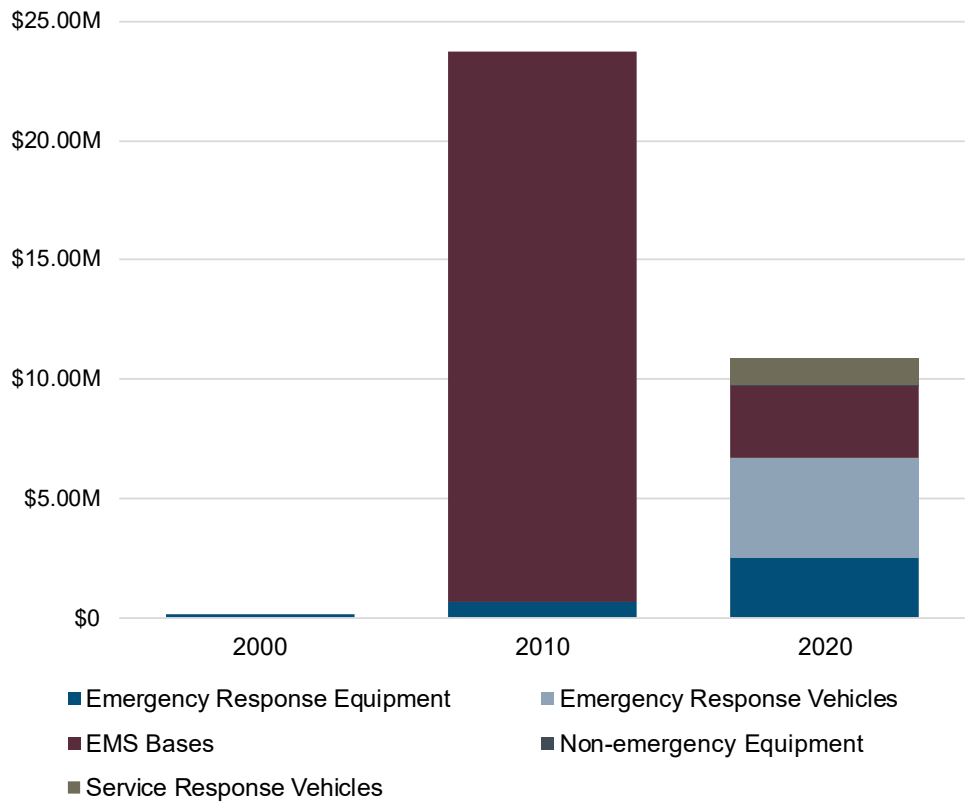


FIGURE 6-16: PARAMEDIC SERVICES INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

During the 2010s, the City constructed it's EMS Base, followed by substantial additions in the 2020s. With the average age of the City's Paramedic Services assets being 11 years old and the average ESL of 38 years, a bulk of renewals and rehabilitations are likely to be due in approximately 27 years. Asset Condition

The City has recently completed building condition assessments (BCAs) of the majority of its facilities in preparation for this Asset Management Plan. The BCA study identified current and future needs for all building elements within the City's facilities. Building elements were evaluated based on their current condition, as well as remaining life based on expert opinion. This information was then taken into account, and each facility element was given a score between one (Very good condition) to five (Very poor condition). Thus, a whole facility's condition was calculated based on an average condition of all its components' condition, weighted by replacement cost.

For vehicles and equipment, the City bases its understanding of asset needs on remaining service life. This metric was provided by City staff and represents the City's experts best understanding of the approximate timing that asset replacement is required. For many Paramedic Services assets, replacement timing (i.e. service life) is regulated, and the City must replace certain emergency equipment assets within these regulated timelines.

Table 6-11 and Table 6-12 provide a summary of the approaches used to collect data and assess condition of the City's paramedic services assets.

TABLE 6-11: PARAMEDIC SERVICES ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• Facilities	Building Condition Assessments	Every 5-years (min)
• Fleet and Equipment	Assets are reviewed by subject matter experts and assigned a remaining life, based on visual assessments. Where this wasn't possible, condition was understood by asset age and life consumed.	Annually, or as deemed appropriate by subject matter experts.

TABLE 6-12: PARAMEDIC SERVICES ASSETS CONDITION RATINGS

Category	Facility Element Condition	Fleet and Equipment (Remaining Life)	Life Consumed
Very Good	1	100% - 75%	0% - 25%
Good	2	75% - 50%	25% - 50%
Fair	3	50% - 25%	50% - 75%
Poor	4	25% - 0%	75% - 100%
Very Poor	5	< 0%	> 100%

Overall, the City's Paramedic Services are in good condition. A breakdown of the Paramedic Services condition profile as a whole can be found in Figure 6-17.

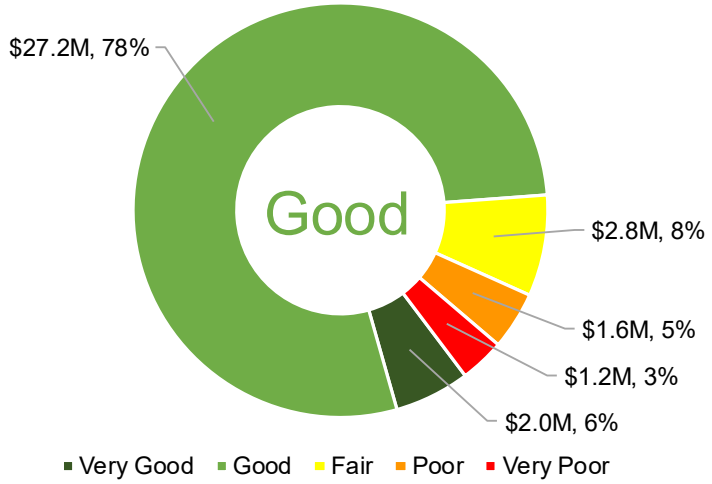


FIGURE 6-17: PARAMEDIC SERVICES NETWORK CONDITION SUMMARY

A breakdown of each asset classes' condition profile within the asset portfolio can be found in Figure 6-18. Currently, fleet and equipment assets are overall in Fair condition with about 14% of assets needing to be addressed. Facility assets are overall in Good condition.

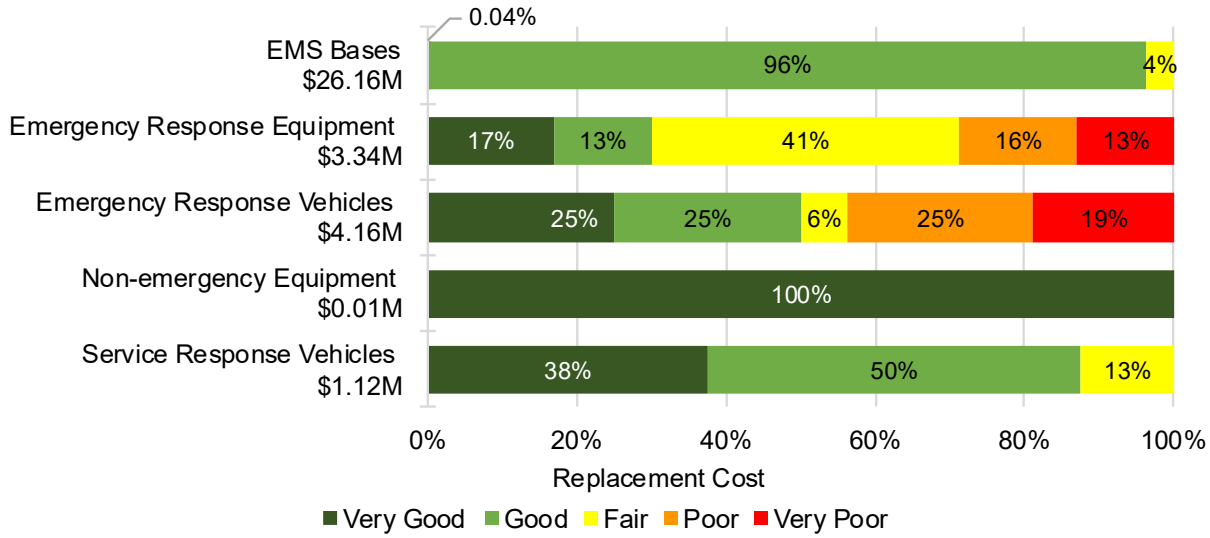


FIGURE 6-18: PARAMEDIC SERVICES CONDITION DISTRIBUTION BY ASSET CLASS

6.3.1.3. Data Sources and Maturity

Table 6-13 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 6-13: PARAMEDIC SERVICES DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
EMS Bases	Good	High	These assets were assessed in 2024, which provided the City with a complete and high confidence dataset.
Emergency Response Equipment	Good	High	Condition was assessed based on age and life consumed, with City Staff reviewing accuracy of the data.
Emergency Response Vehicles	Good	High	Condition was assessed based on age and life consumed, with City Staff reviewing accuracy of the data.
Non-emergency Equipment	Good	High	Condition was assessed based on age and life consumed, with City Staff reviewing accuracy of the data.
Service Response Vehicles	Good	High	Condition was assessed based on age and life consumed, with City Staff reviewing accuracy of the data.

6.3.2. Levels of Service

The goal of The City's Paramedics Services is to provide help in a heartbeat. This is achieved through ensuring quick response times, protecting and improving quality of life via paramedicine, providing reliable equipment and tools, improving technology and data, providing public education and awareness and being more environmentally conscious. Paramedic Services ensure emergency medical response, patient transport, and public health support, while also participating in community health initiatives that help reduce hospital pressures and improve local health outcomes

Community and technical levels of service can be found in Table 6-14 and Table 6-15 on the following pages.

TABLE 6-14: PARAMEDIC SERVICES COMMUNITY LEVELS OF SERVICE

Community Measures	Performance
Service Attributes: **Reliable**	
Response time - emergencies are responded to in a timely manner	The ambulance dispatch centre is legislated to develop a response time plan that it tracks performance against. Paramedics Services will continue to track response times and performance. The targets from this plan as well as performance are submitted to the ministry on an annual basis.
Providing reliable equipment and tools to protect the public and effectively respond to emergencies (ex. defibrillator)	Paramedics Services has a Defibrillator Program which has resulted in over 400 defibrillators being used. Paramedics Services strives to maintain its Defibrillator Program at its current level of service.
Service Attributes: **Quality**	
Protecting and improving quality of life - community paramedicine (CP)	Paramedics Services will continue to maintain a fully staffed CP program running 24 hours a day, 7 days a week.
Technology innovation and data provide better patient care.	Paramedics services will continue to use and procure vehicles that enable rapid response as well as vehicles equipped with an automated CPR device.
Education - community engagement	Public CPR education is to be introduced via Paramedics Services Communication Team.
Service Attributes: **Environmentally Conscious**	
Environmental Measure	Administration vehicles are moving to Electric. Paramedics Services is considering the use of electric vehicles for Emergency vehicles as technology improves. Administration vehicles to continue to assess and progress towards becoming electric where possible as technology continues to advance.

TABLE 6-15: PARAMEDIC SERVICES TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of Assets in Poor or Better Condition	Fleet	85%	Maintain
Percentage of Assets in Poor or Better Condition	Equipment	87%	Maintain
Percentage of Assets in Poor or Better Condition	Facilities	100%	Maintain
Ambulance Spare Ratio	Fleet	1-4 spares available depending on time of day/maintenance schedules.	Improve
Service Attribute: **Environmental**			
Percentage of fleet that are zero emission vehicles	Fleet	3%	Improve
Service Attribute: **Technology**			
Percentage of time when equipment is available and operating properly	Equipment	100%	Maintain

6.3.3. Lifecycle Management Strategy

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's Paramedic Services and the assets they're responsible for. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship. Table 6-16 and Table 6-17 summarize the various lifecycle activities that the City undertakes to ensure that its Paramedic Services assets continue to support the services they provide.



TABLE 6-16: LIFECYCLE ACTIVITIES – PARAMEDIC SERVICES FACILITIES

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Building condition assessment program	Every 5-years (min)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Major equipment or structural building component replacement	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new facilities in new subdivisions or expansion of existing facilities to accommodate for increased demand and population growth.	As identified through growth and development studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

TABLE 6-17: LIFECYCLE ACTIVITIES – PARAMEDIC SERVICES FLEET & EQUIPMENT

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Replacement of assets at end of life.	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Purchase/procurement of additional equipment and fleet assets to support population growth or service expansion	As identified by staff or through studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

6.3.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 6.3.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 6-16 and Table 6-17. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's Financial Strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 6-19, Figure 6-20, Figure 6-21, and Figure 6-22 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

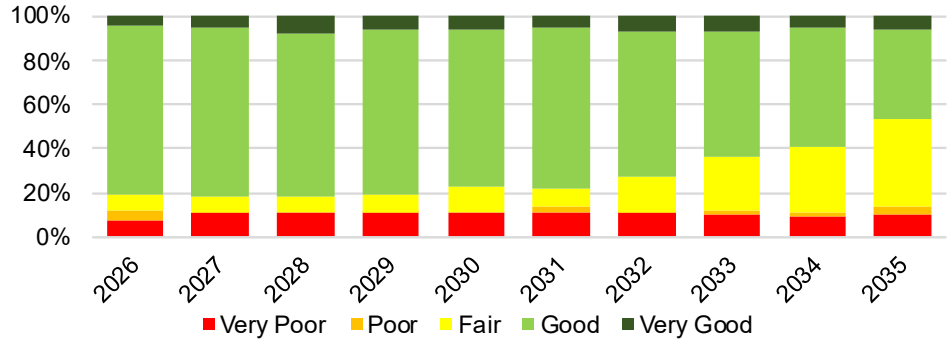


FIGURE 6-19: PARAMEDICS SERVICES ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

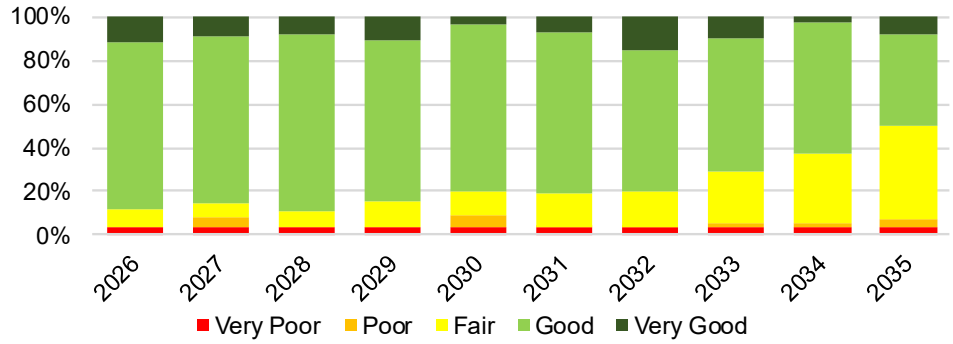


FIGURE 6-20: PARAMEDICS SERVICES MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

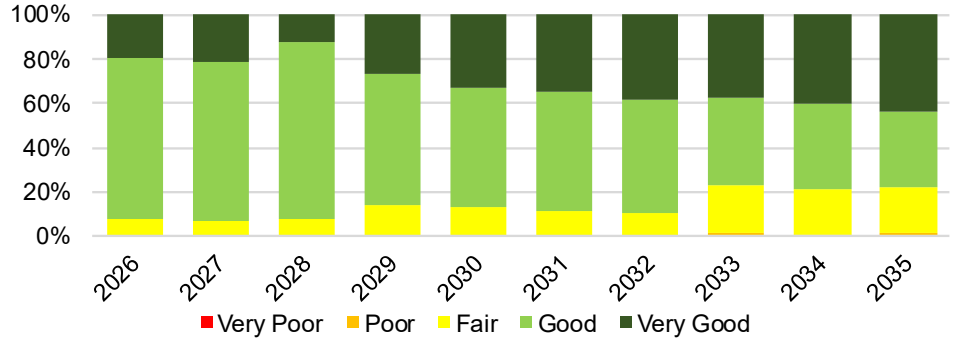


FIGURE 6-21: PARAMEDICS SERVICES BACKLOG SCENARIO PERFORMANCE FORECAST

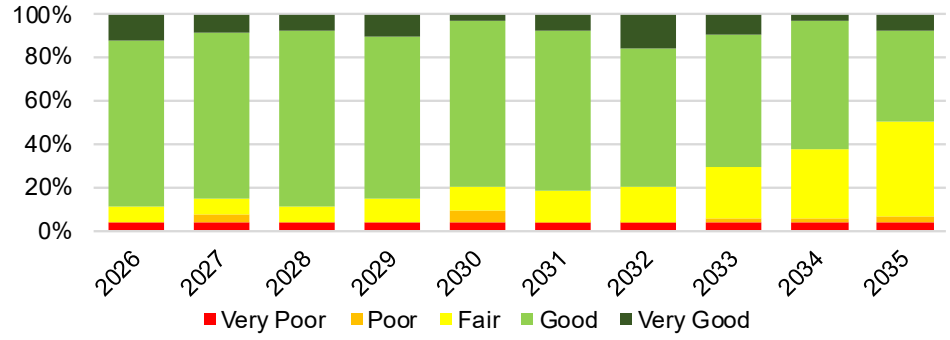


FIGURE 6-22: PARAMEDICS SERVICES PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 99% of the City's paramedics services assets meet the LOS of being in poor or better condition. Under the current anticipated capital budget of $0.96 million annually in renewals for the next 10 years the paramedic services asset portfolio is expected to decrease slightly in overall level of service, resulting in 90% of assets meeting the LOS of assets in poor or better condition. To maintain this portfolio of 99% of assets meeting LOS, it was determined the City would need to spend an annual average of $1.53 million in renewals. To eliminate all the backlog in paramedics services, and to keep 100% of assets in poor or better condition, it would cost an average annual of $2.90 million in renewals according to the Backlog Analysis. Using the results of the scenarios as well as analyzing the capital budget for the next 10 years, the City determined that it would propose to maintain its current service levels, costing the city an additional $0.57 million annually in renewals.

Table 6-18 and Figure 6-23 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for paramedic services assets. The bars on the Figure 6-23 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

TABLE 6-18: PARAMEDICS SERVICES BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$2.63M	$2.63M	$2.63M	$2.63M
Service Improvements	$0	$0	$0	$0
Growth Activities	$0.0060M	$0.0060M	$0.0060M	$0.0060M
Renewal & Replacement	**$0.96M**	**$1.53M**	**$2.90M**	**$1.53M**
Total Lifecycle Expenditures	$3.60M	$4.17M	$5.54M	$4.17M
Total Infrastructure Gap		$0.57M	$1.94M	$0.57M

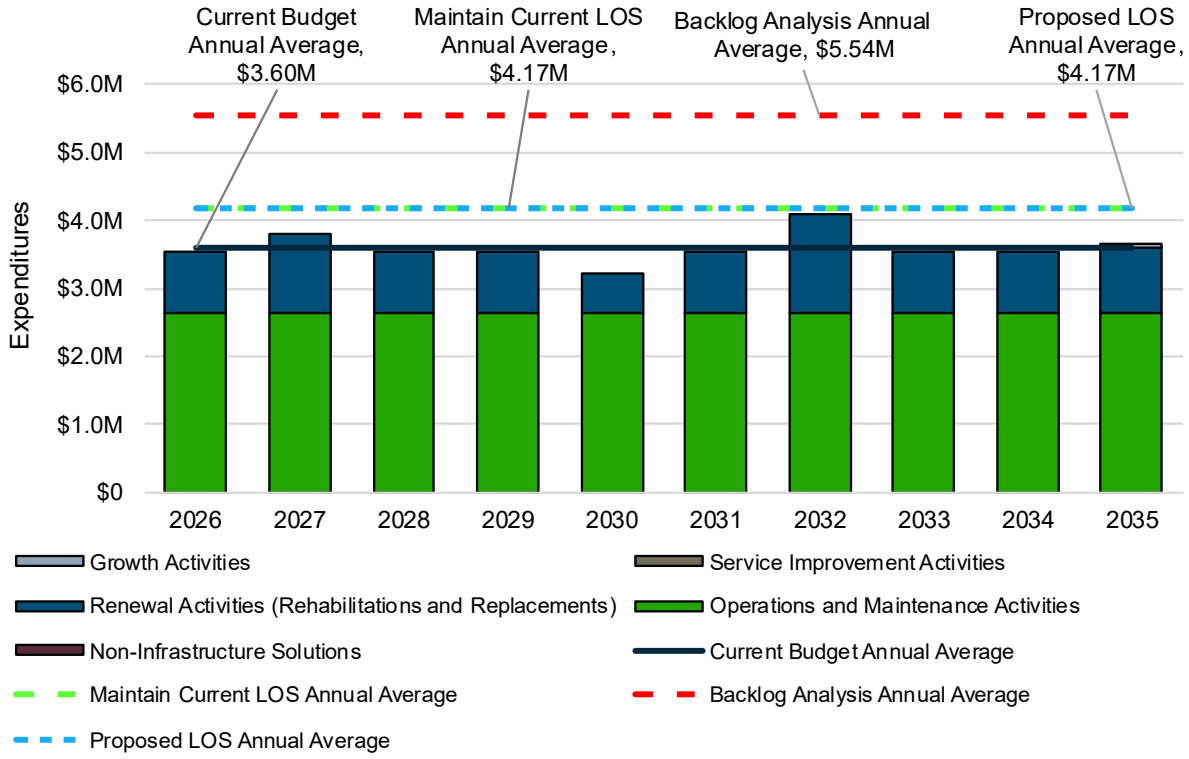


FIGURE 6-23: PARAMEDICS SERVICES SCENARIO ANALYSIS SUMMARY

6.3.5. Findings

Overall, the City maintains its paramedics services assets in good condition, with 99% of assets meeting the LOS threshold of being in poor or better condition. With the recent BCA completed on the City's facilities, data completeness and confidence is high for paramedics facilities, as well as fleet and equipment. The City should continue to maintain and update its BCA data as work is completed on all its facilities and subsequently as condition changes for their respective components.

The results of the 10-year forecasts indicate that the City's current anticipated budget is not sufficient to maintain service levels over the forecasting period. The current gap between the anticipated budget and the proposed LOS budget is approximately $0.57 million each year. The backlog analysis highlighted needs over the next 10 years both by asset condition data as well as recommendations from the most recently completed BCA on all the City's facilities. As a result, the total lifecycle investment needed each year resulted in approximately $2.90 million. It was concluded that the City would further evaluate the results of BCA to better gauge the essential work needed to eliminate the backlog. As a result, since the gap between the current anticipated budget and the maintain current LOS was only $0.57 million, the City proposed to maintain its current levels of service in order to balance cost, risk and levels of service.

6.4. Police Services

The City of Cornwall's police services are responsible for the protection of the community against crime. Police services include assets such as non-emergency equipment, emergency response equipment, emergency response vehicles and service response vehicles. Note that the City's police station is located in the Justice Building. The Justice Building is detailed as part of the "General Government" service. Figure 6-24 provides a summary of the assets reported within this subsection.



FIGURE 6-24: POLICE SERVICES ASSET HIERARCHY

6.4.1. State of Infrastructure

This section outlines the state of infrastructure for the City's Police Services and the assets that support their operations. The analysis provides an overview of the asset inventory and valuation, detailing the current replacement value of Police Service assets. It also examines the age profile and estimated service life of each asset category to help identify where renewal or replacement may be required in the coming years. Understanding the condition and performance of these assets is fundamental to ensuring that officers and staff have safe, functional, and efficient resources to carry out their duties. Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

6.4.1.1. Asset Inventory and Valuation

The replacement cost for the City's police services asset portfolio is approximately $6.46 million and is summarized in Table 6-19 and Figure 6-25.

TABLE 6-19: POLICE SERVICES ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Fleet and Equipment ($6.46M)		
Emergency Response Equipment	229 Asset(s)	$3.14M
Emergency Response Vehicles	25 Asset(s)	$1.33M
Non-emergency Equipment	64 Asset(s)	$0.31M
Service Response Vehicles	25 Asset(s)	$1.67M
Total		**$6.46M**

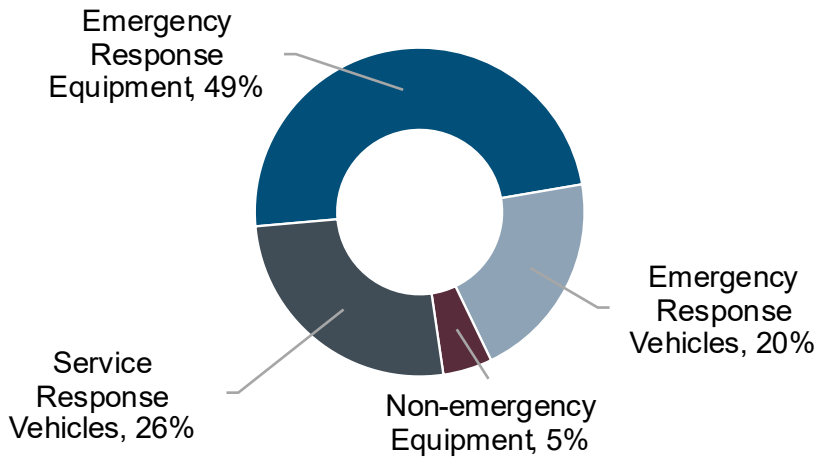


FIGURE 6-25: POLICE SERVICES VALUATION DISTRIBUTION BY ASSET CATEGORY

6.4.1.2. Age and Estimated Service Life

The average age of the City's police services assets is 6 years old, while the average ESL is 11 years. Figure 6-26 provides a breakdown of the ages by asset class.

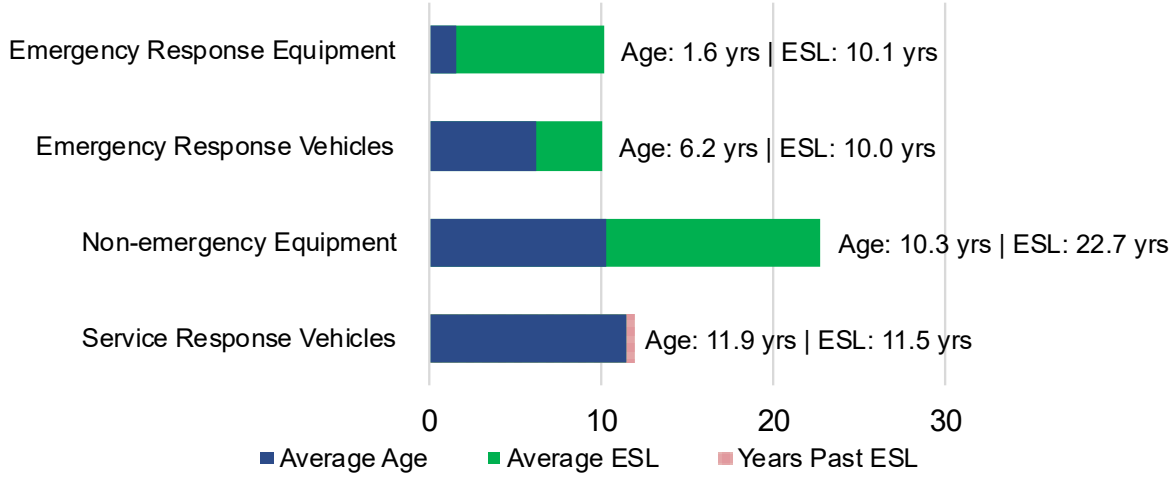


FIGURE 6-26: POLICE SERVICES SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 6-27 captures the installation decades in which the various asset classes were acquired and or installed by the City's Police services. The installation decades represented in Figure 6-27 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029).

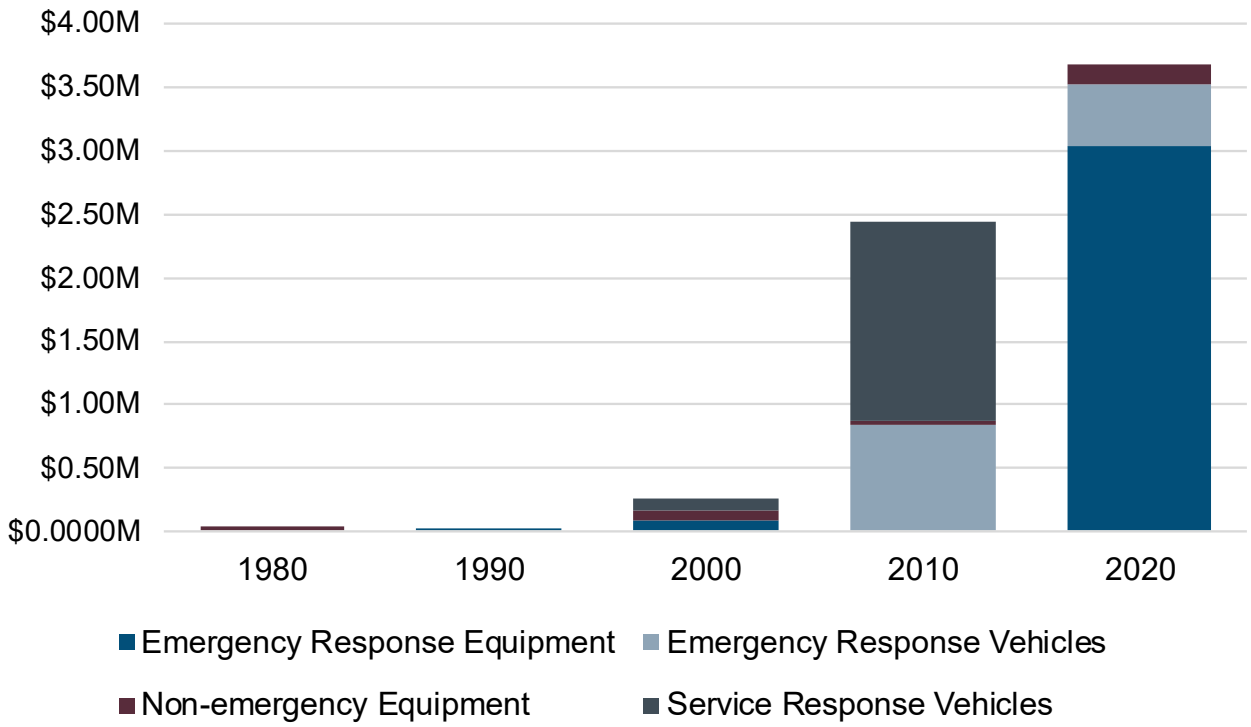


FIGURE 6-27: POLICE SERVICES INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

Due to the shorter lifespan of the City's police services equipment, the current asset portfolio is mainly comprised of assets acquired within the last 25 years, with the bulk of them acquired during the 2010s and the 2020s. Police and emergency services equipment must be kept up to date to comply with provincial regulations to ensure emergency responders are using up-to-date equipment.



6.4.1.3. Asset Condition

The condition of the City's fleet and equipment is based on asset needs and remaining service life. This metric was provided by City staff and represents the City's experts best understanding of the approximate timing that asset replacement is required. For many Police Services assets, replacement timing (i.e. service life) is regulated, and the City must replace certain emergency equipment assets within these regulated timelines.

Table 6-20 and Table 6-21 provide a summary of the approaches used to collect data and assess condition of the City's police services assets.

TABLE 6-20: POLICE SERVICES ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• Fleet and Equipment	Assets are reviewed by subject matter experts and assigned a remaining life, based on visual assessments. Where this wasn't possible, condition was understood by asset age and life consumed.	Annually, or as deemed appropriate by subject matter experts.

TABLE 6-21: POLICE SERVICES ASSETS CONDITION RATINGS

Category	Vehicles and Equipment (Remaining Life)	Life Consumed
Very Good	100% - 75%	0% - 25%
Good	75% - 50%	25% - 50%
Fair	50% - 25%	50% - 75%
Poor	25% - 0%	75% - 100%
Very Poor	< 0%	> 100%

Overall, the City's police services assets are in good condition. Majority of assets are in Very Good condition, followed by Very Poor, Poor and Fair condition, resulting in an average condition of "Good". A breakdown of the police services asset condition profile as a whole can be found in Figure 6-28.

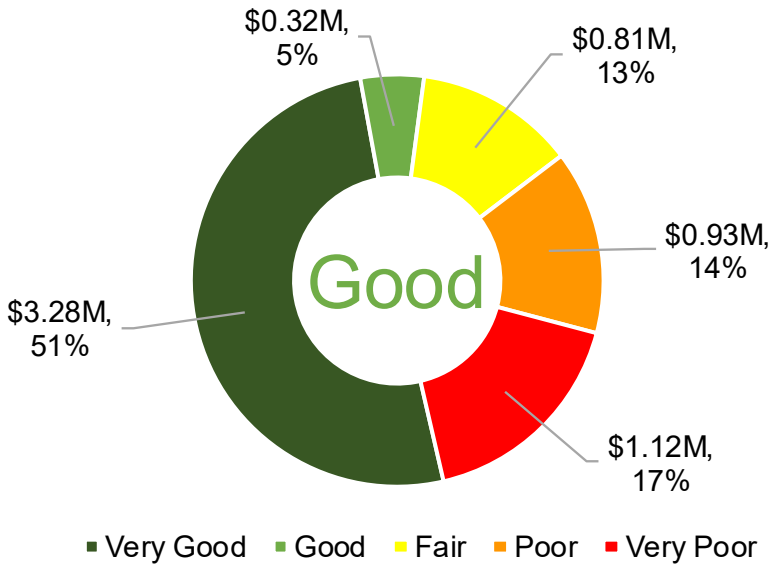


FIGURE 6-28: POLICE SERVICES NETWORK CONDITION SUMMARY

A breakdown of each asset classes' condition profile within the asset portfolio can be found in Figure 6-29. Currently, service response vehicles have a large portion of assets that will need to be addressed now, with the rest of assets being in Fair to Poor condition, resulting in renewals being due soon. Non-emergency response equipment has a small portion of assets due for renewal now, with emergency response equipment and vehicles also have assets that need addressing.

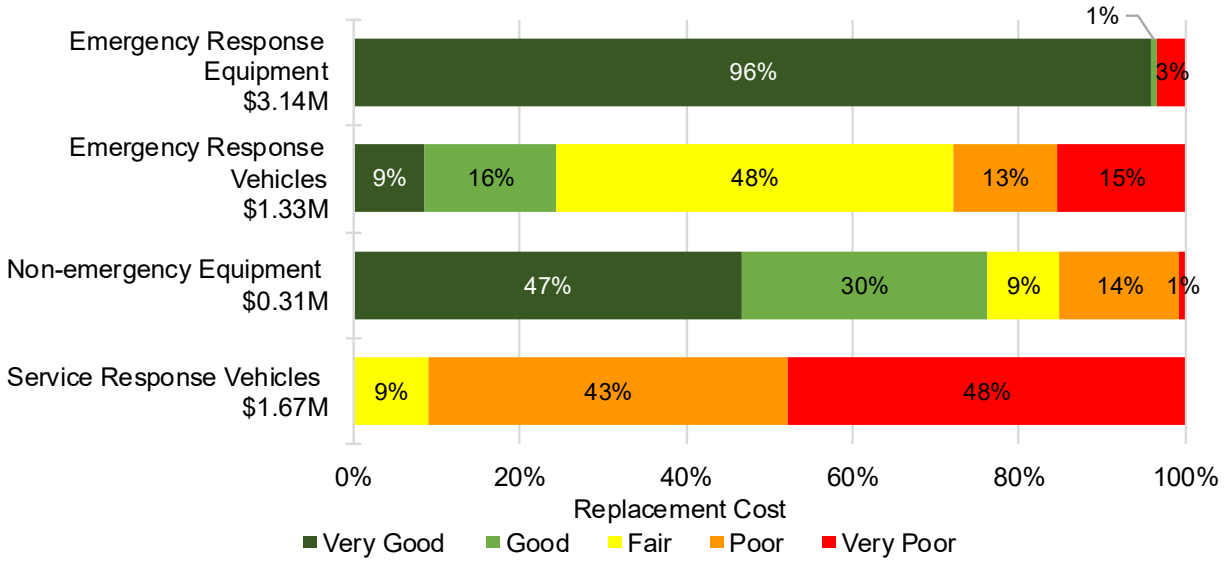


FIGURE 6-29: POLICE SERVICES CONDITION DISTRIBUTION BY ASSET CLASS

6.4.1.4. Data Sources and Maturity

Table 6-22 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 6-22: POLICE SERVICES DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Emergency Response Equipment	Good	High	Condition was assessed based on age and life consumed, with City Staff reviewing accuracy of the data.
Emergency Response Vehicles	Good	High	Condition was assessed based on age and life consumed, with City Staff reviewing accuracy of the data.
Non-emergency Equipment	Good	High	Condition was assessed based on age and life consumed, with City Staff reviewing accuracy of the data.
Service Response Vehicles	Good	High	Condition was assessed based on age and life consumed, with City Staff reviewing accuracy of the data.

6.4.2. Levels of Service

The Cornwall Police Service shall ensure adequate and effective policing is provided in the area for which they have policing responsibility in accordance with the needs of the population in the area and having regard for the diversity of the population in the area. This is achieved by ensuring emergency response time is achieved in a timely manner, ensuring public safety and security, improving technology and data, and facilitating education and awareness to the public. The Cornwall Police Service maintains public order, enforces laws, and provides crime prevention, youth engagement, and community outreach programs to strengthen relationships and enhance trust with residents.

Community and technical levels of service can be found in Table 6-23 and Table 6-24 on the following page.



TABLE 6-23: POLICE SERVICES COMMUNITY LEVELS OF SERVICE

Community Measures	Performance
Service Attributes: **Reliable**	
Response time - emergencies are responded to in a timely manner	Police Services will continue to keep its assets in a state of good repair to ensure that they are reliable and available to officers so that they do not hinder responses to incidents.
Service Attributes: **Reliable; Safe**	
Public safety and protection, security	Police Services will continue to keep its assets in a state of good repair to ensure that they are available for officer use when needed. Police service actively monitors and reports on several metrics, such as crime resolution rates.
Service Attributes: **Safe**	
Police Services actively engages the community	Police Services will continue to complete community outreach programs and monitor them to ensure they are actively providing presence in the community
Service Attributes: **Quality**	
Technology innovation and data provide better police services.	All officers are trained for use of body-worn cameras. Police services ensures that cameras are available for officers and in police vehicles.

TABLE 6-24: POLICE SERVICES TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of Assets in Poor or Better Condition	Fleet	66%	Improve
Percentage of Assets in Poor or Better Condition	Equipment	97%	Improve
Service Attribute: **Safe**			
Number of community outreach programs conducted.	All	110	Improve
Service Attribute: **Quality**			
Percentage of officers fitted with Body-worn Cameras	N/A	100%	Maintain
Percentage of vehicles fitted with in-car cameras	Emergency Response Vehicles	100%	Maintain

6.4.3. Lifecycle Management Strategy

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's police services and the assets they're responsible for. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship. Table 6-25 summarizes the various lifecycle activities that the City undertakes to ensure that its police services assets continue to support the services they provide.



TABLE 6-25: LIFECYCLE ACTIVITIES – POLICE SERVICES FLEET & EQUIPMENT

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Through strategic plan framework
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Replacement of assets at end of life.	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Purchase/procurement of additional equipment and fleet assets to support population growth or service expansion	As required
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

6.4.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 6.4.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in. Table 6-25 These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's Financial Strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 6-30, Figure 6-31, Figure 6-32, and Figure 6-33 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

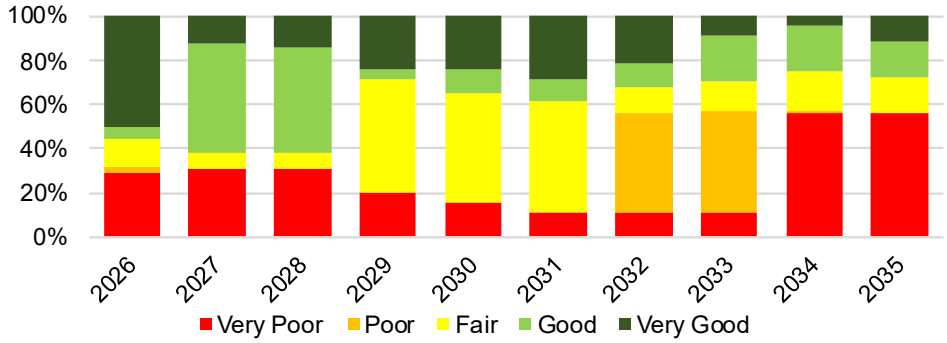


FIGURE 6-30: POLICE SERVICES ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

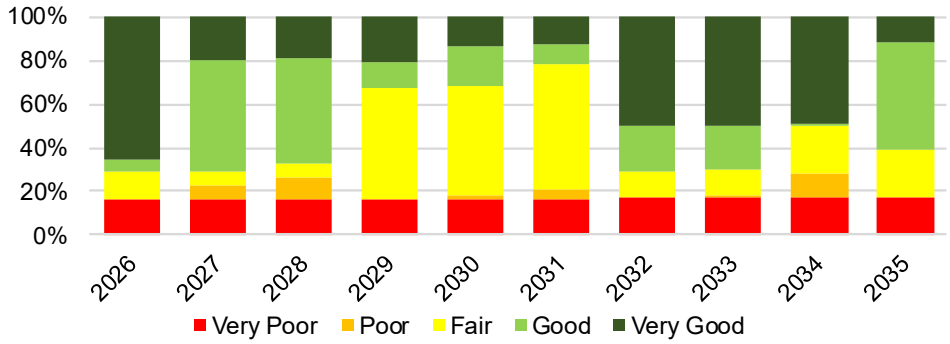


FIGURE 6-31: POLICE SERVICES MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST



FIGURE 6-32: POLICE SERVICES BACKLOG SCENARIO PERFORMANCE FORECAST

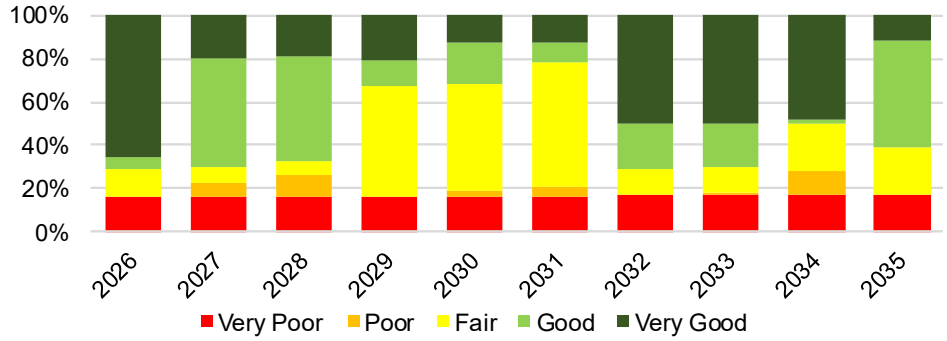


FIGURE 6-33: POLICE SERVICES PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 88% of the City's police assets meet the LOS of being in poor or better condition. Under the current anticipated capital budget of $0.45 million annually in renewals for the next 10 years the police asset portfolio is expected to decrease in overall level of service, resulting in 44% of assets meeting the LOS of assets in poor or better condition. To maintain this portfolio of 88% of assets meeting LOS, it was determined the City would need to spend an annual average of $0.59 million in renewals. To eliminate all the backlog in police services, and to keep 100% of assets in poor or better condition, it would cost an average annual of $0.84 million in renewals according to the Backlog Analysis. Using the results of the scenarios as well as analyzing the capital budget for the next 10 years, the City determined that it would propose to maintain its current service levels and aim to spend $0.59 million in renewals annually.

Table 6-26 and Figure 6-34 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for police services assets. The bars on the Figure 6-34 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

TABLE 6-26: POLICE SERVICES BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$0.55M	$0.55M	$0.55M	$0.55M
Service Improvements	$0	$0	$0	$0
Growth Activities	$0	$0	$0	$0
Renewal & Replacement	**$0.45M**	**$0.59M**	**$0.84M**	**$0.59M**
Total Lifecycle Expenditures	**$1.00M**	**$1.14M**	**$1.39M**	**$1.14M**
Total Infrastructure Gap		**$0.14M**	**$0.39M**	**$0.14M**

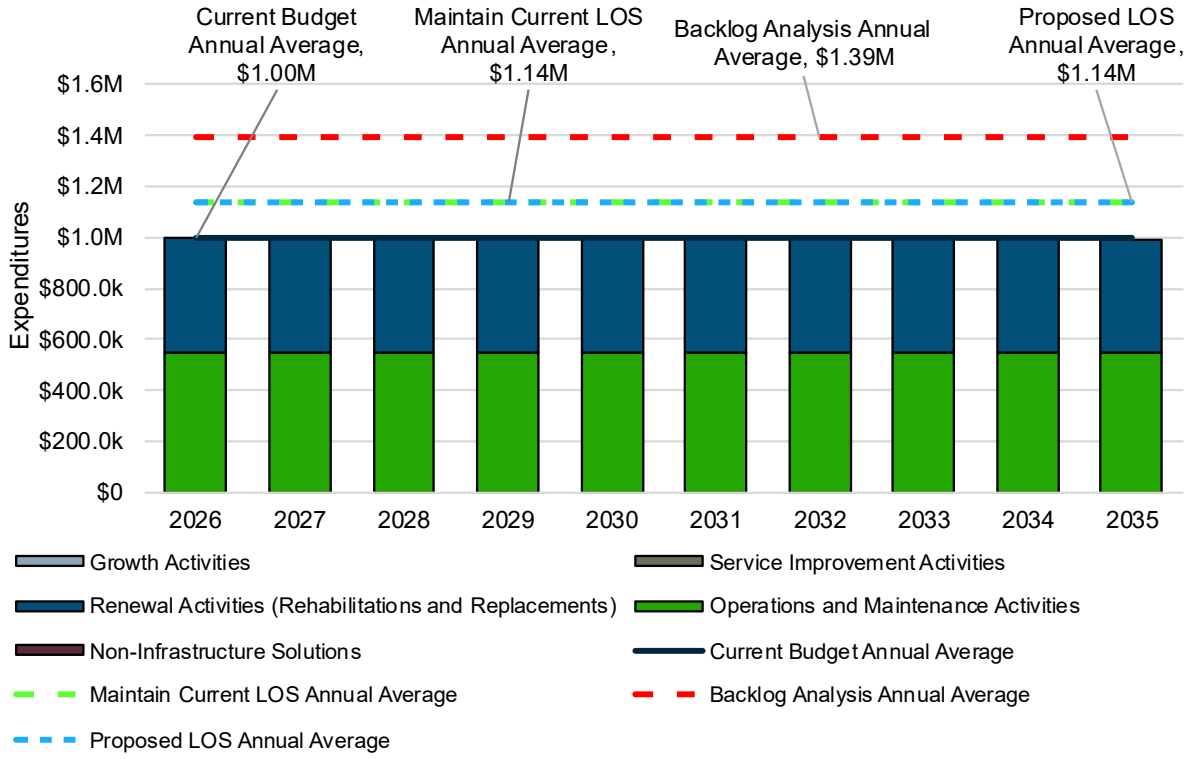


FIGURE 6-34: POLICE SERVICES SCENARIO ANALYSIS SUMMARY

6.4.5. Findings

Overall, the City maintains its police services assets in good condition, with 88% of assets meeting the LOS threshold of being in poor or better condition. The City's police services conduct routine maintenance on their fleet and equipment assets and keep asset records up to date. Subsequent audits and annual reports are performed on the maintenance of these assets, and as such data completeness and data confidence is high.

The results of the 10-year forecasts indicate that the City's current anticipated budget is not sufficient to maintain service levels over the forecasting period. The current gap between the anticipated budget and the proposed LOS budget is approximately $0.14 million each year. The backlog analysis highlighted needs over the next 10 years by asset condition data. As a result, the total lifecycle investment needed each year resulted is approximately $1.39 million. As a result, since the gap between the current anticipated budget and the maintain current LOS was only $0.14 million, the City proposed to maintain its current levels of service in order to balance cost, risk and levels of service.



Environmental Services

City of Cornwall

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7. Environmental Services

7.1. Summary

Environmental services provide solid waste management services for the City which are responsible for ensuring the safe, efficient, and environmentally responsible collection, processing, and disposal of solid waste generated within the community. This service plays a vital role in protecting public health, maintaining environmental quality, and supporting the City's long-term sustainability objectives.

An overall summary of the replacement value and condition of the assets within this service (for this 2025 plan) is provided below in Figure 7-1. Subsection 7.2 provides further details on the asset classes within the Environmental Services.

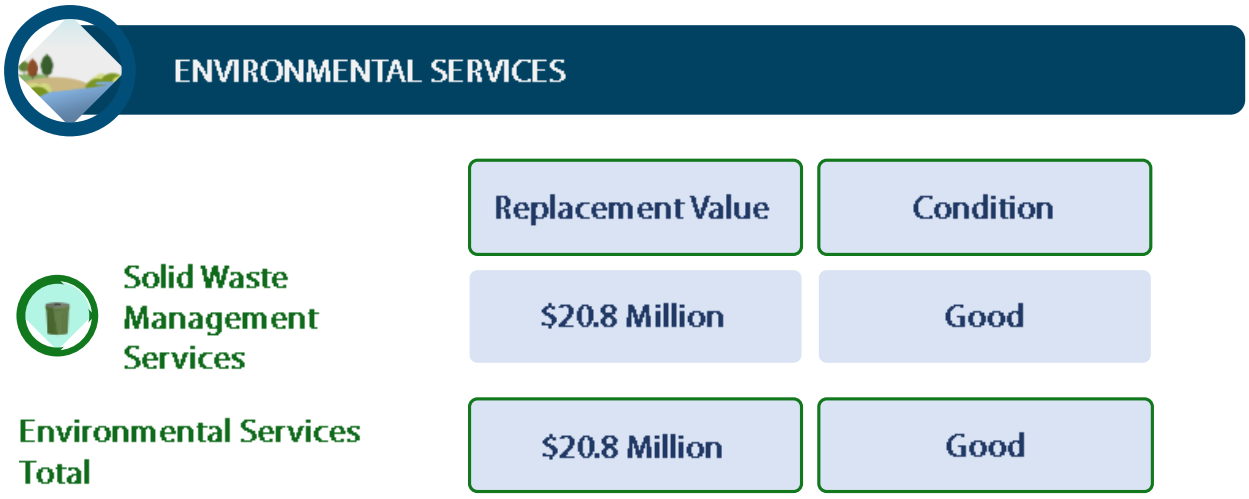


FIGURE 7-1: ENVIRONMENTAL SERVICES CONDITION AND REPLACEMENT VALUE SUMMARY

7.2. Solid Waste Management Services

This section outlines the current state of the infrastructure, levels of service, lifecycle management strategies and the ways the City funds the lifecycle activities in order to provide its solid waste management services to the residents of Cornwall. The following figure shows the asset hierarchy for the City's solid waste management services.



FIGURE 7-2: SOLID WASTE MANAGEMENT SERVICES ASSET HIERARCHY



7.2.1. State of Infrastructure

This section outlines the state of infrastructure for Cornwall's solid waste management assets. This includes asset inventory and valuation, age and estimated service life, asset condition, data sources and data maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

7.2.1.1. Asset Inventory and Valuation

The replacement cost for the City's solid waste management asset portfolio is approximately $20.79 million and is summarized in Table 7-1 and Figure 7-3.

TABLE 7-1: SOLID WASTE MANAGEMENT SERVICES ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Equipment ($11.43M)		
Landfill Gas Collection System	1 Facility	$1.63M
Leachate Collection System	4 Asset(s)	$9.80M
Facilities ($9.36M)		
Ancillary Buildings	4 Facilities	$2.68M
Flare Compound	1 Facility	$2.10M
Household Hazardous Waste Facility	1 Facility	$0.93M
Leachate Pumping Station	2 Facility	$0.55M
Recycling Plant	1 Facility	$3.10M
Total		**$20.79M**

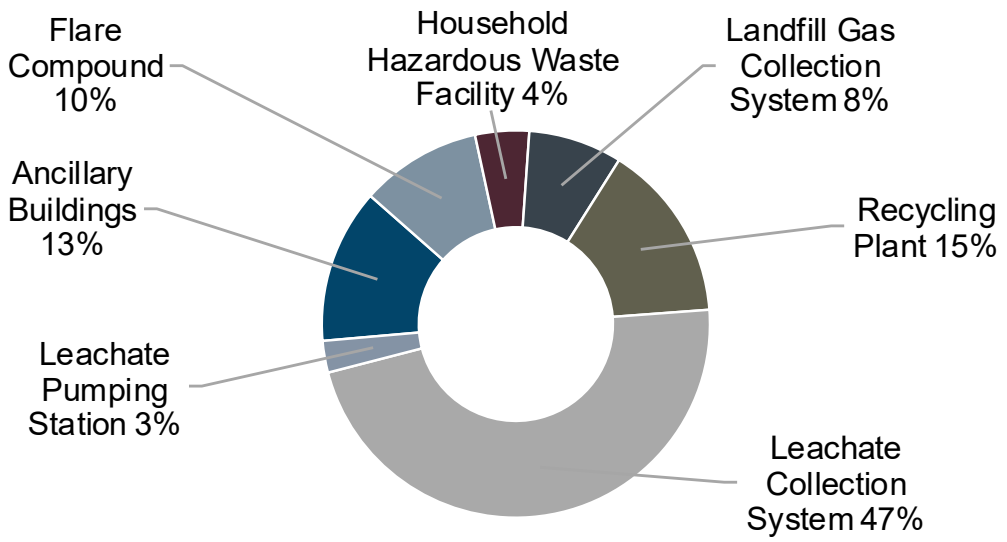


FIGURE 7-3: SOLID WASTE MANAGEMENT VALUATION DISTRIBUTION BY ASSET CATEGORY

7.2.1.2. Age and Estimated Service Life

The average age of the City's solid waste management assets is 23 years old, while the average ESL is 50 years. Figure 7-4 provides a breakdown of the ages by asset class.

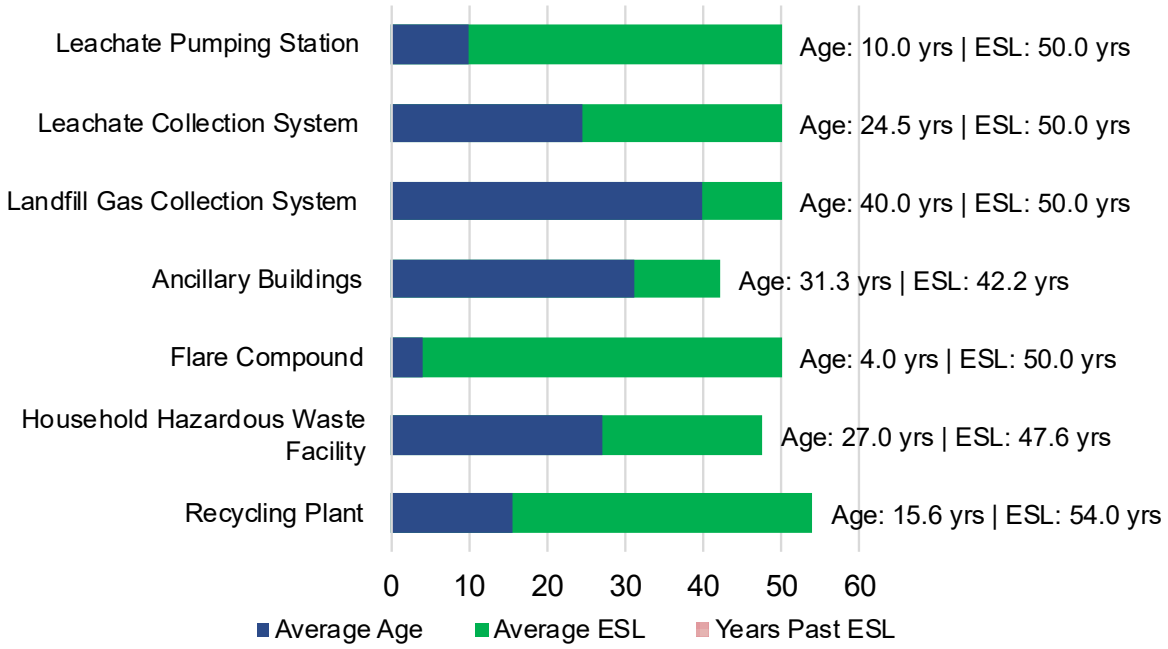


FIGURE 7-4: SOLID WASTE MANAGEMENT SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 7-5 captures the installation decades in which the various asset classes were acquired and or installed by the City's solid waste management services. The installation decades represented in Figure 7-5 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029).

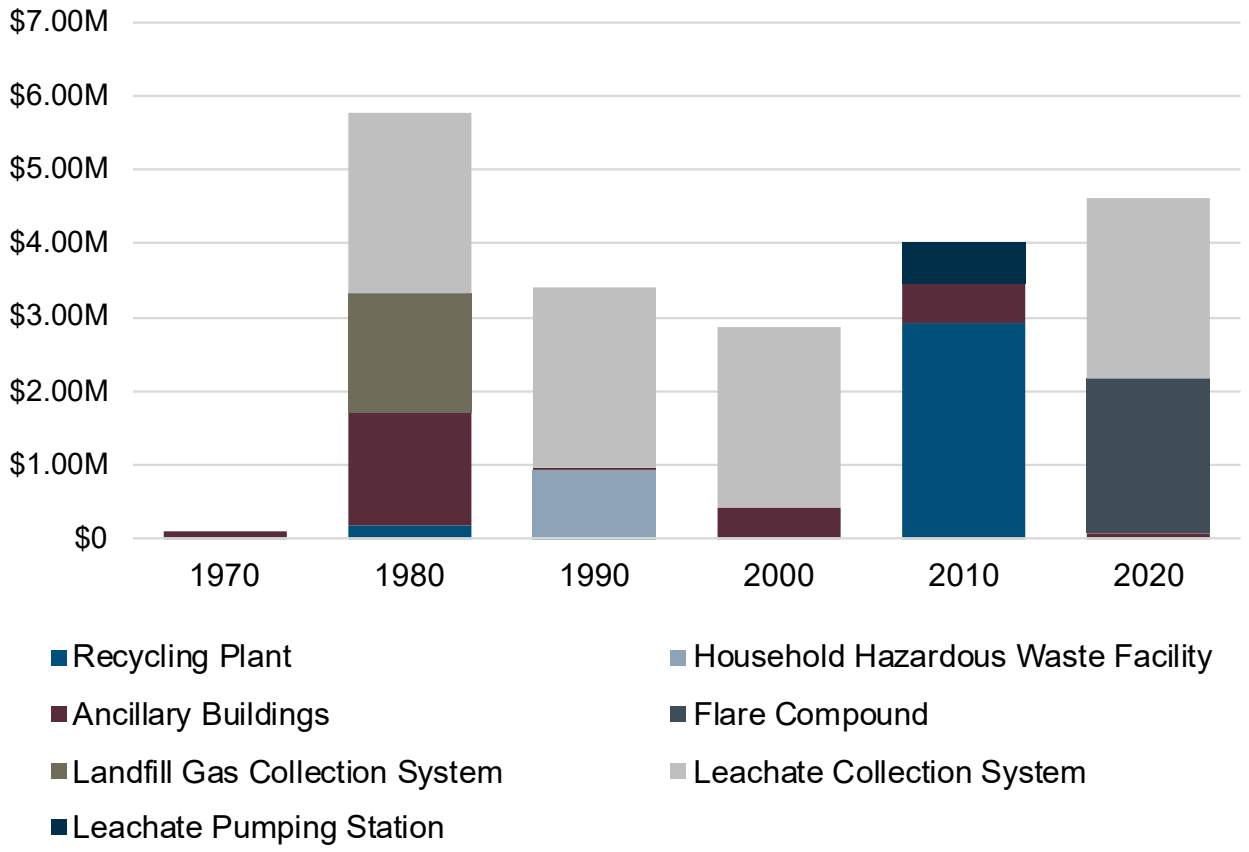


FIGURE 7-5 SOLID WASTE MANAGEMENT ASSETS INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

During the 1980's, the City greatly expanded its solid waste management portfolio, followed by steady additions from the 1990's and onwards. With the average age of the City's solid waste management assets being 23 years old and the average ESL of 50 years, a bulk of renewals and rehabilitations are likely to be due in approximately 27 years.

7.2.1.3. Asset Condition

The City has recently completed building condition assessments (BCAs) of the majority of its facilities in preparation for this Asset Management Plan. The BCA study identified current and future needs for all building elements within the City's facilities. Building elements were evaluated based on their current condition, as well as remaining life based on expert opinion. This information was then taken into account, and each facility element was given a score between one (Very good condition) to five (Very poor condition). Thus, a whole facility's condition was calculated based on an average condition of all its components' condition, weighted by replacement cost.

For equipment, the City bases its understanding of asset needs on remaining service life. This metric was provided by City staff and represents the City's experts best understanding of the approximate timing that asset replacement is required.

Table 7-2 and Table 7-3 provide a summary of the approaches used to collect data and assess condition of the City's solid waste management assets.

TABLE 7-2: SOLID WASTE MANAGEMENT SERVICES ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• **Facilities**	Building Condition Assessments	Every 5-years (min)
• **Equipment**	Assets are reviewed by subject matter experts and assigned a remaining life, based on visual assessments.	Annually, or as deemed appropriate by subject matter experts.

TABLE 7-3: SOLID WASTE MANAGEMENT SERVICES ASSETS CONDITION RATINGS

Category	Facility Element Condition	Equipment (Remaining Life)	Life Consumed
Very Good	1	100% - 75%	0% - 25%
Good	2	75% - 50%	25% - 50%
Fair	3	50% - 25%	50% - 75%
Poor	4	25% - 0%	75% - 100%
Very Poor	5	< 0%	> 100%

Overall, the City's solid waste management assets are in good condition. Majority of assets are in Very Good to Fair condition, resulting in an average condition of "Good". A breakdown of the solid waste management assets condition profile as a whole can be found in Figure 7-6.

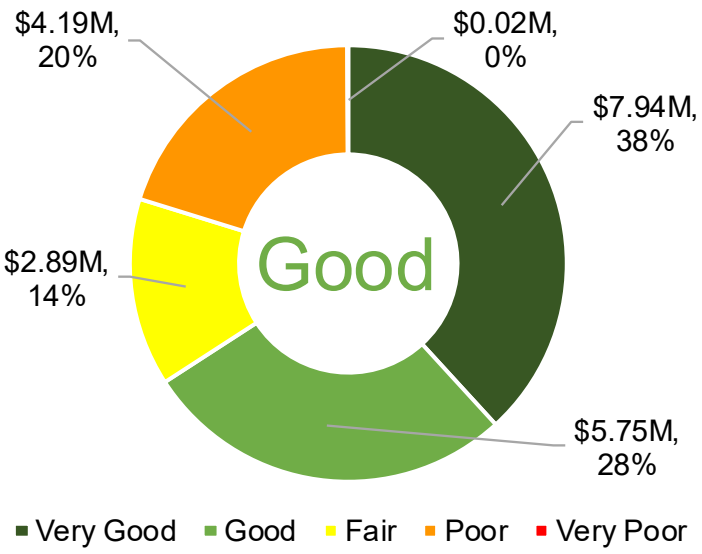


FIGURE 7-6: SOLID WASTE MANAGEMENT NETWORK CONDITION SUMMARY

A breakdown of each asset classes' condition profile within the solid waste management asset portfolio can be found in Figure 7-7. Currently, the majority of solid waste management assets are in Very Good to Fair condition, with smaller portions in Poor. The City's landfill gas collection system will need to be addressed soon, while a portion of the leachate collection system is due for renewal soon as well. Figure 7-7 displays the condition distributions by the various asset classes the City's solid waste management services are responsible for.

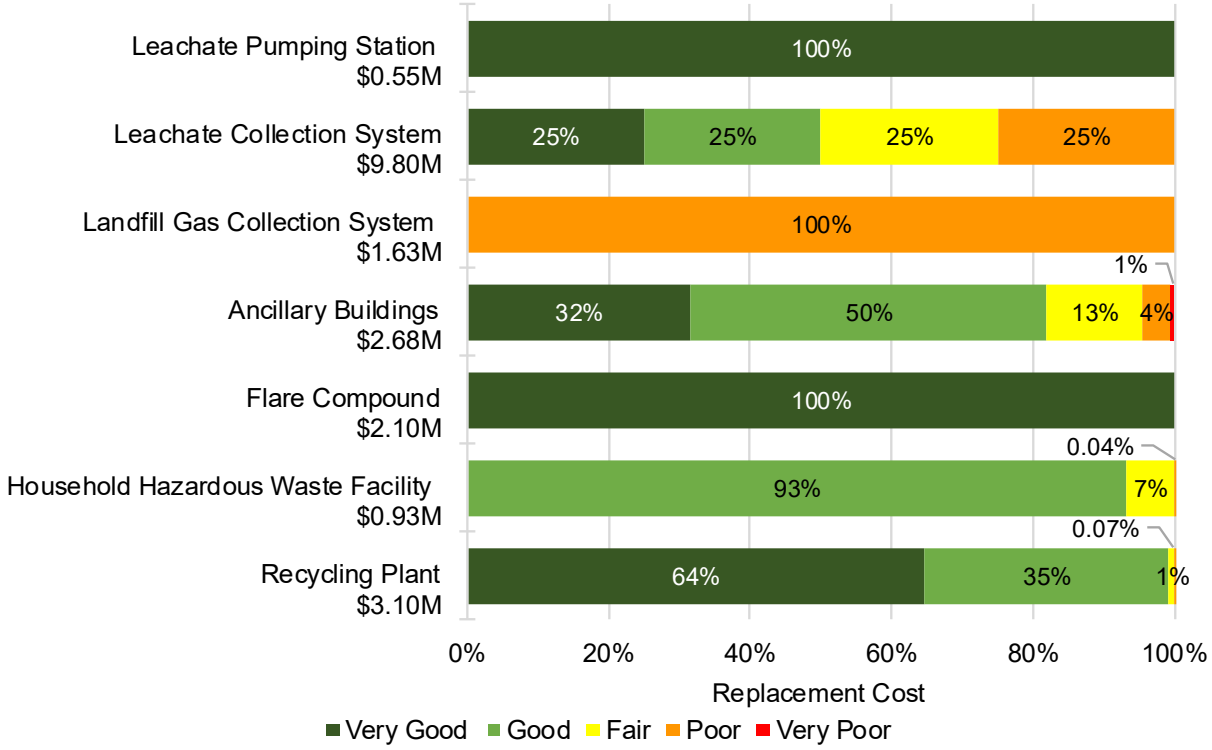


FIGURE 7-7: SOLID WASTE MANAGEMENT CONDITION DISTRIBUTION BY ASSET CLASS

7.2.1.4. Data Sources and Maturity

Table 7-4 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 7-4: SOLID WASTE MANAGEMENT SERVICES DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Facilities (with BCAs)	Good	High	These assets were assessed in 2024, which provided the City with a complete and high confidence dataset.
Equipment	Good	Medium	Asset data in many cases was supplemented by staff judgment. In many cases, condition was well understood by staff, but in others, an understanding of condition was based on age alone.

7.2.2. Levels of Service

Cornwall's Solid Waste Management Services aims to provide ample, sustainable and reliable waste management services to the city's residents, including curbside collection of residential waste and recycling, operation of the City's landfill site, waste diversion programs, and household hazardous waste management. These services provide residents and businesses with reliable and compliant waste disposal options while working to reduce the volume of material sent to landfill through initiatives such as blue box recycling, leaf and yard waste collection, composting, and public education programs. Community and technical levels of service can be found in Table 7-5 and Table 7-6 on the following pages.



TABLE 7-5: SOLID WASTE MANAGEMENT COMMUNITY LEVELS OF SERVICE

Community Measures	Performance
Service Attributes: **Reliable**	
Solid waste is collected at an appropriate frequency and on time	The City will continue to complete weekly collection of garbage and recycling material.
Service Attributes: **Environmentally Sustainable**	
Solid waste processing doesn't harm the environment	The flare facility located at the Cornwall Waste Disposal Site works to flare off any harmful greenhouses gases and also prevents odours from leaving, which indicates that the City is achieving its customer objectives. The City will continue to operate the flare compound to mitigate the release of harmful gases and unpleasant odours.
Service Attributes: **Quality/Environmentally Sustainable**	
Adverse odours are minimized	Odour complaints will continue to be addressed on a case-by-case basis. The other service attributes also indirectly address odour issues by providing reliability, etc.
Service Attributes: **Reliable, Availability (Accessibility)**	
Customers can access drop offs (landfills, etc.) in a convenient way.	Landfill will continue to be open and operated 6 days per week for Cornwall residents.

TABLE 7-6: SOLID WASTE MANAGEMENT TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of Assets in Poor or Better Condition	Household Hazardous Waste Facility	100%	Maintain
Percentage of Assets in Poor or Better Condition	Recycling Plant	100%	Maintain
Percentage of Assets in Poor or Better Condition	Ancillary Buildings	99%	Maintain
Percentage of Assets in Poor or Better Condition	Leachate Pumping Stations	100%	Maintain
Percentage of Assets in Poor or Better Condition	Landfill Gas Collection System	100%	Maintain
Percentage of Assets in Poor or Better Condition	Leachate Collection System	100%	Maintain

7.2.3. Lifecycle Management Strategy

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's solid waste management services and the assets they're responsible for. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery.

The City is also focused on implementing strategies that extend the lifespan of the existing landfill. Ongoing planning and investment in infrastructure, such as landfill cell development, leachate collection systems, and fleet renewal, are critical to maintaining the system's long-term functionality and regulatory compliance.

Through proactive management, continuous monitoring, and community engagement, Cornwall's Solid Waste Management Services ensure that solid waste is handled in a way that minimizes environmental impact, supports climate resiliency goals, and provides a clean and sustainable environment for residents and future generations.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship. Table 7-7 and Table 7-8 summarize the various lifecycle activities that the City undertakes to ensure that its solid waste management program continue to support the services they provide.



TABLE 7-7: LIFECYCLE ACTIVITIES – SOLID WASTE MANAGEMENT FACILITIES

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Building condition assessment program	Every 5-years (min)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation is based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Major equipment or structural building component replacement	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new facilities in new subdivisions or expansion of existing facilities to accommodate for increased demand and population growth.	As identified through growth and development studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

TABLE 7-8: LIFECYCLE ACTIVITIES – SOLID WASTE MANAGEMENT EQUIPMENT

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Annual, future initiative
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Replacement of assets at end of life.	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Purchase/procurement of additional equipment and fleet assets to support population growth or service expansion	As required
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

7.2.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 7.2.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 7-7 and Table 7-8. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's Financial Strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 7-8, Figure 7-9, Figure 7-10 and Figure 7-11 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

Using the budget analysis and the outputs from the scenario forecasts, the City was able to compare the different spending levels to achieve the outcomes for all other scenarios. Table 7-9 provides an average annual spend by lifecycle activity category for the next 10 years that the City anticipates spending on its solid waste management assets, as well as the investment requirements for the other forecasted scenarios. This allowed the City to understand the funding gaps between the different scenarios and begin thinking about ways to close these gaps and propose targets where necessary.

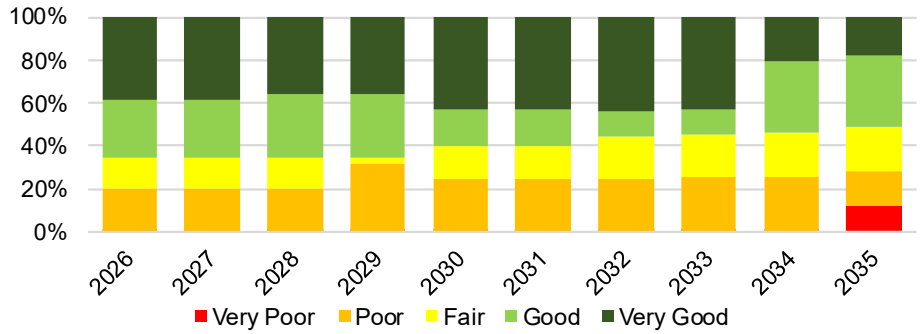


FIGURE 7-8: SOLID WASTE MANAGEMENT ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

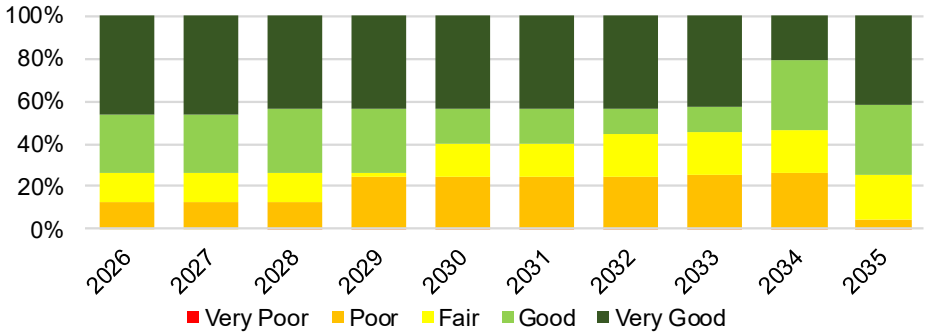


FIGURE 7-9: SOLID WASTE MANAGEMENT MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

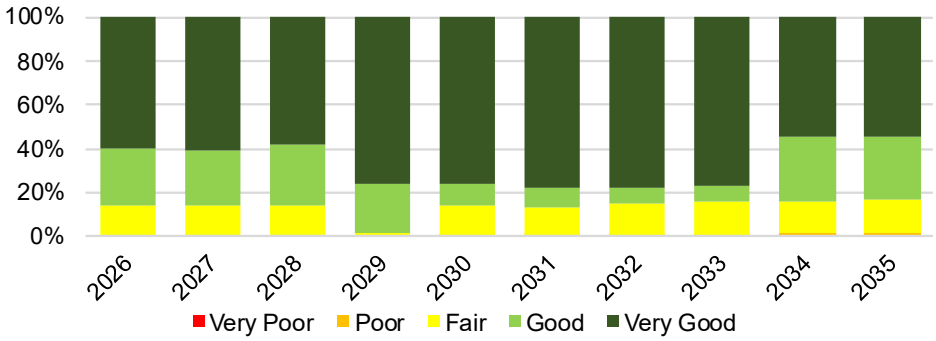


FIGURE 7-10: SOLID WASTE MANAGEMENT BACKLOG SCENARIO PERFORMANCE FORECAST

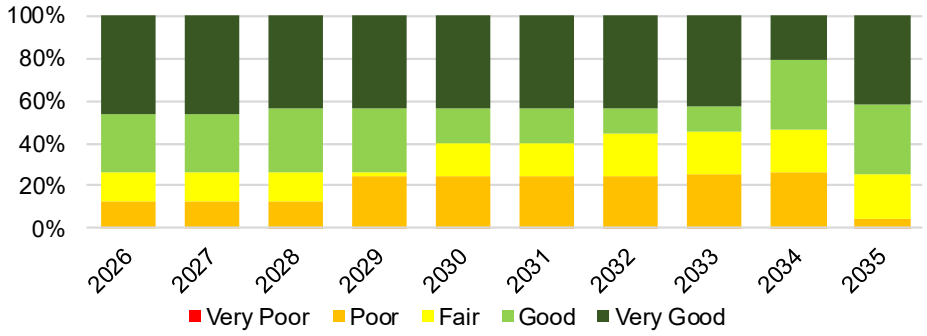


FIGURE 7-11: SOLID WASTE MANAGEMENT PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 100% of the City's solid waste management assets meet the LOS of being in poor or better condition. Under the current anticipated capital budget of $0.32 million annually in renewals for the

next 10 years the solid waste management portfolio is expected to decrease in overall level of service, resulting in 88% of assets meeting the LOS of assets in poor or better condition. To maintain this portfolio of 100% of assets meeting LOS, it was determined the City would need to spend an annual average of $0.68 million in renewals. To eliminate all the backlog in solid waste management services' assets, and to keep 100% of assets in poor or better condition, it would cost an average annual of $1.29 million in renewals according to the Backlog Analysis for the next 10 years. Using the results of the scenarios as well as analyzing the capital budget for the next 10 years, the City determined that it would propose to maintain its current service levels in order to balance risk, cost and LOS.

Table 7-9 and Figure 7-12 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for solid waste management services assets.

TABLE 7-9: SOLID WASTE MANAGEMENT BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$0.33M	$0.33M	$0.33M	$0.33M
Service Improvements	$0.31M	$0.31M	$0.31M	$0.31M
Growth Activities	$0.0000M	$0.0000M	$0.0000M	$0.0000M
Renewal & Replacement	**$0.32M**	**$0.68M**	**$1.29M**	**$0.68M**
Total Lifecycle Expenditures	**$0.95M**	**$1.31M**	**$1.93M**	**$1.31M**
Total Infrastructure Gap		**$0.36M**	**$0.97M**	**$0.36M**

The table summarizes the anticipated annual expenditures required to sustain the City of Cornwall's Solid Waste Management Services and maintain reliable service delivery over the planning period.

Under the current budget scenario, the City allocates approximately $0.95 million annually toward lifecycle activities. This funding level is sufficient to support essential operations and maintenance activities and modest service improvements, but it provides limited capacity for addressing aging infrastructure and renewal needs.

To maintain the current LOS, annual expenditures are projected to increase to approximately $1.31 million, representing an infrastructure gap of $0.36 million. This additional investment would allow the City to carry out more consistent rehabilitation and renewal of key assets—such as landfill components, collection equipment, and waste management facilities—thereby reducing the risk of service interruptions or environmental non-compliance.

The backlog analysis scenario identifies a higher investment requirement of approximately $1.93 million per year, which reflects the costs associated with addressing deferred capital needs and replacing assets that have exceeded their useful life. This scenario highlights the long-term funding pressures associated with maintaining a compliant and sustainable solid waste system.

The proposed LOS scenario aligns with maintaining service reliability and regulatory compliance while ensuring infrastructure sustainability over the long term. At an estimated $1.31 million per year, this

scenario balances fiscal responsibility with the need for ongoing renewal and environmental stewardship.

The bars on the Figure 7-12 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

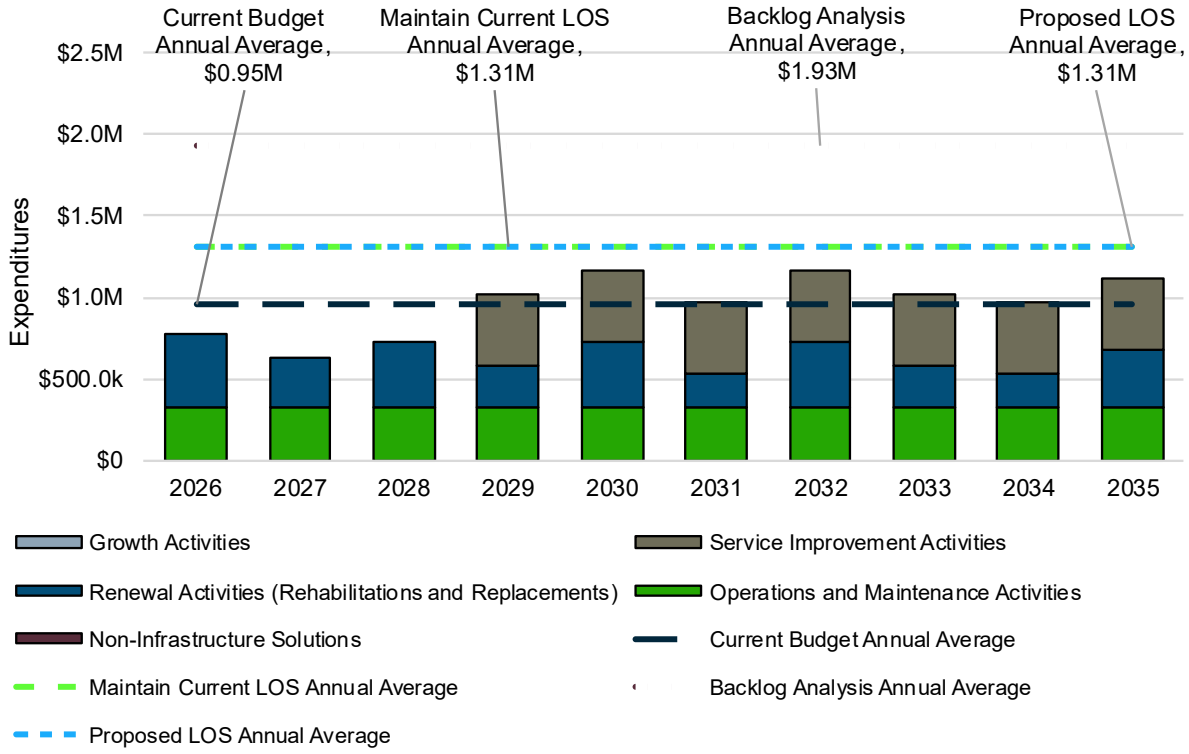


Figure 7-12: Solid Waste Management Scenario Analysis Summary

7.2.5. Findings

Overall, the City maintains its solid waste management assets in good condition, with 100% of assets meeting the LOS threshold of being in poor or better condition. With the recent BCA completed on the City's facilities, data completeness and confidence is high, while for the remainder of assets was rated as medium in confidence. The City should continue to maintain and update its BCA data as work is completed on its solid waste management facilities and subsequently as condition changes for their respective components. Furthermore, the City should explore methods in which to improve the collection and maintenance on the rest of their asset data and to boost overall maturity of their data.

The results of the 10-year forecasts indicate that the City's current anticipated budget is not sufficient to maintain service levels over the forecasting period, resulting in a decrease in service levels. However, the gap between anticipated budget and maintain current LOS is $0.36 million annually. Thus, to balance cost, risk and levels of service, the City proposed to maintain current service levels by means of slight increases to their renewals and rehabilitation budget on their solid waste management assets.



General Government

City of Cornwall

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8. General Government

8.1. Summary

The City's General Government Service is a foundational pillar of the City's municipal operations. It encompasses a range of administrative services, specifically focusing on facilities and fleet and equipment. This service is responsible for providing the support and spaces for the municipal government to conduct its regular business activities. This service acts as the backbone of municpal governance, enabling other City services to operate smoothly.

An overall summary of the replacement value and condition of the assets within this service (for this 2025 plan) is provided below in Figure 8-1. Subsection 8.2 provides further details on the asset classes within the Administration subservice.

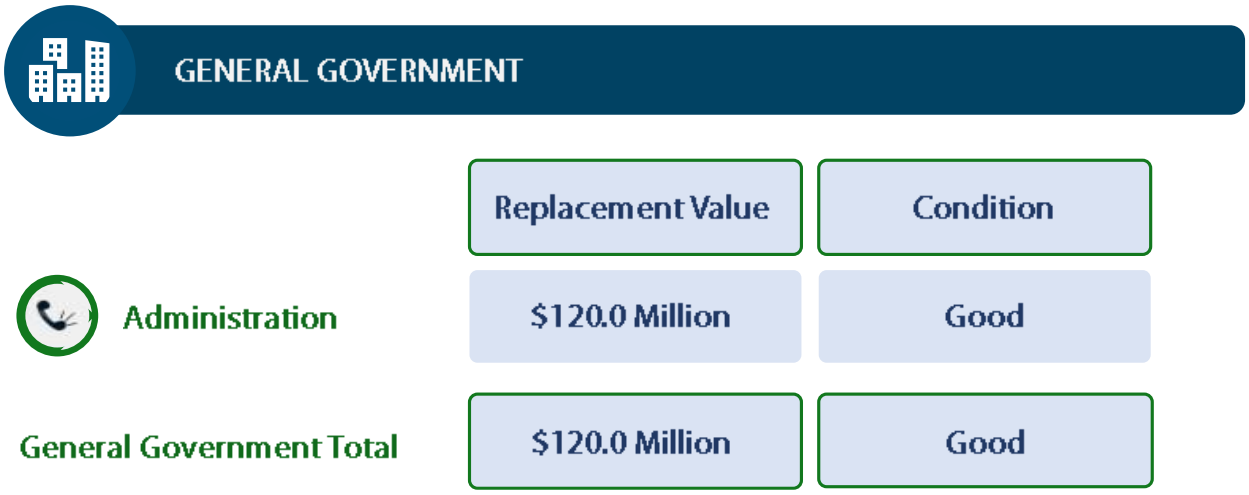


FIGURE 8-1: GENERAL GOVERNMENT CONDITION AND REPLACEMENT VALUE SUMMARY

8.2. Administration

The City of Cornwall is responsible for providing general government administrative services for its residents, but also to support its staff. This includes facilities such as City Hall, Justice Building, the Municipal Works Compound, workshops and offices, and several different kinds of vehicles that support City staff in performing their responsibilities. Figure 8-2 provides a summary of the Administration subservice asset hierarchy, while Figure 8-3 captures the locations of the City's Municipal Facilities.

Administration

Facilities
- City Hall
- Justice Building
- Municipal Works Compound
- Workshops and Offices

Fleet & Equipment
- Equipment
- Heavy-duty Vehicles
- Light-duty Vehicles
- IT Equipment
- Machinery

FIGURE 8-2: ADMINISTRATION ASSET HIERARCHY

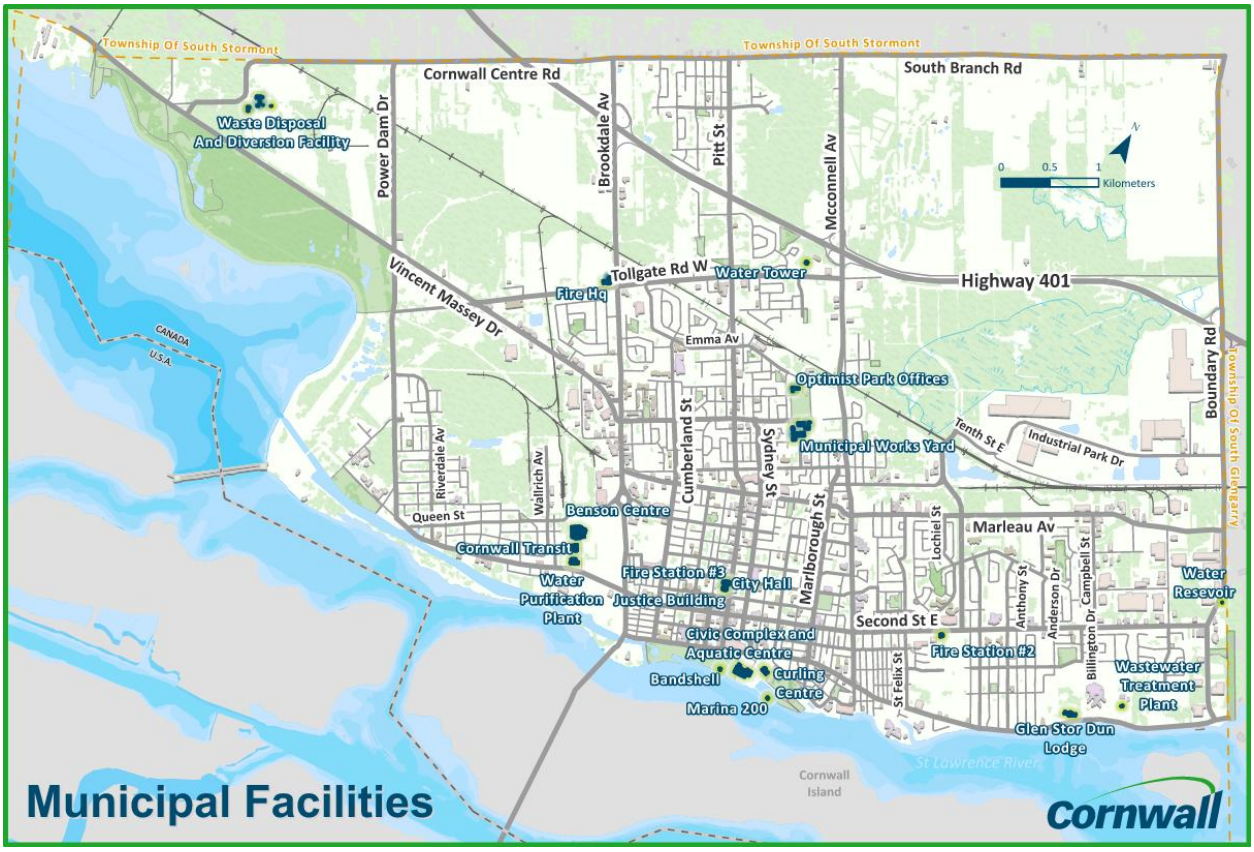


FIGURE 8-3: MAP OF THE CITY'S MUNICIPAL FACILITIES

8.2.1. State of Infrastructure

This section outlines the state of infrastructure for Cornwall's Administration assets. This includes asset inventory and valuation, age and estimated service life, asset condition, data sources and data maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

8.2.1.1. Asset Inventory and Valuation

The replacement cost for the City's Administration asset portfolio is approximately $120.0 million and is summarized in Table 8-1, Figure 8-4 and Figure 8-5.

TABLE 8-1: ADMINISTRATION SERVICES ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Facilities ($99.13M)		
City Hall	1 Facility	$9.11M
Justice Hall	1 Facility	$46.50M
Municipal Works Compound	3 Facilities	$30.80M
Workshops and Offices	2 Facilities	$12.73M
Fleet & Equipment ($20.87M)		
Equipment	28 Assets	$1.03M
Heavy-duty Vehicles	65 Assets	$12.78M
IT Equipment	685 Assets	$0.75M
Light-duty Vehicles	107 Assets	$6.22M
Machinery	3 Assets	$0.08M
Total		**$120.0M**





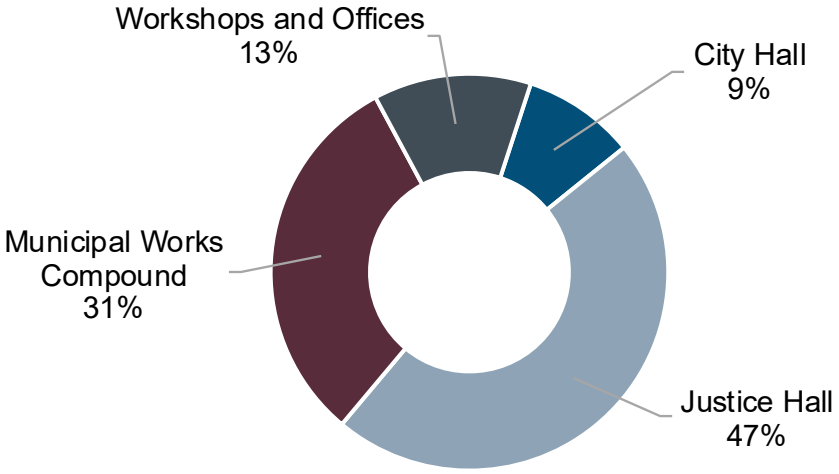


FIGURE 8-4: ADMINISTRATION SERVICES VALUATION DISTRIBUTION BY ASSET CLASS – FACILITIES

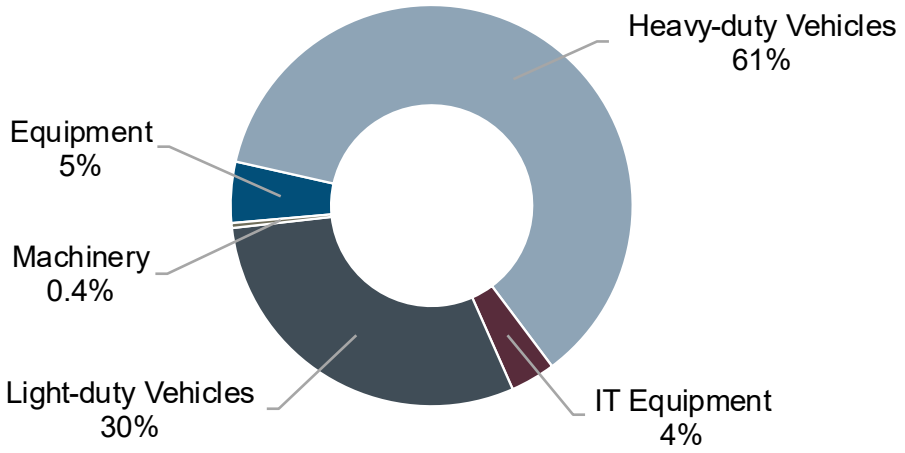


FIGURE 8-5: ADMINISTRATION SERVICES VALUATION DISTRIBUTION BY ASSET CLASS – FLEET & EQUIPMENT

8.2.1.2. Age and Estimated Service Life

The average age of the City's Administration assets is 22 years old, while the average ESL is 43 years. Figure 8-6 provides a breakdown of the ages by asset class. It is important to note that for asset such as facilities, the average age and ESL values are calculated by using a weighted average of the age and ESL of all of the components within some facilities and not of the facilities themselves as a whole.

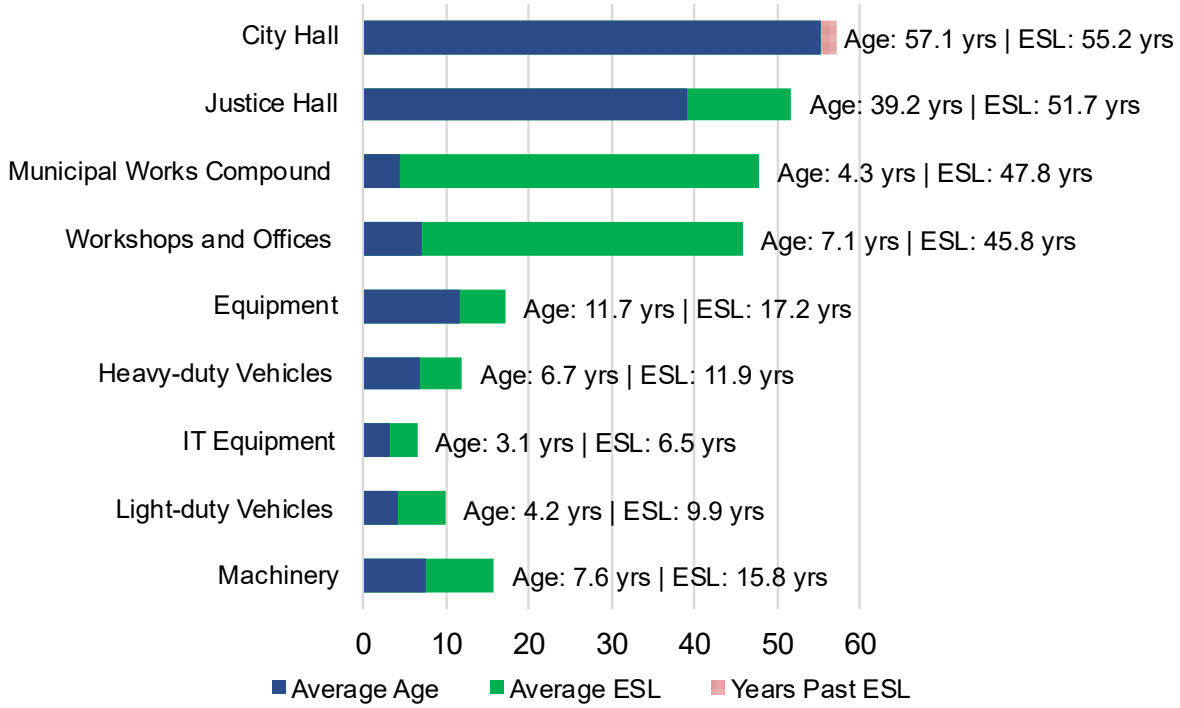


FIGURE 8-6: ADMINISTRATION SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 8-7 captures the installation decades in which the various asset classes were acquired and or installed by the City's Administration services. The installation decades represented in Figure 8-7 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029).



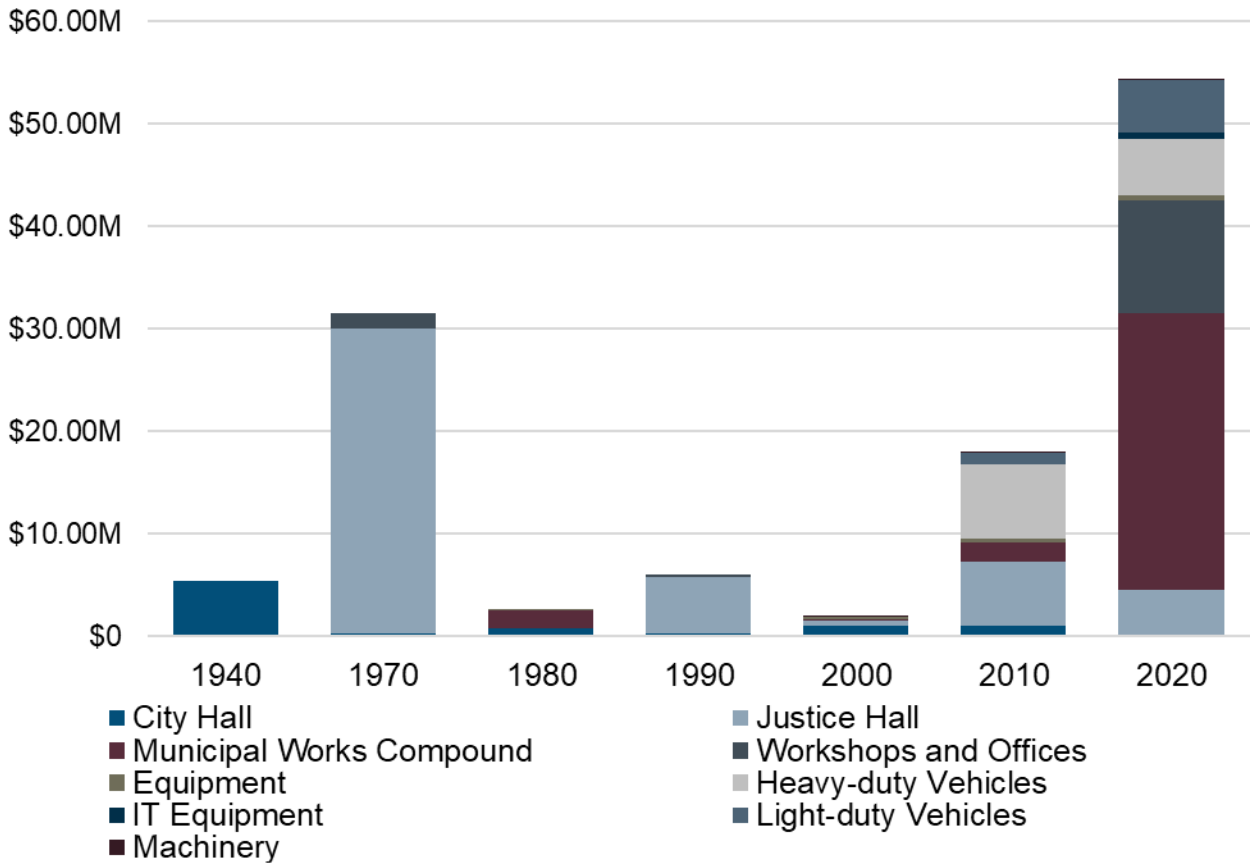


FIGURE 8-7 ADMINISTRATION ASSETS INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

During the 1970s the City greatly expanded its Administration portfolio, with substantial redevelopment in the 2010s and 2020s. With the average age of the City's Administration assets being 22 years old and the average ESL of 43 years, a bulk of renewals and rehabilitations are likely to be due in approximately 21 years.

8.2.1.3. Asset Condition

The City has recently completed building condition assessments (BCAs) of the majority of its facilities in preparation for this Asset Management Plan. The BCA study identified current and future needs for all building elements within the City's facilities. Each facility element was given a condition rating based on remaining life, current state and functionality, based on expert opinion. These factors make up the condition ratings outlined for facility elements, found in Table 8-3.

For fleet, equipment, and other assets, the City bases its understanding of asset needs on remaining service life. This metric was provided by City staff and represents the City's experts best understanding of the approximate timing that asset replacement is required.

Table 8-2 and Table 8-3 provide a summary of the approaches used to collect data and assess condition of the City's Administration assets.

TABLE 8-2: ADMINISTRATION ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• City Hall • Justice Hall • Municipal Works Compound • Workshops and Offices	Building Condition Assessments	Every 5-years (min)
• Equipment • Heavy-duty Vehicles • Light-duty Vehicles • Machinery • IT Equipment	Assets are reviewed by subject matter experts and assigned a remaining life, based on visual assessments. Where this wasn't possible, condition was understood by asset age and life consumed.	Annually, or as deemed appropriate by subject matter experts.

TABLE 8-3: ADMINISTRATION ASSETS CONDITION RATINGS

Category	Vehicles and Equipment (Remaining Life)	City Hall, Justice Hall, Municipal Works Compound, Workshops & Offices (Facility Element Condition)	Life Consumed
Very Good	100% - 75%	1	0% - 25%
Good	75% - 50%	2	25% - 50%
Fair	50% - 25%	3	50% - 75%
Poor	25% - 0%	4	75% - 100%
Very Poor	< 0%	5	> 100%

Overall, the City's Administration assets are in good condition. The majority of assets are in Very Good and Good condition, followed by Fair, Poor and Very Poor condition, resulting in an average condition of "Good". A breakdown of the Administration condition profile as a whole can be found in Figure 8-8.

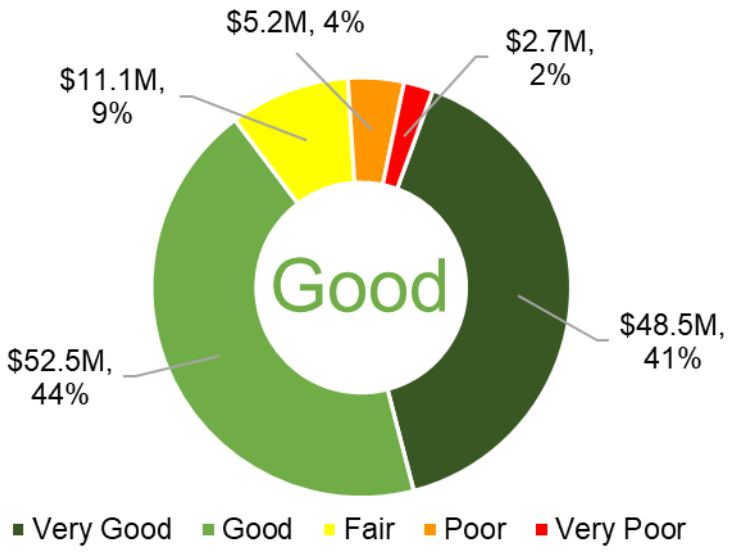


FIGURE 8-8: ADMINISTRATION ASSETS CONDITION SUMMARY

Currently, the majority of Administration assets are in Very Good to Good condition, with approximately 15% in Fair to Very Poor. Figure 8-9 displays the condition distributions by the various asset classes the City's Administration services are responsible for.

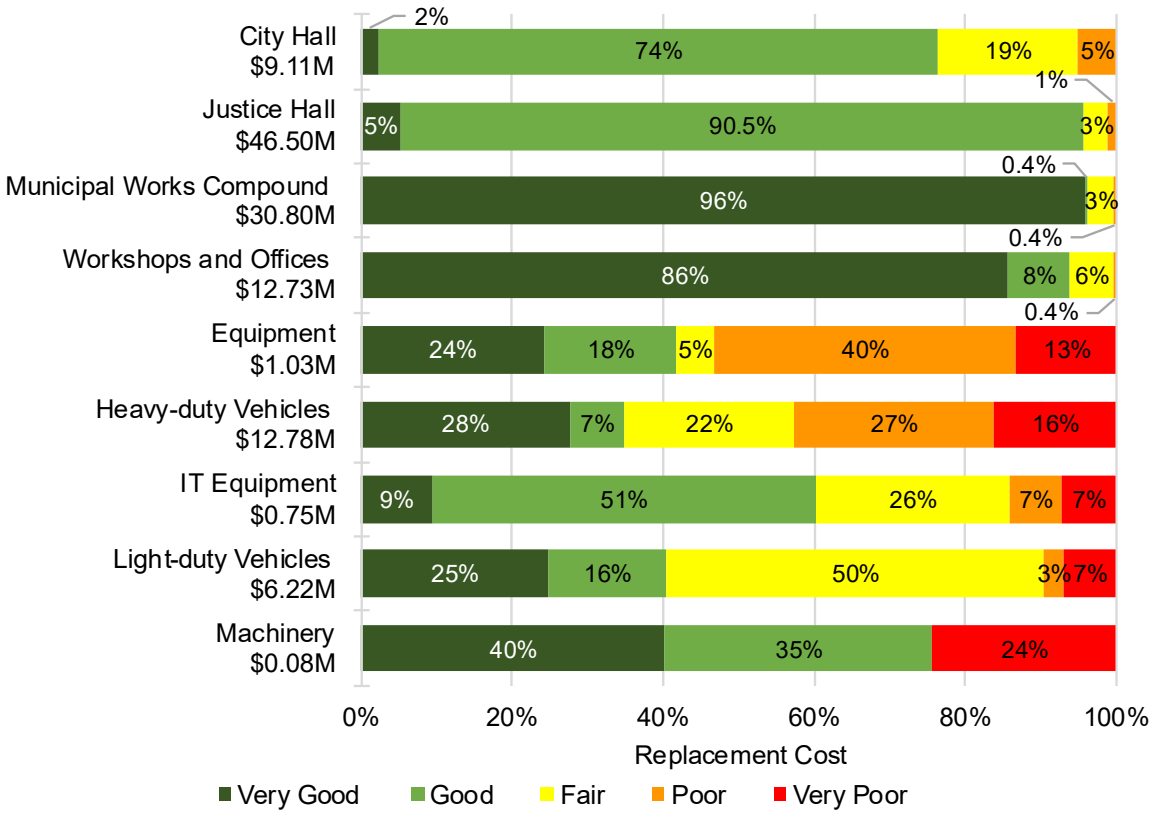


FIGURE 8-9: ADMINISTRATION CONDITION DISTRIBUTION BY ASSET CLASS

8.2.1.4. Data Sources and Maturity

Table 8-4 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 8-4: ADMINISTRATION DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Facilities	Good	High	These assets were assessed in 2024, with supplementary assessment completed in 2025, which provided the City with a complete and high confidence dataset.
Fleet & Equipment	Good	High	Condition was assessed based on age and life consumed, with City Staff reviewing accuracy of the data.

8.2.2. Levels of Service

The City of Cornwall's Administration services aims to ensure that the City's services are run in an organized fashion. By ensuring facilities and municipal works are well maintained, accessible to all types of users, they provide the right types of amenities to users and have minimal impact on the environment, this can be achieved.

Community and technical levels of service can be found in Table 8-5 and Table 8-6 on the following pages.

TABLE 8-5: ADMINISTRATION COMMUNITY LEVELS OF SERVICE

Community Measures	Performance
Service Attributes: **Reliable, Safe**	
Facilities are open as required, safe for occupants and clean	The City will continue to ensure that it maintains its facilities in a state of good repair to prevent closures and that they are operational.
Service Attributes: **Accessible**	
Facilities are accessible by all types of users	The City will be commissioning an accessibility audit, which will define needs and targets and make facilities accessible when opportunities arise (retrofits, etc.). The City also ensures that all new facilities are constructed to the latest AODA standards.
Service Attributes: **Reliable**	
Vehicles and equipment are available, well-maintained, safe and appropriate for use	The City will continue to maintain its assets in a state of good repair to ensure that they remain in service and available for staff. This includes cost effective recycling and repurposing where feasible.

TABLE 8-6: ADMINISTRATION TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of Assets in Poor or Better Condition	Facilities	100%	Maintain
Percentage of Assets in Poor or Better Condition	Fleet	87%	Improve to 95%
Percentage of Assets in Poor or Better Condition	Equipment	89%	Improve to 95%

8.2.3. Lifecycle Management Strategy

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's Administration services and the assets they're responsible for. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery.

Maintaining the City of Cornwall's General Government assets—such as facilities, fleet, and equipment—is essential for several strategic, operational, and financial reasons which include:

- Operational Continuity: well maintained facilities ensure that municipal staff and elected officials can perform their duties without disruption. Reliable fleet and equipment support the timely service deliver across departments.
- Public Safety and Compliance: Regular upkeep helps meet health, safety and building code standards as well as preventing hazards.
- Cost Efficiency: Proactive maintenance reduces the need for expensive emergency repairs or premature replacements.
- Service Quality: Clean, functional, and accessible facilities reflect professionalism and improve public trust.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship. Table 8-7 and Figure 12-5 summarize the various lifecycle activities that the City undertakes to ensure that its parks continue to support the services they provide.



TABLE 8-7: LIFECYCLE ACTIVITIES – ADMINISTRATION FACILITIES

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Building condition assessment program	Every 5-years (min)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Major equipment or structural building component replacement	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new facilities in new subdivisions or expansion of existing facilities to accommodate for increased demand and population growth.	As identified through growth and development studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

TABLE 8-8: LIFECYCLE ACTIVITIES – ADMINISTRATION FLEET & EQUIPMENT

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	Where feasible
Replacement of assets at end of life.	As required
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Purchase/procurement of additional equipment and fleet assets to support population growth or service expansion	As identified by staff or through studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

8.2.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 8.2.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 8-7 and Figure 12-5. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's Financial Strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 8-10, Figure 8-11, Figure 8-12, and Figure 8-13 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

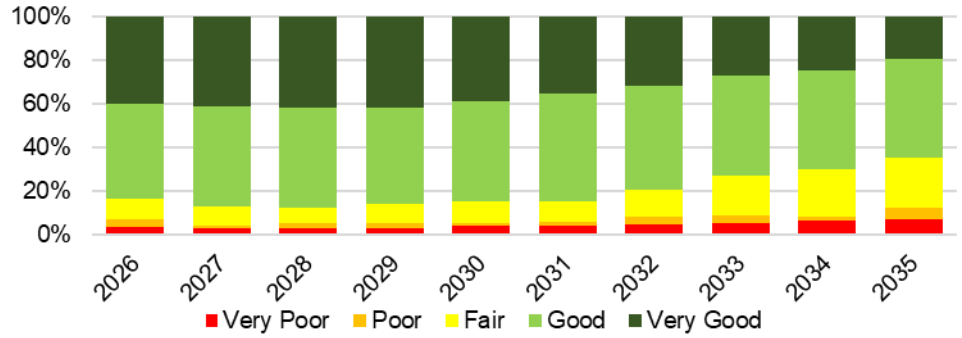


FIGURE 8-10: ADMINISTRATION ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

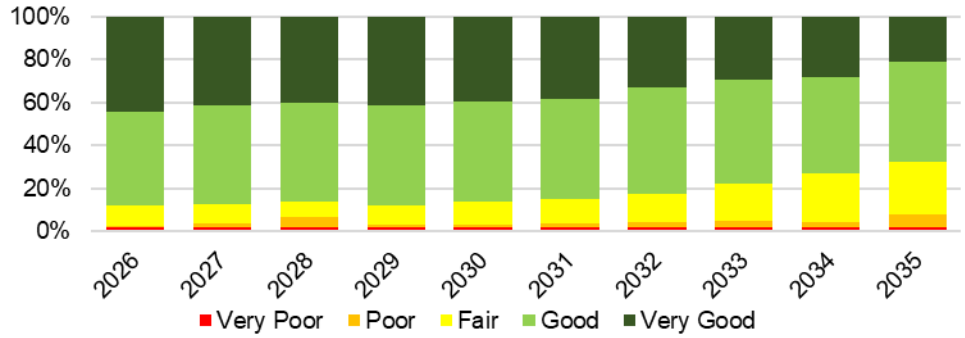


FIGURE 8-11: ADMINISTRATION MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

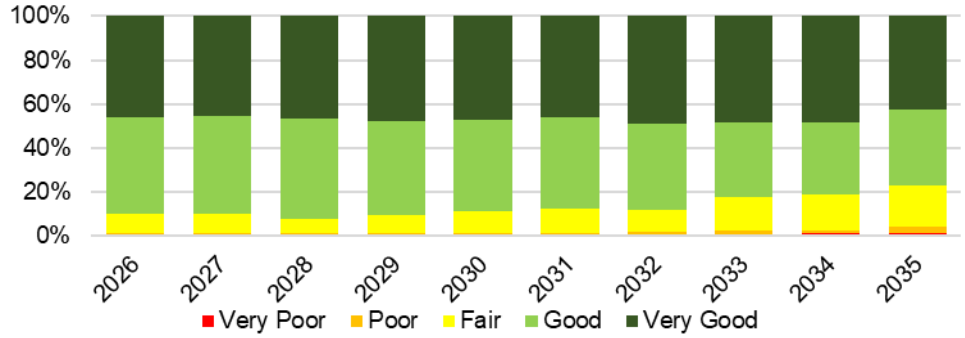


FIGURE 8-12: ADMINISTRATION BACKLOG SCENARIO PERFORMANCE FORECAST

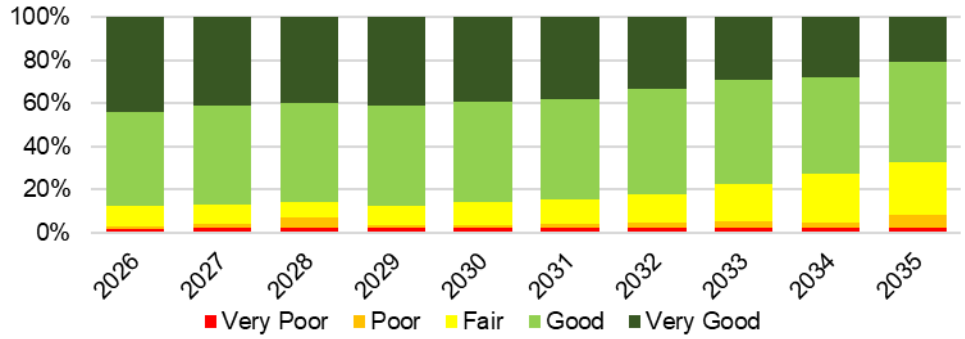


FIGURE 8-13: ADMINISTRATION PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 98% of the City's Administration assets meet the LOS of being in poor or better condition. Under the current anticipated capital budget of $1.56 million annually in renewals for the next 10 years the Administration portfolio is expected to decrease in overall level of service, resulting in 93% of assets meeting the LOS of assets in poor or better condition. To maintain this portfolio of 98% of assets meeting LOS, it was determined the City would need to spend an annual average of $2.3 million in renewals. To eliminate all the backlog in Administration assets, and to keep 100% of assets in poor or better condition, it would cost an average annual of $4.6 million in renewals according to the Backlog Analysis for the next 10 years. Using the results of the scenarios as well as analyzing the capital budget for the next 10 years, the City determined that it would propose to maintain its current service levels in order to balance risk, cost and LOS.

Table 8-9 and Figure 8-14 outlines the financial planning required to support the General Government Service infrastructure, which includes facilities, fleet, and equipment. The analysis compares four budget scenarios: the anticipated budget, maintaining current level of service (LOS), addressing infrastructure backlog, and achieving a proposed LOS.

TABLE 8-9: ADMINISTRATION BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$5.85M	$5.85M	$5.85M	$5.85M
Service Improvements	$0.23M	$0.23M	$0.23M	$0.23M
Growth Activities	$0	$0	$0	$0
Renewal & Replacement	$1.56M	$2.33M	$4.59M	$2.33M
Total Lifecycle Expenditures	$7.63M	$8.40M	$10.67M	$8.40M
Total Infrastructure Gap		$0.77M	$3.03M	$0.77M

The analysis shows that operations and maintenance is the key investment for providing General Government Services, with an expenditure of $5.85 million. The backlog scenario reveals a significant increase in required funding, emphasizing the cost of catching up on deferred asset renewal. The City has chosen the proposed LOS to align with maintaining current LOS, with the goal of stabilizing infrastructure performance while being mindful of cost and risk.

The bars on the Figure 8-14 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

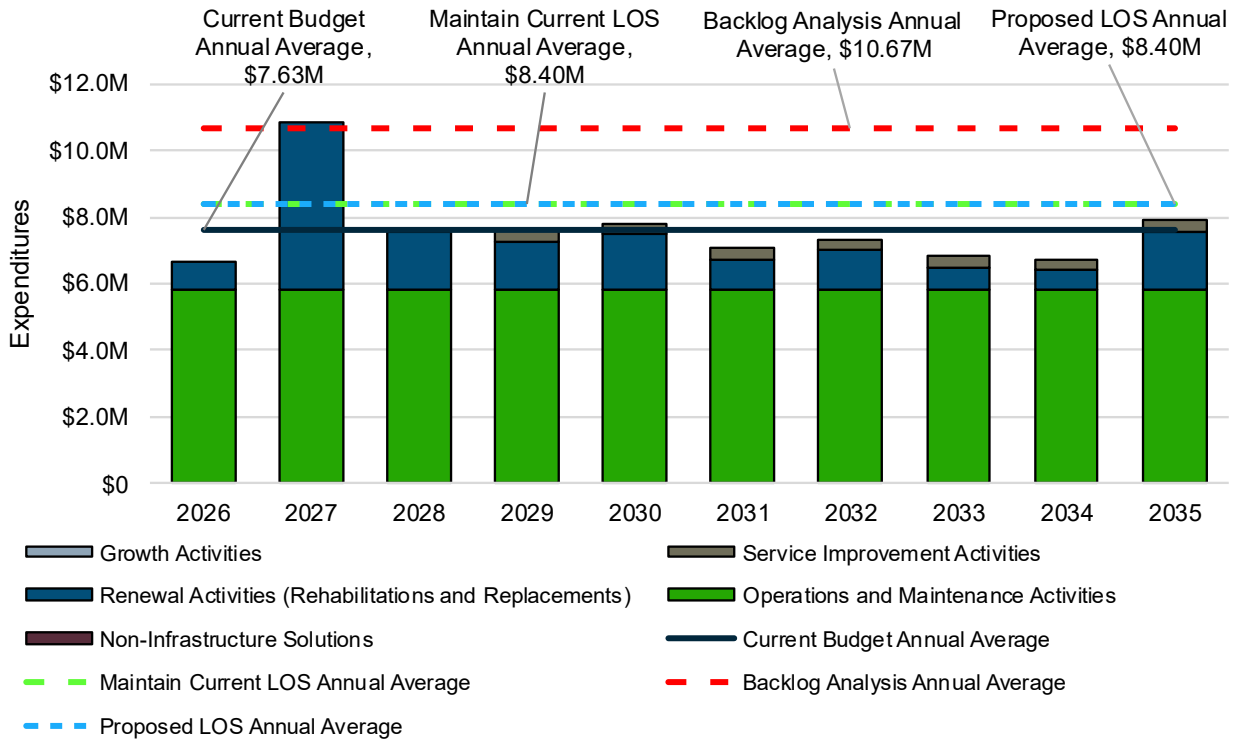


FIGURE 8-14: ADMINISTRATION SCENARIO ANALYSIS SUMMARY

8.2.5. Findings

Overall, the City maintains its Administration assets in good condition, with 98% of assets meeting the LOS threshold of being in poor or better condition. With the recent BCA completed on the City's facilities, data completeness and confidence is high. The City should continue to maintain and update its BCA data as work is completed on its Administration facilities and subsequently as condition changes for their respective components.

The results of the 10-year forecasts indicate that the City's current anticipated budget is not sufficient to maintain service levels over the forecasting period, resulting in a slight decrease in service levels. However, the gap between anticipated budget and maintain current LOS is $0.77 million. Thus, to balance cost, risk and levels of service, the City proposed to maintain current service levels by means of slight increases to their renewals and rehabilitation budget.



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Housing Services

City of Cornwall

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9. Housing Services

9.1. Summary

The Social & Housing Services Department (the Department) of the City of Cornwall is the Service Manager for Social & Housing Services for the City and the United Counties of Stormont, Dundas & Glengarry (SDG).

The Housing Services outlined in this section are offered by both the City of Cornwall as well privately held owners and operators. Housing facilities owned and operated by the City are outlined as Internal Housing, while External Housing refers to housing owned and operated by private holders.

The City's Housing Services service area includes the facilities (internal and external housing), fleet, and equipment assets for Community Housing. Housing Services is responsible for providing quality, safe, and affordable housing and accommodations for seniors, families, and adults. The City currently administers 1,325 community housing units—comprising 741 senior units, 475 family units, and 113 mixed-use units, within the City of Cornwall. The City is also the regional community housing provider for the United Counties of Stormont, Dundas, and Glengarry (SDG).

An overall summary of the replacement value and condition of the assets within this subservice (for this 2025 plan) is provided below in Figure 9-1. Subsection 9.2 provides further details on the asset classes within each subservice.

Note that external housing assets are reported in this AMP because they are a part of service delivery, but external housing assets were not considered in the lifecycle forecasting. Thus, subsections 9.2.2 through 9.2.5 will concern internal housing as well as fleet and equipment.

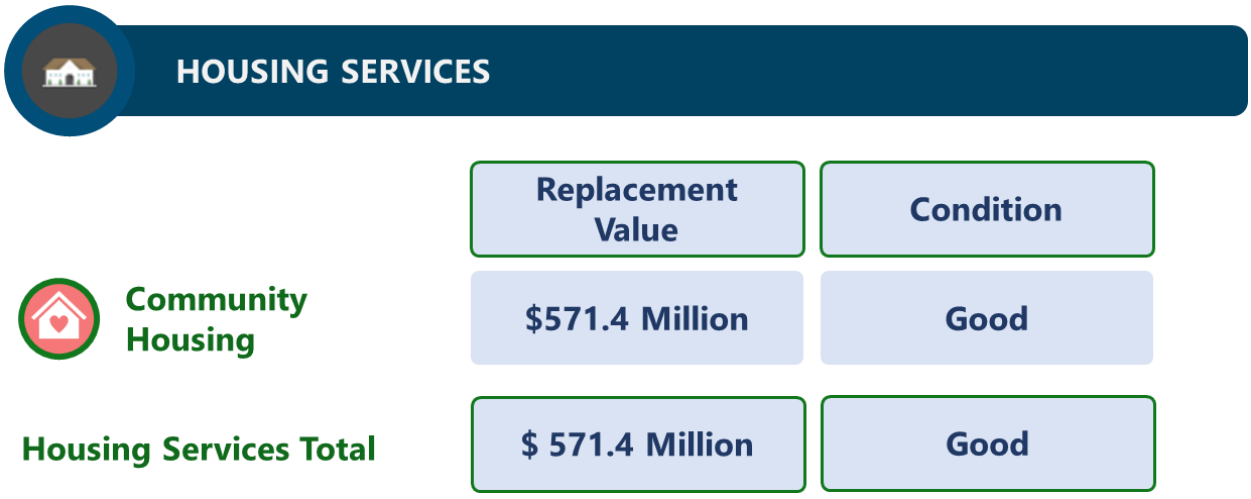


FIGURE 9-1: HOUSING SERVICES CONDITION AND REPLACEMENT VALUE SUMMARY[1]

[1] Replacement value summary including External Housing facilities

9.2. Community Housing

The City of Cornwall is responsible for providing Community Housing for its residents to aid in the availability of affordable housing. The Community Housing portfolio includes internal and external housing, fleet, and equipment. The City is responsible for maintaining the internal housing portfolio and is in partnership with 11 external housing providers who are responsible for maintaining the external housing portfolio. Figure 9-2 illustrates the Housing Services asset hierarchy. Furthermore, Figure 9-3 displays the various community housing locations under the purview of the City.



FIGURE 9-2: HOUSING SERVICES ASSET HIERARCHY

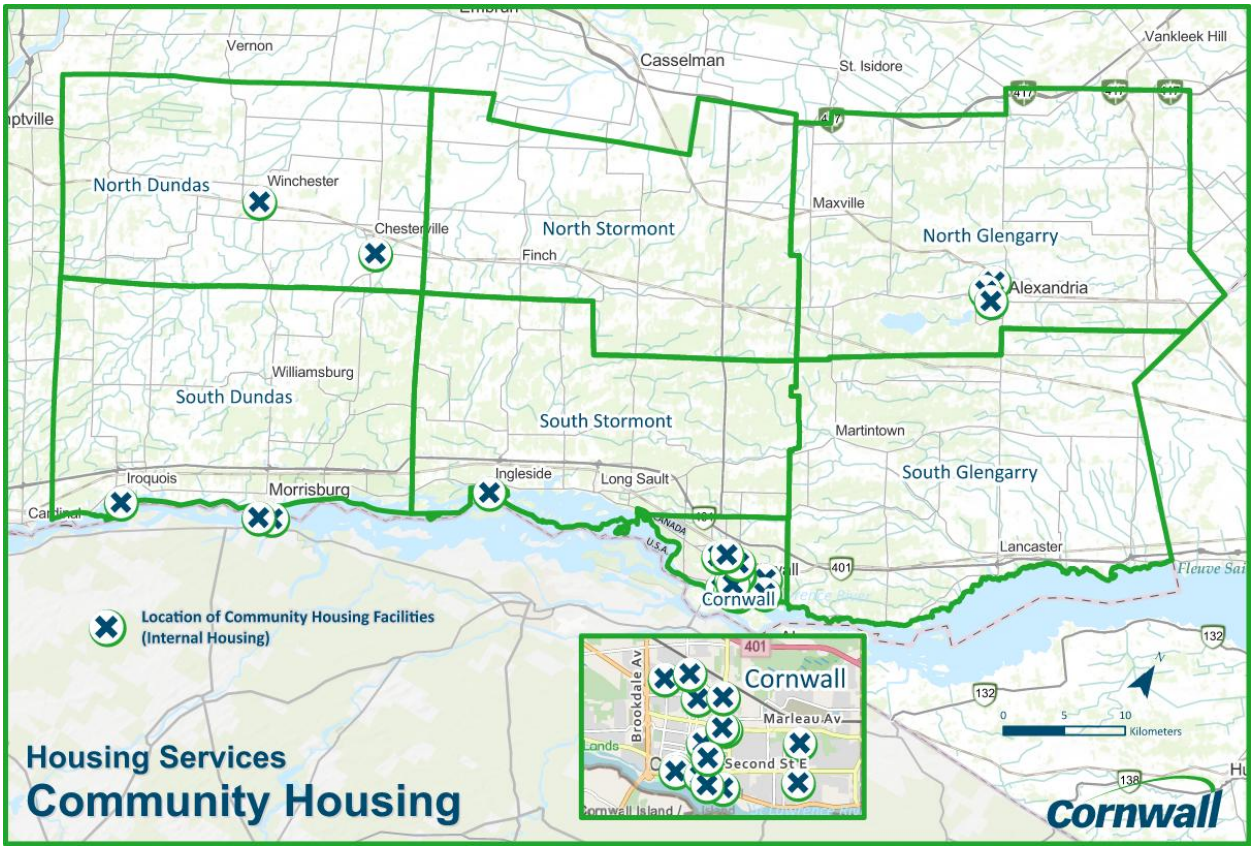


FIGURE 9-3: MAP OF COMMUNITY HOUSING LOCATIONS

9.2.1. State of Infrastructure

This section outlines the state of infrastructure for Cornwall's Community Housing, including: asset inventory and valuation, age and estimated service life, asset condition, data sources and maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

9.2.1.1. Asset Inventory and Valuation

The replacement cost for the City's Community Housing is approximately $571.42 million and is summarized in Table 9-1, Figure 9-4 and Figure 9-5.

TABLE 9-1: COMMUNITY HOUSING ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Facilities ($570.4M)		
External Housing	16 properties	$158.0M
Internal Housing	26 properties	$412.4M
Fleet and Equipment ($1.0M)		
Appliances	525 Asset(s)	$0.7M
Property Maintenance Equipment	84 Asset(s)	$0.3M
Total		**$571.4M**



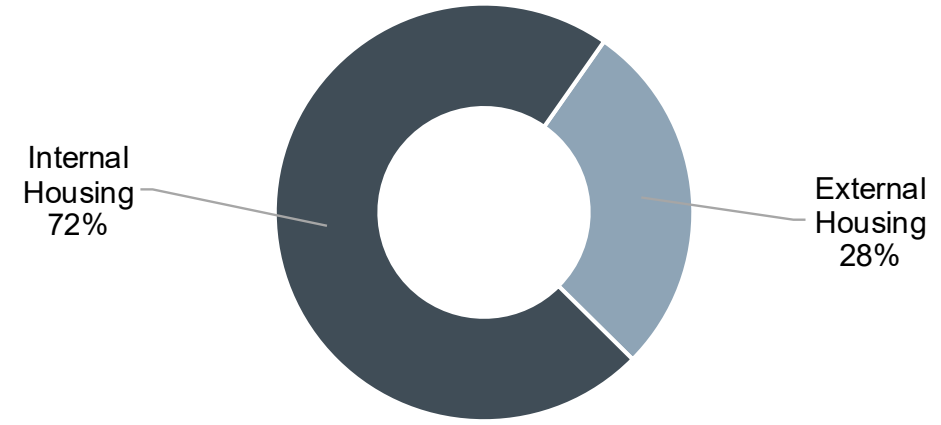


FIGURE 9-4: FACILITIES VALUATION DISTRIBUTION

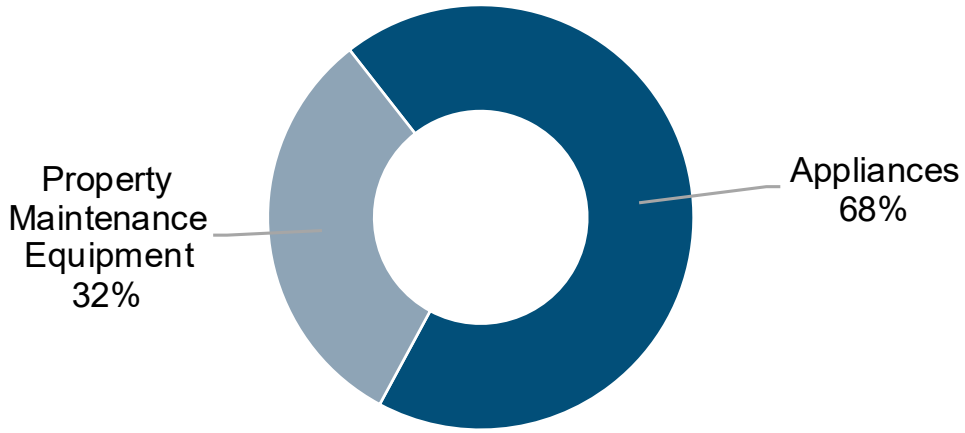


FIGURE 9-5: FLEET AND EQUIPMENT VALUATION DISTRIBUTION

9.2.1.2. Age and Estimated Service Life

The average age of the City's Community Housing portfolio is 32 years old. Figure 9-6 provides a breakdown of the ages by asset class.

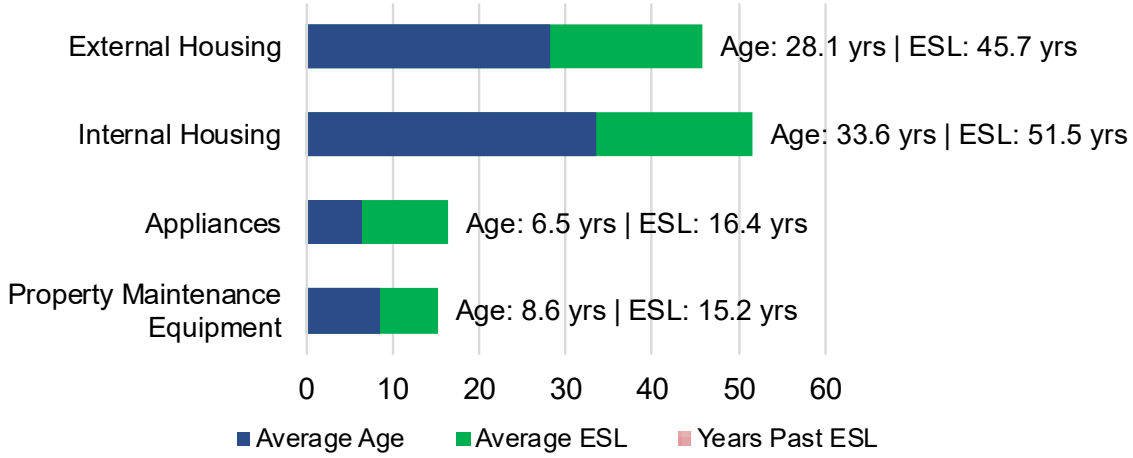


FIGURE 9-6: COMMUNITY HOUSING SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 9-7 below, captures the installation decades in which the various asset classes were acquired and or installed by Housing Services. The installation decades represented in Figure 9-7 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029).

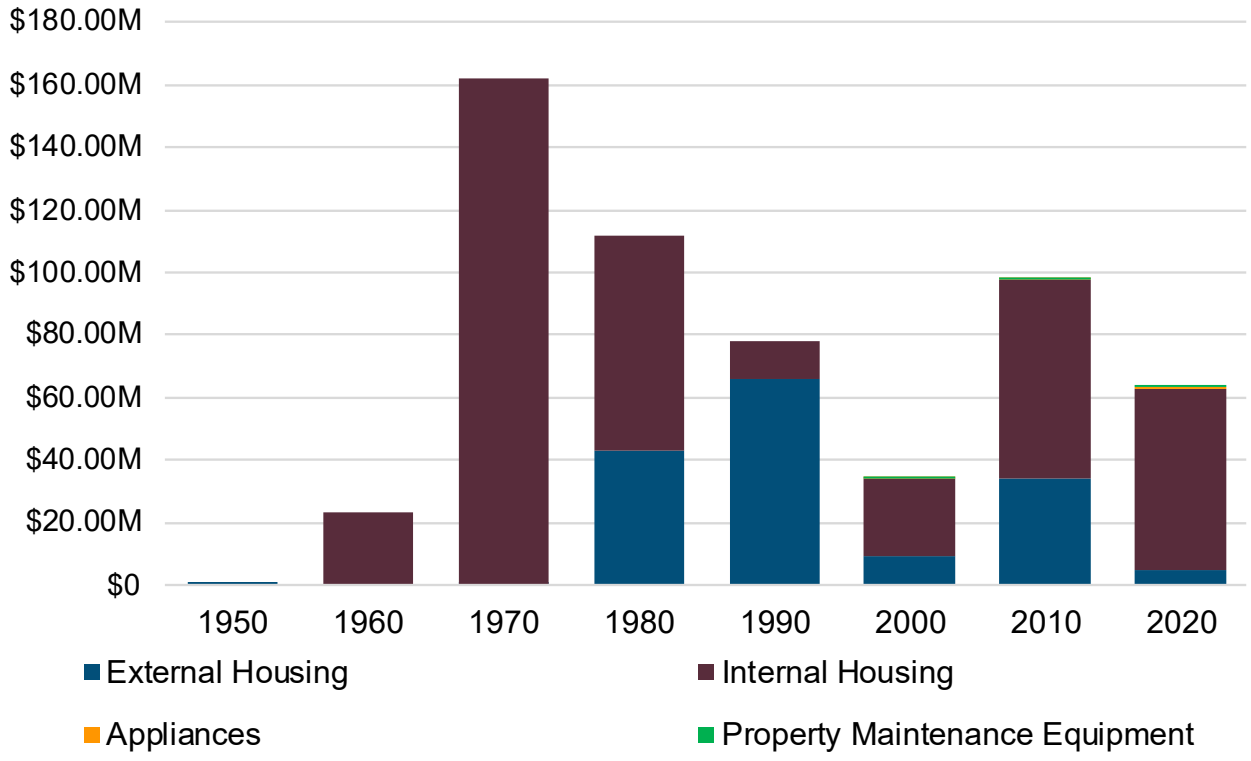


FIGURE 9-7 COMMUNITY HOUSING INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

It is important to note, prior to 1999 Community Housing facilities were owned and operated by Ontario Housing Corporation. Between 1999 and 2000, the province of Ontario downloaded these assets down to the municipalities, transferring ownership and operational responsibilities to the City. During the 1970s to 1990s, the Province greatly expanded its housing, followed by substantial additions from the City in the 2010s and 2020s. With the average age of the City's Community Housing being 32 years old and the average ESL of 50 years, a bulk of renewals and rehabilitations are likely to be due in approximately 18 years.

9.2.1.3. Asset Condition

The City has recently completed building condition assessments (BCAs) for all of its facilities in preparation for this Asset Management Plan. The BCA study identified current and future needs for all building elements within the City's facilities. Building elements were evaluated based on their current condition, as well as remaining life based on expert opinion. This information was then taken into account, and each facility element was given a score between one (Very good condition) to five (Very poor condition). Thus, a whole facility's condition was calculated based on an average condition of all its components' condition, weighted by replacement cost.

The condition of fleet and equipment assets is understood based on remaining service life. This metric was provided by City staff and represents the City's experts best understanding of the approximate timing that asset replacement is required.

Table 9-2 and Table 9-3 provide a summary of the approaches used to assess condition and the resulting conditions observed can be found in Figure 9-8 and Figure 9-9.

TABLE 9-2: COMMUNITY HOUSING ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• **Facilities**	Building Condition Assessment Program	Every 5 years at a minimum
• **Fleet and Equipment**	Assets are reviewed by subject matter experts and assigned a remaining life, based on visual assessments. Where this wasn't possible, condition was understood by asset age and life consumed.	Annually or as deemed appropriate by subject matter experts

TABLE 9-3: COMMUNITY HOUSING ASSETS CONDITION RATINGS

Category	Internal and External Housing (Facility Component Rating)	Fleet and Equipment (Life Consumed)
Very Good	1	0% to 25%
Good	2	25% to 50%
Fair	3	50% to 75%
Poor	4	75% to 100%
Very Poor	5	>100%

Overall, the City's community housing is in good condition. A breakdown of the whole community housing condition profile can be found in Figure 9-8.

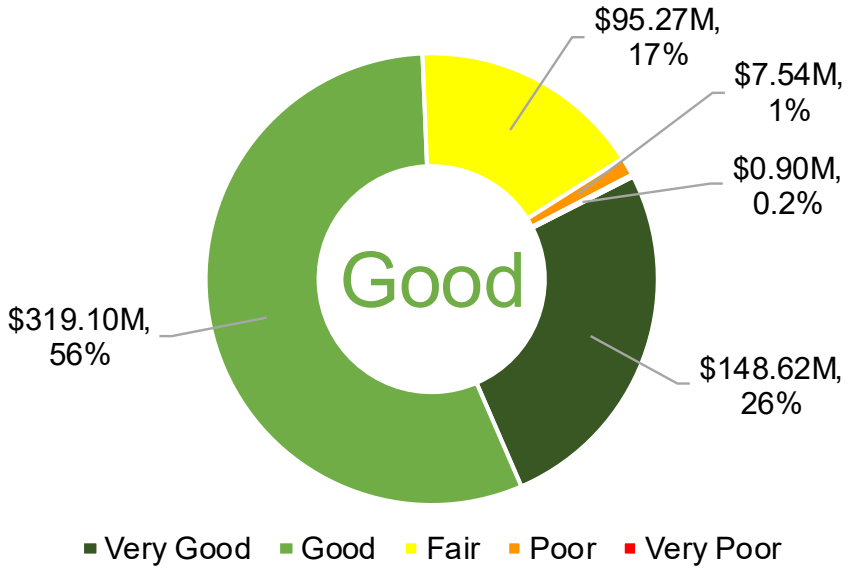


FIGURE 9-8: COMMUNITY HOUSING CONDITION SUMMARY

A breakdown of each asset classes' condition profile can be found in Figure 9-9. Most assets are in fair to very good condition. Approximately 21% of property maintenance equipment and 9% of appliances need to be addressed.

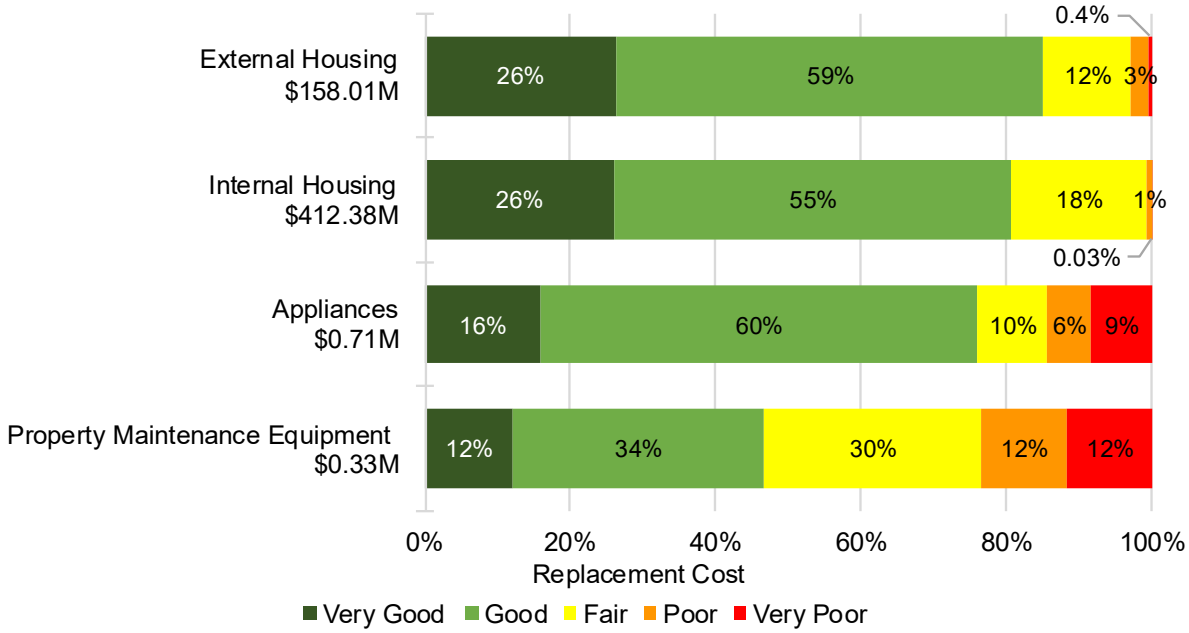


FIGURE 9-9: COMMUNITY HOUSING CONDITION DISTRIBUTION BY ASSET CLASS

9.2.1.4. Data Sources and Maturity

Table 9-4 provide an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 9-4: COMMUNITY HOUSING DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Facilities	Good	High	These assets were assessed in 2024, which provided the City with a complete and high confidence dataset.
Fleet and Equipment	Good	Medium	Asset data in many cases was supplemented by staff judgment and updated for this AMP. In many cases, condition was well understood by staff, but in others, an understanding of condition was based on age alone.



9.2.2. Levels of Service

The City's goal is to provide safe and affordable housing for seniors, families and adults in Cornwall and SDG Counties with its internally owned and operated assets. This means ensuring that housing is available and accessible to all and to people that need it, ensuring that assets are in a state of good repair (SOGR) by performing regular maintenance and minimising environmental impacts while optimising lifecycle activities costs.

To tackle the community housing deficit, the City undertook a community housing development plan in 2024, which identified an additional potential supply of 538 new internal community housing units across several sites in Cornwall and SDG.

Housing Services operates on a non-profit basis. Rental income and the government subsidy is designed to cover only the cost of normal operating costs, such as maintenance, administration, insurance, utilities and mortgages. Since the annual subsidy from the government is a fixed amount, raising rents is necessary to cover high expenses for things like maintenance. This poses a challenge as not receiving an adequate subsidy from the government makes it difficult for Housing Services to provide affordable units, while performing the necessary actions to continue providing appropriate levels of service.

The City updated their Community Housing and Homeless Plan and developed a Housing Revitalization Plan in 2019 and 2020, respectively. More recently, the City has developed a Community Housing Development Plan (2024) and performed a Housing Needs Assessment (2025). These documents provide guidance on how the City will provide safe and affordable housing to its communities, as well as how the demands of existing and future housing needs will be met.

9.2.2.1. Housing Needs Assessment (2025)

The purpose of the Housing Needs Assessment (HNA) is to identify where housing is needed, the types and sizes of housing needed to meet current and future demands, and the associated financial impacts. Housing needs are shifting, as there is a rise in one-person households, an ageing population, and increasing diversity within the City.

The HNA uses quantitative analysis and qualitative inputs. Quantitative analysis draws on data from Statistics Canada, CMHC, and local municipal sources to evaluate trends in housing demand, affordability, condition, and suitability.

Qualitative inputs were gathered through public surveys and targeted workshops with local service providers, housing stakeholders, and developers to ensure the analysis reflects lived experience and local context. The following challenges and opportunities were highlighted by the workshop participants:

- Gaps in housing supply
- Supportive and transitional housing
- Homelessness response
- Affordability and unit quality
- Coordination and navigation
- Location and walkability
- Development and delivery

Since 2016, there has been a sharp increase in the City's population growth. The City's population is expected to grow by 10% to 17% by 2036 (reaching between 52,750 to 55,950 people). The number of households is projected to grow by 12% to 19% (from 21,386 to between 23,977 and 25,432 households).

Housing needs will continue to evolve, and trends will need to be considered in order to accommodate current and future housing needs. The following trends were identified:

- Affordability and supply: the gap between housing costs and household incomes has widened significantly in recent years and there is an undersupply of housing relative to population growth
- Rental market pressures: demand for rental housing has surged in recent years, due to high home prices, a shifting demographic, and lifestyle preferences
- Growing demand for smaller units: according to Statistics Canada, single-person households became the most common household type for the first time in 2021, and these numbers continue to grow.
- Diversifying housing needs: demographic shifts, changing household structures, and socioeconomic disparities are driving the diversification of housing needs. In addition to the sharp increase of single-person households, multigenerational households are also on the rise, particularly among immigrant and Indigenous populations.

Low-, medium-, and high-growth scenarios were studied to determine the projected household counts by 2036. Table 9-5 summarizes the results of these studies.



TABLE 9-5: PROJECTED HOUSEHOLD COUNT AND SPLIT BETWEEN INCOME CATEGORIES FOR LOW, MEDIUM, AND HIGH GROWTH SCENARIOS

Income Category	% of Total Households (HH)	Count of HH (2021)	Projected HH Count (2036) – Low Growth	Projected HH Count (2036) – Medium Growth	Projected HH Count (2036) – High Growth
Very Low Income (20% or under of AMHI)	1.12%	239	268	280	285
Low Income (21% to 50% of AMHI)	18.11%	3,875	4,343	4,528	4,611
Moderate Income (51% to 80% of AMHI)	19.49%	4,169	4,674	4,873	4,959
Median Income (81% to 120% of AMHI)	21.46%	4,587	5,144	5,365	5,457
High Income (more than 120% of AMHI)	39.81%	8,515	9,548	9,953	10,120
Total HHs	**100%**	**21,385**	**23,977**	**25,000**	**25,432**

Total households are expected to increase from 21,385 in 2021 to between 23,977 and 25,432 by 2036. Across the three scenarios, the City has most significant shortfall in bachelor and one-bedroom dwellings.

Moving forward, the City will use regularly reference the HNA and continue to update it as new data is available.

9.2.2.2. Community Housing and Homelessness Plan (2019)

This Plan defines the values and housing priorities based on local housing data, statistics, and program information. The Plan serves as a comprehensive roadmap to help guide housing efforts and investment in the community.

To update this Plan, the City conducted public and stakeholder engagement which included key informant interviews, focus groups, town hall sessions, an online community-oriented survey, and an online community agency intake survey. The Plan identifies the following visions and objectives:

TABLE 9-6: COMMUNITY HOUSING AND HOMELESSNESS PLAN VISIONS AND OBJECTIVES

Community Vision #1	People experiencing a housing crisis are housed or sheltered
Objective	To ensure a system of services and supports is in place to help those who are homeless or at risk of being homeless to obtain housing.
Community Vision #2	People who are currently housed but at risk of becoming homeless remain housed
Objective	To ensure a system of services and supports is in place to help those who are at risk of becoming homeless to maintain/stabilize their housing.
Community Vision #3	Suitable existing housing stock is maintained
Objective	To support and promote efforts that help maintain and preserve suitable existing housing stock in the community.
Community Vision #4	The supply of appropriate housing is enhanced
Objective	To encourage the development of appropriate and affordable new housing.

To support each objective, strategies and actions to be undertaken were identified. The City will monitor the progress on each objective by tracking measures and outcomes, as identified in the Plan.

9.2.2.3. Housing Revitalization Plan (2020)

The purpose of the Housing Revitalization Plan (HRP) is:

- to identify opportunities for revitalization and redevelopment through existing social housing sites to accommodate current and future housing needs.
- Determine housing needs to plan for new housing developments.

The Social & Housing Services Department (the Department) funds 1,643 units (including 76 AHP units) of senior, single and family units across 35 (3 AHP) properties. The housing units are of different size and dwelling type, ranging from one bedroom to family units of up to 5 bedrooms within apartment buildings and row houses.

The HRP serves as a guide for potential regeneration, refurbishment, and repurposing of existing housing, and future acquisitions (including new builds).

A housing needs assessment was performed. This assessment considered population growth, demographic structures, income levels, and stakeholder consultation. Stakeholders included City and SDG administrators and staff, Private Non-Profit Service Providers, and the public. The assessment determined that from 2021 to 2031, over 740 units will be required in Cornwall and SDG (491 from 2021-2026 and 250 from 2027-2031). Over 40% of the identified housing needs will be in the City of Cornwall.

Existing and potential new sites were reviewed for constraints and opportunities. These opportunities include:

- Developing new units through additions to the existing site;

- Demolishing existing and building new units; or
- Building new units in a greenfield site.

The total cost of development from 2021 to 2026 and 2027 to 2031 is approximately $160 million and $80 million, respectively.

9.2.2.4. Community Housing Development Plan (2024)

The Community Housing Development Plan is a community housing road map designed to address the urgent need for affordable community housing in the region. The Plan's vision and guiding principles (the "ABCDs") are as follows:

- **Advocate** for Diverse Housing Forms;
- **Balance** Economics with Good Placemaking;
- **Connect** with the Surrounding Community; and,
- **Destigmatize** Community Housing.

Through the HRP, it was identified that 995 affordable homes (number adjusted in 2023) are needed over the next 10 years in Cornwall and SDG. The HRP recommends that 40% of these homes are in Cornwall and 60% are in SDG. The housing need includes a mix of unit sizes, predominantly one-bedroom units, followed by two-bedroom, three-bedroom, and four-bedroom units.

This plan identified 538 new affordable homes across seven sites within Cornwall and SDG that can be developed as part of the total goal of 995 units. This Plan was developed using the following approach:

1. Site visits to gather information on the sites.
2. Strengths, Weaknesses, Opportunities, and Threats (SWOT) assessments to gain further insight into factors affecting the success of a potential housing development project.
3. Drafting of preliminary block concepts to facilitate initial visualization of the space.
4. Capacity estimates (maximum number of housing units or occupants).
5. Site planning through detailed development concepts and refining blocking concepts.
6. Costing and proforma analyses to estimate the financial aspects of each development concept.
7. Developing an implementation strategy to provide recommendations for development approaches, funding sources, and scheduling.

Based on the Housing Needs Assessment, Community Housing and Homelessness Plan, and the Community Housing Development Plan, the community and technical LOS for The City's Community Housing assets were developed and appropriate targets set to meet the City's goals. Each metric includes both current performance data and proposed future targets. City-defined technical metrics focus on quantitative performance indicators and can be found in Table 9-8.

9.2.2.5. Performance Measures

TABLE 9-7: HOUSING SERVICES COMMUNITY LEVELS OF SERVICE

Community Measures	Performance
Service Attributes: **Reliable**	
Housing is safe and well maintained.	Work orders will continue to be handled promptly. Safety concerns will continue to have a 24-hour turnover time, medium urgency items will continue to be dealt with within 48 to 72 hours, and regular daily upkeep and cleaning will continue to be performed at all buildings and properties.
Service Attributes: **Available**	
Housing is affordable.	Rent will continue to be based on funding and provincial mandates associated with properties and will continue to reflect various measures of affordability from RGI (rent geared to income), Median Market Rent and Alternate Average Market rent.
Housing is available to families that need it.	Community Housing Services will continue to have a dedicated team of staff, committed to ensuring rental units get back into the stream as soon as possible.
Service Attributes: **Accessible**	
Housing is accessible to all people.	The City will continue to strive to keep as many of its units as possible accessible, using the requirements of the Accessibility for Ontarians with Disabilities Act (AODA) to measure accessibility, which is in line with the Ontario Building Code.
Service Attributes: **Environmentally Conscious**	
Environmental Measure	The City will continue to align to the City's climate action plan. Housing will continue to seek funding resources to implement environmentally conscious equipment and options. .

TABLE 9-8: HOUSING SERVICES TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of Assets in Poor or Better Condition	Facilities	100%	Maintain
Percentage of Assets in Poor or Better Condition	Equipment	90%	Maintain
Days (hours) of facility full or partial closures due to condition or asset issues.	Facilities	0 days closed	Maintain
Service Attribute: **Available**			
Occupancy Rate (or Vacancy Rate)	Facilities	100% occupancy rate (0% vacancy rate)	Maintain
Percentage of available units that can be occupied	Facilities	100% available	Maintain
Service Attribute: **Accessible**			
Percentage of Facilities that are AODA compliant	Facilities	Housing exceeds the required minimum of 15% in line with the Barrier Free regulation that forms part of the Building Code Act.	Maintain

9.2.3. Lifecycle Management Strategy

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City of Cornwall's Housing Services. These activities ensure that the City's portfolio of housing facilities and associated equipment continue to provide safe, affordable, and well-maintained living spaces for residents. Effective lifecycle management supports the City's commitment to maintaining service quality while optimizing limited financial and human resources.

By applying best practices in asset management, including preventive maintenance, regular inspections, condition assessments, and timely repairs or renewals, the City can extend the useful life of its housing assets and reduce the need for costly reactive interventions. Proactive planning helps to identify potential issues before they escalate, ensuring that residents experience minimal service disruption and that the City's assets remain in compliance with health, safety, and accessibility standards.

Lifecycle activities also include capital rehabilitation and modernization projects, such as roof replacements, HVAC upgrades, plumbing and electrical renewals, and accessibility retrofits—initiatives that improve building performance and energy efficiency while supporting the City's long-term sustainability and climate objectives. These efforts contribute to a more resilient and financially sustainable housing system, ensuring that public housing continues to meet the needs of Cornwall's diverse community.

In addition to maintenance and renewal, non-infrastructure and operational initiatives—such as condition assessments—play an important role in improving service delivery. These actions enhance decision-making by providing accurate, timely data on asset condition, performance, and lifecycle costs.

Table 9-9 and Table 9-10 summarize the various lifecycle activities that the City undertakes to ensure that its housing facilities and equipment continue to support the services they provide.



TABLE 9-9: LIFECYCLE ACTIVITIES – FACILITIES

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, traffic studies, AMPs)	As required
Building Condition Assessment Program	Every 5 years (at a minimum)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	Ongoing, where feasible
Major equipment or structural building component replacement	Ongoing, where feasible
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new facilities or expansion of existing facilities to accommodate increased demand and population growth.	As identified through Community Housing Development and Revitalization Studies
Upgrades or procurement of new assets.	As identified through Community Housing Development and Revitalization Studies

TABLE 9-10: LIFECYCLE ACTIVITIES – EQUIPMENT

Description	Frequency
Non-Infrastructure Solutions	
N/A	N/A
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	Ongoing, where feasible
Replacement of assets at end of life.	As identified by staff, through studies, or as required
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Purchase/procurement of additional equipment and fleet assets to support population growth or service expansion	As identified by staff, through studies, or as required
Upgrades or procurement of new assets.	As identified by staff, through studies or as required

9.2.4. Funding the Lifecycle Activities (Internal Housing and Equipment)

The lifecycle activities mentioned in Section 9.2.3 detail the work that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has ide15ntified the costs that the City anticipates for each of lifecycle categories noted in Table 9-9 and Table 9-10. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's financial strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 9-10, Figure 9-11, Figure 9-12 and Figure 9-13 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively. Using the budget analysis and the outputs from the scenario forecasts, the City was able to compare the different spending levels to achieve the outcomes for all other scenarios. Table 9-11 provides an average annual spend by lifecycle activity category for the next 10 years that the City anticipates spending on municipal structures, as well as the investment requirements for the other forecasted scenarios. This allowed the City to understand the funding gaps between the different scenarios and begin thinking about ways to close these gaps and propose targets where necessary.

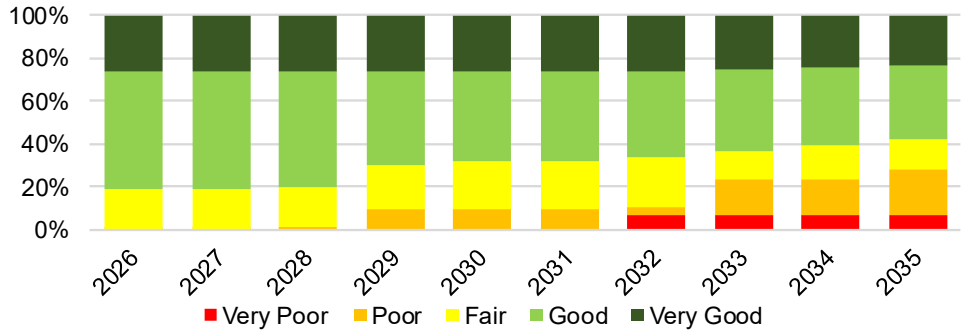


FIGURE 9-10: COMMUNITY HOUSING ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

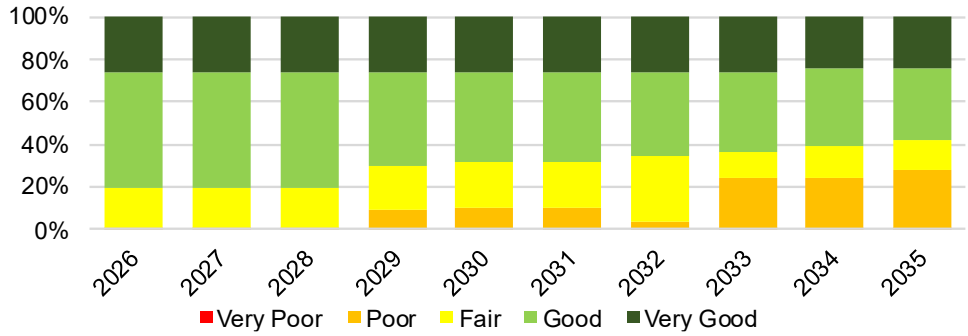


FIGURE 9-11: COMMUNITY HOUSING MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

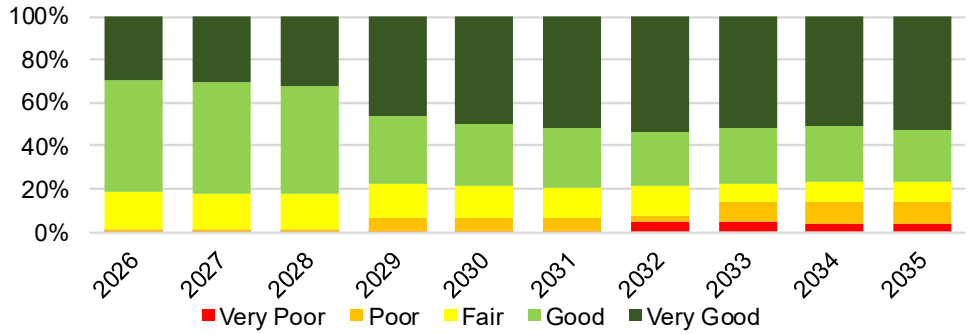


FIGURE 9-12: COMMUNITY HOUSING BACKLOG SCENARIO PERFORMANCE FORECAST

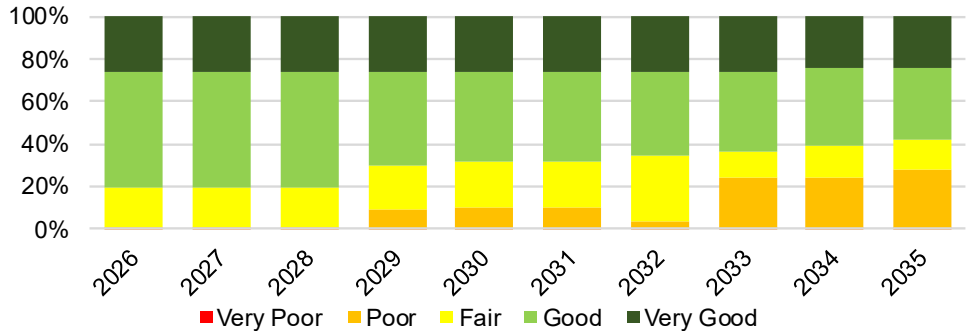


FIGURE 9-13: COMMUNITY HOUSING PROPOSED LOS SCENARIO PERFORMANCE FORECAST (MAINTAIN CURRENT LOS)

Under the anticipated budget scenario, the overall LOS of community housing assets is expected to decrease from almost 100% to 93%. To maintain the current service levels of almost 100% of assets that meet the LOS, the City would need to spend an annual average of $4.31 million on renewals and rehabilitations for the next 10 years. To eliminate the backlog, it was determined an annual average of $13.67 million on renewals and rehabilitations is needed. Using the results from the previous scenarios, the City determined that it would increase its spending on renewals and rehabilitations, and maintain spending on its growth activities, thus, maintaining overall levels of service at 100%. Table 9-11 and Figure 9-14 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for municipal structures.

TABLE 9-11: INTERNAL HOUSING AND EQUIPMENT BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$9.81M	$9.81M	$9.81M	$13.90M
Service Improvements	$0	$0	$0	$0
Growth Activities	$0	$0	$0	$24.00M
Renewal & Replacement	**$1.40M**	**$4.31M**	**$13.67M**	**$4.31M**
Total Lifecycle Expenditures	**$11.22M**	**$14.12M**	**$23.48M**	**$42.21M**
Total Infrastructure Gap		**$2.90M**	**$12.26M**	**$30.99M**

The table above summarizes the estimated annual lifecycle funding requirements for the City of Cornwall's Housing Services. It outlines the anticipated costs associated with maintaining, renewing, and improving the City's housing assets to support ongoing service delivery.

Operations and Maintenance (O&M) represents the largest annual expenditure, averaging approximately $9.81 million. This level of investment reflects the ongoing costs required to manage and sustain housing operations, including routine maintenance, building system upkeep, and tenant services. These activities are essential to maintaining safe and livable conditions across the City's housing portfolio and are consistent across all service level scenarios. With the addition of additional housing, the PLOS scenario reflects additional needs required to continue to maintain the housing services portfolio.

Renewal and Replacement costs—covering major repairs, building component renewals, and system upgrades—represent a critical area of investment need. The analysis indicates that approximately $1.40 million is currently allocated annually toward renewal activities. However, maintaining the current level of service (LOS) would require an average annual investment of $4.31 million, while addressing the existing backlog of deferred renewal needs would require approximately $13.67 million annually. This gap highlights a significant reinvestment need within the City's housing stock to sustain asset condition and performance over the long term. The City determined for the PLOS, that the goal for renewal and replacement of the existing asset portfolio would be to maintain the current LOS.

Growth contributes to the largest portion of the gap under the PLOS scenario, with the addition of $240 million of assets required to meeting the housing targets identified in the Housing Revitalization Plan over the next 10 years, creating a $24.00 million annual gap to reach this target. Overall, there is an annual gap of $30.99 million to reach the LOS goals, as well as meeting the Housing for All strategic priority by implementing the goals set by the Housing Revitalization Plan.

The Total Infrastructure Gap between current funding and the amount required to maintain the current LOS is approximately $2.90 million per year. This gap increases substantially—to $12.26 million per year—when the full backlog of deferred renewal work is considered. The magnitude of this gap indicates that the City's housing assets face increasing pressure from aging infrastructure, deferred maintenance, and rising capital costs.

The bars on the Figure 9-14 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.



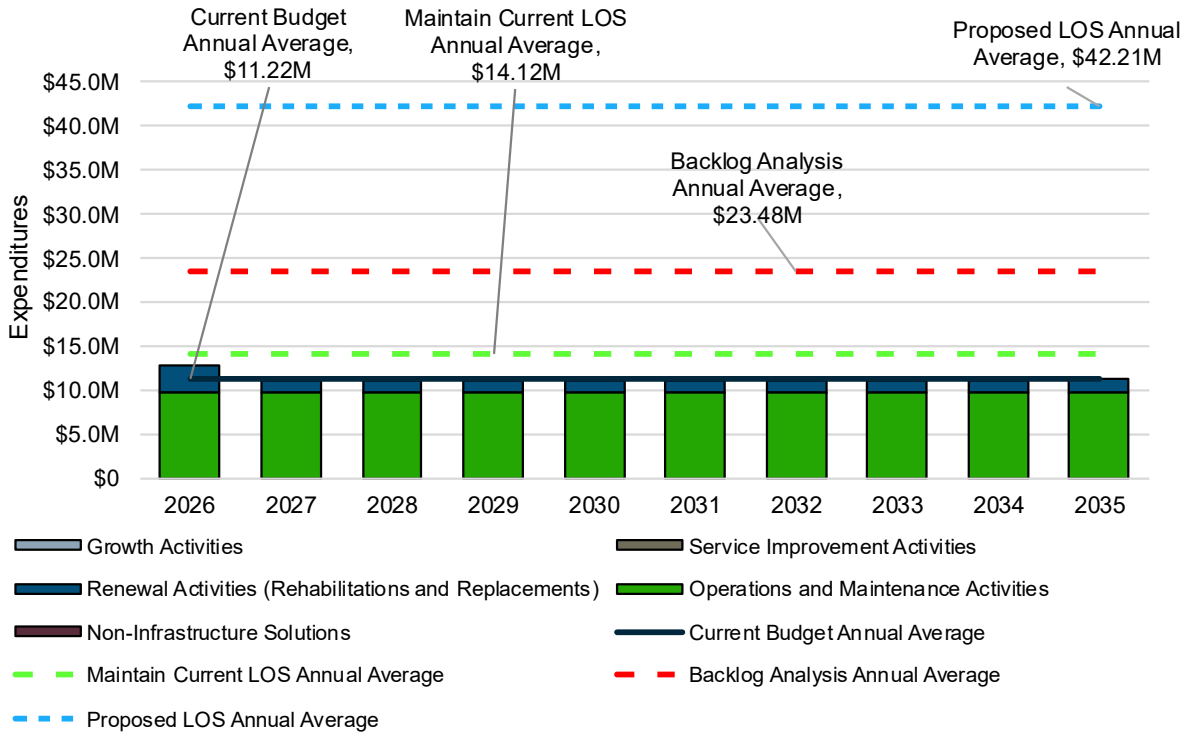


FIGURE 9-14: INTERNAL HOUSING AND EQUIPMENT SCENARIO ANALYSIS SUMMARY

9.2.5. Findings

Overall, the City's housing services portfolio consists of $571.42M worth of assets (of which $158.01 M are external housing) and maintains them in good condition. Currently, 98.94% of assets in poor or better condition, thus, nearly 100% of community housing's assets are currently meeting their LOS threshold (poor or better condition). In addition, community housing assets have not surpassed their service lives on average. The City maintains its housing services portfolio in overall good condition, with all asset classes containing data with both medium to high completeness and medium to high confidence. Complete and confident data contribute to the foundation of asset management practices, thus the City should continue maintaining their data in good condition to uphold their asset management activities moving forward.

When looking forward, the City anticipates to spend an average of $11.22 million on their community housing (internal housing and equipment), which will result in 93% of assets that meet the LOS threshold. To maintain the current LOS threshold of almost 100%, the City will need to spend an extra $2.90 million per year according to the lifecycle modelling forecasts. Moreover, according to the results from the BCA as well as the backlog analysis the City determined that to eliminate the backlog and maintain the community housing portfolio at 100% of assets at or above the LOS threshold would cost an annual average of $23.48 million in total lifecycle costs. According to the results of the different forecasting scenarios, the City proposed to maintain the current LOS for existing assets, which on average would cost an extra $2.90 million annually. For PLOS, to maintain LOS for existing assets, as well as reach the housing targets set out in the Housing Revitalization Plan, the City would require an addition $18.49 million annually for renewal and replacement activities, growth assets, as well as additional operations and maintenance expenditures. It is anticipated that funding the growth

assets could be done through various equity (or grant) and debt sources available through public sector schemes such as National Housing Strategy (NHS) and City/Provincial Grant (considered a replacement of Investment in Affordable housing (IAH) (Housing Revitalization Plan, 2020).





Senior Services

City of Cornwall

Cornwall
ONTARIO CANADA
A city with a world of possibilities

GEI Consultants

10. Senior Services

10.1. Summary

The City's Senior Services includes its portfolio of Long-Term Care assets. Glen Stor Dun Lodge is the long-term care facility owned and operated by the City, which is licensed for 132 beds.

By the year 2025, the City of Cornwall expects that close to 30% of the population will be over the age of 65. To prepare for this demographic shift, the City of Cornwall has been proactive in making the community more senior friendly through various initiatives, such as:

- Receiving a $35,000 grant from the Ontario Government's Age-Friendly Community Planning Grant Program. The grant was used to develop the Senior Friendly Community Implementation Plan (SFCIP) which provides specific practical recommendations that will ensure Cornwall remains a safe, affordable, accessible and enjoyable City for everyone. The SFCIP was developed through consultation with over 700 Cornwall older adults. [2]
- Glen Stor Dun Lodge Community Outreach Services offers:
    - Meals on Wheels, where hot and nutritious meals are delivered
    - Adult day programs to provide exercise, socialization, education and includes transportation services
    - The telephone assurance program where volunteers make daily phone calls to seniors that live alone

An overall summary of the replacement value and condition of the assets within this subservice (for this 2025 plan) is provided below in Figure 10-1. Subsection 10.2 provides further details on the asset classes within this service.

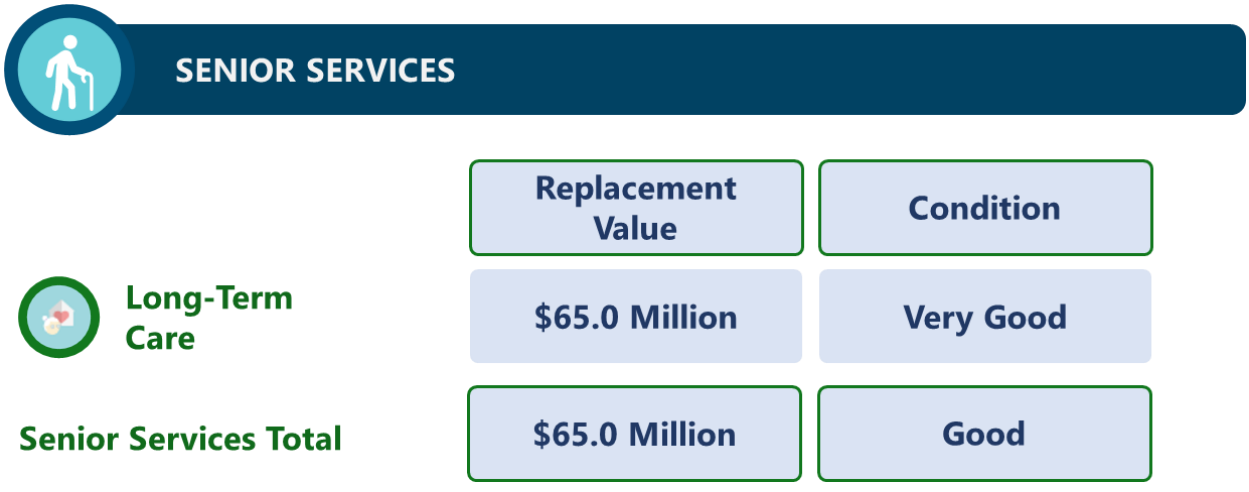


FIGURE 10-1: SENIOR SERVICES CONDITION AND REPLACEMENT VALUE SUMMARY

[2] Senior Friendly Community Implementation Plan (2017)

10.2. Long-Term Care

The City of Cornwall is responsible for providing Long Term Care services to the senior residents. The main way that the community experiences this service is through the City's Long Term Care Facility – the Glen Stor Dun Lodge. This facility contains specialized equipment for food service, medical purposes and other long-term care needs. Figure 10-2 illustrates the Housing Services asset hierarchy.



FIGURE 10-2: SENIOR SERVICES ASSET HIERARCHY



10.2.1. State of Infrastructure

This section outlines the state of infrastructure for Cornwall's Long-Term Care, including: asset inventory and valuation, age and estimated service life, asset condition, data sources and maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

10.2.1.1. Asset Inventory and Valuation

The replacement cost for the City's Long-Term Care assets is approximately $64.97 million and is summarized in Table 10-1 and Figure 10-3.

TABLE 10-1: LONG-TERM CARE ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Facilities ($57.7M)		
Long-Term Care Homes	1 Facility	$57.68M
Fleet and Equipment ($7.3M)		
Building Services Equipment	173 Assets	$4.22M
Food Services Equipment	121 Assets	$1.07M
IT Equipment	94 Assets	$0.08M
Long-term Care Equipment	688 Assets	$0.55M
Medical Equipment	232 Assets	$1.12M
Support Services Equipment	35 Assets	$0.26M
Total		**$64.97M**

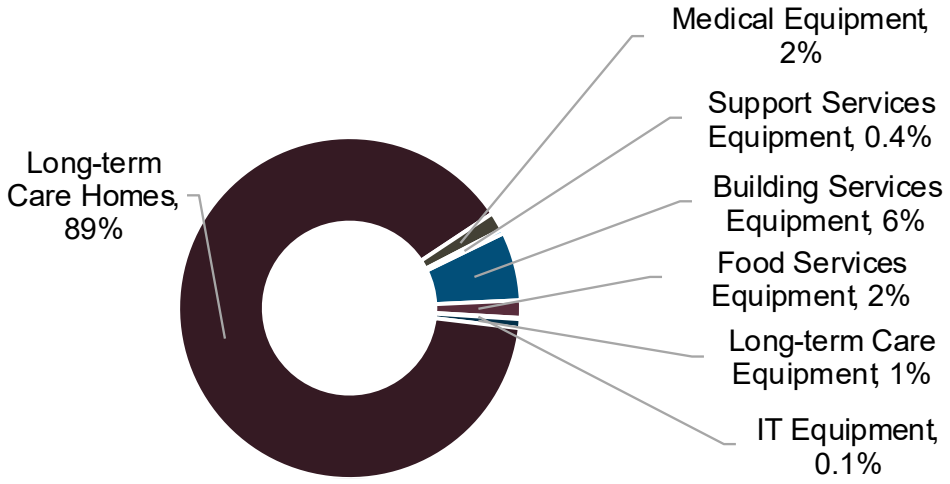


FIGURE 10-3: LONG-TERM CARE ASSETS VALUATION DISTRIBUTION

10.2.1.2. Age and Estimated Service Life

The average age of the City's Long-Term Care portfolio is 26 years old. Figure 10-4 provides a breakdown of the ages by asset class.

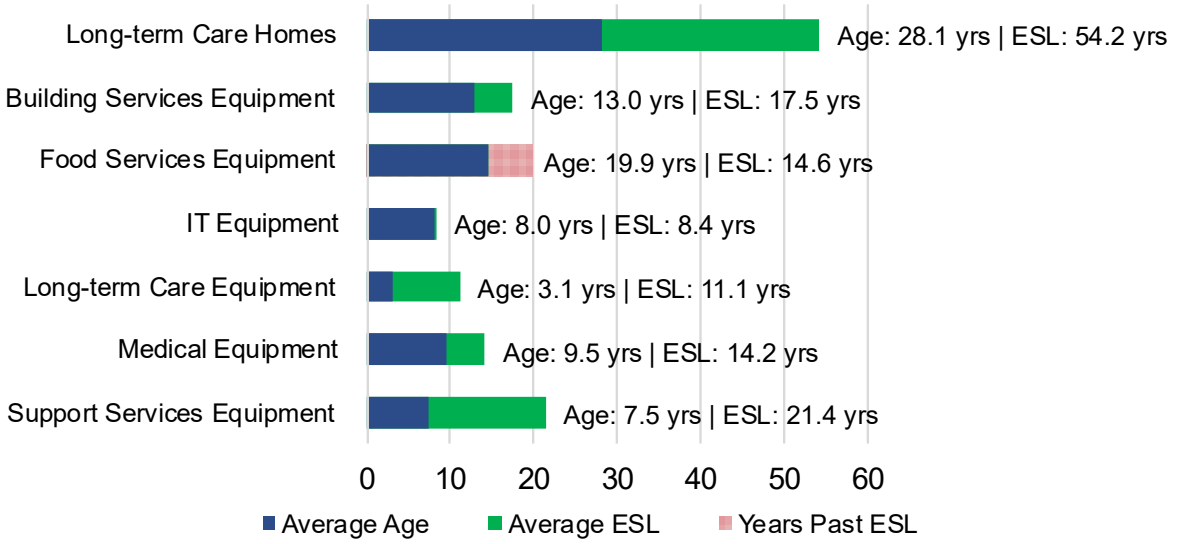


FIGURE 10-4: LONG-TERM CARE SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 10-5 below, captures the installation decades in which the various asset classes were acquired and or installed by Long-Term Care.

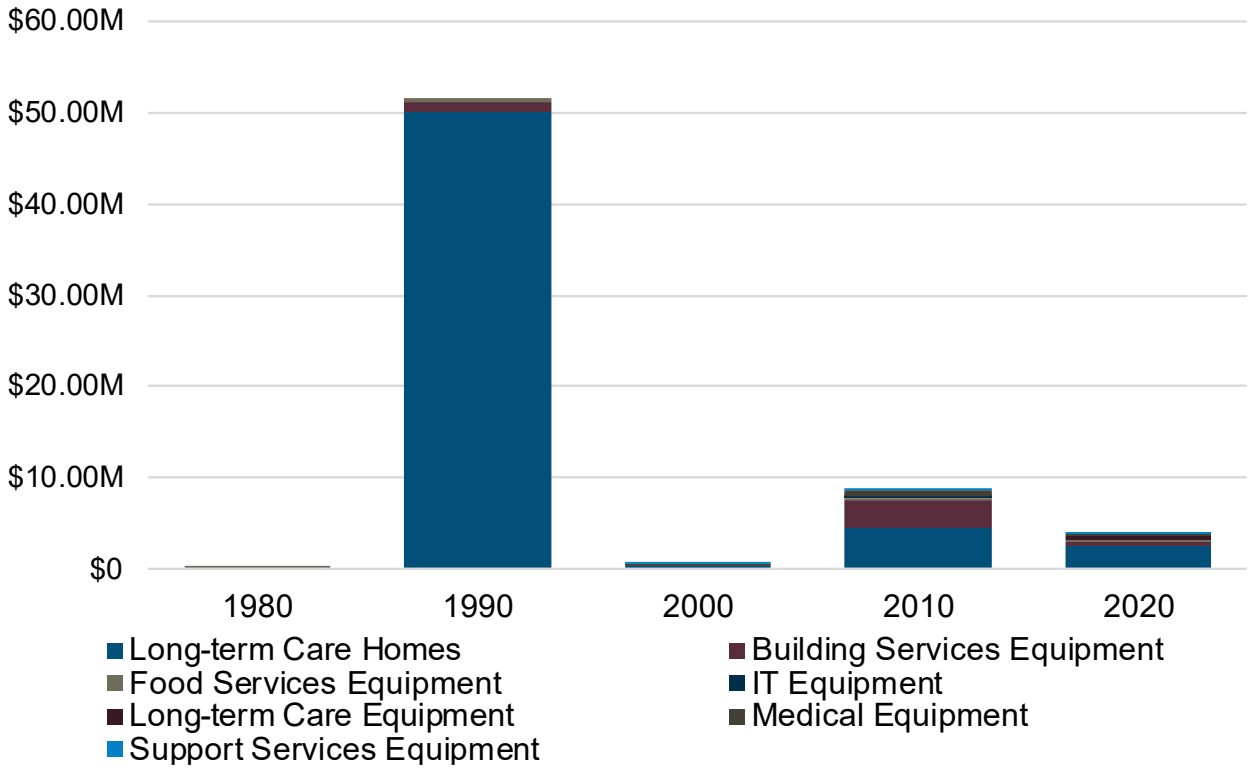


FIGURE 10-5: LONG-TERM CARE INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

The Glen Stor Dun Lodge originally opened in 1912 and in 1994, it was assumed by the City of Cornwall and a new facility was constructed on the present site. This is shown in Figure 10-5, where the vast majority of assets were acquired in the 1990s. With the average age of the City's Long-Term Care being 26 years old and the average ESL of 50 years, a bulk of renewals and rehabilitations are likely to be due in approximately 24 years.

10.2.1.3. Asset Condition

The City has been assessing the condition of facilities through a building condition assessment (BCA) program, where facilities are assessed every 5 years at a minimum. These BCAs are used to determine current and future asset needs for all building elements within the City's facilities.

Using the results of this study, a Facility Condition Index (FCI) rating was calculated. An FCI rating represents the amount of deferred maintenance and repair/renewal requirements in the current year, divided by the total replacement cost of the assets within the building, considering like for like replacement. The FCI provides a general representation of overall building condition, and not necessarily the condition of individual assets within a building.

The condition of fleet and equipment assets is understood based on remaining service life. This metric was provided by City staff and represents the City's experts best understanding of the approximate timing that asset replacement is required.

Table 10-2 and Table 10-3 provide a summary of the approaches used to assess condition and the resulting conditions observed can be found in Figure 10-6 and Figure 10-7.

TABLE 10-2: LONG-TERM CARE ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• **Facilities**	Building Condition Assessment Program	Every 5 years at a minimum
• **Fleet and Equipment**	Assets are reviewed by subject matter experts and assigned a remaining life, based on visual assessments. Where this wasn't possible, condition was understood by asset age and life consumed.	Annually or as deemed appropriate by subject matter experts

TABLE 10-3: LONG-TERM CARE ASSETS CONDITION RATINGS

Category	Facilities (FCI)	Fleet and Equipment (Remaining Life)	Life Consumed
Very Good	0% - 2.5%	100% - 75%	0% - 25%
Good	2.5% - 5%	75% - 50%	25% - 50%
Fair	5% - 10%	50% - 25%	50% - 75%
Poor	7.5% - 10%	25% - 0%	75% - 100%
Very Poor	>10%	< 0%	> 100%

Overall, the City's long-term care assets are in good condition. A breakdown of the whole community housing condition profile can be found in Figure 10-6.

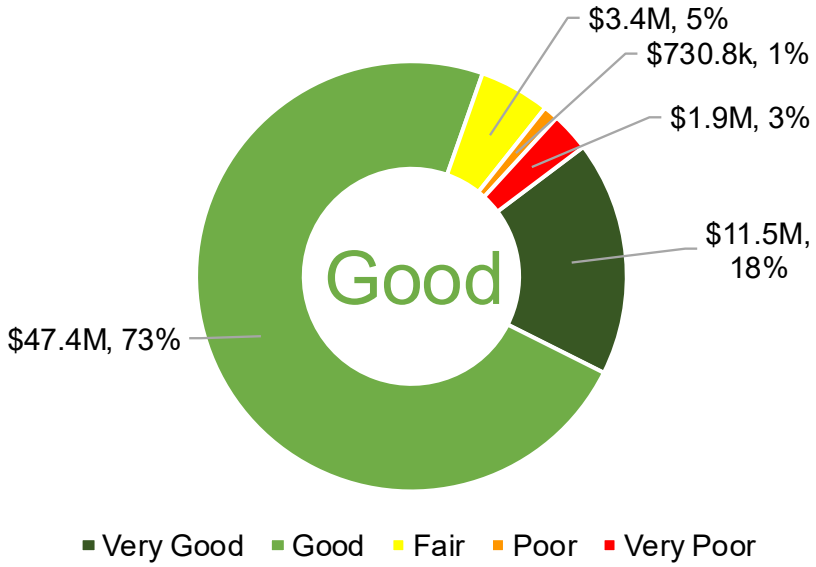


FIGURE 10-6: LONG-TERM CARE CONDITION SUMMARY

A breakdown of each asset classes' condition profile can be found in Figure 10-7. Most assets are in fair to very good condition. Approximately 27% of medical equipment, 32% of IT equipment, 55% of food services equipment, and 23% of building service equipment need to be addressed.

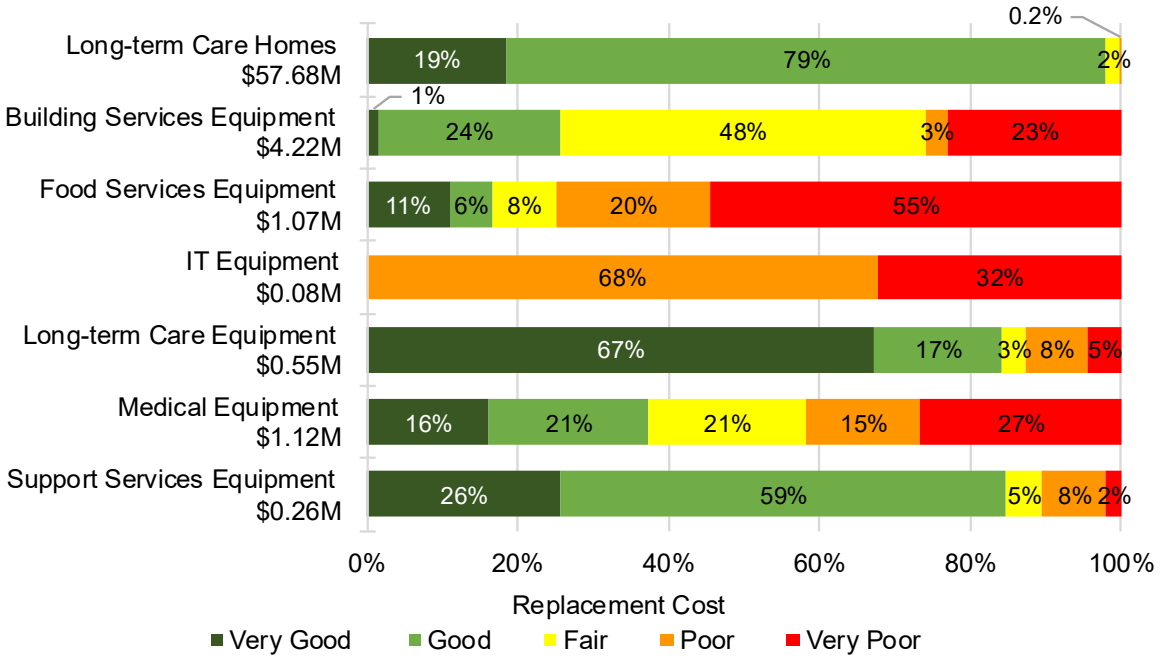


FIGURE 10-7: LONG-TERM CARE CONDITION DISTRIBUTION BY ASSET CLASS

10.2.1.4. Data Sources and Maturity

Table 10-4 provide an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 10-4: LONG-TERM CARE DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Facilities	High	High	These assets were assessed in 2024, with supplementary assessment completed in 2025, which provided the City with a complete and high confidence dataset.
Fleet and Equipment	High	Low	Asset data in many cases was supplemented by staff judgment. In many cases, condition was well understood by staff, but in others, an understanding of condition was based on age alone.

10.2.2. Levels of Service

Cornwall's senior services pledges to provide quality care and service to the community through a collaborative, compassionate and innovative approach. This is achieved by providing safe, well maintained and accessible facilities, ensuring availability of resources when required and becoming more environmentally conscious.

In 2015, the City received a $35,000 grant from the Ontario Government's Age-Friendly Community Planning Grant Program. The grant was used to develop the Senior Friendly Community Implementation Plan (SFCIP) through consultation with over 700 Cornwall older adults[3]. The aim is to ensure a safe, affordable, accessible, and enjoyable city for everyone.

10.2.2.1. Strategic Priorities

The City's strategic priorities are based on the four strategic pillars:

1. Housing for All
2. Community Connections
3. Achieve Net-Zero by 2050
4. Cornwall – Future Ready

As identified in the Strategic Plan, the City is committed to providing more housing for the community, actioned through pillars 1 and 4.

[3] Senior Friendly Community Implementation Plan (2017)

10.2.2.2. Senior Friendly Community Implementation Plan (2017)

The feedback collected through consultation for the Senior Friendly Community Implementation Plan was used to develop recommendations to help meet the needs of the senior community. The recommendations were grouped into the following categories:

1. **Communication and Information:** including creating a Senior Friendly Community Implementation Committee, additional City staff time for better communication, and the expansion of communication channels
2. **Outdoor Spaces and Public Buildings:** the expansion of amenities and features within spaces; the encouragement of safer transportation through the expansion of the snow clearing program, modified signage for clarity, monitoring of speed limits, street crossings, and sidewalks; streamlining reporting opportunities to report outdoor space health hazards; and improved accessibility in municipal buildings and City infrastructure.
3. **Housing:** continue to offer a comprehensive public sector Social Housing program and explore the opportunity for the creation of a seniors village in Cornwall.
4. **Social Participation:** continue to assist Senior Centres that delivery Ministry of Health programming; establish a page on the City website for seniors' interests; investigate multigenerational programming and senior specific programming at the Arts and Culture Centre; support the Cornwall Public Library in providing materials geared towards seniors interests; promote and publicize the City's Fee Assistance Policies; and continue to offer recreational activities for seniors.
5. **Respect and Social Inclusion:** work with the Cornwall City Police to consider establishing a "seniors watch" program; establish a policy (2016) that requires all City employees to wear name tags and identify themselves when answering telephones; and coordinate with the Alzheimer's society to ensure City staff receive dementia training.
6. **Transportation:** complete the 2016 Transit Master Plan and continue to offer programs that make the transit system more accessible for seniors – such as discounted passes, the "Community Bus Service", door-to-door Handi Transit Service, and accessible conventional buses.
7. **Civic Participation and Employment:** establish a list of "senior friendly" civic participation opportunities on the City's website.
8. **Community Support and Health Services:** continue to support outreach services to the citizens of Cornwall.

The community LOS for the City's Long-Term Care assets can be found in Table 10-5. City-defined technical metrics focus on quantitative performance indicators and can be found in Table 10-6. Each technical metric includes both current performance data and proposed future targets.

10.2.2.3. Performance Measures

TABLE 10-5: LONG-TERM CARE COMMUNITY LEVELS OF SERVICE

Community Measures	Performance
Service Attributes: **Reliable**	
Facilities and equipment are safe and well maintained.	Maintenance work orders will continue to be prioritized and followed-up promptly, inclusive of routine maintenance and testing. Urgent requests will be responded to immediately, via on-call manager notification if after-hours.
Service Attributes: **Accessible**	
Facilities are accessible to residents.	The Glen Stor Dun Lodge is to remain fully accessible for residents, providing elevators, lifts, mobility-assisting devices to ensure all resident spaces can be accessed and enjoyed by residents.
Service Attributes: **Available**	
Long-term care resources are available for residents when needed or required. Amenities are appropriate to support residents.	Efficient quantities of equipment and resources will continue to be readily available to support residents in their care (wheelchairs, lifts, adaptive equipment, etc.).
Service Attributes: **Environmentally Conscious**	
Environmental Measure	The Glen Stor Dun Lodge will continue to be fully committed to being an environmentally friendly home. It has moved to 100% eco-friendly toilets, resulting in a reduction in water usage, along with striving for 100% of its lighting to be converted to LED lighting between 2024-2025. The Meals on Wheels program has further converted 100% of its packaging to paper products.

TABLE 10-6: LONG-TERM CARE TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of Assets in Poor or Better Condition	Facilities	100%	Maintain
Percentage of Assets in Poor or Better Condition	Building Services Equipment	77%	Improve to 80%
Percentage of Assets in Poor or Better Condition	Food Services Equipment	45%	Improve to 70%
Percentage of Assets in Poor or Better Condition	Long-Term Care Equipment	95%	Maintain
Percentage of Assets in Poor or Better Condition	Medical Equipment	73%	Improve to 85%
Percentage of Assets in Poor or Better Condition	Support Services Equipment (Housekeeping)	98%	Maintain
Percentage of Assets in Poor or Better Condition	Support Services Equipment (Laundry)	98%	Maintain
Percentage of Assets in Poor or Better Condition	Support Services Equipment (Maintenance)	98%	Maintain
Service Attribute: **Available**			
Occupancy Rate (or Vacancy Rate)	Facilities	97% Occupancy rate (3% vacancy rate)	Maintain
Turnover rate it takes to get rooms ready from when residents leave the facility to the point where a new resident is admitted.	Facilities	3-4 days	Maintain

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Accessible**			
Percentage of Facilities that are AODA compliant	Facilities	Glen Stor Dun Lodge is estimated to be 90% AODA accessible. The building itself and associated equipment contained within the home, including accessible washrooms and assisted-mobility devices, accessible parking spaces.	Maintain

10.2.3. Lifecycle Management Strategy

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's Long-Term Care Services. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship.

Table 10-7 and Table 10-8 summarize the various lifecycle activities that the City undertakes to ensure that its housing facilities and equipment continue to support the services they provide.





TABLE 10-7: LIFECYCLE ACTIVITIES – FACILITIES

Description	Frequency
Non-Infrastructure Solutions	
Regulatory requirements and Departmental Planning.	As required
Engagement with Family Council and Residents.	Ongoing
Building condition assessment program.	Every 5-years (min)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	Ongoing and as required by regulations
Preventative maintenance programs to extend service lives.	Ongoing and as required by regulations
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	Ongoing and as required by regulations
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	Ongoing and as required by regulations
Major equipment or structural building component replacement.	When asset reaches poor condition or as required by regulations
Disposals	
Asset disposal coordinated with asset replacement.	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new facilities in new subdivisions or expansion of existing facilities to accommodate for increased demand and population growth.	As identified by regulatory requirements and departmental planning
Upgrades or procurement of new assets.	As required to meet regulatory requirements, departmental planning or resident needs/requests

TABLE 10-8: LIFECYCLE ACTIVITIES – EQUIPMENT

Description	Frequency
Non-Infrastructure Solutions	
Regulatory requirements and Departmental Planning.	Ongoing
Engagement with Family Council and Residents.	Ongoing
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	Ongoing and as required by regulations
Preventative maintenance programs to extend service lives.	Ongoing and as required by regulations
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	Ongoing and as required by regulations
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	Ongoing and as required by regulations
Replacement of assets at end of life.	As required
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Purchase/procurement of additional equipment and fleet assets to support population growth or service expansion.	As identified by staff, family council, departmental planning or regulations
Upgrades or procurement of new assets.	As required to meet regulatory requirements, departmental planning or resident needs/requests

10.2.4. Funding the Lifecycle Activities

The following subsection outlines how the City plans to fund the lifecycle activities for their long-term care facilities and equipment.

The lifecycle activities mentioned in Section 10.2.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Section 10.2.3. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's financial strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 10-8, Figure 10-9, Figure 10-10 and Figure 10-11 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

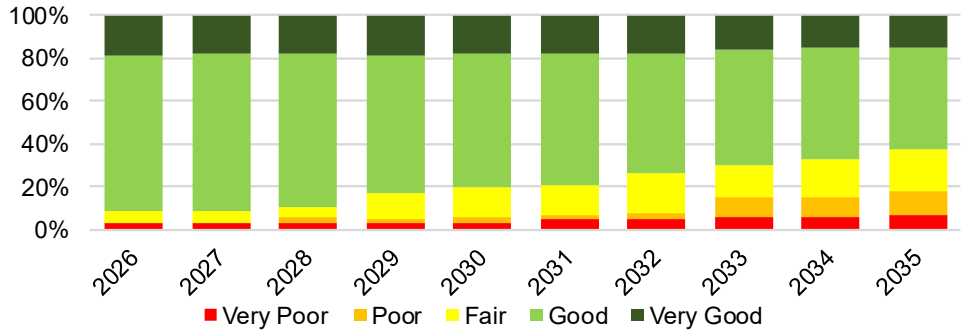


FIGURE 10-8: LONG-TERM CARE ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

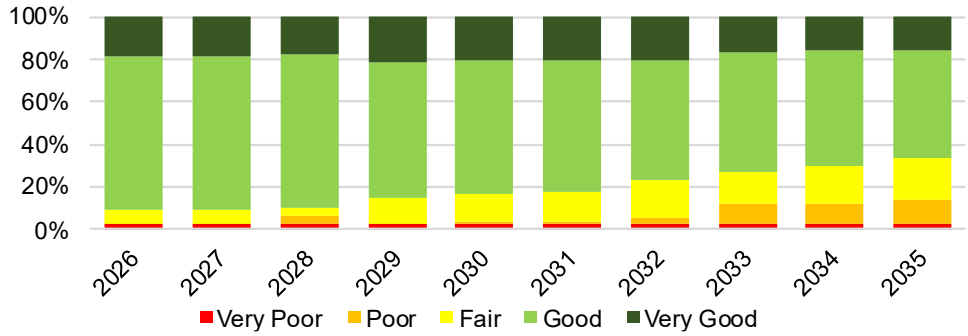


FIGURE 10-9: LONG-TERM CARE MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

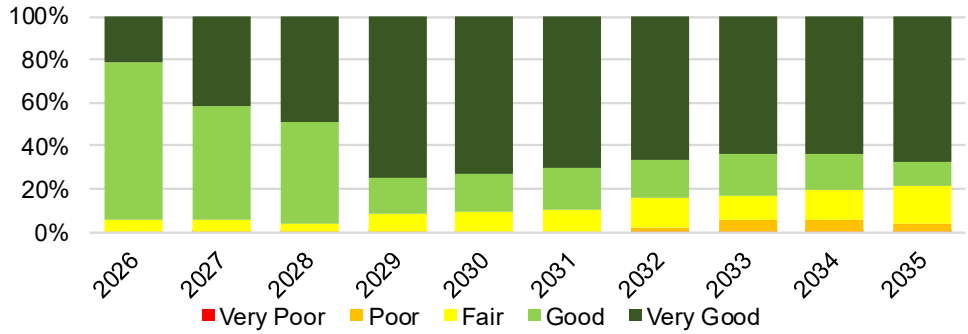


FIGURE 10-10: LONG-TERM CARE BACKLOG SCENARIO PERFORMANCE FORECAST



FIGURE 10-11: LONG-TERM CARE PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Under the anticipated budget scenario, the overall LOS of community housing assets is expected to decrease from 97% to 93%. To maintain the current service levels of 97% of assets that meet the LOS,

the City would need to spend an annual average of $0.61 million on renewals and rehabilitations for the next 10 years. To eliminate the backlog, it was determined an annual average of $0.87 million on renewals and rehabilitations is needed. Using the results from the previous scenarios, the City determined that it spend $0.87 million on renewals and rehabilitations and increase spending on its growth activities; thus, improving overall levels of service to 100%. Table 10-9 and Figure 10-12 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for municipal structures.

TABLE 10-9: SENIOR HOUSING BUDGET ANALYSIS

Lifecycle Activity	Average Annual Budget	Average Annual for Current LOS	Average Annual for Backlog	Average Annual for PLOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$3.36M	$3.36M	$3.36M	$3.36M
Service Improvements	$0	$0	$0	$0
Growth Activities	$0	$0	$0	$0.63
Renewal & Replacement	$0.35M	$0.61M	$0.87M	$0.87M
Total Lifecycle Expenditures	$3.71M	$3.97M	$4.23M	$4.86M
Total Infrastructure Gap		$0.26M	$0.52M	$1.15M

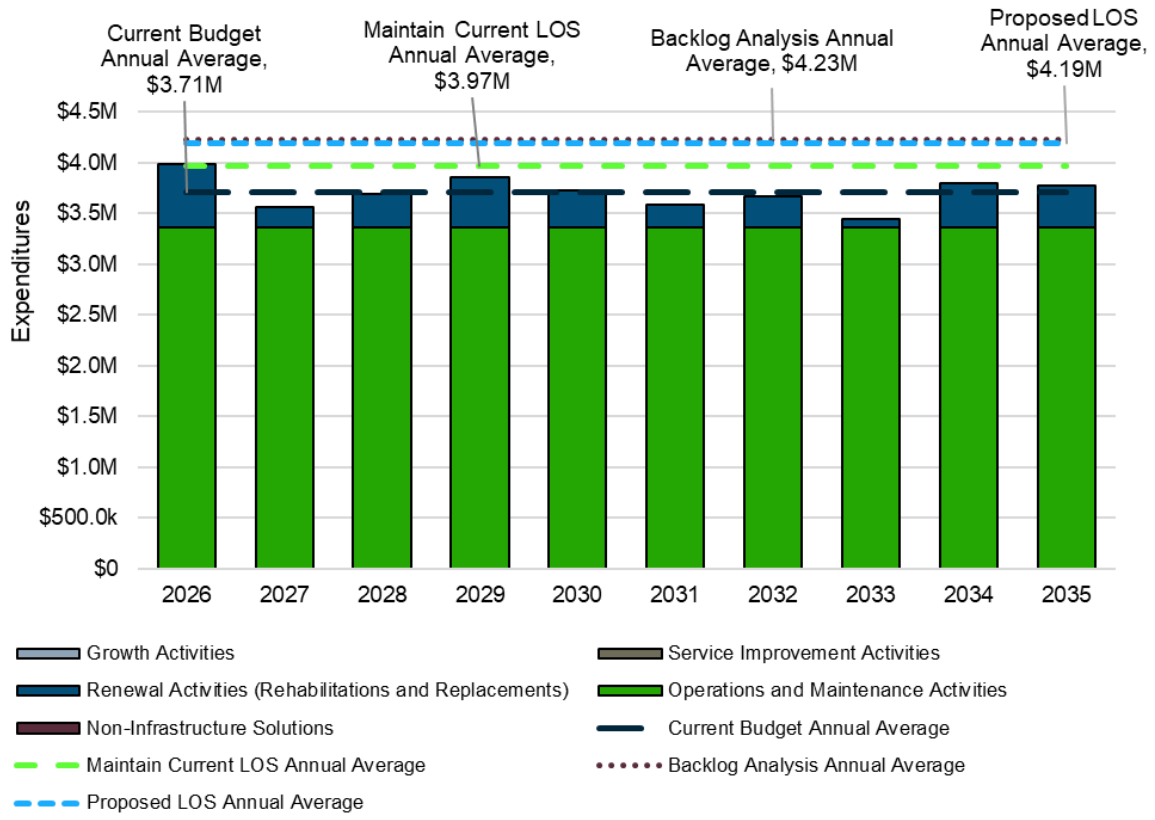


FIGURE 10-12: LONG-TERM CARE SCENARIO ANALYSIS SUMMARY

The bars on the Figure 10-12 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated. This figure illustrates the projected annual expenditures required to sustain the City's asset portfolio under various funding and service level scenarios from 2026 to 2035.

The Current Budget Annual Average of $3.71 million represents the existing funding level allocated for operations, maintenance, and capital renewal. While this funding supports ongoing activities, it is slightly below the amount needed to maintain the current Level of Service (LOS), estimated at $3.97 million per year.

The Backlog Analysis scenario identifies a higher annual investment need of approximately $4.23 million, which accounts for deferred renewal requirements and addresses existing infrastructure backlogs. The Proposed LOS targets an annual average of $4.19 million, providing sufficient funding to maintain service reliability, address emerging risks, and gradually reduce backlog pressures and includes growth expenditures to increase long-term care services.

Across all years, Operations and Maintenance activities represent the largest share of expenditures, emphasizing the importance of ongoing preventive maintenance in sustaining asset performance. Renewal activities and Service Improvements make up smaller but critical portions of total spending, reflecting the need for targeted rehabilitations and system enhancements.

10.2.5. Findings

Overall, the City's long-term care portfolio consists of $65.0M worth of assets maintains them in good condition. With approximately 97% of assets in poor or better condition and 96% of assets in fair or better condition, 97% of long-term care assets is currently meeting the LOS threshold (poor or better condition). In addition, long-term care assets have not surpassed their service lives on average. The City maintains its housing services data in overall good condition, with all asset classes containing data with both high completeness and high confidence. Complete and confident data contribute to the foundation of asset management practices; thus the City should continue maintaining their data in good condition to uphold their asset management activities moving forward.

When looking forward, the City anticipates spending an average of $0.35 million on their long-term care assets, which will result in 100% of assets that meet the LOS threshold. To maintain the current LOS threshold of 97%, the City will need to spend an extra $0.26 million per year according to the lifecycle modelling forecasts. Moreover, the City determined that to eliminate the backlog and maintain the long-term care portfolio at 100% of assets at or above the LOS threshold would cost an annual average of $0.87 million. According to the results of the different forecasting scenarios, the City proposed to eliminate backlog and increase spending on growth activities, which on average would cost $1.50 million per year.



Public Transportation

City of Cornwall

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11. Public Transportation

11.1. Summary

The City of Cornwall is responsible for providing a means of public transportation to its residents. It does so by operating through the City's Transit Subservice. The assets associated with delivering this service include the fleet – both public-facing and service vehicles, facilities such as bus shelters and the Transit Depot, and equipment such as furniture. The Transit service helps contribute to the City's goal of embracing and harnessing Cornwall as a "Hub City", as outlined in Cornwall's Strategic Priorities 2022-2026. The following figure illustrates the Transit asset hierarchy.

An overall summary of the replacement value and condition of the assets within this service (for this 2025 plan) is provided below in Figure 11-1. Subsection 11.2 provides further details on the asset classes within the transit subservice.



FIGURE 11-1: PUBLIC TRANSPORTATION CONDITION AND REPLACEMENT VALUE SUMMARY

11.2. Transit

This section outlines the current state of the infrastructure, levels of service, lifecycle management strategies and the ways the City funds the lifecycle activities in order to provide its transit services to the residents of Cornwall. Figure 11-2 shows the asset hierarchy for the transit service, while Figure 11-3 captures a map of the City's transit network.



FIGURE 11-2: TRANSIT ASSET HIERARCHY

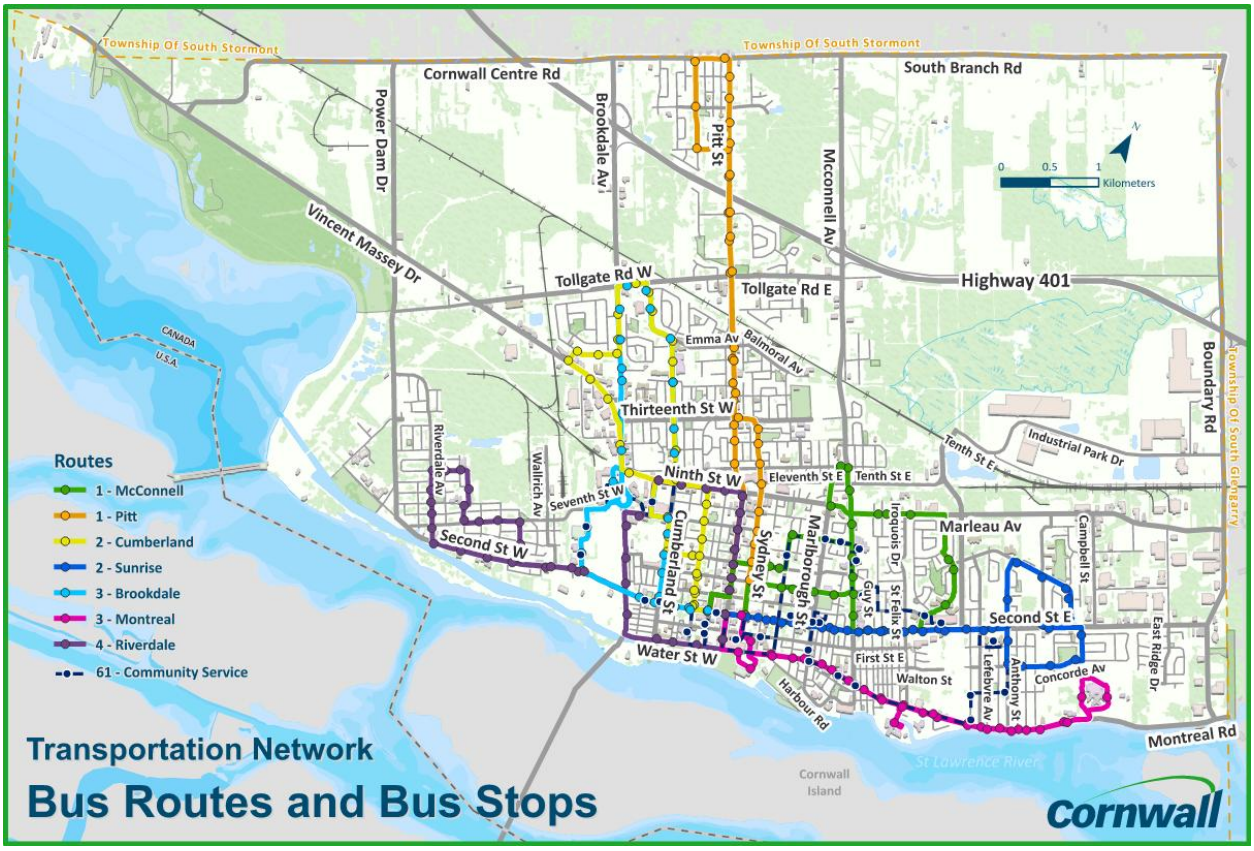


FIGURE 11-3: MAP OF THE CITY'S TRANSIT NETWORK

11.2.1. State of Infrastructure

This section outlines the state of infrastructure for Cornwall's transit assets. This includes asset inventory and valuation, age and estimated service life, asset condition, data sources and data maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

11.2.1.1. Asset Inventory and Valuation

The replacement cost for the City's transit asset portfolio is approximately $48.3 million and is summarized in Table 11-1 and Figure 11-4.

TABLE 11-1: TRANSIT ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Facilities ($23.1M)		
Bus Shelters	29 Asset(s)	$0.30M
Transit Depot	110,382 Facility Components	$22.84M
Fleet & Equipment ($25.1M)		
Conventional Buses	15 Asset(s)	$18.00M
Service Vehicles	5 Asset(s)	$0.64M
Specialized Transit Buses	10 Asset(s)	$3.25M
Transit Equipment	202 Asset(s)	$3.24M
Furniture	11 Asset(s)	$0.0050M
Total		**$48.27M**

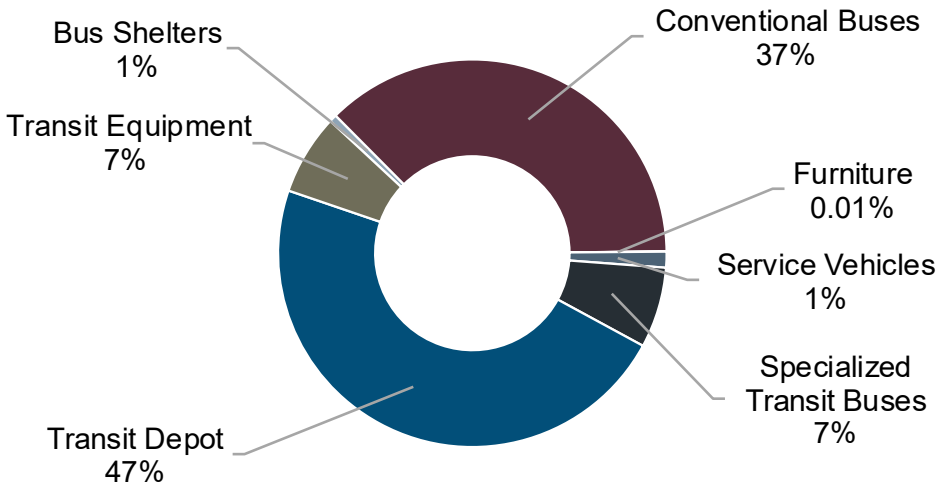


FIGURE 11-4: TRANSIT VALUATION DISTRIBUTION

11.2.1.2. Age and Estimated Service Life

The average age of the City's transit asset portfolio is 19 years old, while the average ESL is 30 years. Figure 11-5 provides a breakdown of the ages by asset class.

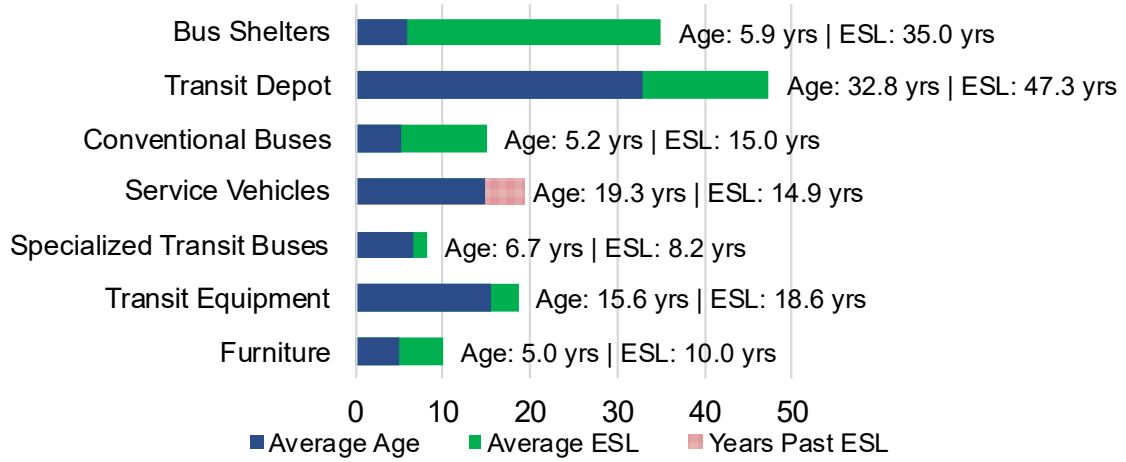


FIGURE 11-5: TRANSIT SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 11-6 captures the installation decades in which the various asset classes were acquired and or installed by the City's Transit services. The installation decades represented in Figure 11-6 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029).

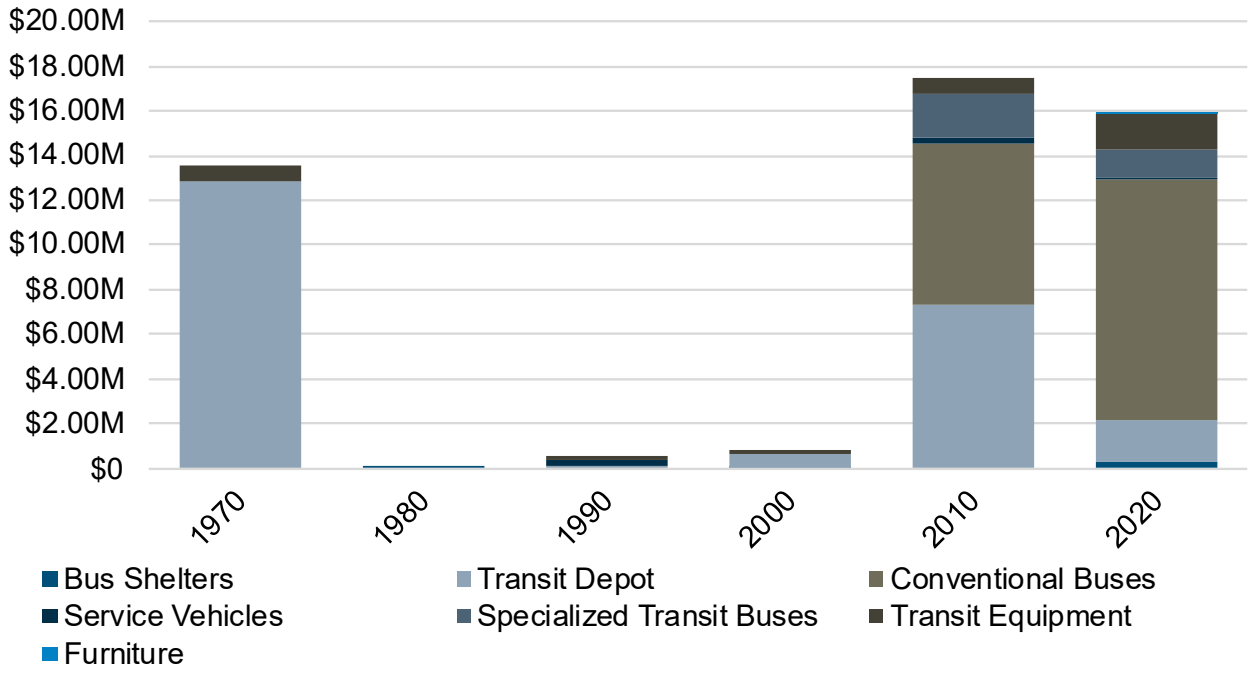


FIGURE 11-6 TRANSIT INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

During the 1970's, the City greatly expanded its transit portfolio, followed by substantial additions from the 2010's and 2020's. With the average age of the City's transit assets being 19 years old and the

average ESL of 30 years, a bulk of renewals and rehabilitations are likely to be due in approximately 11 years.

11.2.1.3. Asset Condition

The City has recently completed building condition assessments (BCA's) of the majority of its facilities in preparation for this Asset Management Plan. The BCA study identified current and future needs for all building elements within the City's facilities. Each facility element was given a condition rating based on remaining life, current state and functionality, based on expert opinion. These factors make up the condition ratings outlined for facility elements, found in Table 11-3.

For vehicles and equipment, the City bases its understanding of asset needs on remaining service life. This metric was provided by City staff and represents the City's experts' best understanding of the approximate timing that asset replacement is required.

Table 11-2 and Table 11-3 provide a summary of the approaches used to collect data and assess condition of the City's transit assets.

TABLE 11-2: TRANSIT ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• **Transit Depot**	Building Condition Assessments	Every 5-years (min)
• **Bus Shelters** • **Conventional Buses** • **Service Vehicles** • **Specialized Transit Buses** • **Transit Equipment** • **Furniture**	Assets are reviewed by subject matter experts and assigned a remaining life, based on visual assessments.	Annually, or as deemed appropriate by subject matter experts.

TABLE 11-3: TRANSIT ASSETS CONDITION RATINGS

Category	Vehicles and Equipment (Life Consumed)	Transit Depot (Facility Element Condition)
Very Good	100% - 75%	1
Good	75% - 50%	2
Fair	50% - 25%	3
Poor	25% - 0%	4
Very Poor	< 0%	5

Overall, the City's transit assets are in good condition. Majority of assets are in Very Good to Fair condition, resulting in an average condition of "Good". A breakdown of the transit portfolio condition profile as a whole can be found in Figure 11-7.

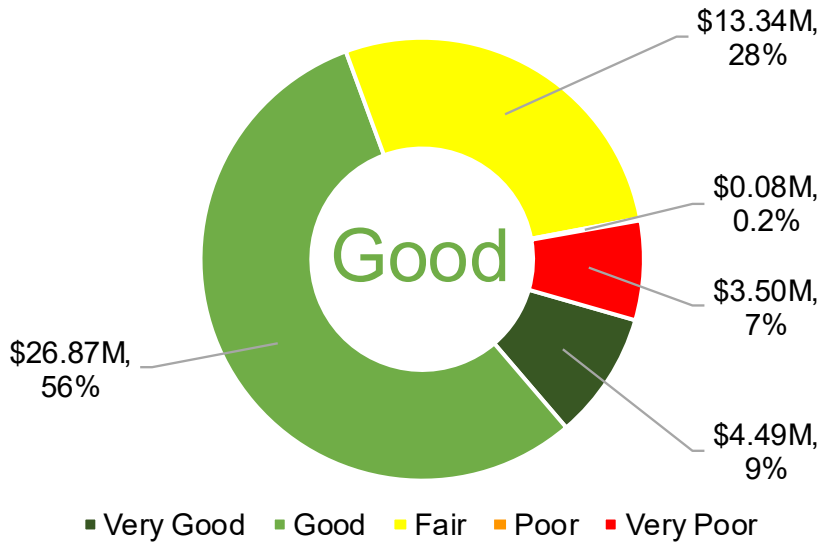


FIGURE 11-7: TRANSIT NETWORK CONDITION SUMMARY

A breakdown of each asset classes' condition profile within the asset portfolio can be found in Figure 11-8. Proportionally, service vehicles, specialized transit buses and transit equipment have a fair amount of assets that need to be addressed. As for bus shelters, the transit depot and conventional buses a small portion remains in very poor and poor, indicating good performance.

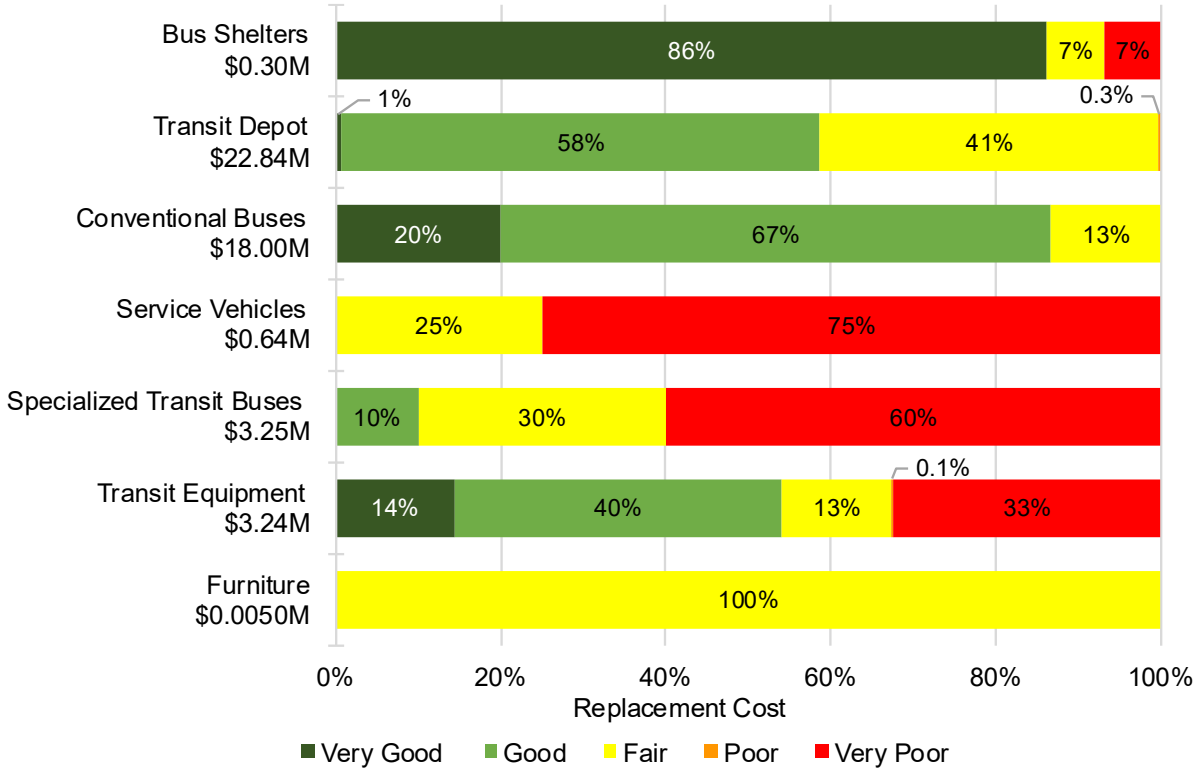


FIGURE 11-8: TRANSIT CONDITION DISTRIBUTION BY ASSET CLASS

11.2.1.4. Data Sources and Maturity

Table 11-4 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 11-4: TRANSIT DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Facilities	Good	High	These assets were assessed in 2024, which provided the City with a complete and high confidence dataset.
Fleet & Equipment	Good	Low	Asset data in many cases was supplemented by staff judgment. In many cases, condition was well understood by staff, but in others, an understanding of condition was based on age alone.

11.2.2. Levels of Service

The City of Cornwall's Transit Service's goal is to provide an efficient and effective transit system for all residents, including those with disabilities. By ensuring well maintained and safe public transportation, reducing environmental impacts from transit vehicles, offering service to most parts of the community, offering accessibility to everybody and by leveraging the best technology to improve user experience, the city can achieve its goals.

Community and technical levels of service can be found in Table 11-5 and Table 11-6 on the following pages.



TABLE 11-5: TRANSIT COMMUNITY LEVELS OF SERVICE

Community Measures	Current Performance
Service Attributes: **Safe; Reliable**	
Public transportation is well maintained and safe.	Vehicle maintenance is performed by Transit staff at or below thresholds to ensure the fleet is safe 100% of the time
Service Attributes: **Environmentally Conscious**	
Transit vehicles do not harm the environment.	**Current:** Cornwall Transit currently has three hybrid buses and has planned to purchase two more in 2028 and another in 2030. **Proposed:** Acquire more hybrid buses and explore other environmentally conscious infrastructure options
Service Attributes: **Quality; Available**	
Public transportation offers a suitable alternative to driving, customers can get to their destinations on time and efficiently, and the service is available in most parts of the community.	**Current:** Cornwall Transit offers 6 days a week of service, ensuring a suitable alternative for transportation for its customers. **Proposed:** Explore expanding service to 7 days a week as well as investigate an on-demand service model to boost customer usability
Service Attributes: **Accessible**	
Transit is accessible to everybody.	**Current:** All Transit buses are 100% Accessible and 80% of all bus stops are Accessible. **Proposed:** Improve bus stops to become 85% accessible
Service Attributes: **Shine**	
Transit is innovative and leverages the best technology to improve the user experience.	Cornwall Transit uses the latest technologies to improve the user experience like contactless payment, Transit App to plan trips, locate their bus and Consat System for Announcements and on time service.

TABLE 11-6: TRANSIT TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of Assets in Poor or Better Condition	Facilities	100%	Maintain
Percentage of Assets in Poor or Better Condition	Fleet	86%	Improve
Percentage of Assets in Poor or Better Condition	Equipment	100%	Maintain
Spare ratio	Fleet	25%	Maintain
Service Attribute: **Accessible**			
Percentage of transit fleet that are FADM/AODA compliant	Conventional and Specialized Transit Buses	100%	Maintain
Percentage of bus stops that are FADM/AODA compliant	Bus Stops	85%	Improve
Service Attribute: **Environmentally Conscious**			
Number of buses with higher fuel consumption due to age	Fleet	5	Maintain
Percentage of zero emission transit vehicles	Conventional and Specialized Transit Buses	0%	Improve
Percentage of hybrid transit vehicles	Conventional and Specialized Transit Buses	12%	Improve
Annual greenhouse gas emissions	All	1146	Improve
Service Attribute: **Scope**			
Annual ridership volume	All	98%	Improve
Service Attribute: **Shine**			
Percentage of vehicles with contactless payment	Conventional and Specialized Transit Buses	100%	Maintain
Service Attribute: **Available**			
Average number of transit vehicles per route	Fleet	2	Maintain

11.2.3. Lifecycle Management Strategy

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's transit services and the assets they're responsible for. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship.

Table 11-7 and Table 11-8 summarize the various lifecycle activities that the City undertakes to ensure that its transit depot, fleet and equipment continue to support the services they provide.



TABLE 11-7: LIFECYCLE ACTIVITIES – TRANSIT DEPOT

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Building condition assessment program	Every 5-years (min)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Major equipment or structural building component replacement	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new facilities in new subdivisions or expansion of existing facilities to accommodate for increased demand and population growth.	As identified through growth and development studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

TABLE 11-8: LIFECYCLE ACTIVITIES – TRANSIT FLEET & EQUIPMENT

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	Where feasible
Replacement of assets at end of life.	As required
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Purchase/procurement of additional equipment and fleet assets to support population growth or service expansion	As identified by staff or through studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

11.2.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 11.2.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 11-7 and Table 11-8. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's Financial Strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 11-9, Figure 11-10, Figure 11-11 and Figure 11-12 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

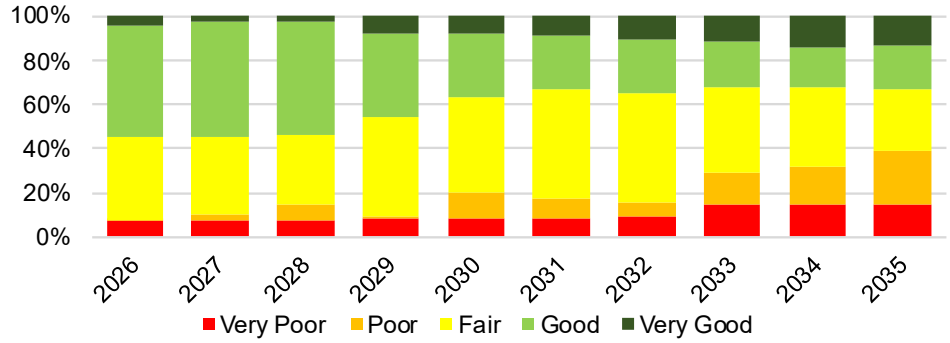


FIGURE 11-9: TRANSIT ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

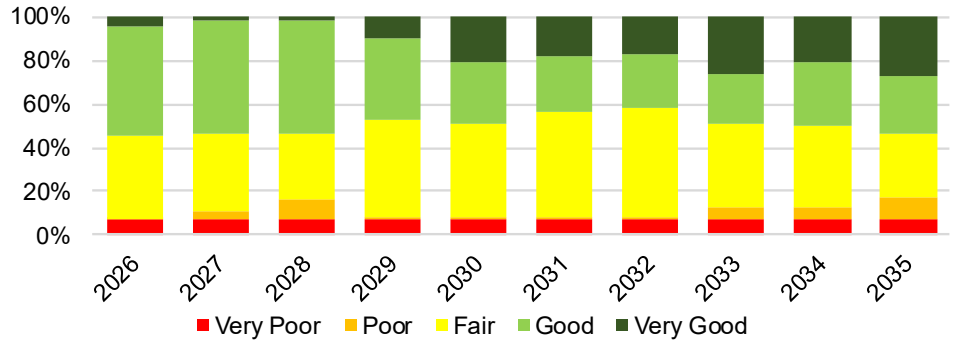


FIGURE 11-10: TRANSIT MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

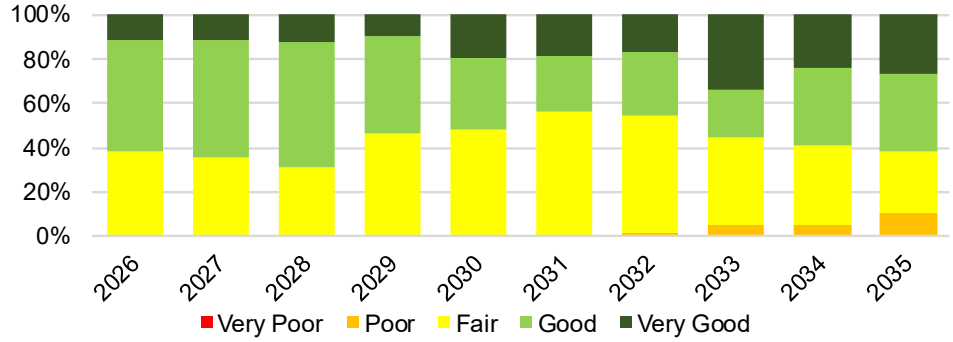


FIGURE 11-11: TRANSIT BACKLOG SCENARIO PERFORMANCE FORECAST

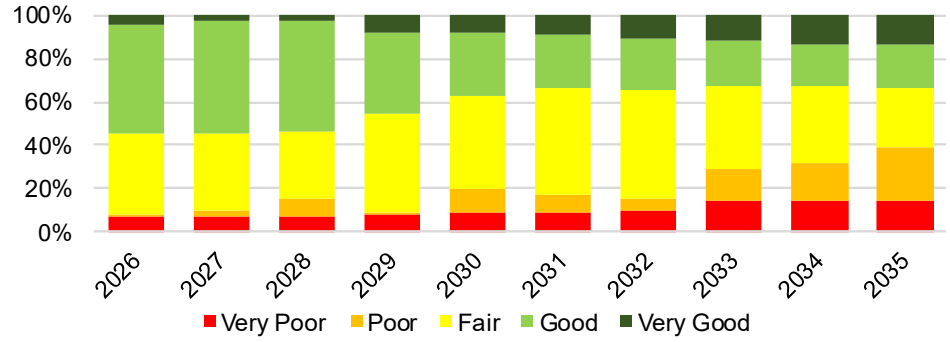


FIGURE 11-12: TRANSIT PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 96% of the City's transit assets meet the LOS of being in poor or better condition. Under the current anticipated capital budget for the next 10 years the transit portfolio is expected to decrease in overall level of service, resulting in 86% of assets meeting the LOS of assets in poor or better condition. To maintain the transit portfolio of 96% of assets meeting LOS, it was determined the City would need to spend an annual average of $2.27 million in renewals to maintain this threshold. To eliminate all the backlog in transit portfolio and to keep 100% of assets in poor or better condition, it would cost $2.91 million in renewals according to the Backlog Analysis. Using the results of the scenarios as well as analyzing the capital budget for the next 10 years, the City determined that it would propose to spend its anticipated budget. This would result in an overall decrease in LOS for its transit assets, going from 96% to 86% of assets in poor or better condition.

Table 11-9 and Figure 11-13 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for transit assets. The bars on the Figure 11-13 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

TABLE 11-9: TRANSIT BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0.02M	$0.02M	$0.02M	$0.02M
Operations & Maintenance	$4.01M	$4.01M	$4.01M	$4.01M
Service Improvements	$0.03M	$0.03M	$0.03M	$0.03M
Growth Activities	$0	$0	$0	$0
Renewal & Replacement	$1.25M	$2.27M	$3.20M	$5.24M
Total Lifecycle Expenditures	$5.31M	$6.34M	$7.27M	$9.31M
Total Infrastructure Gap		$1.02M	$1.95M	$4.00M



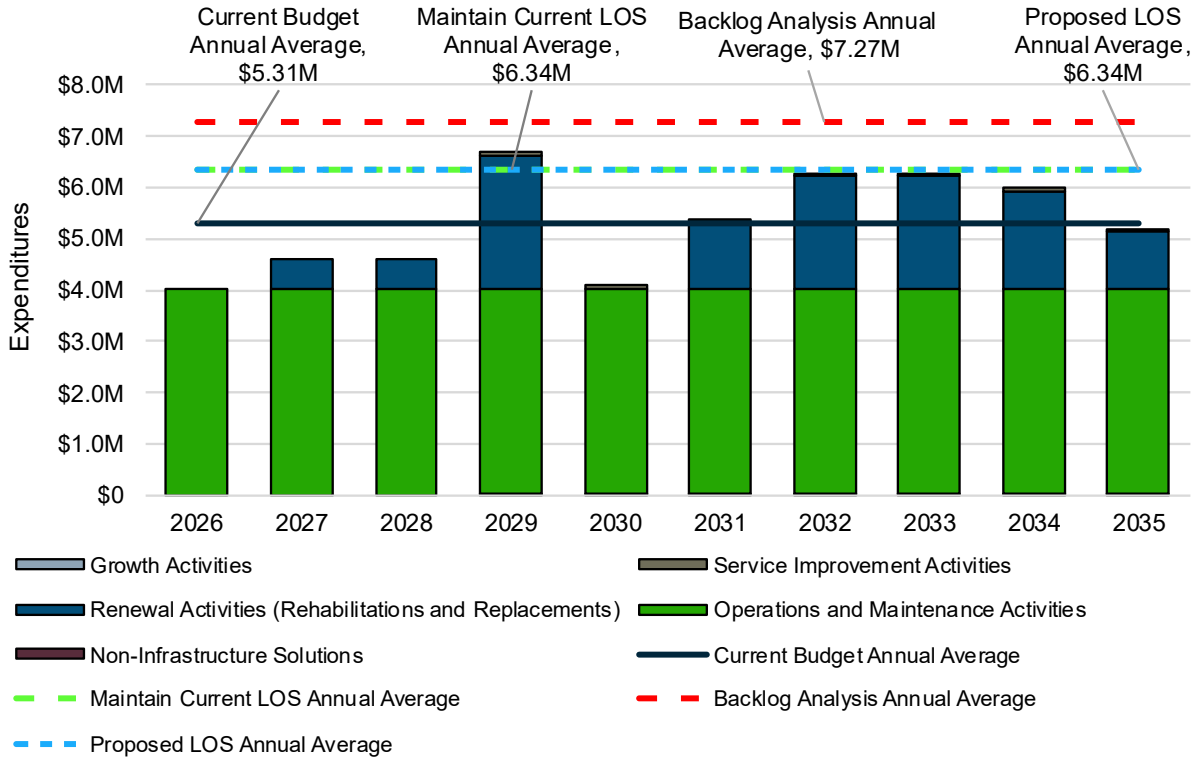


FIGURE 11-13: TRANSIT SCENARIO ANALYSIS SUMMARY

11.2.5. Findings

Overall, the City maintains its transit assets in good condition, with 96% of assets meeting the LOS threshold of being in poor or better condition. With the recent BCA completed on the City's facilities, data completeness and confidence is high for transit facilities. However, while data completeness is high for transit's fleet and equipment, the confidence in the data was low. This is likely due to transit's fleet and equipment being evaluated on age and life consumed, rather than other condition evaluation methods. The City should explore other methods of assessing condition of its transit fleet and equipment to boost confidence in this data.

When looking forward, the forecasted renewal needs to maintain the current levels of service amount to just under 50% of the service's total replacement cost. While the current gap between the anticipated capital renewals budget and the budget required to maintain service levels is about $1.0 million, a small reduction in service levels of 10% are expected to be seen by the end of the forecast period. Thus, the City has proposed to maintain its current anticipated budget with regards to its transit assets.

It is important to note that the recent results from the building condition assessments have identified renewal needs for the Transit depot over the next 10 years make up a substantial portion of the facility's replacement cost. Furthermore, typically forecasts have increased accuracy in the near-term (one to three years) as opposed to the long-term. It may be possible that some of the needs identified by the building condition assessment may not be required in their forecasted years, thus may be able to be deferred without significant changes to service levels. To mitigate and minimize risks, the City should continue to keep a close eye on its facilities and their respective conditions, in order to verify if the forecasts reflect the actual aging of these assets. Moreover, it can explore options such as

deferring work of non-critical items which won't have a significant impact on customer and user experience of assets, as well as health and safety. The City should continue to prioritize all health and safety initiatives as well as any tenant facing issues wherever possible.



Transportation Services

City of Cornwall

Cornwall
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12. Transportation Services

12.1. Summary

The City's Transportation Services service area includes the Road Network and Active Transportation subservices. These services are responsible for aiding the flow of transportation in and around the city for both vehicular and foot traffic. Transportation Services ensures pedestrians and motorists have year-round access to safe roadways, bridges, off-road recreational paths, sidewalk networks and municipal parking lots.

An overall summary of the replacement value and condition of the assets within this subservice (for this 2025 plan) is provided below in Figure 12-1. Subsections 12.2 to 12.3 provide further details on the asset classes within each subservice.

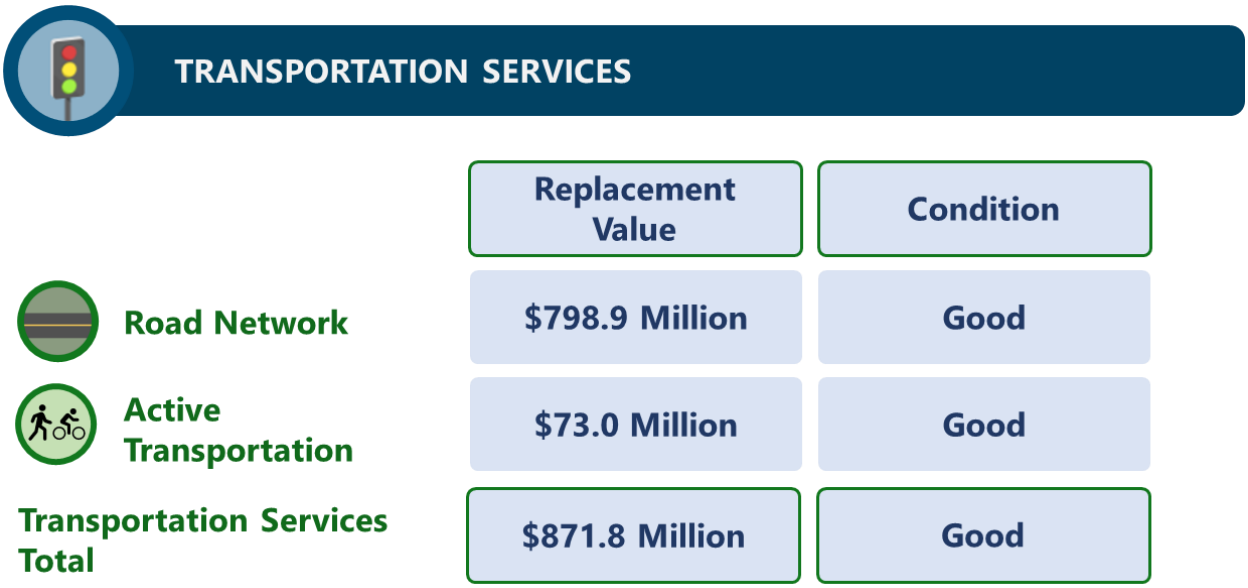


FIGURE 12-1: TRANSPORTATION SERVICES CONDITION AND REPLACEMENT VALUE SUMMARY

12.2. Road Network

The City of Cornwall is responsible for providing transportation services for the various vehicular traffic throughout the City. The City's Road Network spans over 275 km, which is supplemented by various peripheral assets, including traffic management assets, and municipal structures such as bridges and culverts. Figure 12-2 illustrates the Road Network asset hierarchy, while Figure 12-3 outlines a map of the City's transportation network.



FIGURE 12-2: ROAD NETWORK ASSET HIERARCHY

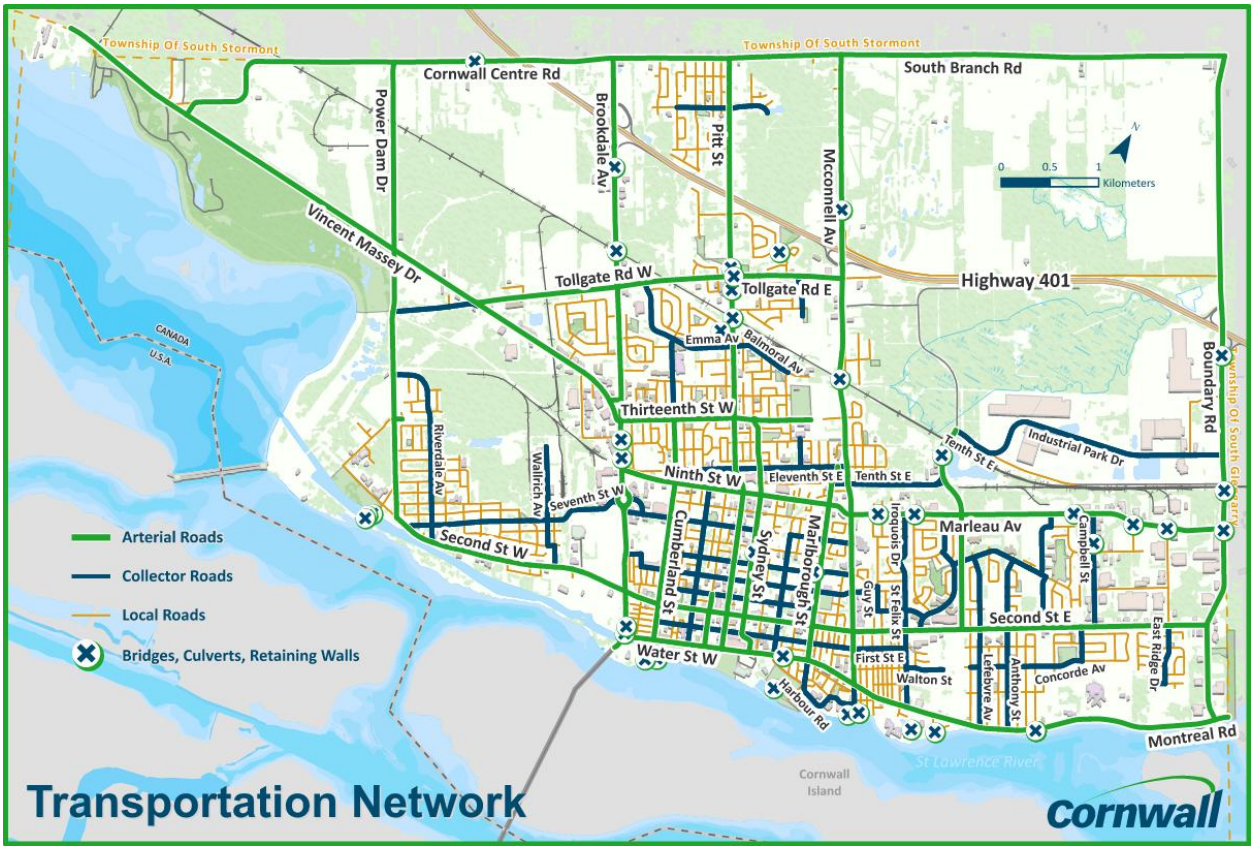


FIGURE 12-3: MAP OF THE CITY'S TRANSPORTATION NETWORK

12.2.1. State of Infrastructure

This section outlines the state of infrastructure for Cornwall's Road Network, including: asset inventory and valuation, age and estimated service life, asset condition, data sources and maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

12.2.1.1. Asset Inventory and Valuation

The replacement cost for the City's Road Network is approximately $798.87 million and is summarized in Table 12-1 and Figure 12-4.

TABLE 12-1: ROAD NETWORK ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Municipal Structures ($79.7M)		
Bridges	12 Asset(s)	$54.67M
Large Culverts (Over 3m span)	13 Asset(s)	$20.38M
Pole Footings	7 Asset(s)	$1.06M
Retaining Walls	9 Asset(s)	$3.60M
Roadway ($612.7M)		
Roads	275,497 m	$583.75M
Small Culverts (under 3m span)	5,993 m	$20.59M
Small Retaining Walls (under 600mm height)	466 m	$0.23M
Public Parking	10 Asset(s)	$7.77M
Parking Meters and Equipment	461 Asset(s)	$0.36M
Traffic Management ($106.4M)		
Pedestrian Crossings	5 Asset(s)	$0.24M
Street Lighting	5,447 Street Light(s)	$90.91M
Street Signs	10,358 Street Sign(s)	$0.98M
Traffic Signals	70 Traffic Signal(s)	$14.31M
Total		**$798.87M**

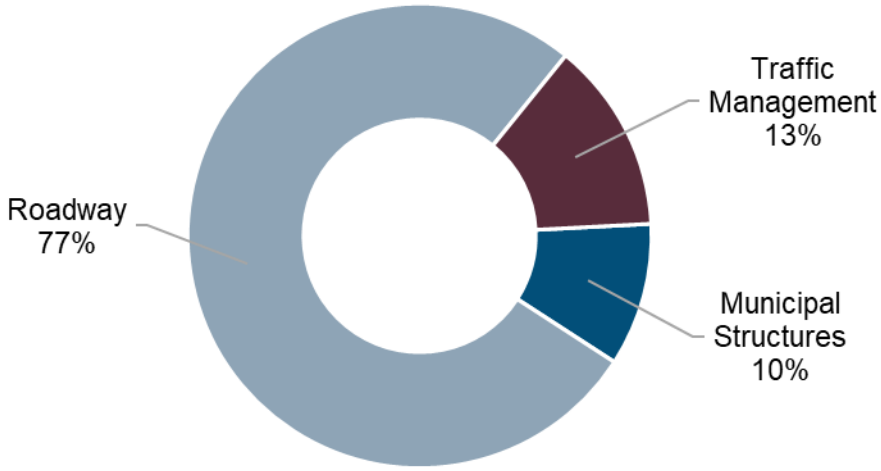


FIGURE 12-4: ROAD NETWORK VALUATION DISTRIBUTION



12.2.1.2. Age and Estimated Service Life

The average age of the City's Road Network portfolio is 51 years old. Figure 12-5 provides a breakdown of the ages by asset class.

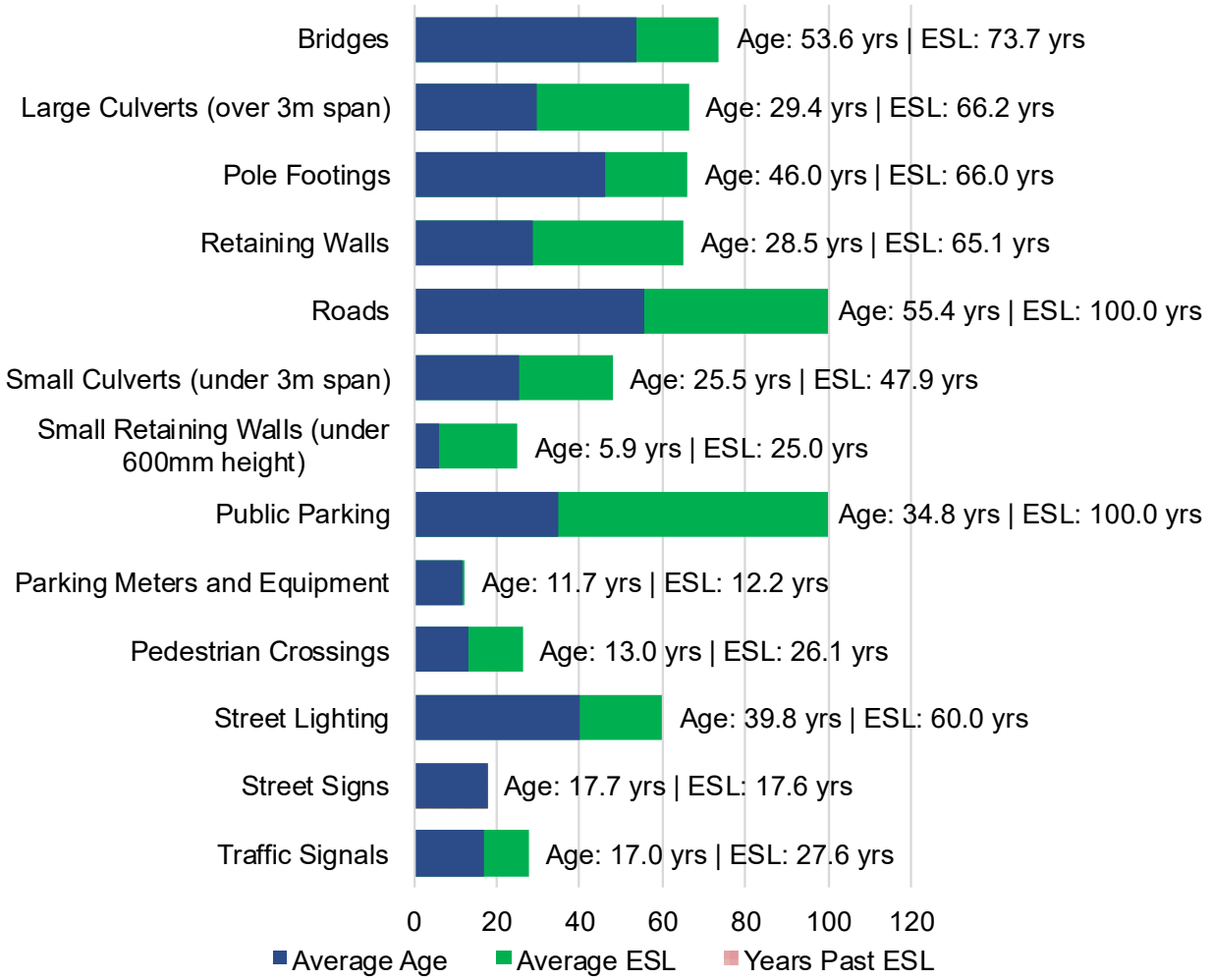


FIGURE 12-5: ROAD NETWORK SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

For roads, a comparison of average age to the average estimated service life is provided by road class in Figure 12-6. The road class hierarchy is defined below:

- **Arterial road:** Provide the major corridors for traffic movement (increased speed and volumes) and serve to channel traffic to other areas.
- **Collector road:** Serve to collect and distribute traffic between the local roads and arterial roads.
- **Local road:** Serve primarily to provide access to properties.

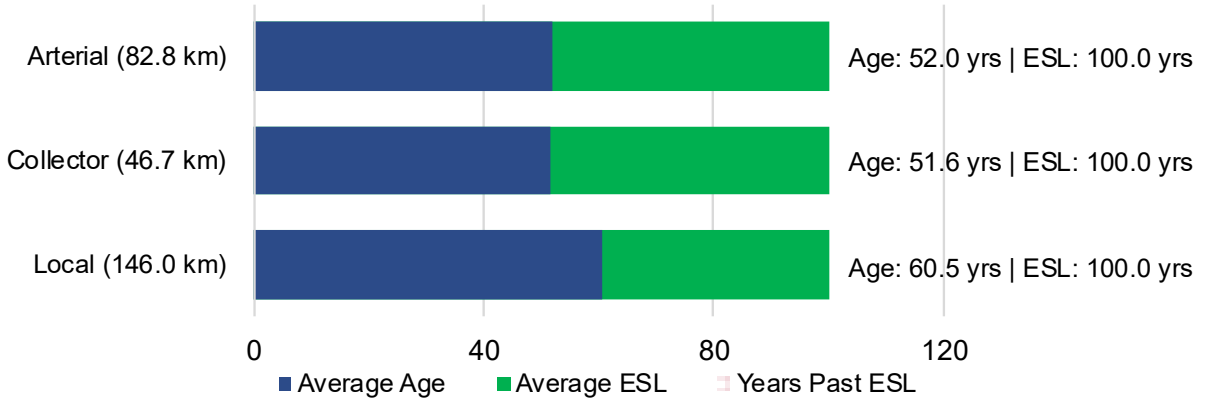


FIGURE 12-6: ROAD NETWORK SERVICE LIFE PROFILE BY ROAD CLASS (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 12-7 captures the installation decades in which the various Transportation Services asset classes were acquired and or installed for the City's road network. The installation decades represented in Figure 9-7 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029). During the 1940's and 1950's, the City greatly expanded its Road Network, followed by substantial additions from the 1960's all the way to 2010's. With the average age of the City's Road network being 51 years old and the average ESL of 90 years, a bulk of renewals and rehabilitations are likely to be due in approximately 39 years.

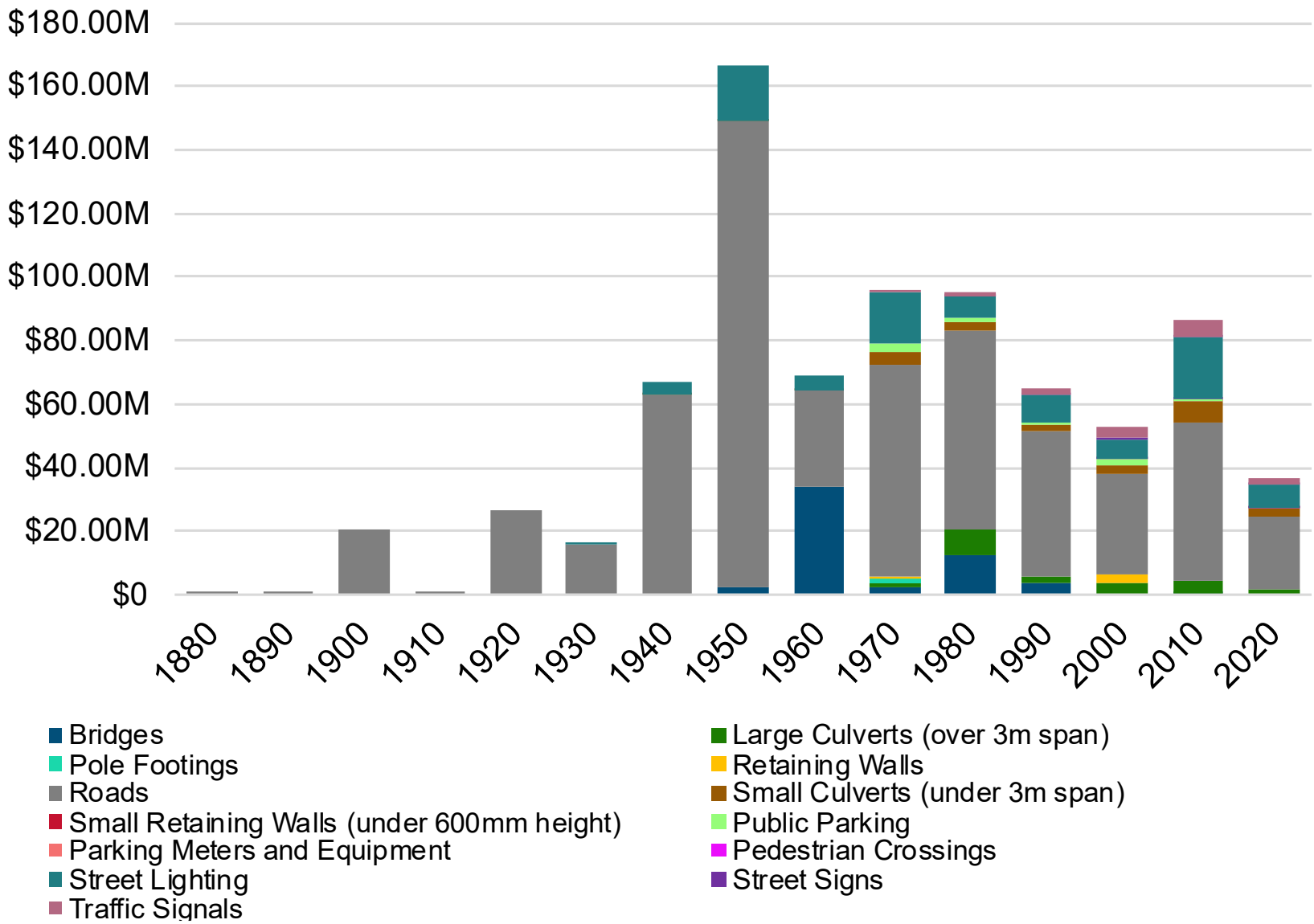


FIGURE 12-7 ROAD NETWORK INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

12.2.1.3. Asset Condition

The City has been assessing the condition of roads using Pavement Condition Ratings (PCR) and performing Ontario Structure Inspection Manual (OSIM) inspections to assess the condition of municipal structures. New roads have a PCR of 100, which decreases as the condition of the roads degrade. After road resurfacing, PCR is increased. The City can continue to resurface roads to improve overall road condition until the road foundation is no longer suitable to provide a stable base for resurfacing, at which point a full depth road reconstruction is required. Different condition performance category scales are used for Local Roads as they have a different target PCR, and are noted in Table 12-3.

The condition of municipal structures is measured by a 100-point rating scale called the Bridge Condition Index (BCI). The BCI is a measurement of the replacement value of various condition states of a structure's components, relative to the overall replacement value of the structure. Different condition performance category scales are use for Corrugated Steel Pipe (CSP) culverts as they have a different target BCI and are noted in Table 12-3.

Traffic assets are assessed using life consumed for lifecycle modelling purposes, while also visually assessed following the requirements outlined in O. Reg. 239/02: *Minimum Maintenance Standards For Municipal Highways*. Table 12-2 provides a brief summary of the approaches used to assess condition while Table 12-3 outlines how the condition information was converted into Very Good to Very Poor categorical scale. It is important to note that Subsection 2.5.1.3 details the City's meanings amongst the different condition categories.

TABLE 12-2: ROAD NETWORK ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• **Bridges**	OSIM bridge inspections	2 years
• **Large Culverts (Over 3m span)**	OSIM culvert inspections	2 years
• **Pole Footings**	Included with OSIM inspections	2 years
• **Retaining Walls**	Included with OSIM inspections	2 years
• **Roads**	Pavement condition assessments completed	2 years
• **Small Culverts (Under 3m span)**	Culvert inspections	Annually
• **Small Retaining Walls**	Visual inspections	Annually
• **Public Parking**	Assets are reviewed by subject matter experts and assigned a remaining life, based on visual assessments.	Annually, or as deemed appropriate.
• **Parking Meters and Equipment**	Assets are reviewed by subject matter experts and assigned a remaining life, based on visual assessments.	Annually, or as deemed appropriate.

Asset Class	Condition Data Collection Technique	Frequency
• Pedestrian Crossings	Visual inspections	Annually
• Street Lighting	Visual inspections	Annually
• Street Signs	Visual inspections	Annually
• Traffic Signals	Visual inspections	Annually

TABLE 12-3: ROAD NETWORK SERVICES ASSETS CONDITION RATINGS

Category	Arterial and Collector Roads (PCR Ratings)	Local Roads (PCR Ratings)	Bridges, Large Culverts (BCI – Non CSP)	Bridges, Large Culverts (BCI – CSP)	Remaining Assets (Life Consumed)
Very Good	81-100	81-100	81-100	81-100	0% to 25%
Good	61-80	61-80	71-80	71-80	25% to 50%
Fair	51-60	46-60	51-70	41-70	50% to 75%
Poor	41-50	41-45	36-50	21-40	75% to 100%
Very Poor	0-40	0-40	0-35	0-20	>100%

Overall, the City's road network is in good condition. Majority of assets are in Very Good to Fair condition, resulting in an average condition of Good. A breakdown of the whole road network condition profile can be found in Figure 12-8.

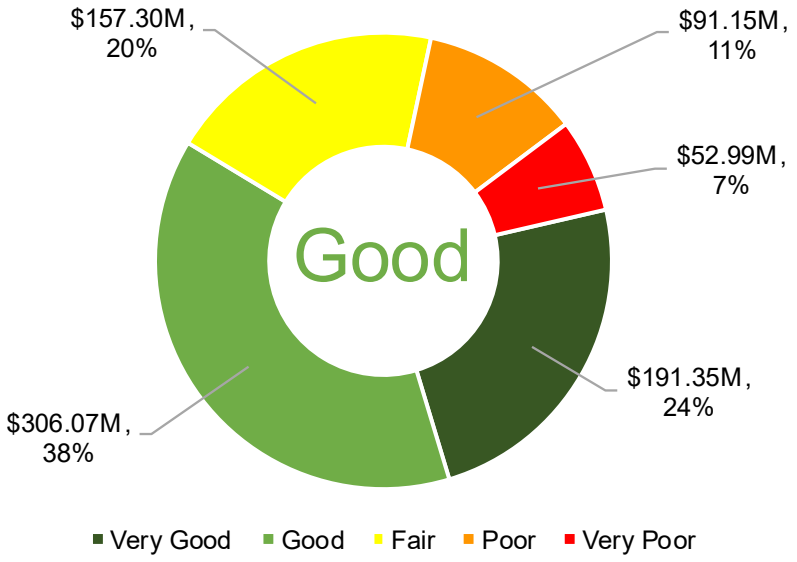


FIGURE 12-8: ROAD NETWORK CONDITION SUMMARY

A breakdown of each asset classes' condition profile within the road network can be found in Figure 12-9. Furthermore, a condition distribution amongst the City's road classes can be found in Figure 12-10. Street signs, parking meters, parking equipment, street lighting, and traffic signals have several

assets that need to be addressed. As for roads, a small portion remains in very poor and poor, indicating good performance.

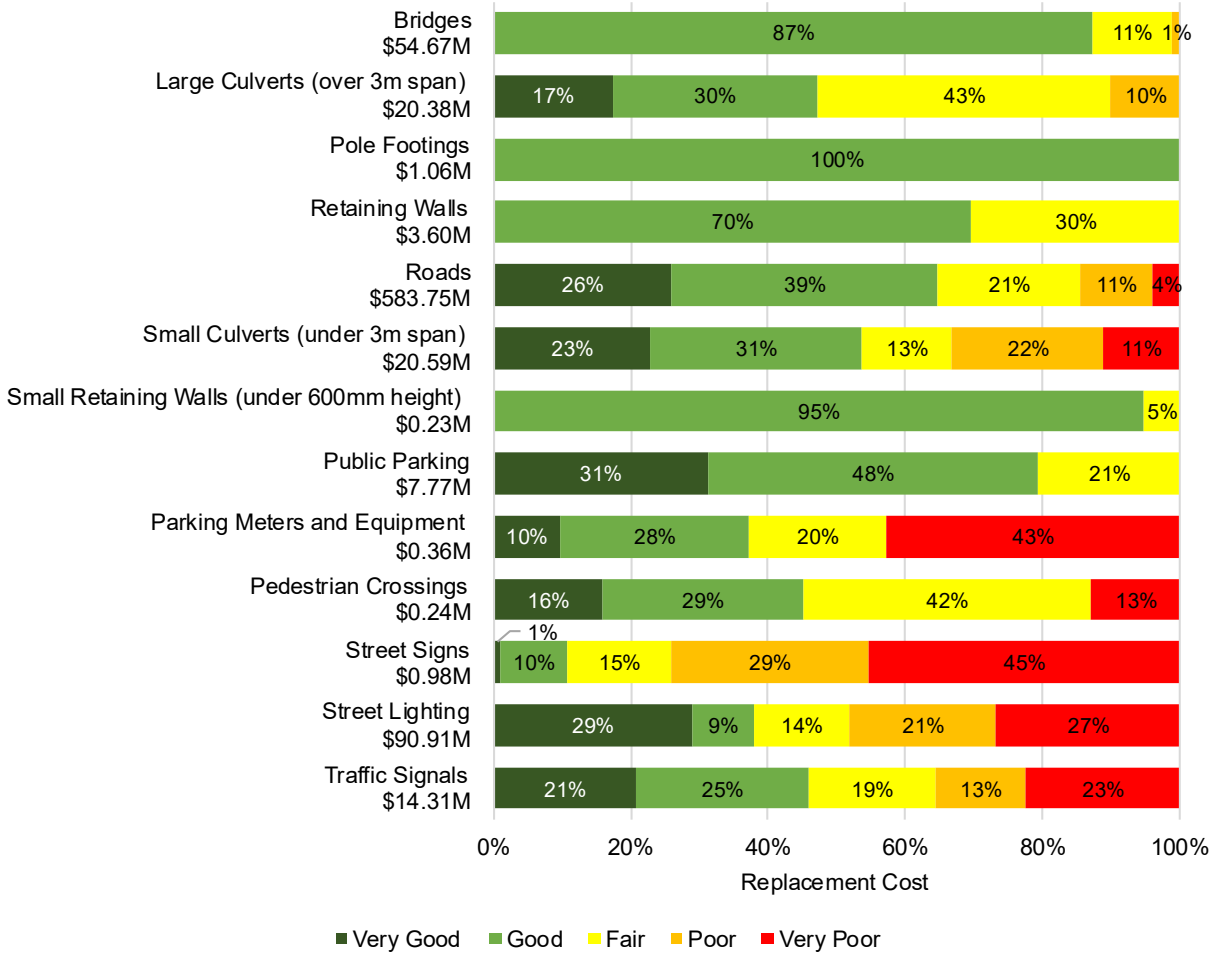


FIGURE 12-9: ROAD NETWORK CONDITION DISTRIBUTION BY ASSET CLASS

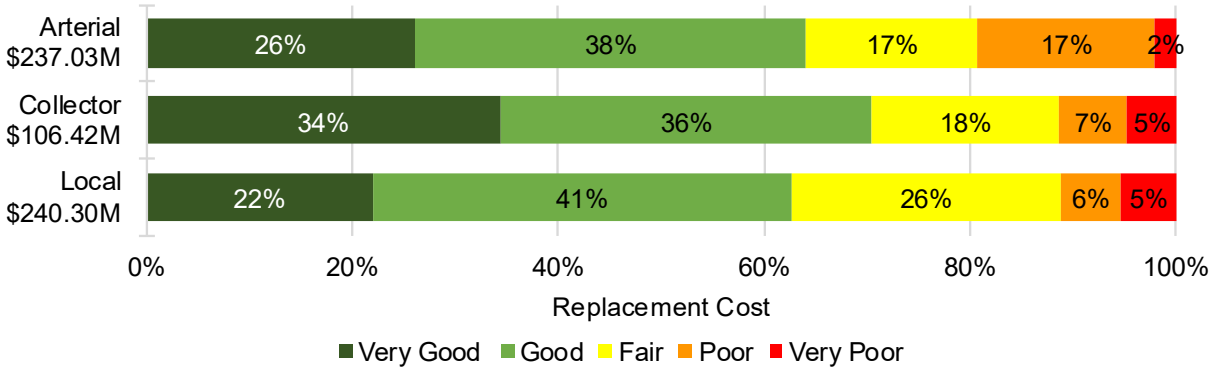


FIGURE 12-10: ROAD NETWORK CONDITION DISTRIBUTION BY ROAD CLASS

A breakdown of the length of each road-type in various condition states within the municipality is provided in Table 12-4.

TABLE 12-4: ROAD CLASS CONDITION DISTRIBUTION BY LENGTH

Category	Arterial (km)	Collector (km)	Local (km)	Total (km)
Very Good	20.5 km	14.6 km	30.6 km	65.7 km
Good	30.7 km	17.9 km	60.0 km	108.7 km
Fair	16.8 km	8.4 km	38.5 km	63.7 km
Poor	13.2 km	3.5 km	8.6 km	25.3 km
Very Poor	1.5 km	2.3 km	8.3 km	12.1 km

12.2.1.4. Data Sources and Maturity

Table 12-5 provide an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 12-5: ROAD NETWORK DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Bridges	Good	High	Very few data gaps. Condition (BCI) values available but not digitized.
Large Culverts	Good	High	Very few data gaps. Condition (BCI) values available but not digitized.
Pole Footings	Good	High	Very few data gaps. Condition values available but not digitized.
Retaining Walls	Good	High	Very few data gaps. Condition (BCI) values available but not digitized.
Roads	Good	High	All road assets last inspected 2025.
Small Culverts	Good	Medium	Approx. 58% are missing and condition data and evaluated based on life consumed. All other key data fields including replacement cost, installation date, material type are complete.
Small Retaining Walls	Good	High	All retaining walls last inspected in 2021
Parking Meters and Equipment	Good	Low	Asset data in many cases was supplemented by staff judgment. In many cases, condition was well understood by staff, but in others, an understanding of condition was based on age alone.
Public Parking	Good	Low	Asset data in many cases was supplemented by staff judgment. In many cases, condition was well understood by staff, but in others, an understanding of condition was based on age alone.

Asset Class	Completeness	Confidence	Comments
Traffic Signals	Fair	High	Consists of a list and GIS locations of traffic signals with ESLs and installation years.
Street Lighting	Fair	Medium	No inspection year and condition data, condition evaluated based on life consumed. Replacement cost and installation year were complete with few data gaps.
Street Signs	Good	High	Very few data gaps. Contain duplicate asset IDs. All assets are inspected annually.
Pedestrian Crossings	Fair	High	Consists of a list and GIS locations of pedestrian crossings with ESLs and installation years.

12.2.2. Levels of Service

The City aims to deliver a road network that is consistently maintained in fair or better condition, serving the needs of both its residents and businesses. This entails ensuring minimal collisions, maintaining a network that's convenient to use, and keeping the road network in a state of good repair by performing regular maintenance. The City is looking to complete a Road Safety Master Plan by Q3 2026 to further understand any additional needs required for the transportation system that are not already identified in this plan.

Under O.Reg. 588/17, municipalities are required to report technical metrics for the current Level of Service (LOS) related to core assets. For Roads and related assets, both the regulation-prescribed metrics and additional City-defined metrics have been included within the LOS framework. The regulated and City-defined community metrics typically provide qualitative descriptions of service delivery and can be found in Table 12-6 and Table 12-7. Regulated and City-defined technical metrics focus on quantitative performance indicators and can be found in Table 12-8 and Table 12-9. Each metric includes both current performance data and proposed future targets.

TABLE 12-6: ROAD NETWORK COMMUNITY LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES

Community Measures	Current Performance
Service Attribute: **Scope**	
Description, which may include maps, of the road network in the municipality and its level of connectivity.	The City's road network is made of local (53%), collector (17%), and arterial (30%) roads. The City's roads provide a high degree of connectivity through the major urban centre, and to the nearest major provincial highway (HWY-401). Most of the City's urban area is connected through the road network, offering a convenient transportation route through and around the City. The City's roads aim to maintain providing a high degree of connectivity through the major urban centre, and to the nearest major provincial highway (HWY-401). The City's urban area will continue to be connected through the road network, maintaining a convenient transportation route through and around the City.
Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists).	Municipal bridges support a range of traffic, including all types of vehicles including passenger vehicles, transport trucks/vehicles and emergency vehicles. Pedestrians and cyclists are also supported on the City's roads and associated with active transportation routes. Municipal bridges will continue to support the same range of road and active transportation users.
Service Attribute: **Quality**	
Description or images that illustrate the different levels of road class pavement condition.	Approximately 65% of the City's roads are in good or very condition while 21% of the City's roads are in fair condition. Only about 15% of the City's roads are in poor or very poor condition. The City will maintain the upkeep and status of the roads, ensuring practical and cost efficient methods of intervention and replacement
Description or images of the condition of bridges and how this would affect use of the bridges.	All of the City's bridges are in fair or good condition, with the vast majority (> 95%) in good condition. This would not adversely affect the use of the City's bridges. The City will continue to maintain these bridges to be in fair or good condition.
Description or images of the condition of culverts and how this would affect use of the culverts.	The majority of the City's large culverts (>90%) are in fair or better condition, with 47% of all large culverts in good and very good condition. Approximately 10% of large culverts are in poor condition and no bridges are in very poor condition. Culverts in poor condition may require rehabilitation or replacement, which could result in closures (and detour routes) or load/lane restrictions. The City aims to have 70% of culverts in good condition, plans to address the culverts in poor condition, and maintain all bridges/culverts in fair or better condition.

TABLE 12-7: ROAD NETWORK COMMUNITY LEVELS OF SERVICE – CITY OUTLINED

Community Measures	Current Performance
Service Attributes: **Safe; Reliable**	
Road Network is safe to travel on.	The City's road network generally has a high degree of reliability, particularly with respect to the condition of roads and municipal structures. Traffic management assets are also generally in good condition, and the majority are not past their service life. These assets are performing well, ensuring the road network is safe for travel. The City aims to maintain their road network with a high degree of reliability, particularly with respect to the condition of roads and municipal structures. The City aims to keep Traffic management assets in working condition with the majority not past their service life.
Service Attributes: **Quality; Reliable; Operational**	
Road Network is comfortable to travel on.	The City's road network currently has a high degree of reliability, particularly with respect to the condition of roads and municipal structures. Traffic management assets are also generally in good condition, and the majority are not past their service life. These assets are performing well, ensuring the road network is convenient to travel on. The City will continue providing a road network with a high degree of reliability. The City has also established future quality and operational technical LOS measures. However, these are not measured at this time and the City will work towards operationalizing these, through PCR reports and OSIM reports to further monitor the quality, reliability of their road network.

TABLE 12-8: ROAD NETWORK TECHNICAL LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Scope**			
Percentage of bridges in the municipality with loading or dimensional restrictions.	Bridges	0	Maintain
Number of lane-kilometres as a proportion of square kilometres of land area of the municipality.	Arterial Roads	3.30	Maintain
Number of lane-kilometres as a proportion of square kilometres of land area of the municipality.	Collector Roads	1.49	Maintain
Number of lane-kilometres as a proportion of square kilometres of land area of the municipality.	Local Roads	4.68	Maintain
Service Attribute: **Reliable**			
For structural culverts in the municipality, the average bridge condition index value.	Culverts	70.4	Maintain
For paved roads in the municipality, the average pavement condition index value.	Roads	68.7	Maintain
For unpaved roads in the municipality, the average surface condition (e.g. excellent, good, fair or poor).	Roads	N/A	Maintain
For bridges in the municipality, the average bridge condition index value.	Bridges	75.2	Maintain

TABLE 12-9: ROAD NETWORK TECHNICAL LEVELS OF SERVICE – CITY OUTLINED

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of bridges in fair or better condition	Bridges	96%	Improve/Maintain
Percentage of large culverts in fair or better condition	Culverts	100%	Maintain
Percentage of pole footings in fair or better condition	Pole Footings	100%	Maintain
Percentage of retaining walls in fair or better condition	Retaining Walls	100%	Maintain
Percentage of arterial roads in fair or better condition	Arterial Roads	81%	Improve over 25 years
Percentage of collector roads in fair or better condition	Collector Roads	89%	Improve over 25 years
Percentage of local roads in fair or better condition	Local Roads	89%	Improve over 25 years
Percentage of small culverts that are not past their service life	Culverts	67%	Improve
Percentage of small retaining walls that are not past their service life	Retaining Walls	100%	Maintain
Percentage of public parking not past their service life	Public Parking	100%	Maintain
Percentage of parking meters and equipment not past their service life	Parking Meters and Equipment	58%	Improve
Percentage of pedestrian crossings that are not past their service life	Pedestrian Crossings	87%	Maintain
Percentage of street signs not past their service life	Street Signs	26%	Improve
Percentage of streetlights that are not past their service life	Streetlights	81%	Improve
Percentage of traffic signals that are not past their service life	Traffic Signals	73%	Improve
Percentage of recommendations from bridge inspections that have been completed	Bridges	100%	Maintain
Percentage of recommendations from culvert inspections that have been complete	Culverts	100%	Maintain
Service Attribute: **Environmentally Sustainable**			
Percentage of streetlights that have LED fixtures	Streetlights	98%	Maintain

12.2.3. Lifecycle Management Strategy

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's transportation services. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship. Table 12-10, Table 12-11, Table 12-12 and Table 12-13 summarize the various lifecycle activities that the City undertakes to ensure that its roadways, small culverts, traffic management assets and municipal structures continue to support the services they provide.



TABLE 12-10: LIFECYCLE ACTIVITIES – MUNICIPAL STRUCTURES

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, traffic studies, AMPs)	As required
OSIM Inspections	Biennially
Operations and Maintenance Activities	
Expansion joint and bearing seat cleaning	Annually
Guide rail maintenance	As required
Winter maintenance	As required, following storm events
Concrete sealing and cleaning	As required
Vegetation and debris/sediment removal	As required
Guiderail repairs	As required
Reactive repairs (vehicle impact damage, vandalism, graffiti)	As required
Renewal Activities (Rehabilitations and Replacements)	
Minor and major rehabilitations (varies)	As per OSIM inspection recommendations
Bridge/large culvert replacement	As per OSIM inspection recommendations
Disposals	
Disposal of asset components	Coordinated with rehabilitation or replacement works.
Growth/Service Improvement Activities	
Addition of new structures	As identified through master plans and studies
Access to subdivision	As identified through master plans and studies
Addition of sidewalks and active transportation infrastructure	As identified through master plans, studies and development approvals such as Subdivision plans and Site Plans

TABLE 12-11: LIFECYCLE ACTIVITIES – ROADS

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, traffic studies, AMPs)	As required
Pavement Condition Assessment	Biennially
Traffic reduction measures (varied)	Where feasible/possible and as recommended in the upcoming Traffic Safety Master Plan
Operations and Maintenance Activities	
Road Inspections as per the Minimum Maintenance Standards	As per O. Reg. 239/02 frequency
Road cleaning (sweeping, winter/fall cleaning, removing obstructions)	Ongoing or as required
Reactive maintenance or spot repairs	As required
Pothole patching	As required
Road cut repairs	As required and in conjunction with asphalt rehabilitation works
Curb repairs	As required and in conjunction with asphalt rehabilitation works
Guiderail damage repairs	As required
Ditching	As required and in conjunction with asphalt rehabilitation works
Line painting and pavement markings	Annually (semi-annually for arterial roads)
Winter maintenance (snow removal, de-icing)	As required based on storm events
Crack Sealing	As required

Description	Frequency
Renewal Activities (Rehabilitations and Replacements)	
Mill and Overlay	As required, based on findings from pavement condition assessments
Full depth reconstruction with local base repairs	As required, based on findings from pavement condition assessments
Disposals	
Asphalt re-use	Where feasible/possible
Roadside ditch-cleanout	As required
Contaminated and excess material disposal	Coordinated with road repair/replacement
Roadway decommissioning (land transfer agreements, and specific requirements)	Coordinated with road repair/replacement
Growth/Service Improvement Activities	
Widening	As identified through master plans, development applications and other studies
Retrofit to add Cycle Lanes	As identified through master plans and other studies
Various multi-modal transportation solutions	As identified through master plans and other studies
Pedestrian infrastructure improvements	As identified through master plans and other studies
New sections of road	As identified through master plans, development applications and other studies
Right of way service enhancements/reductions	As identified through master plans and other studies
Cross section adjustments/conversions	As identified through master plans and other studies

TABLE 12-12: LIFECYCLE ACTIVITIES – SMALL CULVERTS

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Stormwater model	As required, based on needs
Flood risk reduction program	Ongoing
Operations and Maintenance Activities	
Culvert inspections	Annually for poor/very poor culverts and bi-annually for others.
Renewal Activities (Replacement)	
Culvert replacement	When culvert reaches end of service life
Disposals	
Removed as part of the replacement project	Coordinated with replacement works
Removal as part of road urbanization	Coordinated with road urbanization works
Growth/Service Improvement Activities	
On demand changes as per development	As identified through the Development applications

TABLE 12-13: LIFECYCLE ACTIVITIES – TRAFFIC MANAGEMENT

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, traffic studies, AMPs)	As required
Operations and Maintenance Activities	
Inspections	Annually
Reactive repairs and maintenance	As required
Removing obstructions to or traffic signs and devices	As required
Renewal Activities (Replacement)	
Street Sign replacements	DSS based on service life, visual condition grade when ready to replace.
Street Lighting: replacement of luminaire and/or poles	DSS based on service life, visual condition grade when ready to replace.
Street Lighting: replacing burned out light bulbs	As required
Traffic Signal replacements	DSS based on service life, visual condition grade when ready to replace.
Disposals	
Removed as part of the project	Coordinated with asset replacement
Growth/Service Improvement Activities	
Pedestrian crossing addition/improvements	As identified through master plans, development applications and other studies
Right of way service enhancements/reductions	As identified through master plans and other studies
Signals, signs, and crossing additions for Active Transportation infrastructure addition	As identified through master plans and other studies
Addition of street lighting to improve service	As identified through master plans and other studies
Upgrade street lighting to LED	Coordinated with Road Rehabilitation/Reconstruction Projects
On demand changes as per development	As identified through master plans, development applications and other studies

12.2.4. Funding the Lifecycle Activities

The following subsections outline how the City plans to fund the lifecycle activities for their roadways, traffic management assets and municipal structures.

12.2.4.1. Municipal Structures

The lifecycle activities mentioned in Section 12.2.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 12-10. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's financial strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 12-11, Figure 12-12, Figure 12-13 and Figure 12-14 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

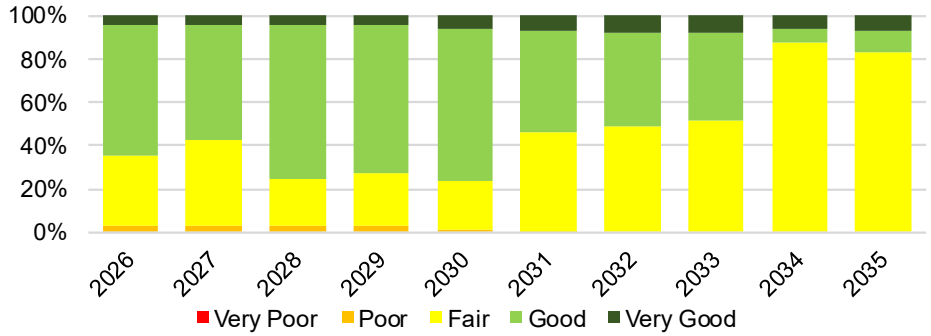


FIGURE 12-11: MUNICIPAL STRUCTURES ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

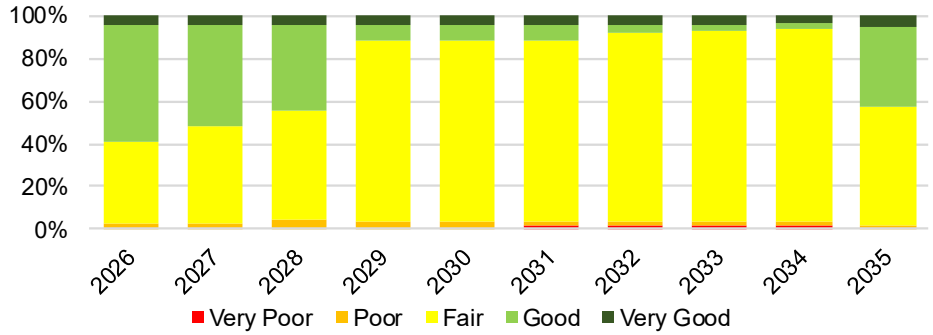


FIGURE 12-12: MUNICIPAL STRUCTURES MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

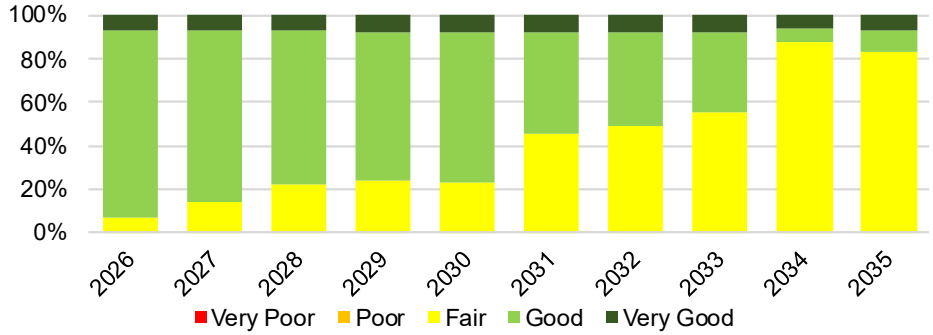


FIGURE 12-13: MUNICIPAL STRUCTURES BACKLOG SCENARIO PERFORMANCE FORECAST

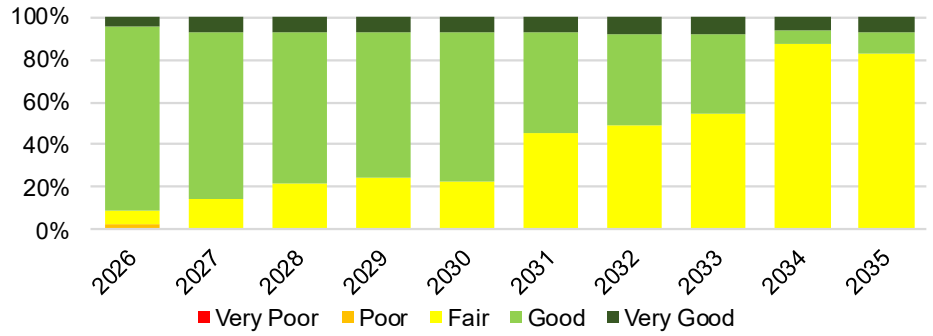


FIGURE 12-14: MUNICIPAL STRUCTURES PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Under the anticipated budget scenario, the overall LOS of municipal structures is expected to improve from 97% to 100%. To maintain the current service levels of 97% of assets that meet the LOS, the City

would need to spend an annual average of $0.13 million on renewals and rehabilitations for the next 10 years. To eliminate the backlog, it was determined an annual average of $0.46 million on renewals and rehabilitations is needed. Using the results from the previous scenarios, the City determined that it would maintain its spending on renewals and rehabilitations, while increasing spending on its growth activities, thus, improving overall levels of service to 100%. Table 12-14 and Figure 12-15 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for municipal structures. The bars on the Figure 12-15 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

TABLE 12-14: MUNICIPAL STRUCTURES BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$0.01M	$0.01M	$0.01M	$0.01M
Service Improvements	$0	$0	$0	$0
Growth Activities	$0	$0	$0	$1.28M
Renewal & Replacement	**$0.66M**	**$0.13M**	**$0.46M**	**$0.66M**
Total Lifecycle Expenditures	$0.68M	$0.15M	$0.47M	$1.95M
Total Infrastructure Gap		No Gap	No Gap	$1.28M

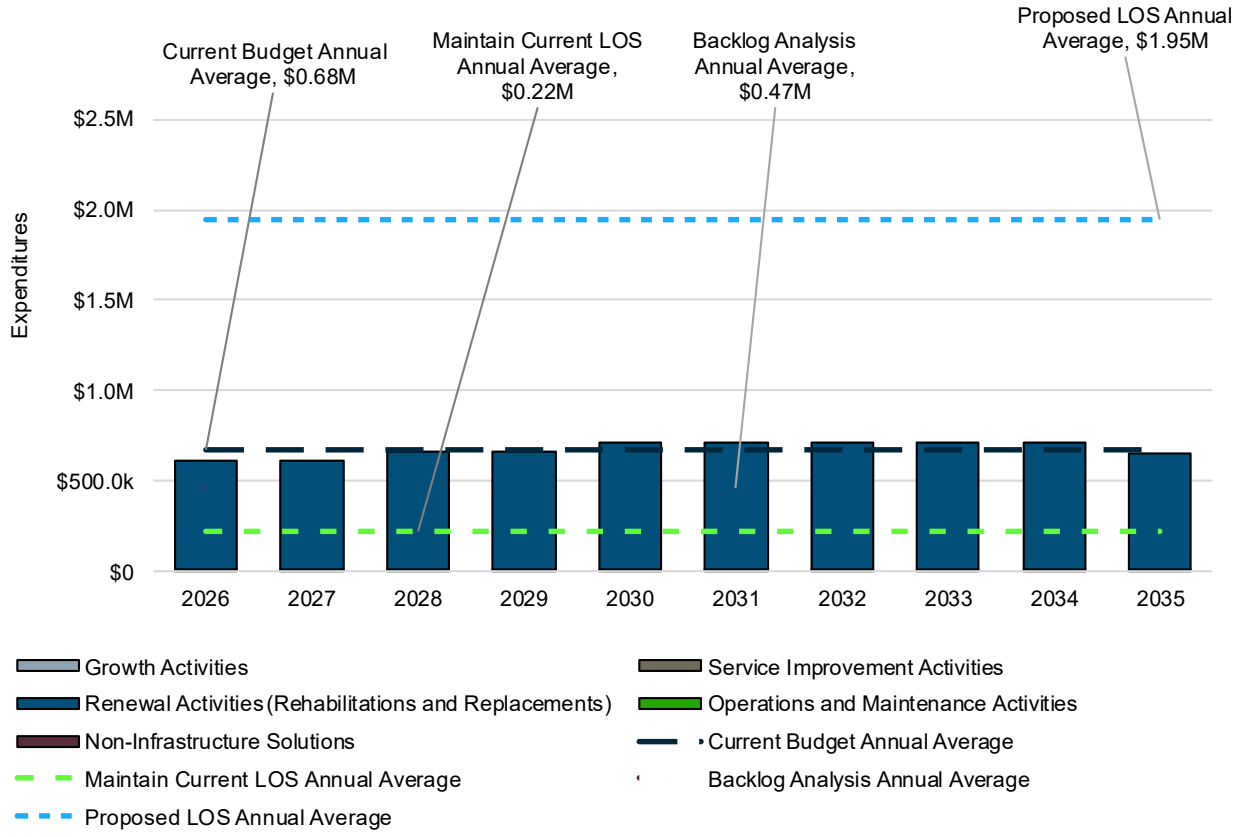


FIGURE 12-15: MUNICIPAL STRUCTURES SCENARIO ANALYSIS SUMMARY



12.2.4.2. Roadways

The lifecycle activities mentioned in Section 12.2.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 12-11 and Table 12-12. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's financial strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 12-16, Figure 12-17, Figure 12-18 and Figure 12-19 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

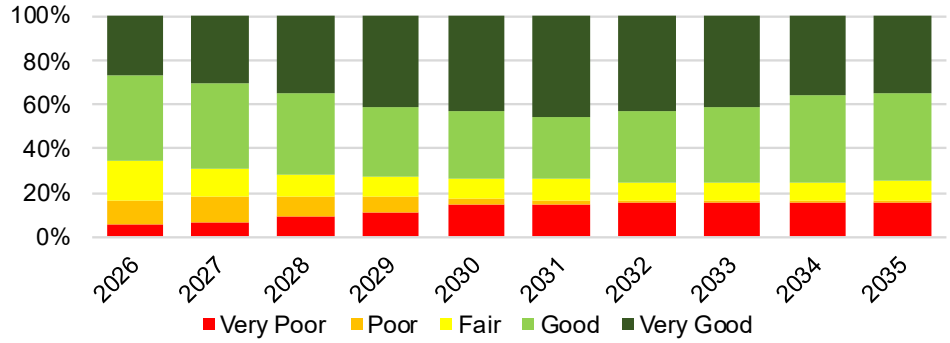


FIGURE 12-16: ROADWAYS ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

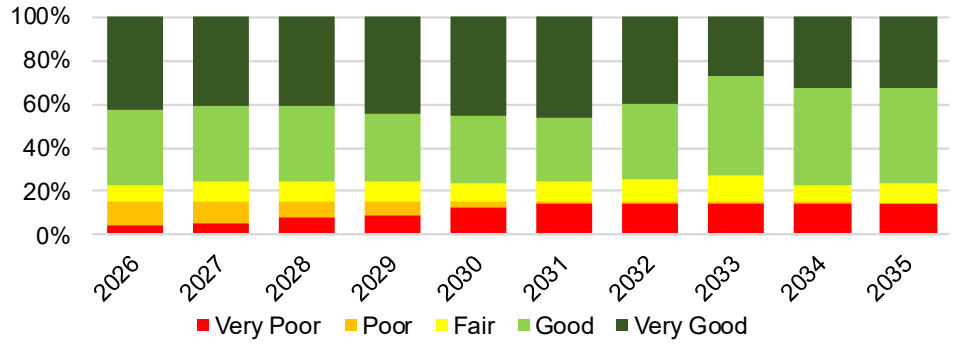


FIGURE 12-17: ROADWAYS MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

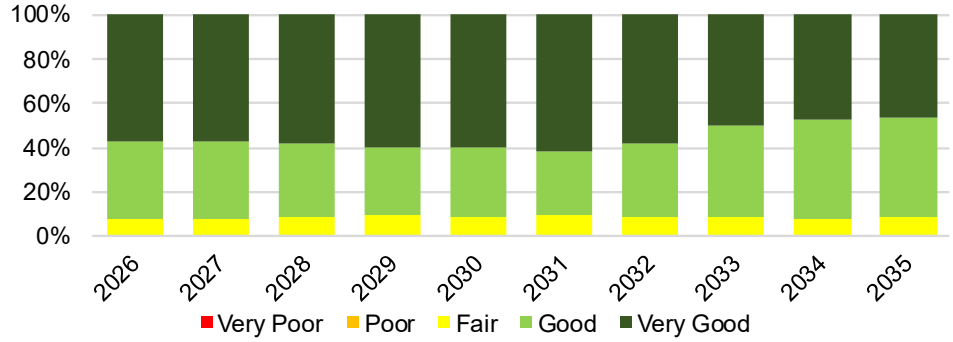


FIGURE 12-18: ROADWAYS BACKLOG SCENARIO PERFORMANCE FORECAST

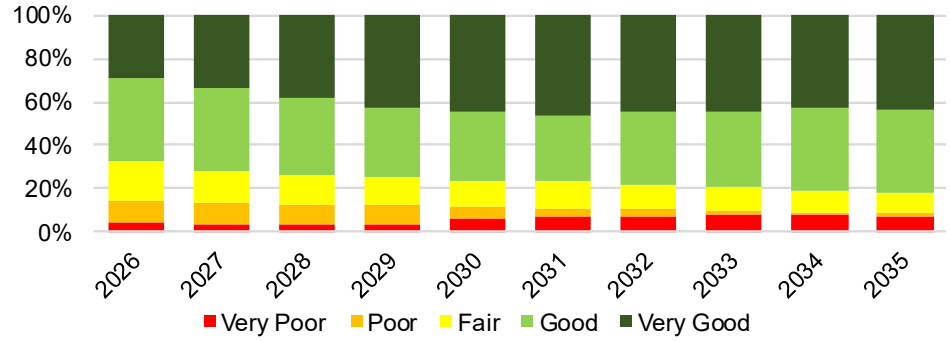


FIGURE 12-19: ROADWAYS PROPOSED LOS SCENARIO PERFORMANCE FORECAST

As shown in Figure 12-16, under the current anticipated renewals and rehabilitations budget of $9.44 million for the next 10 years the City's roadways are expected to go from 89% to 77% of assets meeting the LOS of assets in fair or better condition. To maintain 89% of roadways in fair or better condition, it was determined the City would need to spend an annual average of $9.97 million in renewals and rehabilitations. To eliminate all the backlog in the roadways and to keep 100% of assets in fair or better condition, it would cost the City an annual average of $18.98 million in renewals according to the Backlog Analysis. Using the results of the scenarios, the City determined that the proposed LOS target of reaching 100% of assets in fair or better condition in 25 years to balance risk and affordability. To achieve this target, the City would need to spend approximately $12.00 million annually on renewals for their roadways over the next 25 years.

Table 12-15 and Figure 12-20 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for roadways. The bars on the Figure 12-20 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

TABLE 12-15: ROADWAYS BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$4.34M	$4.34M	$4.34M	$4.34M
Service Improvements	$1.48M	$1.48M	$1.48M	$1.48M
Growth Activities	$0	$0	$0	$0
Renewal & Replacement	**$9.44M**	**$9.97M**	**$18.98M**	**$12.00M**
Total Lifecycle Expenditures	**$15.26M**	**$15.78M**	**$24.79M**	**$17.81M**
Total Infrastructure Gap		**$0.53M**	**$9.54M**	**$2.55M**

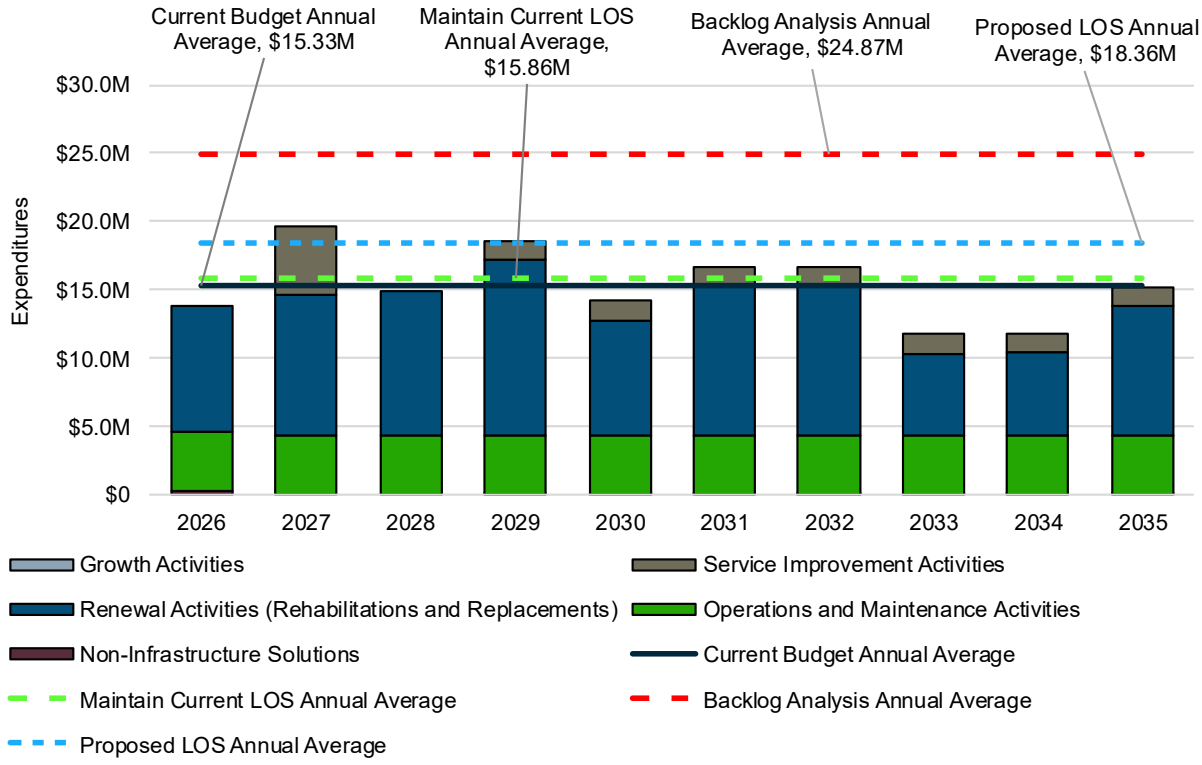


FIGURE 12-20: ROADWAYS SCENARIO ANALYSIS SUMMARY

12.2.4.3. Traffic Management

The lifecycle activities mentioned in 12.2.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 12-13. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's financial strategy (Section 15). It is important to note, that within the traffic management asset portfolio, there are City owned, and non-City owned streetlight poles. Lifecycle modeling and forecasting analysis was only conducted on City owned assets.

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 12-21, Figure 12-22, Figure 12-23 and Figure 12-24 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

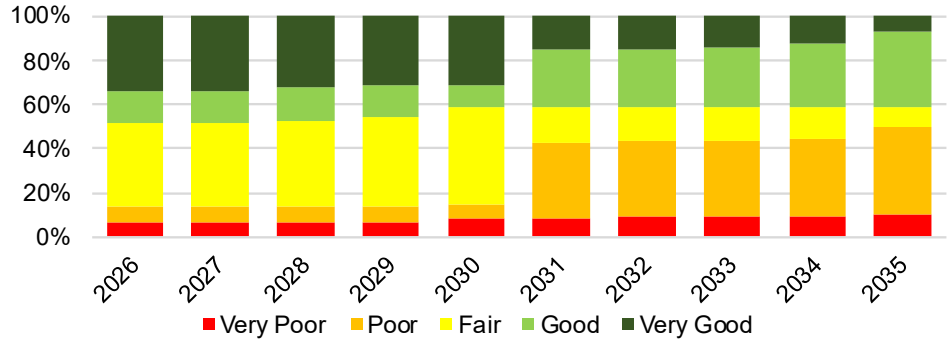


FIGURE 12-21: TRAFFIC MANAGEMENT ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

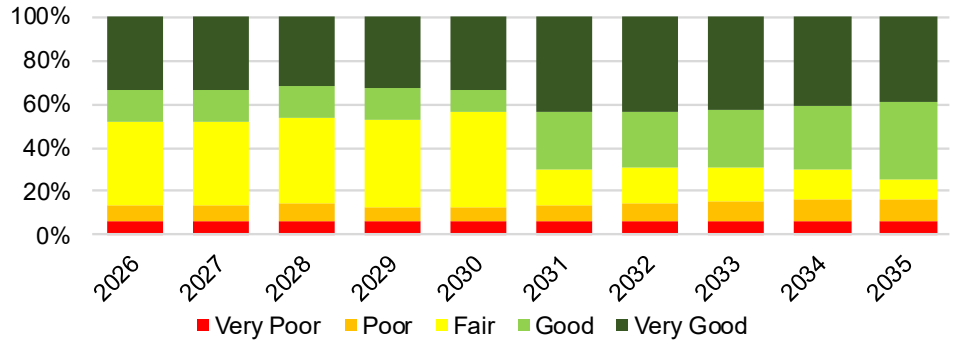


FIGURE 12-22: TRAFFIC MANAGEMENT MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

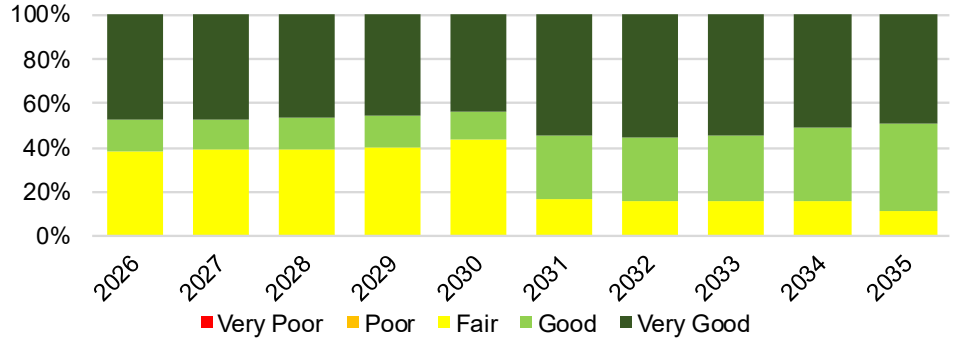


FIGURE 12-23: TRAFFIC MANAGEMENT BACKLOG SCENARIO PERFORMANCE FORECAST

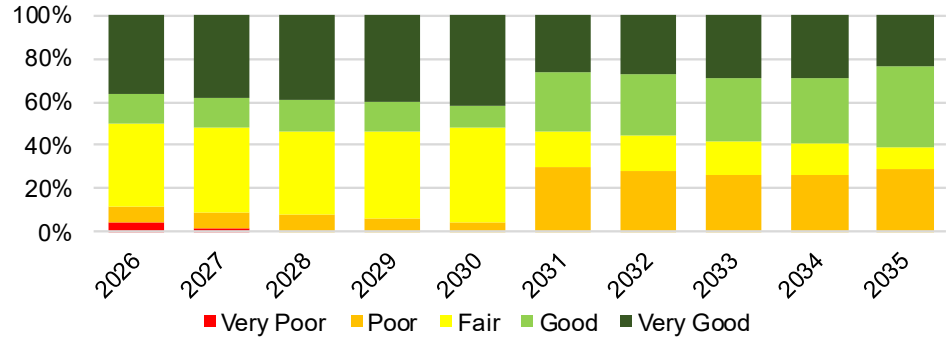


FIGURE 12-24: TRAFFIC MANAGEMENT PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 92% of the City's traffic management assets meet the LOS threshold of being in poor or better condition. Under the current anticipated capital budget for the next 10 years traffic management assets are expected to decrease in overall LOS, going from 92% to 90% of assets meeting the LOS of assets in poor or better condition. To maintain the assets in 92% in poor or better condition, it was determined the City would need to spend an annual average of $2.27 million to maintain this LOS. To eliminate all the backlog in the traffic management asset portfolio, it would cost $3.38 million per year in renewals according to the Backlog Analysis. Using the results of the scenarios, the City determined that to reach the target of 100% of assets in poor or better condition in 25 years, the City would need to spend approximately $2.63 million annually on renewals and rehabilitations.

Table 12-16 and Figure 12-25 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for traffic management assets. The bars on the Figure 12-25 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

TABLE 12-16: TRAFFIC MANAGEMENT BUDGET ANALYSIS

Lifecycle Activity	Average Annual Budget	Average Annual for Current LOS	Average Annual for Backlog	Average Annual for PLOS
Non-Infrastructure	$0.03M	$0.03M	$0.03M	$0.03M
Operations & Maintenance	$0.97M	$0.97M	$0.97M	$0.97M
Service Improvements	$0	$0	$0	$0
Growth Activities	$0	$0	$0	$0
Renewal & Replacement	**$0.63M**	**$1.27M**	**$2.38M**	**$1.63M**
Total Lifecycle Expenditures	$1.62M	$2.27M	$3.38M	$2.63M
Total Infrastructure Gap		$0.64M	$1.75M	$1.01M

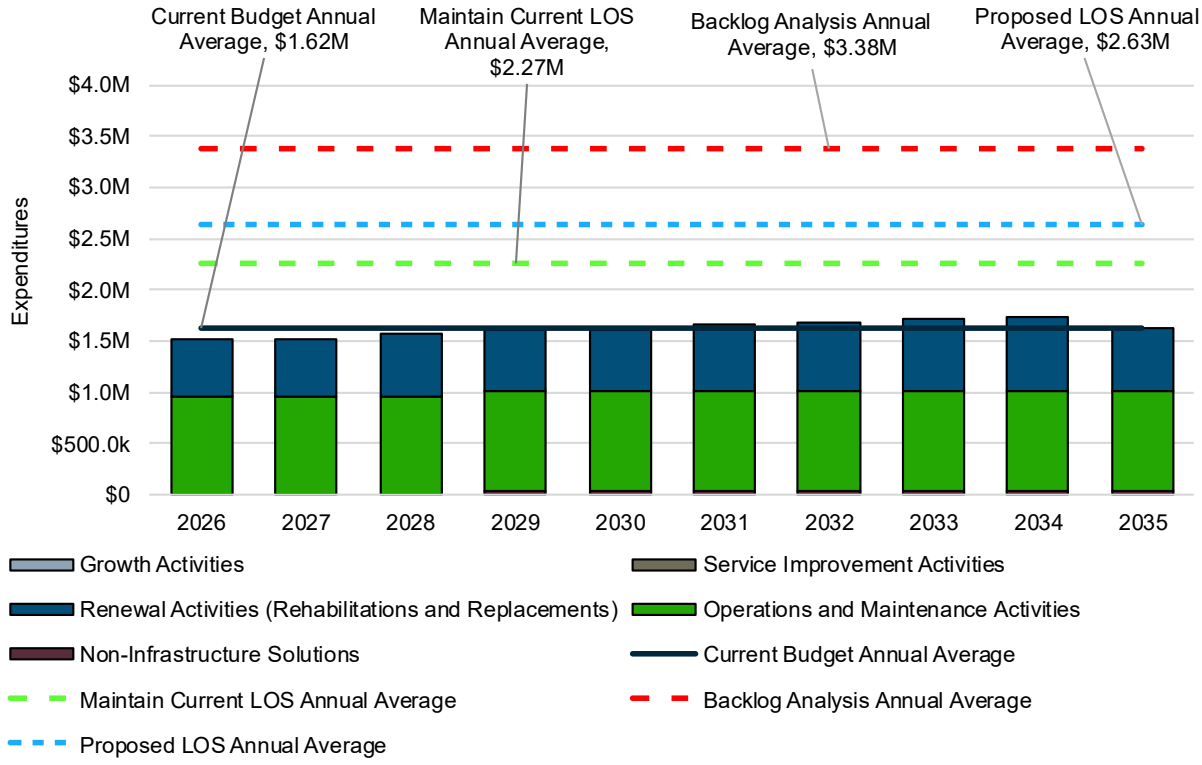


FIGURE 12-25: TRAFFIC MANAGEMENT SCENARIO ANALYSIS SUMMARY

12.2.5. Findings

Overall, the City's road network portfolio consists of $789.87M worth of assets and maintains them in good condition. With about 93% of assets in poor or better condition and 82% of assets in fair or better condition, approximately 88% of the road network is currently meeting the LOS threshold. In addition, the City's road network assets have not surpassed their service lives on average. The City maintains its road network data in overall good condition, with all asset classes containing data with both high completeness and high confidence. Complete and confident data contribute to the foundation of asset management practices, thus the City should continue maintaining their data in good condition to uphold their asset management activities moving forward.

When looking forward, the City anticipates to spend an average of $17.63 million on their road network, which will result in 86% of assets that meet the LOS threshold. To maintain the current LOS threshold of 88%, the City will need to spend an extra $0.71 million per year according to the lifecycle modelling forecasts. Moreover, the City determined that to eliminate the backlog and maintain the road network at 100% of assets at or above the LOS threshold would cost an annual average of $28.71 million. According to the results of the different forecasting scenarios, the City proposed to reach the target of 100% of assets meeting the LOS threshold in 25 years, which on average would cost $21.40 million per year in total lifecycle activity investments. With this target investment rate in mind, the City is expected to improve the road network's LOS to about 93% of assets meeting the threshold by the end of 10 years, and approximately 96% of the road network meeting their LOS threshold by the end of 25 years.

12.3. Active Transportation

The City of Cornwall is responsible for providing multi-modal transportation services for pedestrians and cyclists throughout the City that primarily consists of sidewalks, bicycle lanes and recreational paths. The City's active transportation network spans over 250.2 km, allowing pedestrians to travel around the City on foot or by other means of active transportation. Figure 12-26 illustrates the Active Transportation asset hierarchy while Figure 12-27 captures the locations for the City's active transportation assets.

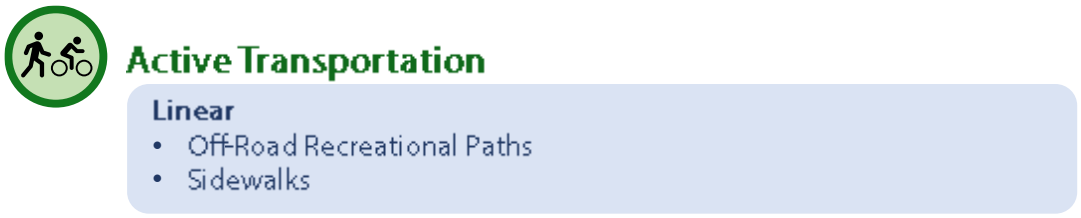


FIGURE 12-26: ACTIVE TRANSPORTATION ASSET HIERARCHY

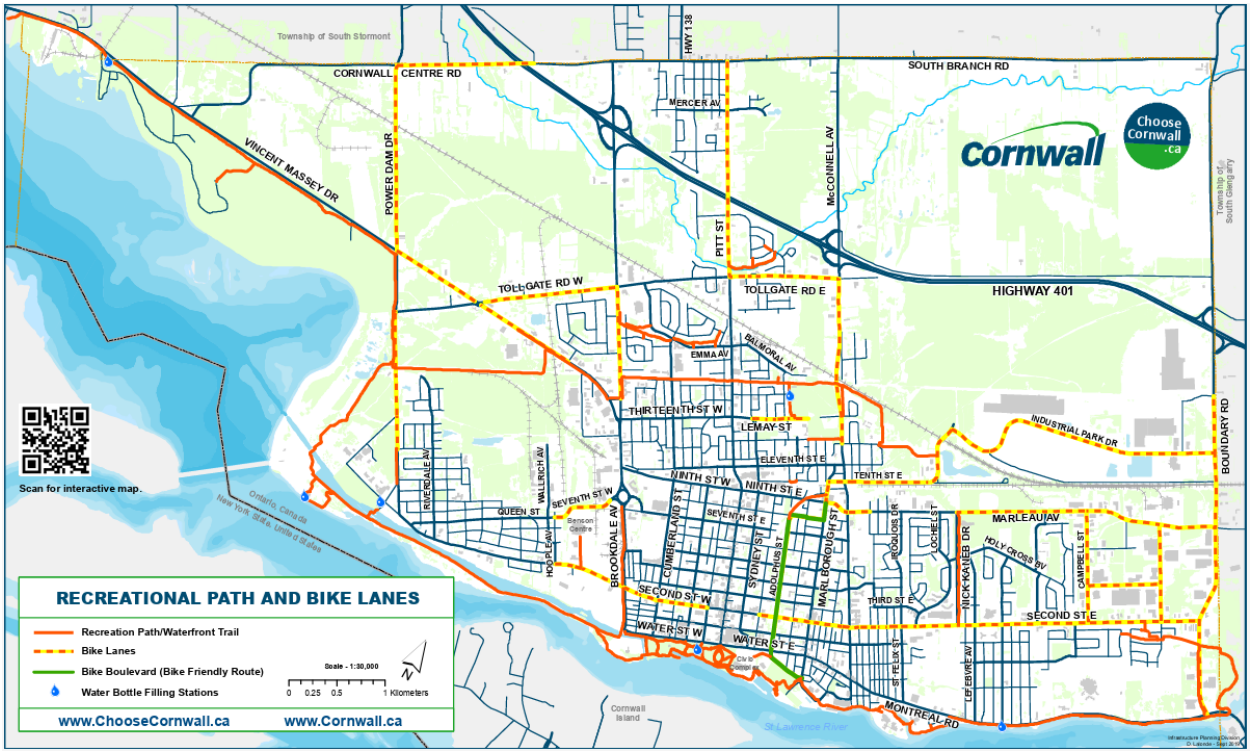


FIGURE 12-27: MAP OF CORNWALL'S RECREATIONAL PATHS AND BIKE LANES

12.3.1. State of the Infrastructure

This section outlines the state of infrastructure for Cornwall's Active Transportation, including: asset inventory and valuation, age and estimated service life, asset condition, data sources and maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

12.3.1.1. Asset Inventory and Valuation

The replacement cost for the City's Active Transportation assets is $72.96M and is summarized in Table 12-17 and Figure 12-28.

TABLE 12-17: ACTIVE TRANSPORTATION ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Linear ($72.96M)		
Off-Road Recreational Paths	44.47 km	$8.72M
Sidewalks	205.76 km	$64.24M
Total		**$72.96M**

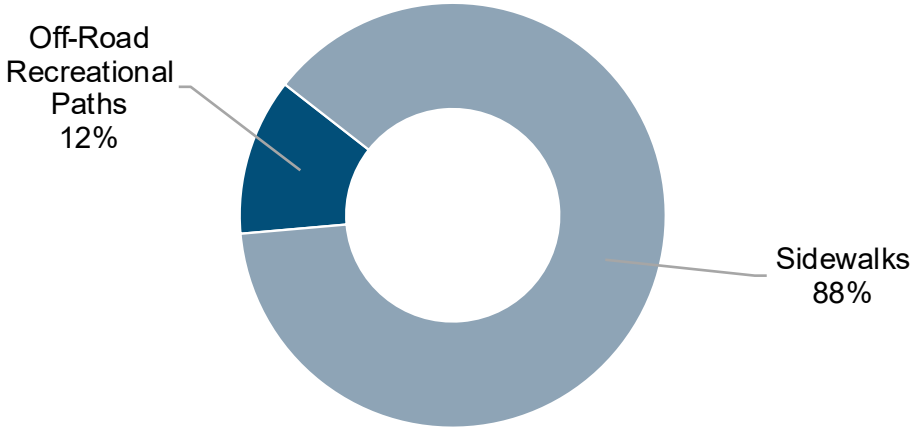


FIGURE 12-28: ACTIVE TRANSPORTATION VALUATION DISTRIBUTION

12.3.1.2. Age and Estimated Service Life

The average age of the City's Active Transportation portfolio is 41 years old with an average ESL of 47 years. Figure 12-29 provides a breakdown of the ages by asset class.

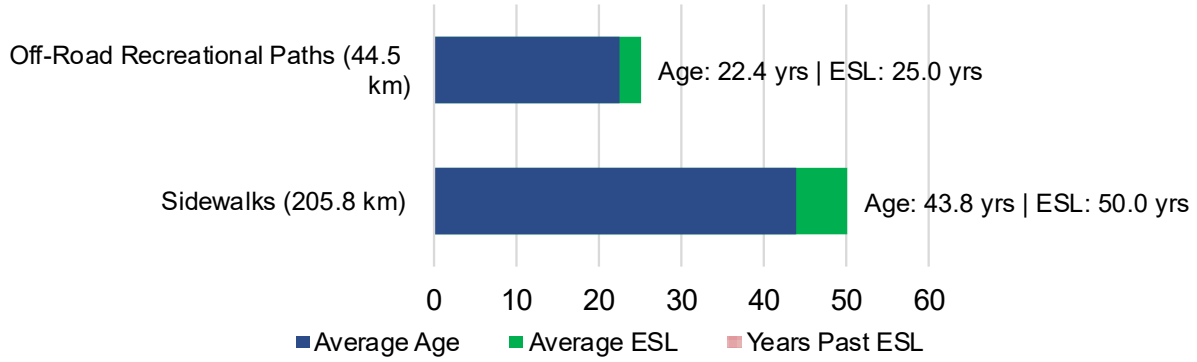


FIGURE 12-29: ACTIVE TRANSPORTATION SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 12-30 below captures the installation decades in which the various Transportation Services asset classes were acquired and or installed for the City's active transportation portfolio. The installation decades represented in Figure 12-30 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029). Through the 1920's to 1950's, the City saw its first major additions of sidewalks, followed by substantial additions from the 1970's all the way to 2010's and 2020's. With the average age of the City's active transportation network being 41 years old and the average ESL of 47 years, a bulk of renewals and rehabilitations are likely to be due in approximately 5 or so years.

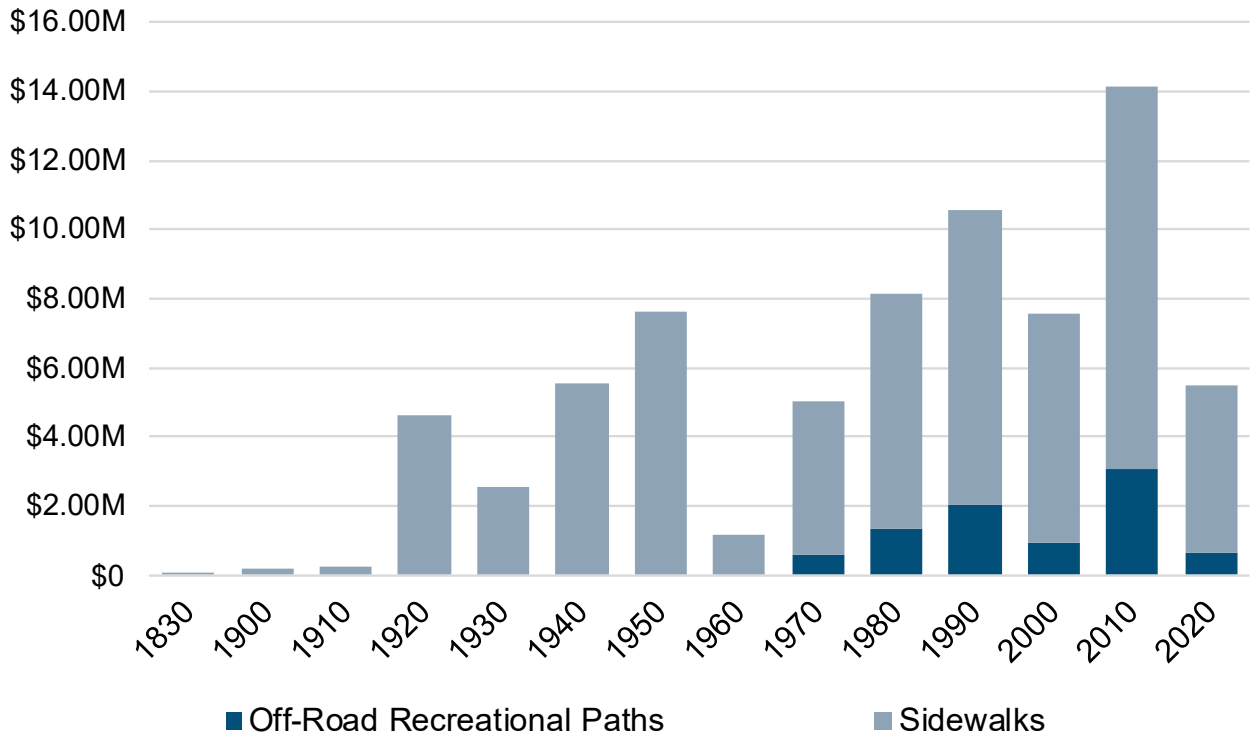


FIGURE 12-30: ACTIVE TRANSPORTATION INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

12.3.1.3. Asset Condition

The City has been assessing the condition of sidewalks and recreational paths using visual field inspections, using a 1 to 5 scale and a 100 to 0 scale, respectively. Table 12-18 captures the condition data collection techniques utilized for the different active transportation assets, while Table 12-19 presents the logic used to convert life consumed and the visual inspection scores into a condition rating.

TABLE 12-18: ACTIVE TRANSPORTATION ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• Sidewalks	▪ Visual inspections as part of minimum maintenance standards	▪ Annually
• Recreational Paths	▪ Visual inspections	▪ Biannually

TABLE 12-19: ACTIVE TRANSPORTATION SERVICES ASSETS CONDITION RATINGS

Category	Life Consumed	Off-Road Recreational Paths (Visual Inspection)	Sidewalks (Visual Inspection)
Very Good	0% to 25%	100 to 80	1
Good	25% to 50%	80 to 60	2
Fair	50% to 75%	60 to 40	3
Poor	75% to 100%	40 to 20	4
Very Poor	>100%	20 to 0	5

Overall, the City's Active Transportation portfolio is in good condition. 99% of assets are in Very Good to Poor condition, with a small portion in Very Poor condition. A breakdown of the various condition categories within the Active Transportation portfolio can be found in Figure 12-31, while a breakdown of the asset classes can be found in Figure 12-32.

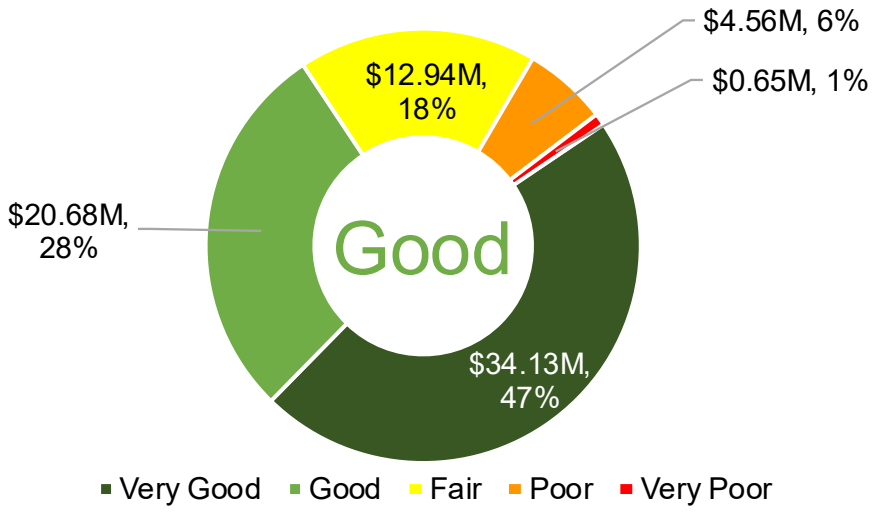


FIGURE 12-31: ACTIVE TRANSPORTATION CONDITION SUMMARY

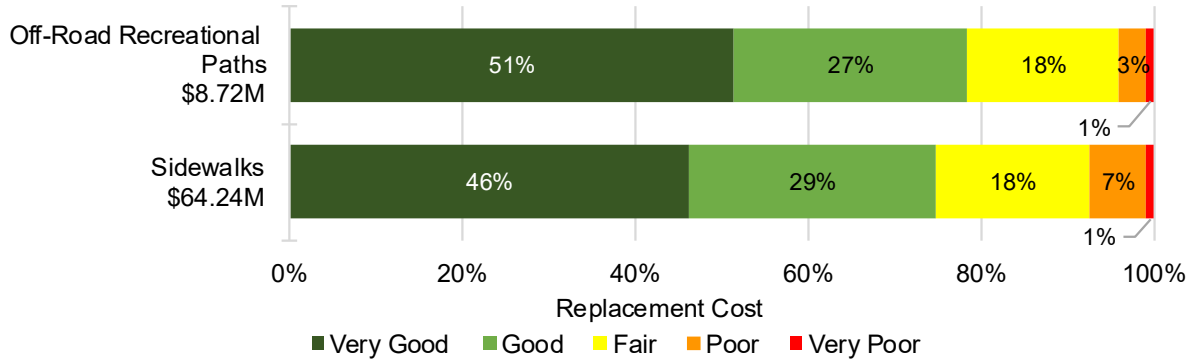


FIGURE 12-32: ACTIVE TRANSPORTATION CONDITION DISTRIBUTION BY ASSET CLASS

The accessibility of sidewalks is also tracked by the City. Sidewalks with 1.5m width meet the accessibility standards and are summarized in Figure 12-33.

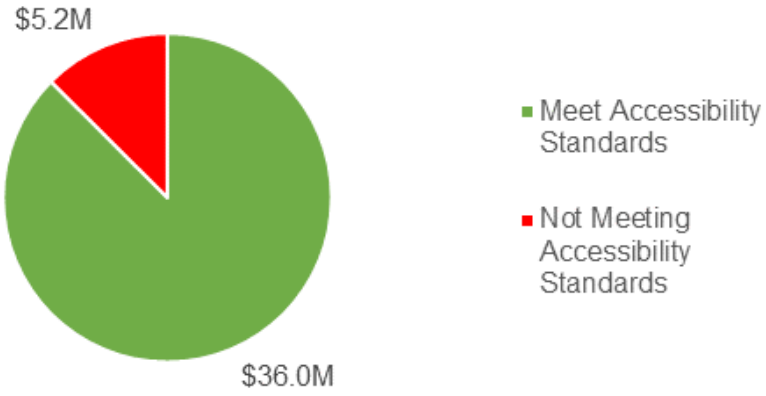


FIGURE 12-33: SIDEWALK ACCESSIBILITY SUMMARY

12.3.1.4. Data Sources and Maturity

Table 12-20 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 12-20: ACTIVE TRANSPORTATION DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Off-Road Recreational Paths	Good	High	Approx. 18% of assets missing condition data and inspection year At the time of writing this AMP. All assets were inspected in 2025.
Sidewalks	Good	High	Very few data gaps. All assets were inspected 2025.

12.3.2. Levels of Service

The City's goal is to provide an active transportation network that consists of sidewalks, bicycle lanes, and recreational paths that are convenient for pedestrians and cyclists to use, as well as reliable, accessible, and safe/operational. The City achieves these LOS by maintaining all assets in a state of good repair, meeting AODA requirements, and meeting minimum maintenance standards.

The community and technical LOS for the active transportation network are shown in Table 12-21 and Table 12-22.

TABLE 12-21: ACTIVE TRANSPORTATION COMMUNITY LEVELS OF SERVICE

Community Measures	Current Performance
Service Attributes: **Reliable; Accessible; Safe; Operational**	
Active Transportation network is convenient to travel on.	The City's active transportation network has a very high degree of reliability. Nearly all assets are meeting service level objectives for reliability. Accessibility targets are partially met for various asset classes. The City's will continue to maintain the high degree of reliability of the active transportation network and build the active transportation network to ensure it is accessible and convenient to travel on. The City has also established future safety and operational technical LOS measures however, these are not measured at this time.

TABLE 12-22: ACTIVE TRANSPORTATION TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of off-road recreational paths not past their service life	Off-Road Recreational Paths	99%	Maintain
Percentage of sidewalks not past their service life	Sidewalks	99%	Maintain
Service Attribute: **Accessible**			
Percentage of off-road recreational paths target objectives of constructed assets met	Off-Road Recreational Paths	25%	Improve
Percentage of sidewalk target objectives of constructed assets met	Sidewalks	19%	Improve
Percentage of sidewalks that meet AODA requirements	Sidewalks	89%	Improve

12.3.3. Lifecycle Management Strategies

For the City to provide active transportation at the desired LOS, certain lifecycle activities are performed on the active transportation network. These include non-infrastructure solutions such as developing various plans and traffic studies; maintenance activities such as inspections, minimum maintenance; rehabilitation; resurfacing and replacement; asset and material disposal; and expanding and upgrading assets to support growth. Table 12-23 summarizes the lifecycle activities performed on sidewalks, bicycle lanes, and recreational paths.



TABLE 12-23: ACTIVE TRANSPORTATION LIFECYCLE MANAGEMENT STRATEGIES

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, transportation studies, AMPs)	As required
Operations and Maintenance Activities	
Inspections as part of MMS	Annually
Winter control (snow removal, de-icing)	As required
Renewal Activities (Rehabilitations & Replacements)	
Grinding	As per Minimum Maintenance Standards
Spot repairs	As per Minimum Maintenance Standards
Asphalt Patching	As per Minimum Maintenance Standards
Sidewalks: Full block replacements	• As per Minimum Maintenance Standards; • Integrated with road resurfacing or reconstruction; • Coordinated with road reconstruction or Active Transportation projects
Bicycle lane resurfacing	• Integrated with road resurfacing or reconstruction; • Coordinated with road reconstruction or Active Transportation projects
Recreational path renewal	• Integrated with road resurfacing or reconstruction; • Coordinated with road reconstruction or Active Transportation projects
Disposals	
Disposed during construction	Coordinated with replacement works
New sidewalks	As identified through master plans, studies, and development applications
New bike lanes	As identified through master plans, studies, and development applications
New recreational paths	As identified through master plans, studies, and development applications

12.3.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 12.3.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 12-23. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's financial strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 12-34, Figure 12-35, Figure 12-36 and Figure 12-37 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

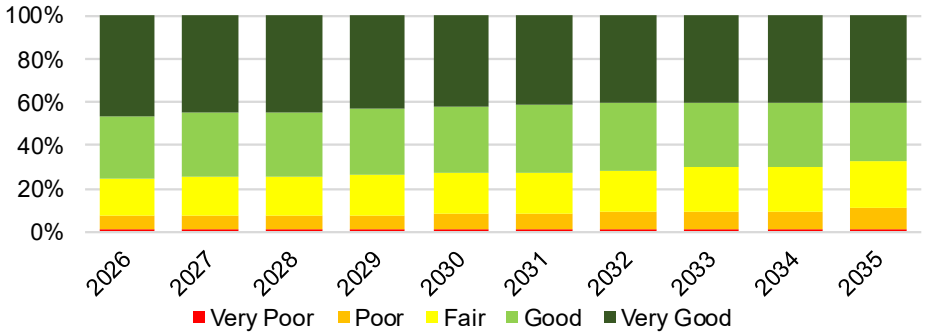


FIGURE 12-34: ACTIVE TRANSPORTATION ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

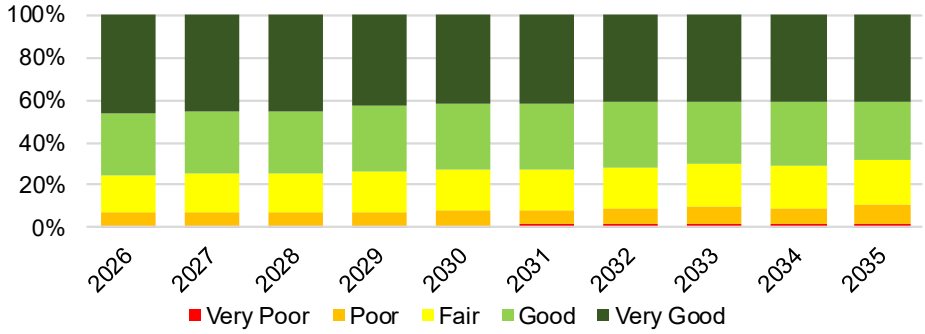


FIGURE 12-35: ACTIVE TRANSPORTATION MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

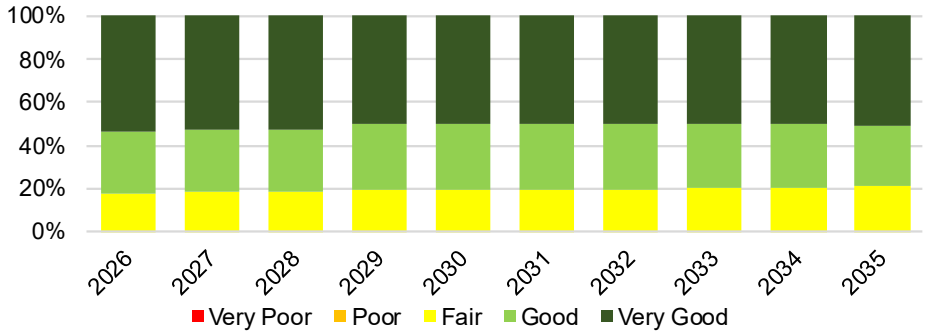


FIGURE 12-36: ACTIVE TRANSPORTATION BACKLOG ANALYSIS PERFORMANCE FORECAST

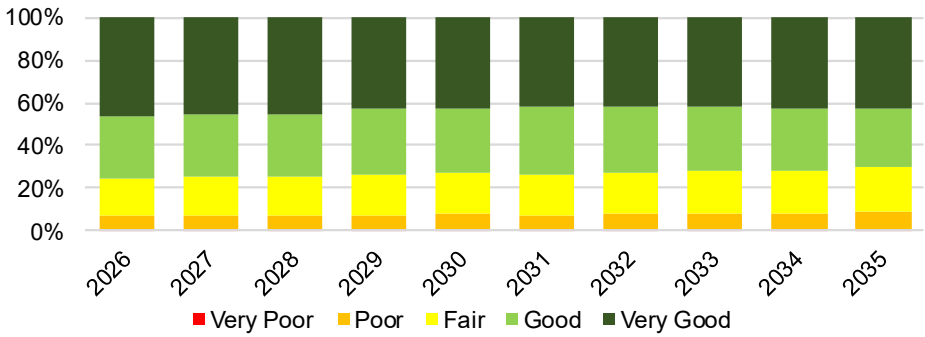


FIGURE 12-37 ACTIVE TRANSPORTATION PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 99% of the City's active transportation assets meet the LOS threshold of being in fair or better condition. Under the current anticipated capital budget of $0 for renewals for the next 10 years active transportation assets are expected to decrease slightly in overall LOS. To maintain active transportation assets in the current LOS, it was determined the City would need to spend an annual average of $0.03 million in renewals to maintain this LOS. To eliminate all the backlog in the active transportation assets portfolio, it would cost $0.80 million per year according to the Backlog Analysis. Using the results of the scenarios and to balance cost, risk and LOS, the City has proposed to reach 100% of assets to meet the LOS threshold by the end of 25 years, costing an annual average of $0.96 million in renewals.

Table 12-24 and Figure 12-38 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for active transportation. Operations and maintenance costs for active transportation assets are captured under the Road Network operations and maintenance costs. The City does not have a dedicated budget for sidewalk replacements. On average over 2024 and 2025, the City has spent approximate $599K on replacing sidewalks using funds from the joint water and sewer funds and OCIF asphalt funds. Therefore, the funding for active transportation renewal and replacement activities are captured within the Road Network and Utilities capital budgets. In future iterations of this AMP to improve the anticipated budget forecasting, the City should identify operations and maintenance activities for active transportation assets in the capital budget. The bars on the Figure 12-38 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

TABLE 12-24: ACTIVE TRANSPORTATION BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0.04M	$0.04M	$0.04M	$0.04M
Operations & Maintenance[4]	$0	$0	$0	$0
Service Improvements	$0	$0	$0	$0
Growth Activities	$0.90M	$0.90M	$0.90M	$0.90M
Renewal & Replacement	**$0**	**$0.03M**	**$0.80M**	**$1.00M**
Total Lifecycle Expenditures	**$0.94M**	**$0.97M**	**$1.74M**	**$1.94M**
Total Infrastructure Gap		**$0.03M**	**$0.80M**	**$1.00M**

4 O&M costs for active transportation assets are captured under the roadways O&M costs (Table 12-15).

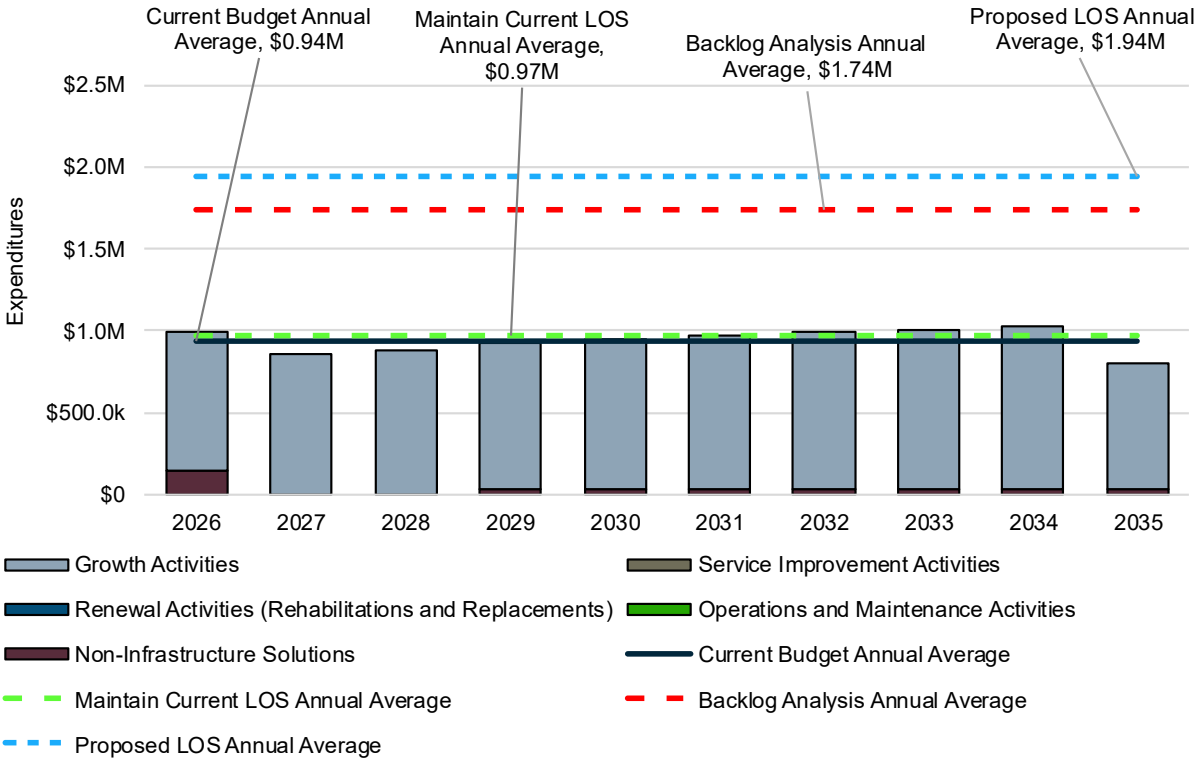
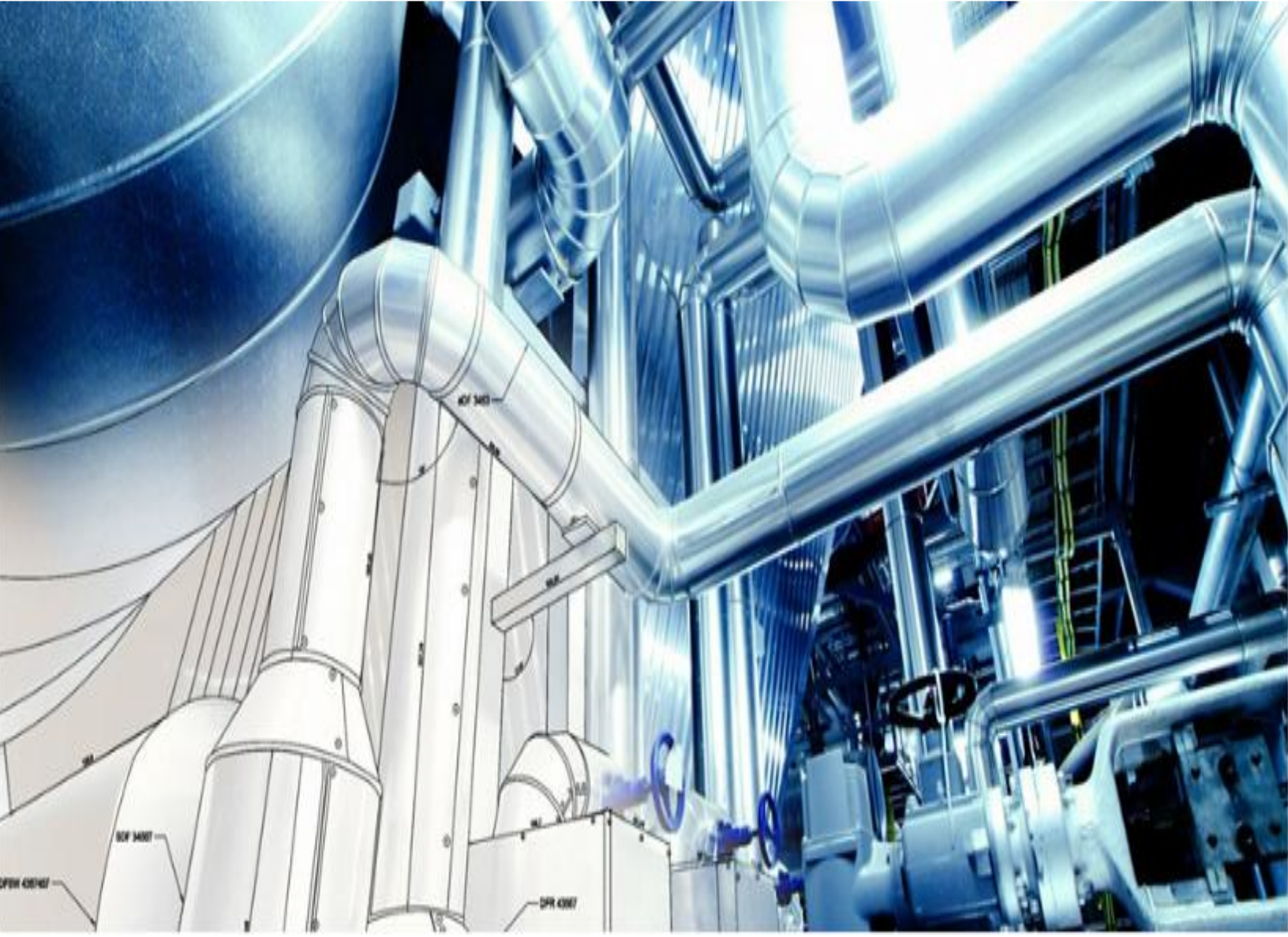


FIGURE 12-38: ACTIVE TRANSPORTATION SCENARIO ANALYSIS SUMMARY

12.3.5. Findings

Overall, the City maintains its $72.96 million active transportation network in good condition, with all of its assets still within their service lives on average. Both data completeness and confidence are high, due to the City staying on top of data collection and maintaining it in asset repositories and GIS records. In the community and technical levels of service measures outlined by the City, Cornwall currently has high levels and intends to maintain community measures and reliability of the network, while continuing to improve accessibility of their assets.

Looking at the City's anticipated budgets with regards to the active transportation portfolio, the City has not allocated funding towards renewals and rehabilitations. This is due to a number of reasons, one of them being typically sidewalks and paths near roads are not renewed on their own, as these projects and activities are bundled together when roads are due for renewals and rehabilitations. Thus, the funding allocated for renewals and rehabilitations of sidewalks can be found in the road network's budget. Nonetheless, the City is still able to determine the requirements in renewals and rehabilitations to maintain current LOS as well as the funding required to eliminate backlog for the forecasting analysis performed for this project. It was found that approximately twice the annual spending to maintain current LOS was required to address and remove all backlog from the network for the next 10 years. Furthermore, to slowly eliminate backlog over the next 25 years, it was determined that $1.94 million annually in total lifecycle spending was required to achieve this goal.



Utilities

City of Cornwall

Cornwall
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13. Utilities

13.1. Summary

The City's Utilities service includes the subservices of Combined Sewer Collection System (CSCS), Sanitary Sewer Collection System, Wastewater Treatment, Storm Sewer Collection System, Water Distribution Network, Wastewater Treatment and Water Treatment. These services are responsible for treating and distributing water before it is used by the public, and for collecting, and treating wastewater before it is discharged into the environment and managing stormwater in the community.

An overall summary of the replacement value and condition of the assets within this subservice (for this 2025 plan) is provided below in Figure 13-1. Subsections 13.2 to 13.7 provide further details on the asset classes within each subservice.

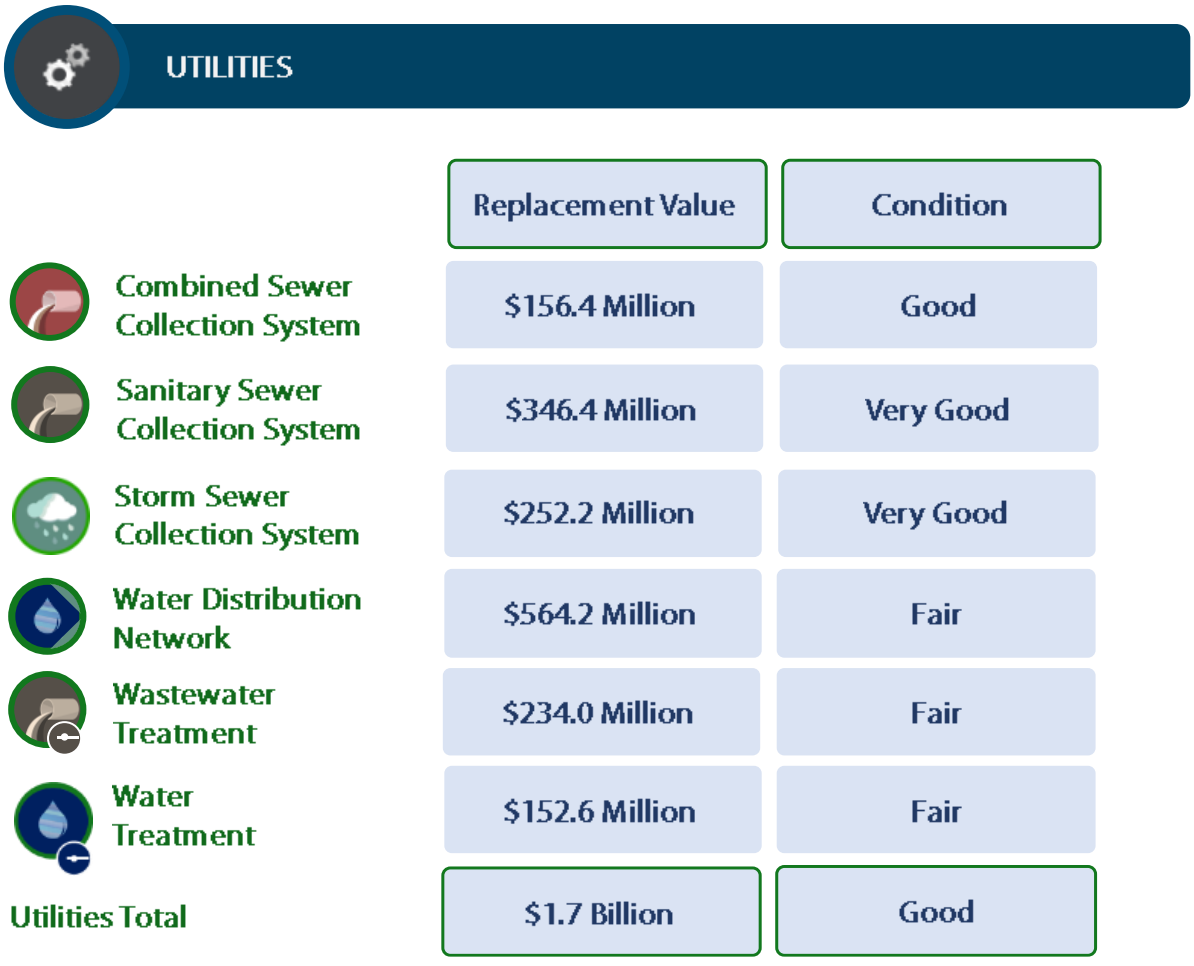


FIGURE 13-1: UTILITIES CONDITION AND REPLACEMENT VALUE SUMMARY

Furthermore, Figure 13-2 shows a map of the City's linear utilities including the combined sewers, sanitary sewers and storm sewers.

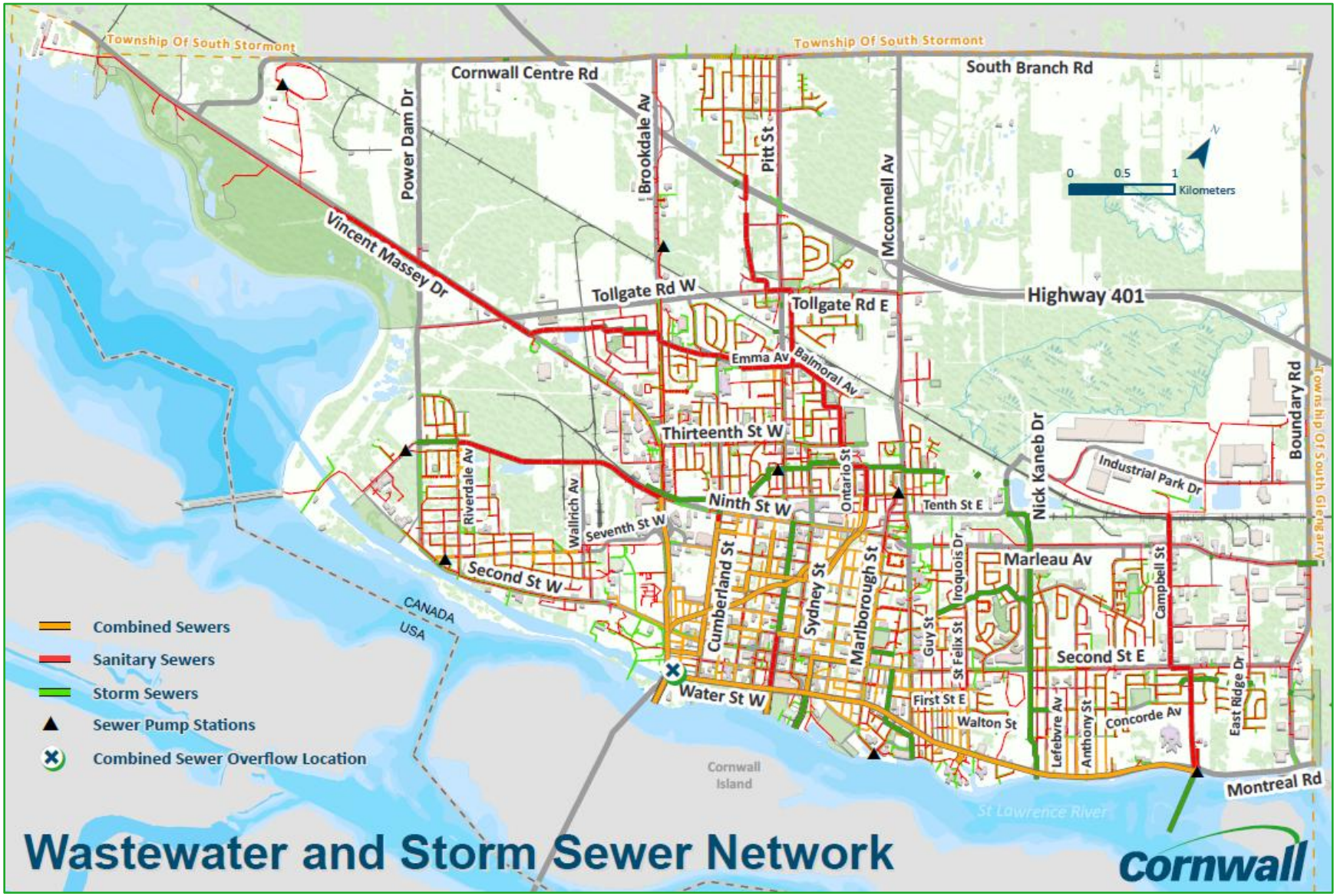


FIGURE 13-2: MAP OF THE CITY'S WASTEWATER AND STORM SEWER NETWORK

13.2. Combined Sewer Collection System

The City of Cornwall is responsible for the CSCS used to convey both stormwater and wastewater in a single-pipe system from the community to the City's WWTP. The assets within the scope of this subservice include the City's combined sewers and combined sewer overflow (CSO) Chamber. The following figure illustrates the CSCS asset hierarchy. The City is undertaking projects to separate combined sewers into separate systems. The separation of these systems is key to preventing untreated discharges to the environment, reducing load on wastewater treatment facilities and improving reliability, public health, and stormwater management and flood control. The City is required to monitor, manage risks and implement separation as well as any required mitigation to reduce overflow events.



FIGURE 13-3: COMBINED SEWER COLLECTION SYSTEM ASSET HIERARCHY

13.2.1. State of Infrastructure

This section outlines the state of infrastructure for the CSCS's assets. This includes asset inventory and valuation, age and estimated service life, the condition of assets and data sources and maturity in which this information was retrieved from.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

13.2.1.1. Asset Inventory and Valuation

The replacement cost for the City's CSCS is approximately $156.43 million and is summarized in Table 13-1 and Figure 13-4. The replacement value for combined sewers reflects the cost of separating these pipes into separate systems.

TABLE 13-1: CSCS ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Linear ($155.79M)		
Combined Sewer	50.3 km	$155.79M
Vertical ($0.64M)		
CSO Chamber	1 Facility	$0.64M
Total		$156.43M

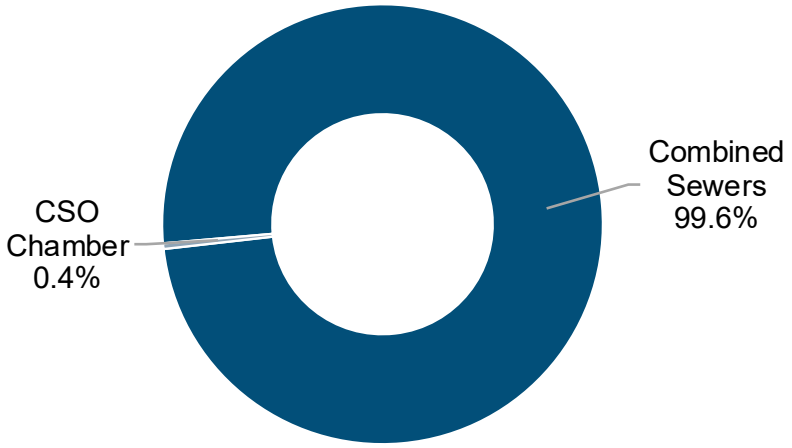


FIGURE 13-4: COMBINED SEWER COLLECTION SYSTEM VALUATION DISTRIBUTION

13.2.1.2. Age and Estimated Service Life

The average age of the City's CSCs portfolio is 70 years old, while the average ESL is 99 years. Figure 13-5 provides a breakdown of the ages by asset class.

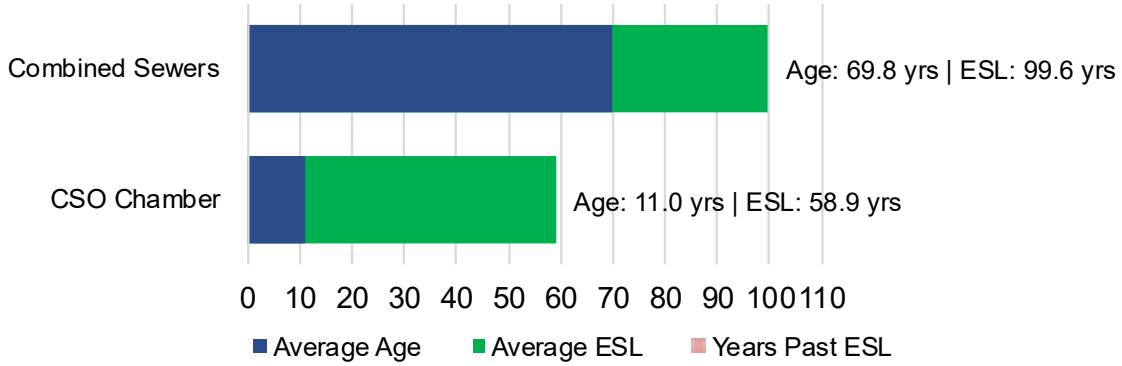


FIGURE 13-5: CSCS SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

For the combined sewers, a comparison of average age to the average estimated service lives is provided by pipe material in Figure 13-6. On average, combined sewers are still within their service lives, however, small amounts of the network have surpassed their ESL, namely brick and stone combined sewers.

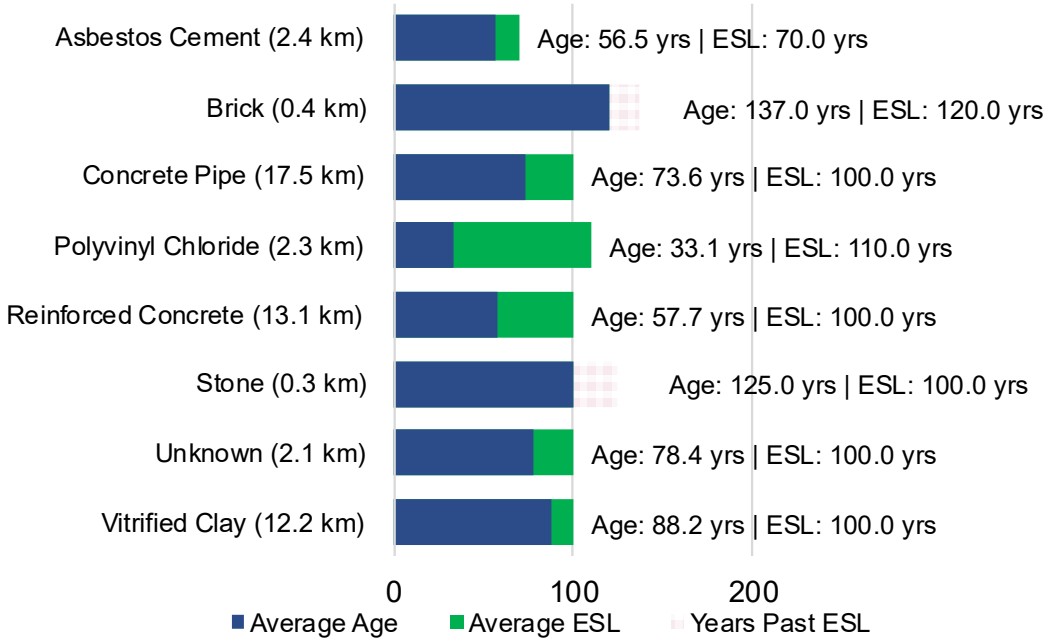


FIGURE 13-6: COMBINED SEWER SERVICE LIFE PROFILE BY PIPE MATERIAL (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 13-7 below, captures the installation decades in which the various asset classes were acquired and or installed for the City's CSCs. The installation decades represented in Figure 13-7 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029). The City saw steady implementation of the CSCS during the 1880s and 1900s, followed by the 1920s to the 1940s. This was then followed by substantial additions in the 1960s, due to large amounts of growth in the City. With the average age of the City's CSCS being 70 years old and the average ESL of 99 years, a bulk of renewals and rehabilitations are likely to be due in approximately 29 years.

Note that the City has generally stopped the construction of combined sewers since the 1970s, however, the figure below illustrates that some combined sewers have installation dates later than this time. This generally occurs due to the way in which combined sewers are defined. Sewers that are downstream of other combined sewers must be considered combined, even if they are physically separated, since they will carry water from an upstream combined sewer. Until such time upstream sewers are separated, at that time they will be considered separated. Therefore, some sewers installed past the 1970s may be considered combined, even if they are physically separated.

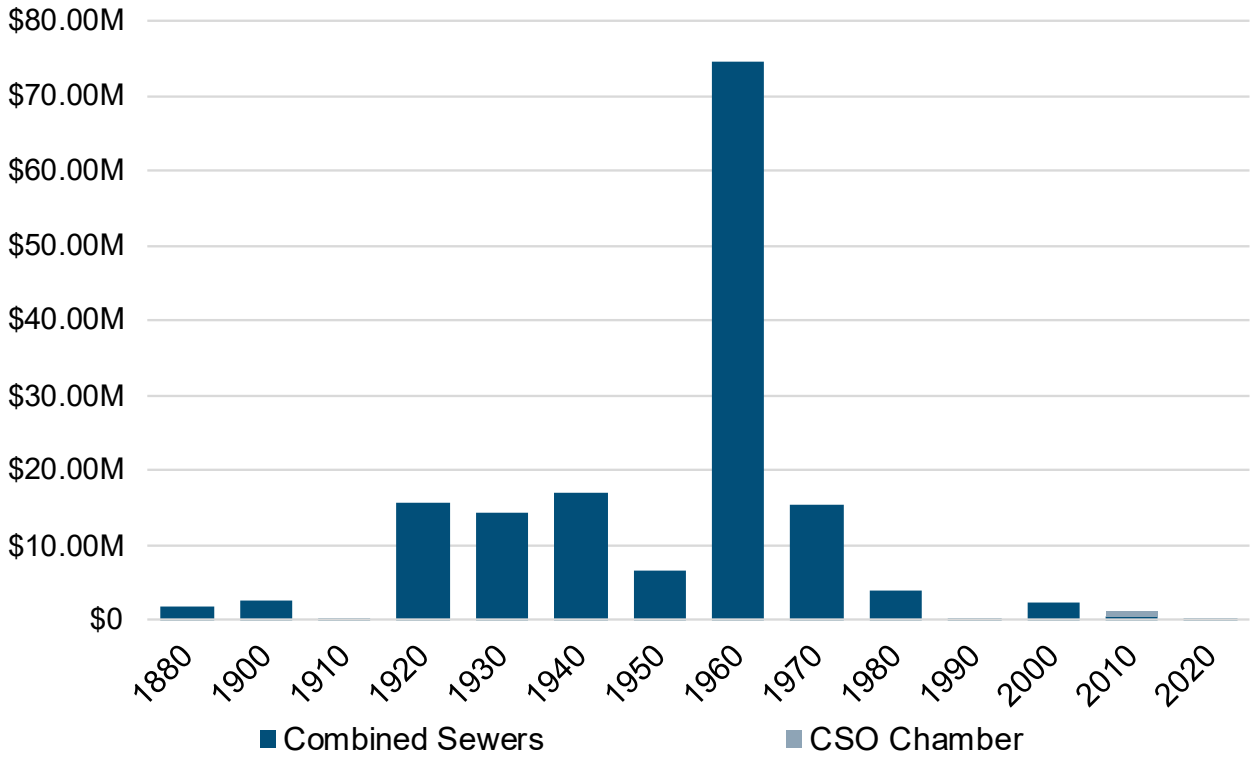


FIGURE 13-7 CSCS INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

13.2.1.3. Asset Condition

The City has been assessing the condition of combined sewers via CCTV inspections. Condition grades were assigned to each combined sewer using the findings from the CCTV inspections, using the NASSCO pipeline assessment certification program (PACP) standardized condition rating scores. These condition scores are developed by completing CCTV inspections of pipes and assigning scores to pipes based on the structural defects, and blockages observed during the inspections. PACP scores range from 1 to 5 (with 1 indicating good condition and 5 indicating poor condition).

The City has recently completed building condition assessments (BCAs) of the majority of its facilities in preparation for this Asset Management Plan. The BCA study identified current and future needs for all building elements within the City's facilities. Each facility element was given a condition rating based on remaining life, current state and functionality, based on expert opinion.

Table 13-2 provides a brief summary of the approaches used to assess condition while Table 13-3 outlines how the condition information was converted into Very Good to Very Poor categorical scale. It is important to note that Subsection 2.5.1.3 details the City's meanings amongst the different condition categories. The resulting conditions observed for the City's CSCS can be found in Figure 13-8, Figure 13-9, and Figure 13-10.

TABLE 13-2: CSCS ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• Combined Sewers	CCTV inspection completed to collect condition data as per the PACP standard	Annually, scope of inspections based on needs
• CSO Chamber	Building Condition Assessments	Every 5-years (min) or as required

TABLE 13-3: CSCS ASSETS CONDITION RATINGS

Category	Combined Sewers (PACP & Blockage Grades)	CSO Chamber (Facility Condition Index)
Very Good	1	0% - 2.5%
Good	2	2.5% - 5%
Fair	3	5% - 10%
Poor	4	7.5% - 10%
Very Poor	5	>10%

Overall, the City's CSCS is in good condition. The majority of assets are in Very Good and Good condition, resulting in an average condition of Good. A breakdown of the whole CSCS condition profile can be found in Figure 13-8.

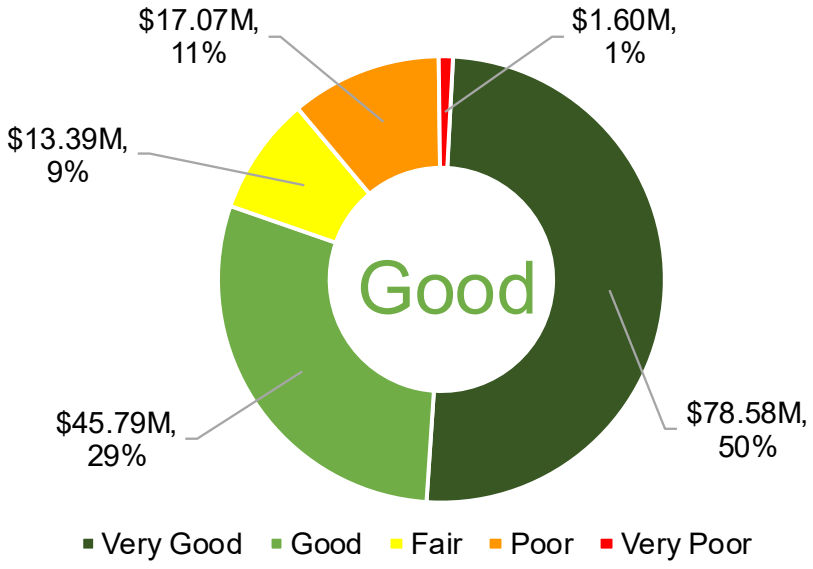


FIGURE 13-8: CSCS CONDITION SUMMARY

A breakdown of each asset classes' condition profile within the CSCS can be found in Figure 13-9. Furthermore, a condition distribution amongst the City's combined sewers and their respective pipe materials can be found in Figure 13-10.

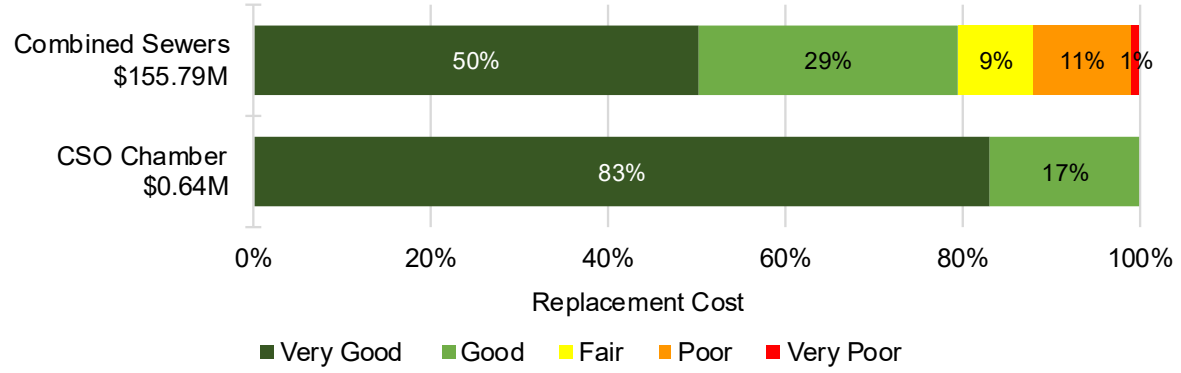


FIGURE 13-9: CSCS CONDITION DISTRIBUTION BY ASSET CLASS

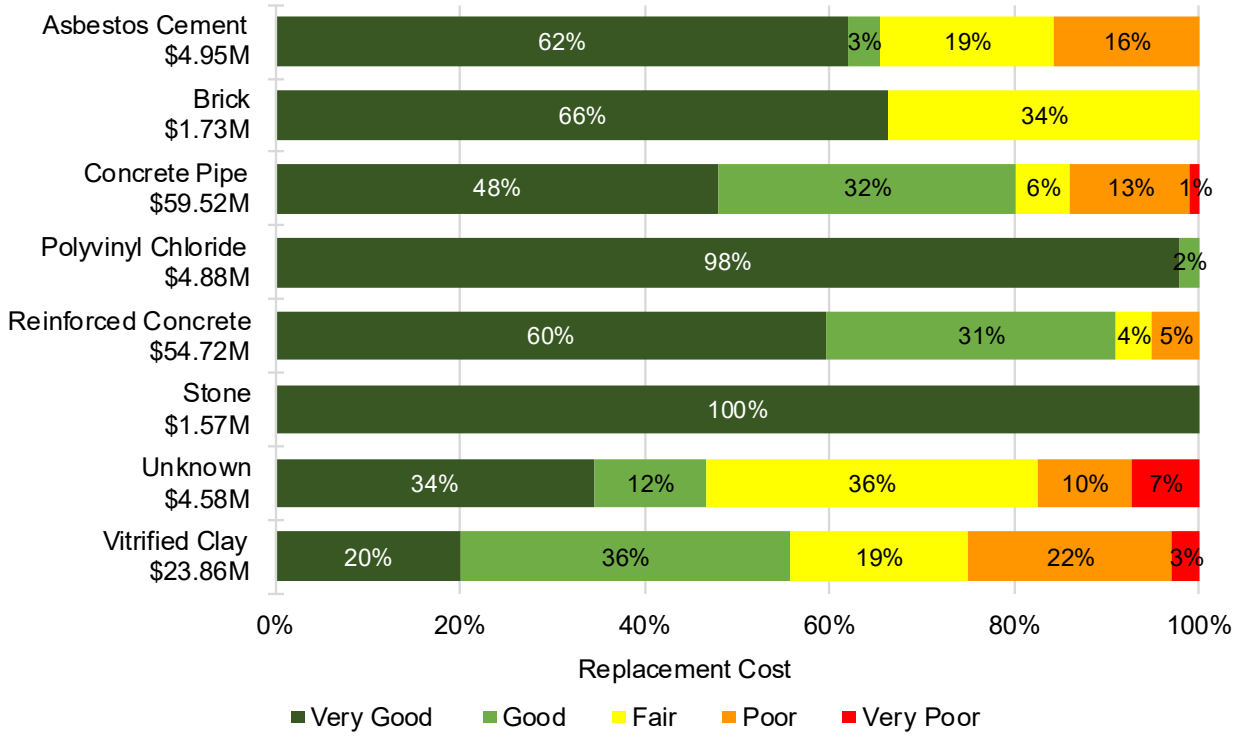


FIGURE 13-10: CSCS CONDITION DISTRIBUTION BY PIPE MATERIAL

13.2.1.4. Data Sources and Maturity

Table 13-4 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 13-4: CSCS DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Combined Sewers	Good	High	5% are missing inspection year. Approx. 4% of assets missing condition data and 5% of assets have unknown pipe material.
CSO Chamber	Good	High	The assets were assessed in 2024, which provided the City with a complete and high confidence dataset.

13.2.2. Levels of Service

The City's goal is to provide ample wastewater collection services to all its residents and businesses. This is achieved by minimizing odours and combined sewer backups, ensuring all assets remain in a state of good repair by performing regular maintenance, and minimizing environmental impacts by meeting Ministry of the Environment, Conservation, and Parks (MECP) requirements, all while optimizing lifecycle costs.

Under O.Reg. 588/17, municipalities are required to report technical metrics for the current Level of Service (LOS) related to core assets. For combined sewers and related assets, both the regulation-prescribed metrics and additional City-defined metrics have been included within the LOS framework. The regulated and City-defined community metrics typically provide qualitative descriptions of service delivery and can be found in Table 13-5 and Table 13-6. Regulated and City-defined technical metrics focus on quantitative performance indicators and can be found in Table 13-7 and Table 13-8. Each metric includes both current performance data and proposed future targets.

TABLE 13-5: CSCS COMMUNITY LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES

Community Measures	Performance
Service Attribute: **Reliable**	
Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes.	The City will continue to not allow new combined sewers construction designs and will maintain constructed overflow structures that collect excess flow to ensure sewage backups into homes are minimized or prevented.
Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches.	The City aims to not experience any overflows in habitable areas or beaches.

TABLE 13-6: CSCS COMMUNITY LEVELS OF SERVICE

Community Measures	Performance
Service Attributes: **Reliable; Operational; Environmentally Sustainable**	
Sewer backups minimized	The City will continue to maintain the system in a state where sewer backups are mitigated.
Service Attributes: **Environmentally Sustainable**	
Wastewater does not harm the environment	The City will continue to work towards eliminating combined sewers wherever possible, which will result in a positive environmental impact in the long run. The City's current environmental technical objectives indicate that CSO events are still prevalent, and over 50km of combined sewers still exist in the network, indicating that it is moderately meeting its environmental objectives, but is still working towards further reducing its environmental impact. The City aims to reduce its portfolio of combined sewers to 40km over the next 10 years.
Service Attributes: **Quality**	
Adverse odours are minimized	Odour complaints will continue to be addressed on a case-by-case basis, the other service attributes also indirectly address odour issues by providing reliability, etc. At present, the City does not have a technical metric established for this community measure.

TABLE 13-7: CSCS TECHNICAL LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
The number of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system.	All	5 events for ~15,500 properties	< 0.1% of events per total properties

TABLE 13-8: CSCS TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of Assets in Fair or Better Condition	Combined Sewers	88%	Improve
Percentage of Assets in Poor or Better Condition	CSO Chambers	100%	Maintain
Service Attribute: **Operational**			
Annual number of unplanned flushing events for combined sewers	Combined Sewers	0	Maintain
Service Attribute: **Environmentally Sustainable**			
Length (km) of combined sewers in the network	Combined Sewers	50.3km	Decrease (Remove by 2078)
Annual number of CSO events	All	5	Improve
Annual number of CSO events that meet MECP requirements	All	5 (100)%	Maintain

13.2.3. Lifecycle Management Strategy

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's CSCS. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship. Table 13-9 and Table 13-10 summarize the various lifecycle activities that the City undertakes to ensure that its CSCS assets continue to support the services they provide.

TABLE 13-9: LIFECYCLE ACTIVITIES – COMBINED SEWERS

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Wastewater model	As required, based on needs
CCTV Inspections	Annual, scope of inspections is based on needs
Water usage reduction incentives	Ongoing
Operations and Maintenance Activities	
Spot Repairs	As required
Lateral and maintenance hole repairs	As required
Flushing	Prior to and during construction or commissioning, and as required
Renewal Activities (Rehabilitations and Replacements)	
Full pipe replacement, replace with separated sewers	When asset reaches poor condition
Maintenance hole and lateral replacement	Coordinated with combined sewer replacement
Disposals	
Removed as part of the project or abandoned	Coordinated with combined sewer replacement
Growth/Service Improvement Activities	
Pipe upsizing	Based on growth, modelling and studies
Separation of combined sewers into dedicated storm and sanitary sewers.	Based on various studies and plans or coordinated with planned replacements
New subdivisions	Through development
Coordination with other related works	Based on corridor analysis

TABLE 13-10: LIFECYCLE ACTIVITIES – CSO CHAMBER

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Wastewater model.	As required, based on needs
Inspections	Every 5-years (min) or as required.
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations and Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Major equipment or structural building component replacement	When asset reaches poor condition
Disposals	
Disposals coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new storage facilities within the network to increase capacity.	As identified through studies.

13.2.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 13.2.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of the lifecycle categories noted in Table 13-9 and Table 13-10. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's financial strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 13-11, Figure 13-12, Figure 13-13 and Figure 13-14 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

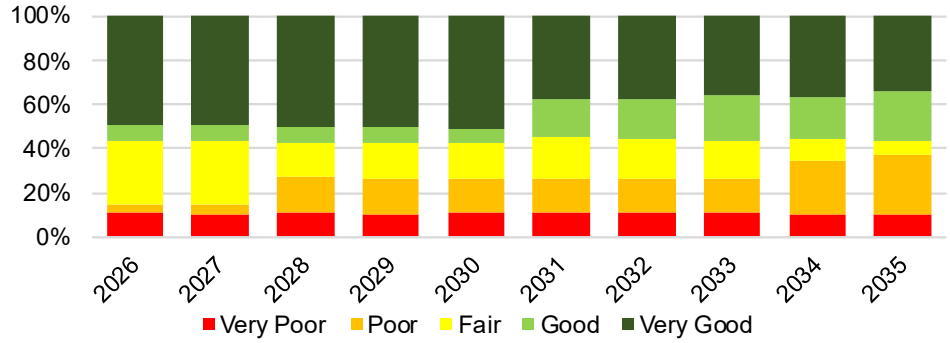


FIGURE 13-11: CSCS ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

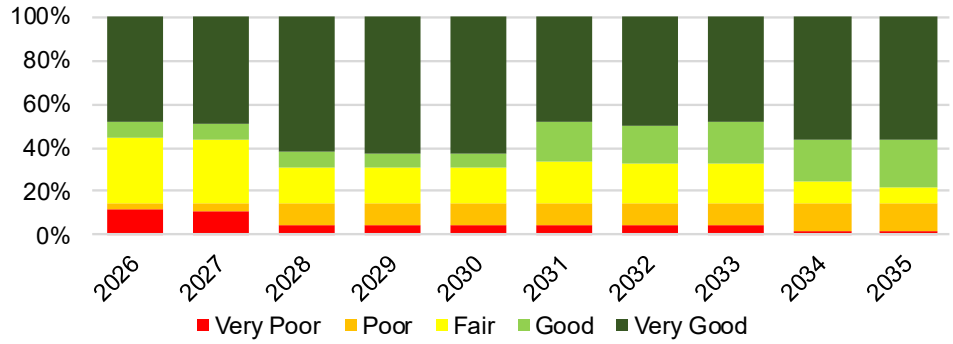


FIGURE 13-12: CSCS MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

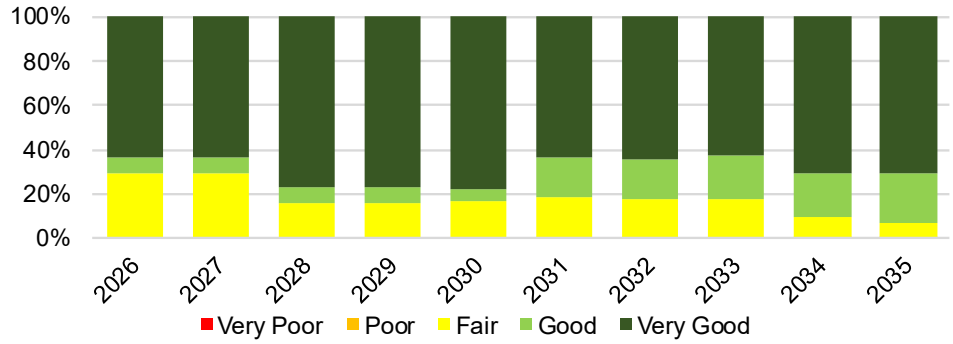


FIGURE 13-13: CSCS BACKLOG SCENARIO PERFORMANCE FORECAST

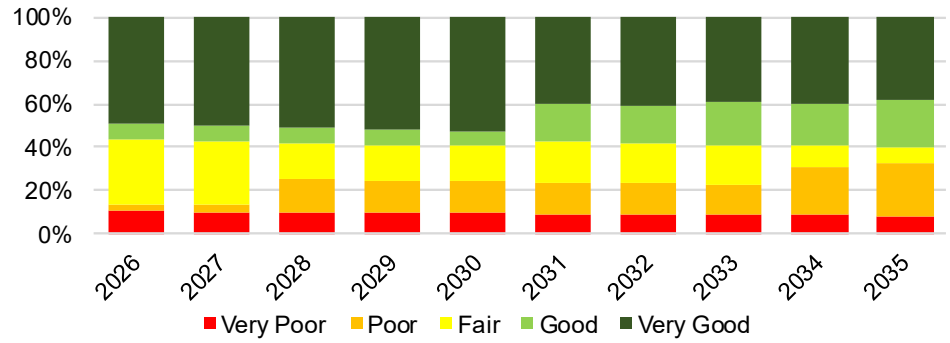


FIGURE 13-14: CSCS PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Under the anticipated budget scenario of $0.84 million in renewals, the overall LOS of the CSCS is expected to decrease from 88% to 63%. To maintain the current service levels of 88% of assets that meet the LOS, the City would need to spend an annual average of $4.35 million on renewals and rehabilitations for the next 10 years. To eliminate the backlog, it was determined an annual average of $6.62 million on renewals and rehabilitations is needed over the 10-year forecast. Using the results from the previous scenarios, as well as the City's goal to separate all combined sewers by 2078, the City has proposed to spend $1.49 million annually on separations per year on their CSCS. Over the next 10 years, this will result in a decrease in overall LOS in the CSCS, yielding 67% of assets meeting the LOS threshold.

Table 13-11 and Figure 13-15 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for the CSCS. Operations and Maintenance costs cannot be split for combined sewers and is covered by the storm and sanitary sections of this plan. Operations and Maintenance costs for combined sewers are included under the Sanitary Sewer Collection System and Storm sewer Collection System budget analyses (Table 13-22 and Table 13-34).

TABLE 13-11: CSCS BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$0	$0	$0	$0
Service Improvements	$0	$0	$0	$0
Growth Activities	$0	$0	$0	$0
Renewal & Replacement	$0.84M	$4.35M	$6.62M	$1.49M
Total Lifecycle Expenditures	$0.84M	$4.35M	$6.62M	$1.49M
Total Infrastructure Gap		$3.51M	$5.79M	$0.66M

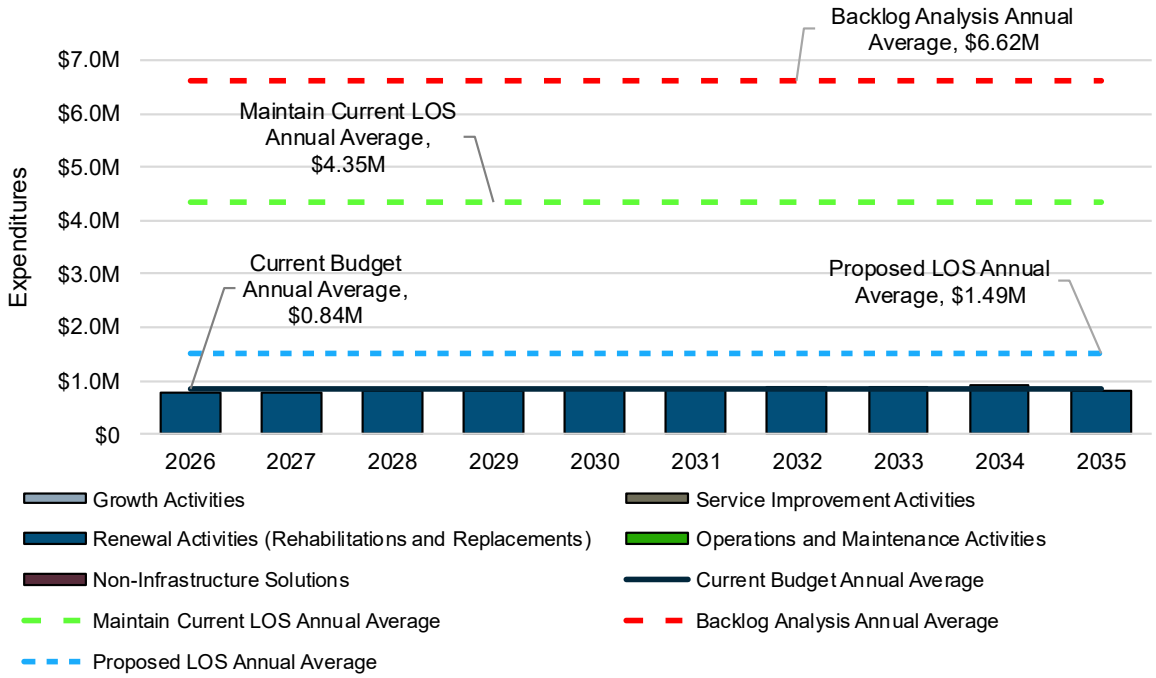


FIGURE 13-15: CSCS SCENARIO ANALYSIS SUMMARY

The bars on Figure 13-15 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated. As shown, the City has identified a LOS that moderately increases planned capital investment for the combined sewer system, resulting in an annual infrastructure gap of $0.66 million. This approach balances cost, risk and other considerations, and avoids the significantly higher investment required would the City wish to maintain today's LOS or clear the backlog within 10 years.

13.2.5. Findings

Overall, the City's CSCS portfolio consists of $156.43 million worth of assets and maintains them in good condition and approximately 89% of the network is currently meeting the LOS. The City maintains its combined sewer data in overall good condition, with all asset classes containing data with both high completeness and high confidence. Complete and confident data contribute to the foundation of asset management practices; thus, the City should continue maintaining their data in good condition to uphold their asset management activities moving forward.

When looking forward, the City anticipates to spend an average of $0.84 million on their CSCS, which will result in 63% of assets that meet the LOS threshold at the end of the 10-year forecast. To maintain the current LOS threshold of 89%, the City will need to spend an extra $3.51 million per year according to the lifecycle modelling forecasts. Moreover, the City determined that to eliminate the backlog and maintain the CSCS portfolio at 100% of assets at or above the LOS threshold would cost an annual average of $5.79 million. According to the results of the different forecasting scenarios, as well as the City's strategic goal for their wastewater system, the City proposed to separate 100% of combined sewer by the year 2078 and commit $1.5 million annually to sewer separation. With this target investment rate in mind, the City is expected to decrease the CSCS's LOS to about 67% of assets meeting the threshold by the end of 10 years, however, will improve in the long-term.

This asset class is unique because the City is strategically phasing out the combined sewer system and replacing it with separate sanitary and storm systems. When these assets reach end of life, they are not replaced like-for-like; instead, they are separated and added to the respective sanitary and storm networks.



13.3. Sanitary Sewer Collection System

The City of Cornwall collects wastewater from homes and businesses through its sanitary sewer system and treats it at the wastewater treatment plant. The City is committed to delivering reliable sanitary services while safeguarding the environment and protecting the St. Lawrence River. Figure 13-16 illustrates the sanitary sewer collection system asset hierarchy.



FIGURE 13-16: SANITARY SEWER COLLECTION SYSTEM ASSET HIERARCHY

13.3.1. State of the Infrastructure

This section outlines the state of infrastructure for Cornwall's sanitary sewer collection system, including asset inventory and valuation, age and estimated service life, asset condition, data sources and maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

13.3.1.1. Asset Inventory and Valuation

The replacement cost for the City's sanitary sewer collection system assets is $346.39M and is summarized in Table 13-12 and Figure 13-17.

TABLE 13-12: SANITARY SEWER COLLECTION SYSTEM ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Linear ($337.35M)		
Forcemains	7.34 km	$14.43M
Sanitary Sewers	209.90 km	$322.92M
Vertical ($9.04M)		
Sanitary Pumping Stations	6 Assets	$9.04M
Total		**$346.39M**

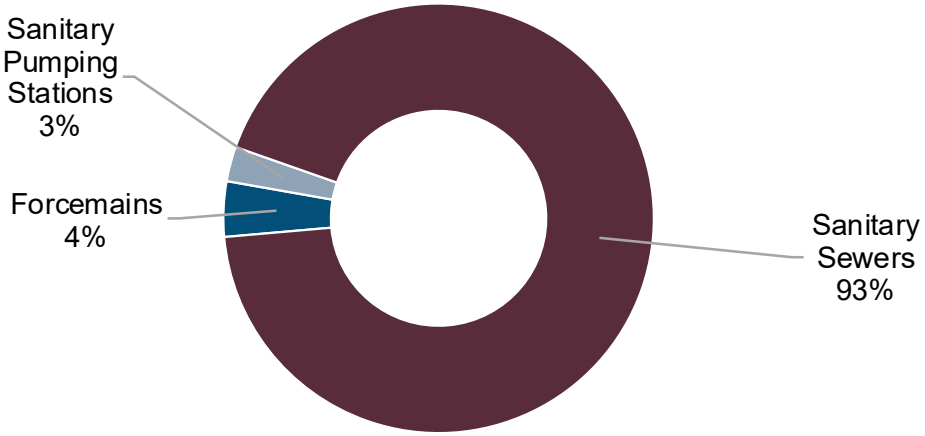


FIGURE 13-17: SANITARY SEWER COLLECTION SYSTEM VALUATION DISTRIBUTION

13.3.1.2. Age and Estimated Service Life

The average age of the City's sanitary sewer collection system portfolio is 46 years old with an average ESL of 95 years. Figure 13-18 provides a breakdown of the ages by asset class.

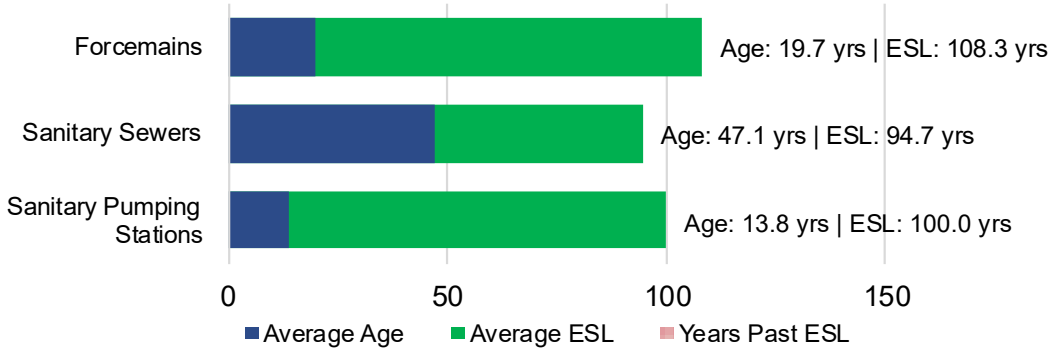


FIGURE 13-18: SANITARY SEWER COLLECTION SYSTEM SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Understanding age versus service life helps the City plan long-term investment needs so that infrastructure continues to function safely and efficiently, while preventing costly failures and maintaining reliable wastewater services. The City's sanitary sewer assets are in mid-life overall, with sewers being the most mature part of the system. Forcemains and pumping stations are relatively young, suggesting proactive investment has taken place in recent years. No asset class has, on average, exceeded its expected service life, indicating current infrastructure is generally in acceptable condition.

For the sewers, a comparison of average age to the average estimated service lives is provided by pipe material in Figure 13-19.

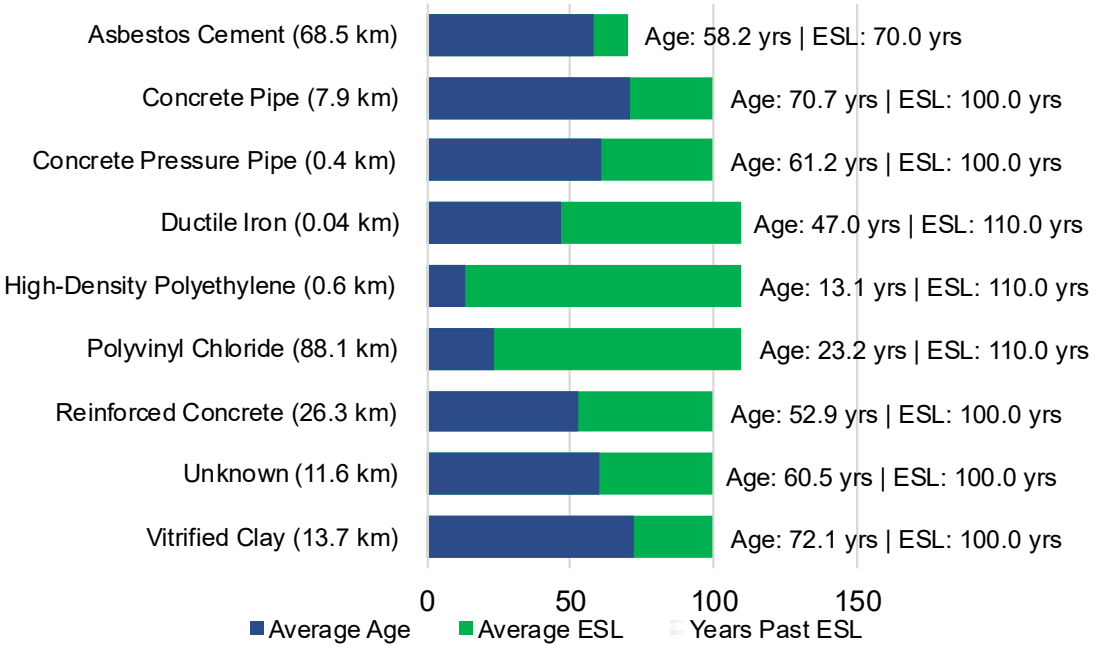


FIGURE 13-19: SANITARY SEWER SERVICE LIFE PROFILE BY PIPE MATERIAL (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 13-20 below captures the installation decades in which the various asset classes were acquired and or installed by the City for the sanitary sewer collection system. The installation decades represented in Figure 13-20 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029). According to the data, the City started steadily installing dedicated sanitary sewers between the 1900s to the 1950s. By the 1960s and 1970s, the City saw its first major additions of sanitary sewers, followed by steady additions to the network from the 1980s and onwards. With the average age of the City's sanitary sewer collection system being 46 years old and the average ESL of 95 years, a bulk of renewals and rehabilitations are likely to be due in approximately 49 or so years.

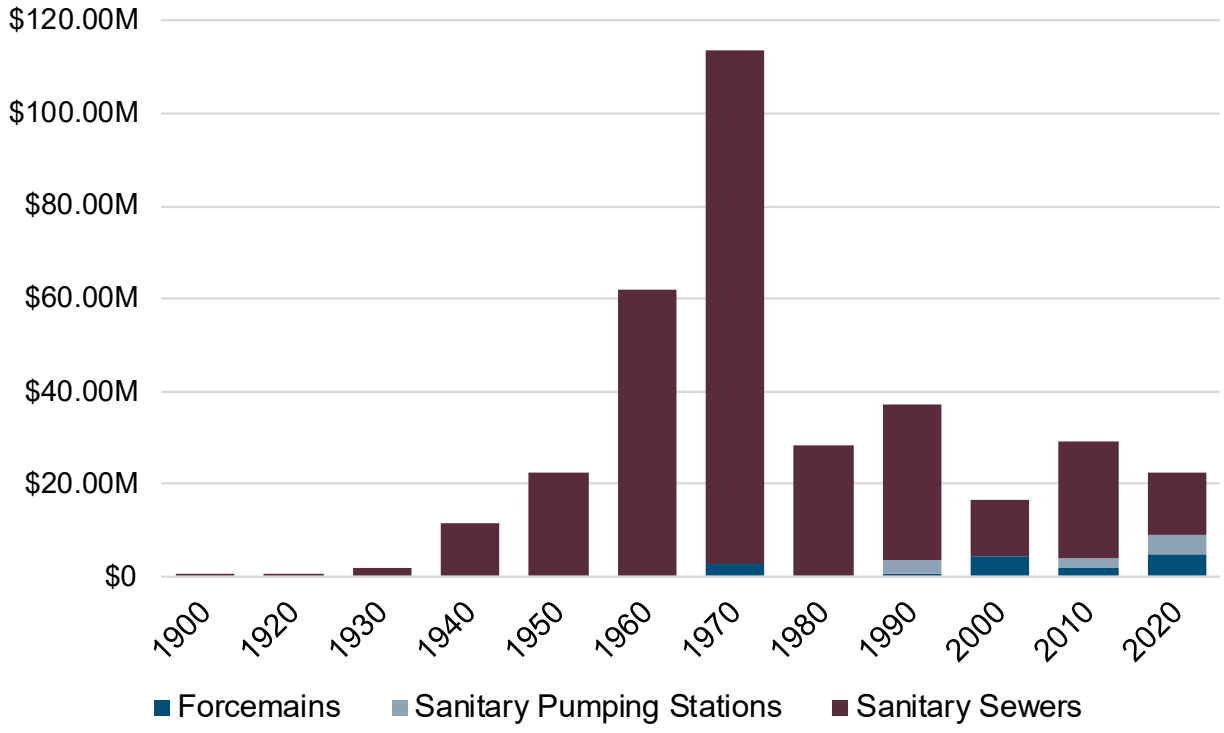


FIGURE 13-20: SANITARY SEWER COLLECTION SYSTEM INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

13.3.1.3. Asset Condition

The City has been assessing the condition of sanitary sewers and forcemains via CCTV inspections, using the NASSCO pipeline assessment certification program (PACP) standardized condition rating scores. These condition scores are developed by completing CCTV inspections of pipes and assigning scores to pipes based on the structural defects and blockages observed during the inspections. PACP scores range from 1 to 5 (with 1 indicating good condition and 5 indicating poor condition).

Table 13-13 captures the condition data collection techniques utilized for the different sanitary sewer assets, while Table 13-14 presents the logic used to convert life consumed and the visual inspection scores into a condition rating.

TABLE 13-13: SANITARY SEWER COLLECTION SYSTEM ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• Forcemains • Sanitary Sewers	CCTV inspection completed to collect condition data as per the PACP standard.	Annually, scope of inspections based on needs
• Sanitary Pumping Stations	Building condition assessments completed of pumping stations and associated assets to assign remaining life	10 years (approx.) 2024 most recently completed

TABLE 13-14: SANITARY SEWER COLLECTION SYSTEM ASSETS CONDITION RATINGS

Category	Sanitary Pumping Stations (Remaining Life)	Sanitary Sewers and Forcemains (PACP & Blockage Grades)
Very Good	0% to 25%	1
Good	25% to 50%	2
Fair	50% to 75%	3
Poor	75% to 100%	4
Very Poor	>100%	5

Overall, the City's sanitary sewer collection system portfolio is in Very Good condition. 96% of assets are in Very Good to Fair condition, with a small portion in Poor and Very Poor condition. A breakdown of the various condition categories within the sanitary sewer collection system portfolio can be found in Figure 13-21, while a breakdown of the asset classes can be found in Figure 13-22. Furthermore, a condition distribution amongst the City's forcemains and sanitary sewers and their respective pipe materials can be found in Figure 13-23.

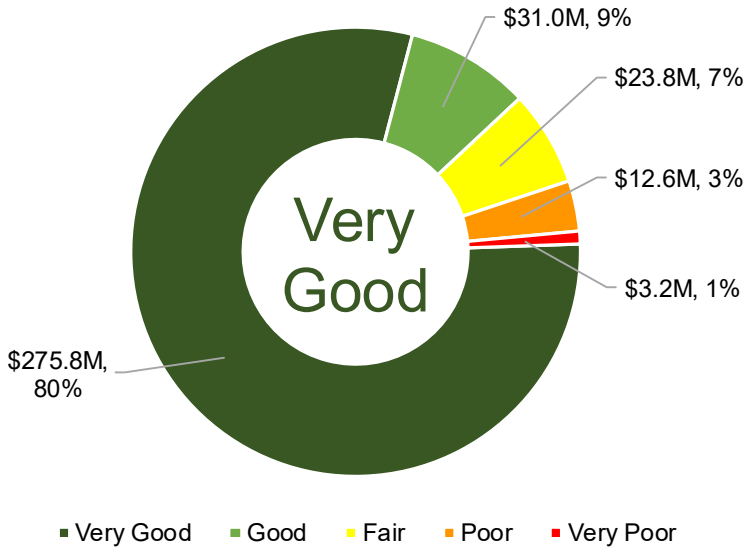


FIGURE 13-21: SANITARY SEWER COLLECTION SYSTEM CONDITION SUMMARY

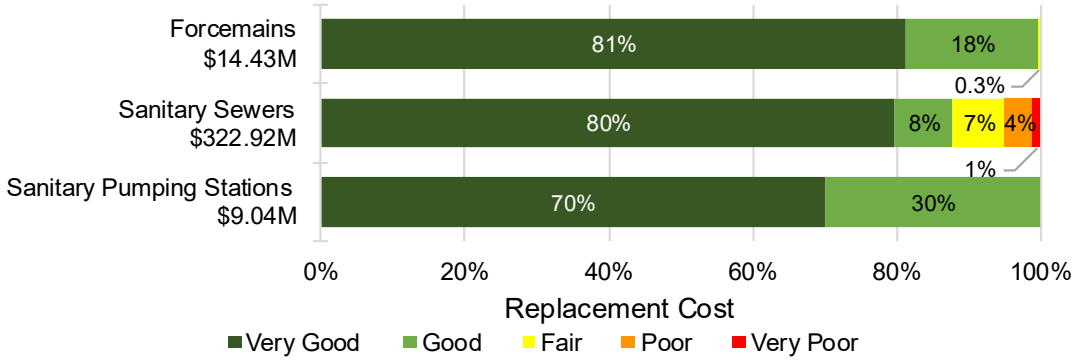


FIGURE 13-22: SANITARY SEWER COLLECTION SYSTEM CONDITION DISTRIBUTION BY ASSET CLASS

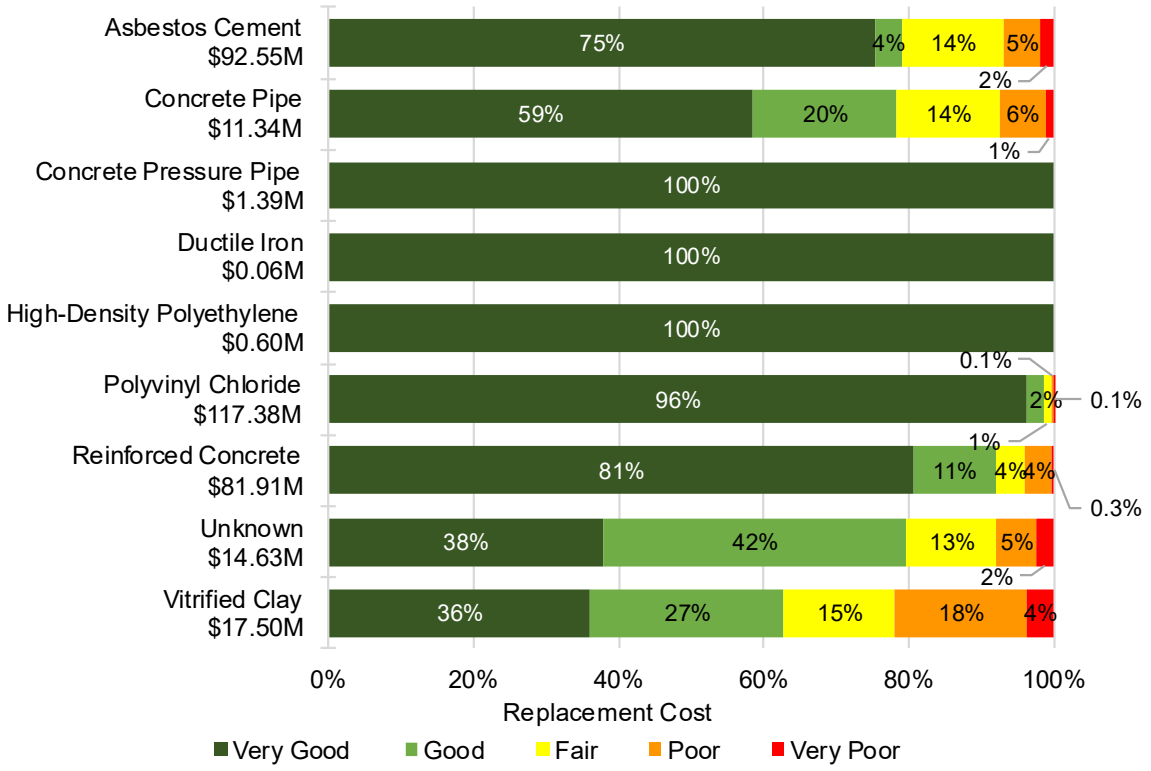


FIGURE 13-23: SANITARY SEWER COLLECTION SYSTEM CONDITION DISTRIBUTION BY PIPE MATERIAL

13.3.1.4. Data Sources and Maturity

Table 13-15 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 13-15: SANITARY SEWER COLLECTION SYSTEM DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Forcemains	Good	Medium	Approx. 55% of assets missing condition data and inspection year. Approx. 8% of forcemains are missing material type, 65% are missing condition data and 100% of assets have installation date data. The gap in condition data is due to new assets installed within the past 10 -20 years and not being inspected since coming online. The City will continue to monitor these assets as they age.
Sanitary Sewers	Good	High	Approx. 8% of assets missing condition data. 5% of assets have unknown pipe material.
Sanitary Pumping Stations	Good	Low	Data is available at the facility level only, and not at the asset-level. Therefore, data completeness is high for the facilities, but confidence is considered to be low, since information on each asset within the facilities was not collected and recorded digitally.

13.3.2. Levels of Service

The City's goal is to provide reliable, operational, and environmentally sustainable sanitary wastewater collection services to all its residents and businesses. This means ensuring minimal service disruptions, ensuring all assets remain in a state of good repair by performing regular maintenance, and minimizing environmental impacts on the St. Lawrence River, all while optimizing lifecycle costs.

Note that the City has defined a subservice for its Sanitary Sewer Collection System, which is separate from the Combined Sewer Collection System. Some of the mandatory O.Reg. 588/17 Levels of Service detailed below refer to sanitary sewers. They are provided within this section as well as in the Combined Sewer Collection System Levels of Service Subsection (Subsection 13.2.2).

In addition to the levels of service herein, the City produces an annual report to comply with all wastewater related regulations. It contains additional details of the services provided at a more granular level.

The mandated O.Reg 588/17 community and technical LOS for the sanitary sewer collection system are shown in Table 13-16 and Table 13-18, while the customer and technical LOS measures outlined by the City are shown in Table 13-17 and Table 13-19.

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TABLE 13-16: SANITARY SEWER COLLECTION SYSTEM COMMUNITY LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES

Community Measures	Performance
Service Attributes: **Scope**	
Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system.	The City will maintain connection of approximately 98% of properties within the urban areas to the municipal wastewater system, and look to improve wherever possible.
Service Attributes: **Reliable**	
Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes.	Some Inflow and Infiltration into sanitary system exists. Infiltration occurs when stormwater enters the system through damages and deficiencies in the infrastructure, such as cracks. Infiltration occurs when stormwater enters the system through direct connections, such as roof drains, floor drains, foundation drains and other connections. The City will aim to reduce inflow and infiltration of stormwater into the sanitary sewer system wherever possible.
Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to avoid events described in the above metric.	The City will continue to investigate new design and construction criteria for future sanitary sewers to ensure consistent and industry-accepted performance requirements, materials, and installation methods are used.

TABLE 13-17: SANITARY SEWER COLLECTION SYSTEM COMMUNITY LEVELS OF SERVICE – CITY OUTLINED

Community Measures	Performance
Service Attributes: **Reliable; Operational; Environmentally Sustainable**	
Sewer backups minimized	The Sanitary Sewer System technical LOS measures indicate that the network has a high degree of reliability, minimal unplanned events, and minimal environmental impacts, indicating that sewer backups are minimized. The City will continue to maintain this level of service.
Service Attributes: **Environmentally Sustainable**	
Wastewater does not harm the environment	The technical metrics for environmental sustainability report no overflows as a result of mechanical failures, which indicates that the City is achieving its community objectives. The City will continue to maintain this level of service.
Service Attributes: **Quality**	
Adverse odours are minimized	Odour complaints will continue to be addressed on a case-by-case basis, the other service attributes also indirectly address odour issues by providing reliability, etc.

TABLE 13-18: SANITARY SEWER COLLECTION SYSTEM TECHNICAL LEVELS OF SERVICE - MANDATORY O.REG. 588/17 MEASURES

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Scope**			
Percentage of properties connected to the municipal wastewater system. (properties/properties billed by sewer service)	All	91%	Maintain
Service Attribute: **Reliable**			
The number of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system.	All	5 events for ~15,500 properties	Improve
The number of connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system.	All	0	Maintain
The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system.	All	0	Maintain

TABLE 13-19: SANITARY SEWER COLLECTION SYSTEM TECHNICAL LEVELS OF SERVICE – CITY OUTLINED

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of assets that are in fair or better condition	Sanitary Sewers	97%	Improve
Percentage of assets that are in fair or better condition	Forcemains	100%	Maintain
Percentage of sanitary pumping station condition assessment recommendations that have been completed	Sanitary Pumping Stations	100%	Maintain
Service Attribute: **Operational**			
Annual number of unplanned flushing events for sanitary sewers	All	1	Improve
Service Attribute: **Environmentally Sustainable**			
Number of sanitary system overflows as a result of mechanical failures per year	All	0	Maintain

13.3.3. Lifecycle Management Strategies

Lifecycle activities are essential to preserving the long-term functionality, reliability, and resilience of the City's sanitary sewer collection system. These activities ensure that infrastructure continues to operate safely and efficiently from installation through to renewal or replacement. By planning for the full lifespan of each asset, the City can make the best use of taxpayer dollars while maintaining high-quality service to the community.

Lifecycle management includes a range of practices such as routine inspections, cleaning and flushing of sewer mains, CCTV condition assessments, preventive maintenance, rehabilitation projects (such as relining or spot repairs), and eventual replacement when assets reach the end of their useful life. Together, these activities help prevent costly breakdowns, reduce emergency repairs, and minimize service interruptions for residents and businesses.

By applying industry-recognized asset management best practices, the City can extend the life of existing infrastructure, optimize the timing of capital investments, and reduce the likelihood of major system failures. This approach also supports environmental protection by reducing the risk of sewer backups, overflows, and untreated wastewater reaching the environment.

In addition to protecting public health and the environment, strong lifecycle management contributes to financial sustainability. Proactive planning and targeted investment allow the City to manage future costs responsibly, avoid sudden spikes in spending, and maintain predictable and affordable service levels over time. Put simply, effective lifecycle strategies ensure that today's infrastructure continues to support the community well into the future, while managing the risks and responsibilities associated with owning and operating critical public assets.

Table 13-20 summarizes the lifecycle activities performed on forcemains and sanitary sewers, while Table 13-21 outlines the lifecycle activities performed on sanitary pump stations.

TABLE 13-20: LIFECYCLE ACTIVITIES – SANITARY SEWERS AND FORCEMAINS

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Wastewater model	As required, based on needs
CCTV Inspections	Annual, scope of inspections is based on needs
Water usage reduction incentives	Ongoing
Operations and Maintenance Activities	
Spot Repairs	As required, repairs also completed in conjunction with asphalt resurfacing works
Winter control (snow removal, de-icing)	As required, repairs also completed in conjunction with asphalt resurfacing works
Lateral and maintenance hole repairs	Prior to and during construction or commissioning, and as required
Renewal Activities (Rehabilitations & Replacements)	
Relining	When asset reaches poor condition, where feasible. Note that relining is considered an option in situations where it would be challenging to replace the pipe via open cut.
Spot repairs	When asset reaches poor condition
Full pipe replacement	Coordinated with sewer replacement
Disposals	
Disposed during construction	Coordinated with sewer replacement
Growth/Service Improvement Activities	
Pipe upsizing	Based on growth, modelling and studies
New subdivisions	Through development
Coordination with other related works	Based on corridor analysis

TABLE 13-21: LIFECYCLE ACTIVITIES – SANITARY PUMP STATIONS

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Wastewater model	As required, based on needs
Condition assessments	Approx. every 10 years (varies)
Water usage reduction incentives	Ongoing
Operations and Maintenance Activities	
Staff inspections	Weekly
Reactive and preventive maintenance	Following PM programs, or as needed
Renewal Activities (Rehabilitations & Replacements)	
Equipment or building component replacement	When assets reach end of service life
Building and equipment disposal	Coordinated with asset replacement
Equipment re-use	As required where possible
Disposals	
Disposed during construction	Coordinated with sewer replacement
Growth/Service Improvement Activities	
Pump/Equipment Upsizing	As identified in the Master Plan and Capacity Studies/Analysis
Expansion	Through development
SCADA system and software upgrades	As needed

13.3.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 12.3.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 13-20 and Table 13-21. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's financial strategy (Section 15)

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

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Figure 13-24, Figure 13-25, Figure 13-26, and Figure 13-27 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

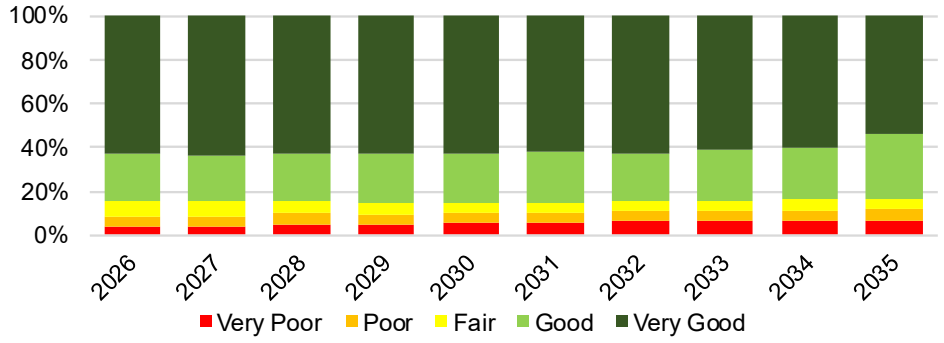


FIGURE 13-24: SANITARY SEWERS ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

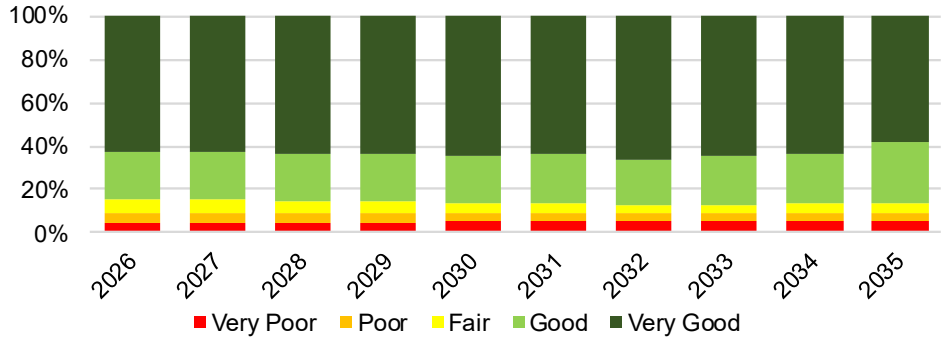


FIGURE 13-25: SANITARY SEWERS MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

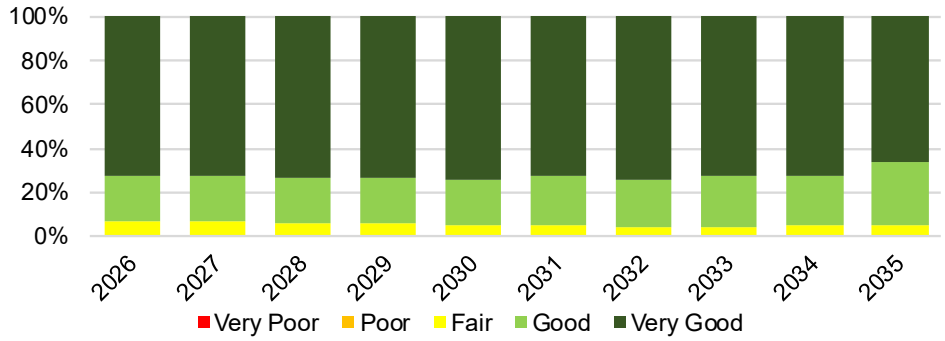


FIGURE 13-26: SANITARY SEWERS BACKLOG ANALYSIS PERFORMANCE FORECAST

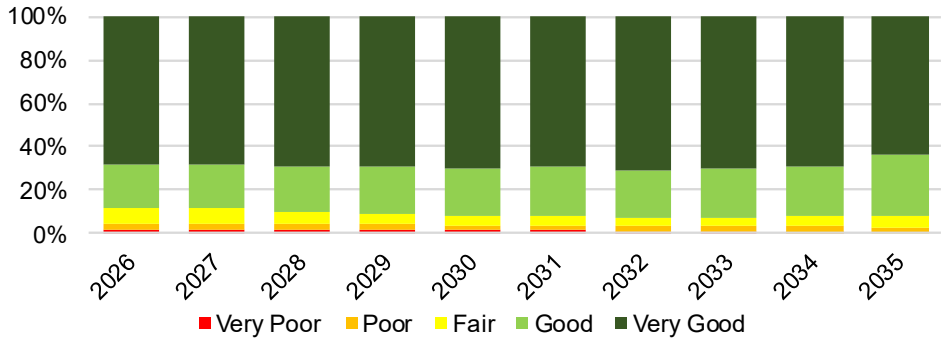


FIGURE 13-27 SANITARY SEWERS PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 95% of the City's sanitary sewer collection system meets the LOS threshold of being in fair or better condition. Under the current anticipated capital budget of $0.94 million for renewals for the next 10 years, sanitary sewer collection system assets are expected to decrease slightly in overall LOS, resulting in 88% of assets meeting their LOS. To maintain sanitary sewer collection system assets in their current LOS of 95%, it was determined the City would need to spend an annual average of $2.14 million in renewals. To eliminate all the backlog in the sanitary sewer collection system portfolio, it would cost $5.18 million per year in renewals according to the Backlog Analysis. Using the results of the scenarios and to balance cost, risk and LOS, the City has proposed to reach 100% of assets to meet the LOS threshold by the end of 25 years, costing the City an annual average of $3.23 million in renewals for the next 25 years.

Table 13-22 and Figure 13-28 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for sanitary sewer collection system. The bars on the Figure 13-28 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

TABLE 13-22: SANITARY SEWER COLLECTION SYSTEM BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$1.21M	$1.21M	$1.21M	$1.21M
Service Improvements	$0	$0	$0	$0
Growth Activities	$0	$0	$0	$0
Renewal & Replacement	**$0.94M**	**$2.14M**	**$5.18M**	**$3.23M**
Total Lifecycle Expenditures	$2.15M	$3.36M	$6.40M	$4.45M
Total Infrastructure Gap		$1.20M	$4.24M	$2.30M

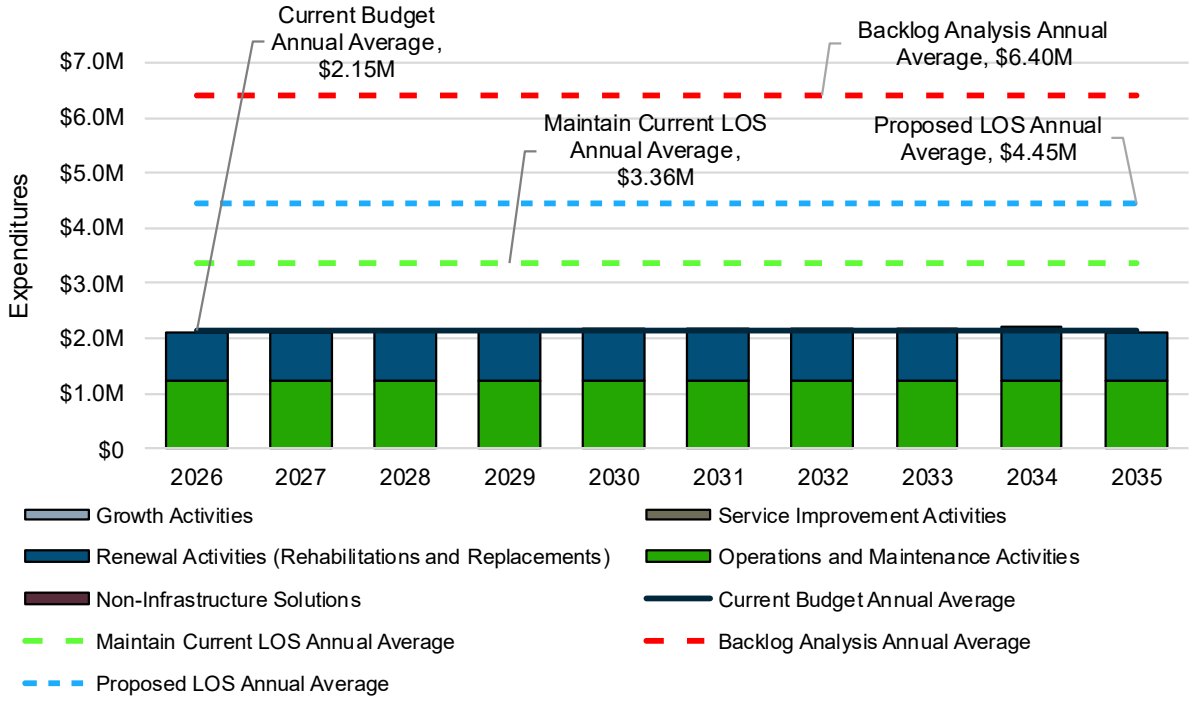


FIGURE 13-28: SANITARY SEWER COLLECTION SYSTEM SCENARIO ANALYSIS SUMMARY

13.3.5. Findings

Overall, the City maintains its $346.39 million sanitary sewer collection system in very good condition, with all of its assets still within their service lives on average. Both data completeness and confidence are high, due to the City staying proactive with data collection and maintaining it in asset repositories and GIS records. In the community and technical levels of service measures outlined by the City, Cornwall currently has high levels and intends to maintain community measures and reliability of the system, while continuing to improve functionality and longevity of the network.

Looking at the City's anticipated budgets with regards to the sanitary sewer collection system, the City's anticipated budget of $2.15 million resulted in a decrease in overall LOS, leaving 88% of assets meeting the LOS threshold. To maintain the sanitary sewer collection system at 95% of assets meeting the LOS, it would cost the City an additional $1.20 million in investments annually. To address and remove all backlog from the network for the next 10 years, the City would need to spend $6.40 million annually in total lifecycle costs. Thus, to balance cost, risk and LOS, the City has proposed to eliminate the backlog in the sanitary sewer collection system by the end of 25 years, resulting in an annual cost of $4.45 million in lifecycle costs.

13.4. Storm Sewer Collection System

The City of Cornwall is responsible for safely managing stormwater to protect homes, businesses, roads, and natural areas from flooding and water damage. The storm sewer system helps collect and direct rainwater and melted snow away from streets, yards, and buildings, reducing the risk of flooding, erosion, and property damage during wet weather events. Stormwater management plays a key role in protecting the environment as well. By capturing and directing runoff, the system helps prevent pollutants, debris, and sediments from reaching the St. Lawrence River and local waterways.

To maintain reliable stormwater services, the City operates and maintains an extensive network of pipes (which includes appurtenances such as catch basins, culverts, ditches), and drainage facilities. Routine inspections, cleaning programs, and proactive repairs help keep this infrastructure functioning properly, especially during storms and periods of rapid snowmelt. Figure 13-29 illustrates the Storm Sewer Collection System asset hierarchy.

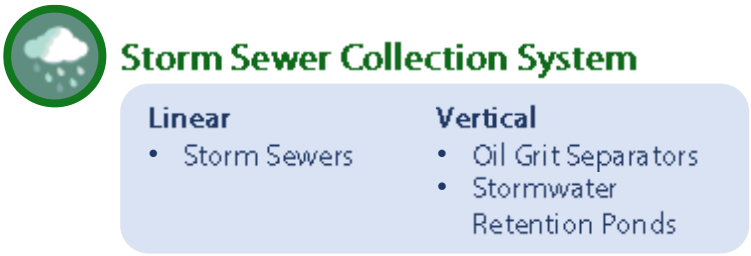


FIGURE 13-29: STORM SEWER COLLECTION SYSTEM ASSET HIERARCHY

13.4.1. State of the Infrastructure

This section outlines the state of infrastructure for Cornwall's storm sewer collection system, including asset inventory and valuation, age and estimated service life, asset condition, data sources and maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

13.4.1.1. Asset Inventory and Valuation

The replacement cost for the City's Storm sewer collection system assets is $252.18M and is summarized in Table 13-23 and Figure 13-30.

TABLE 13-23: STORM SEWER COLLECTION SYSTEM ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Linear ($249.02M)		
Storm Sewers	148.12 km	$249.02M
Vertical ($3.15M)		
Oil Grit Separators	15 Assets	$1.71M
Stormwater Retention Ponds	9 Assets	$1.45M
Total		**$252.18M**

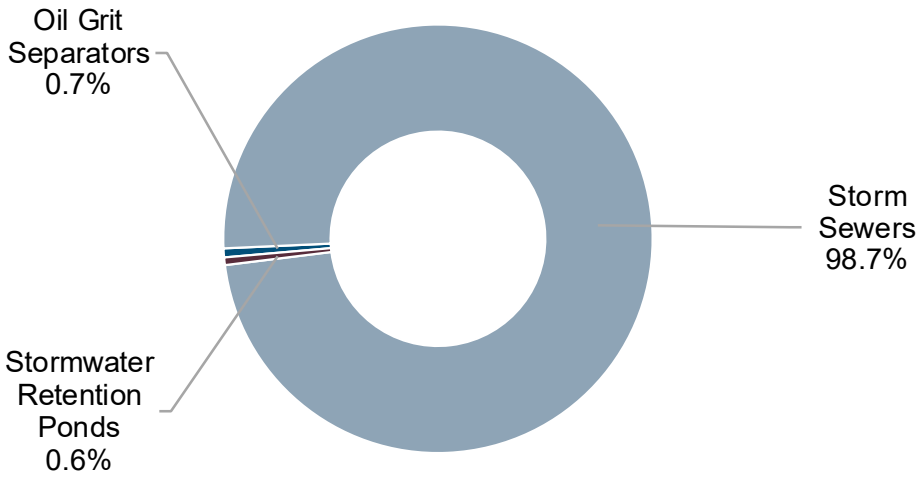


FIGURE 13-30: STORM SEWER COLLECTION SYSTEM VALUATION DISTRIBUTION

13.4.1.2. Age and Estimated Service Life

The average age of the City's Storm sewer collection system portfolio is 38 years old with an average ESL of 101 years. Figure 13-31 provides a breakdown of the ages by asset class.

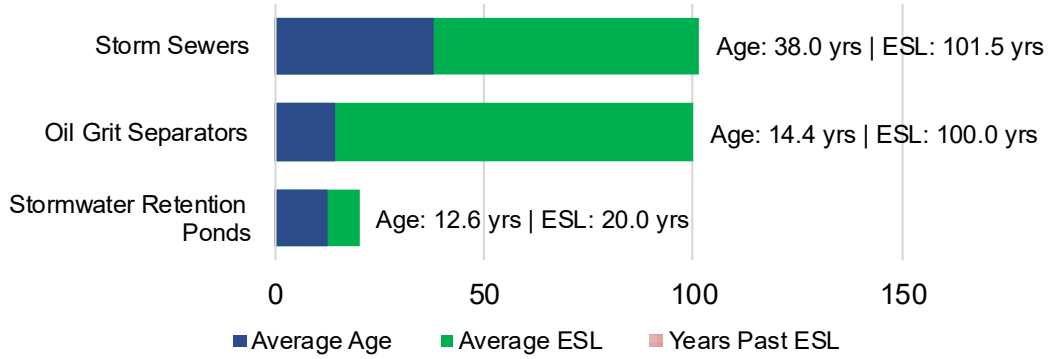


FIGURE 13-31: STORM SEWER COLLECTION SYSTEM SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Storm sewers are approximately one-third of the way through their expected lifespan. This indicates that a significant portion of the system is still in good condition, while some areas will require increased inspection and future reinvestment planning as they age. Oil grit separators are relatively young and have a long remaining service life. These assets support environmental protection by capturing sediments, oils, and debris before they enter waterways. Stormwater ponds have a shorter lifecycle than other stormwater infrastructure, and this is reflective of the time between required sediment removal, rather than replacement, which is required to maintain their effectiveness in flood control and water quality protection.

For the sewers, a comparison of average age to the average estimated service lives is provided by pipe material in Figure 13-32.

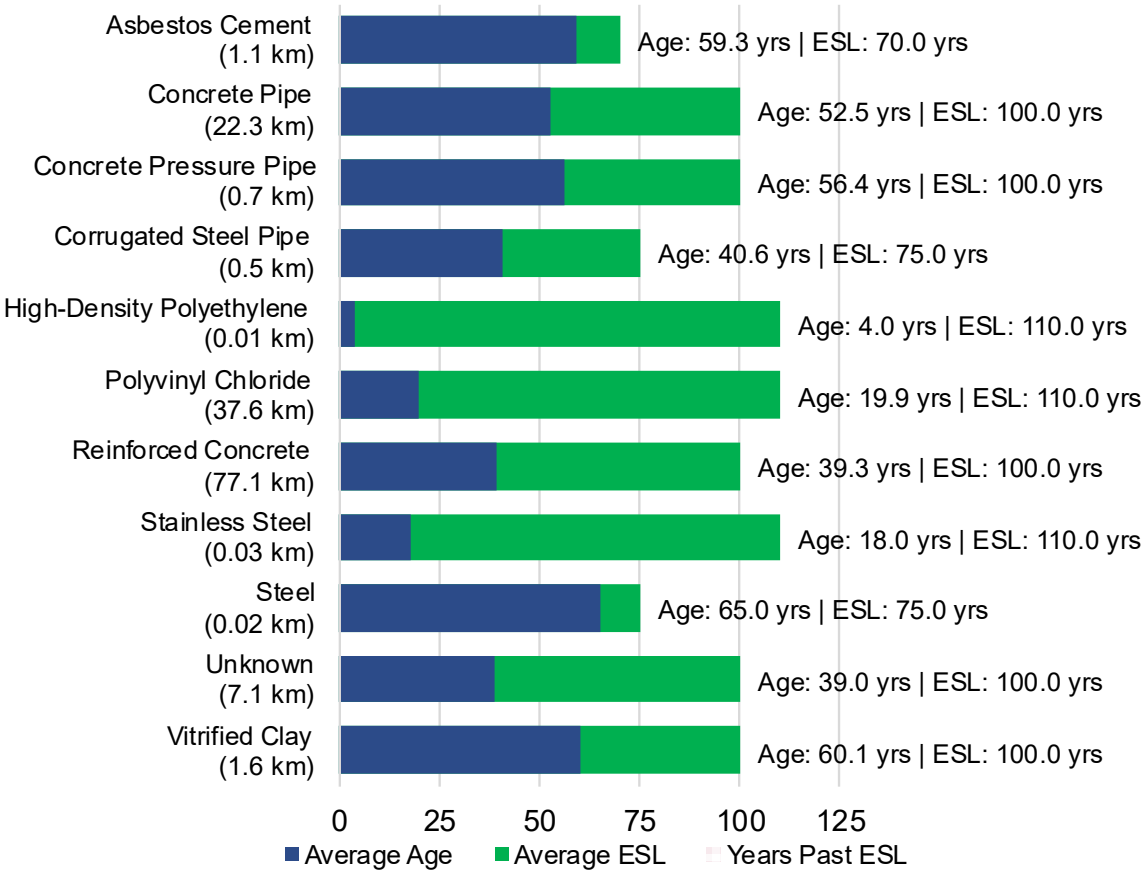


FIGURE 13-32: STORM SEWER SERVICE LIFE PROFILE BY PIPE MATERIAL (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 13-33 below captures the installation decades in which the various asset classes were acquired and or installed by the City for the storm sewer collection system. The installation decades represented in Figure 13-33 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029). According to the data, the City started steadily installing dedicated storm sewers between the 1920s to the 1940s. By the 1950s and 1970s, the City saw its first major additions of storm sewers, followed by steady additions to the network from the 1960s and onwards. With the average age of the City's Storm sewer collection system being 38 years old and the average ESL of 101 years, a bulk of renewals and rehabilitations are likely to be due in approximately 63 or so years.

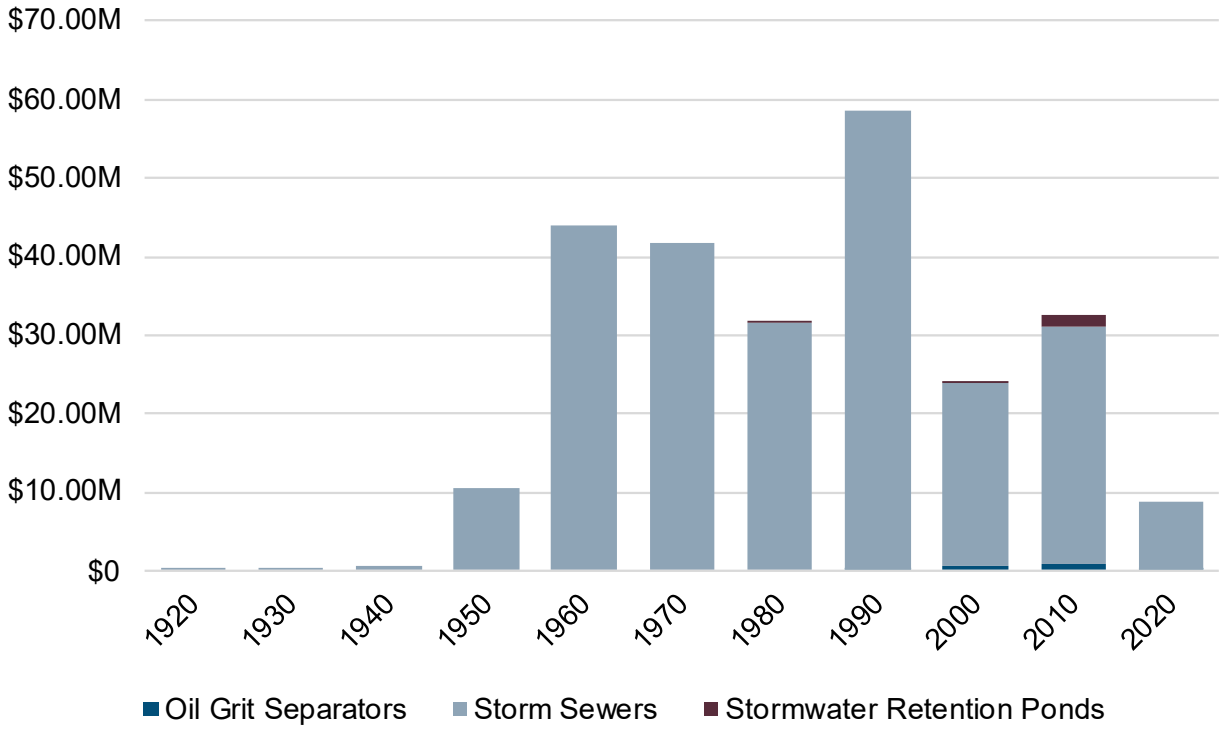


FIGURE 13-33: STORM SEWER COLLECTION SYSTEM INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

13.4.1.3. Asset Condition

The City has been assessing the condition of storm sewers via CCTV inspections, using the NASSCO pipeline assessment certification program (PACP) standardized condition rating scores. These condition scores are developed by completing CCTV inspections of pipes and assigning scores to pipes based on the structural defects and blockages observed during the inspections. PACP scores range from 1 to 5 (with 1 indicating good condition and 5 indicating poor condition).

Table 13-24 captures the condition data collection techniques utilized for the different active transportation assets, while Table 13-25 presents the logic used to convert life consumed and the visual inspection scores into a condition rating.

TABLE 13-24: STORM SEWER COLLECTION SYSTEM ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• **Storm Sewers**	CCTV inspection completed to collect condition data as per the PACP standard.	Annually, 10% of network inspected per year
• **Oil Grit Separators**	Sediment surveys completed to assess condition, or life consumed when condition data not available.	Annually
• **Stormwater Retention Ponds**	Bathymetric surveys completed to assess sediment levels or life consumed when condition data not available.	Annually

TABLE 13-25: STORM SEWER COLLECTION SYSTEM ASSETS CONDITION RATINGS

Category	Oil Grit Separators, Stormwater Retention Ponds (Life Consumed)	Storm Sewers (PACP & Blockage Grades)
Very Good	0% to 25%	1
Good	25% to 50%	2
Fair	50% to 75%	3
Poor	75% to 100%	4
Very Poor	>100%	5

Overall, the City's Storm sewer collection system portfolio is in Very Good condition. 96% of assets are in Very Good to Fair condition, with a small portion in Poor and Very Poor condition. A breakdown of the various condition categories within the Storm sewer collection system portfolio can be found in Figure 13-34, while a breakdown of the asset classes can be found in Figure 13-35. Furthermore, a condition distribution amongst the City's storm sewers and their respective pipe materials can be found in Figure 13-36.

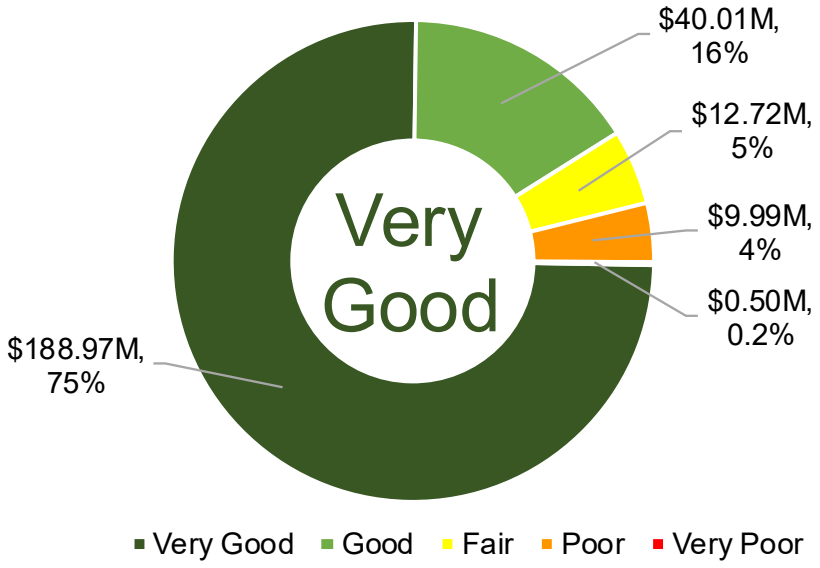


FIGURE 13-34: STORM SEWER COLLECTION SYSTEM CONDITION SUMMARY

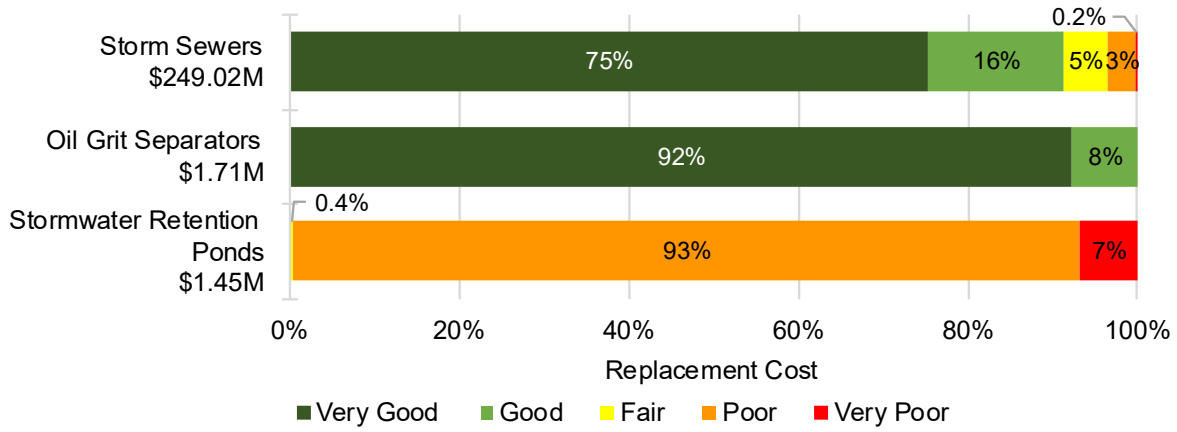


FIGURE 13-35: STORM SEWER COLLECTION SYSTEM CONDITION DISTRIBUTION BY ASSET CLASS

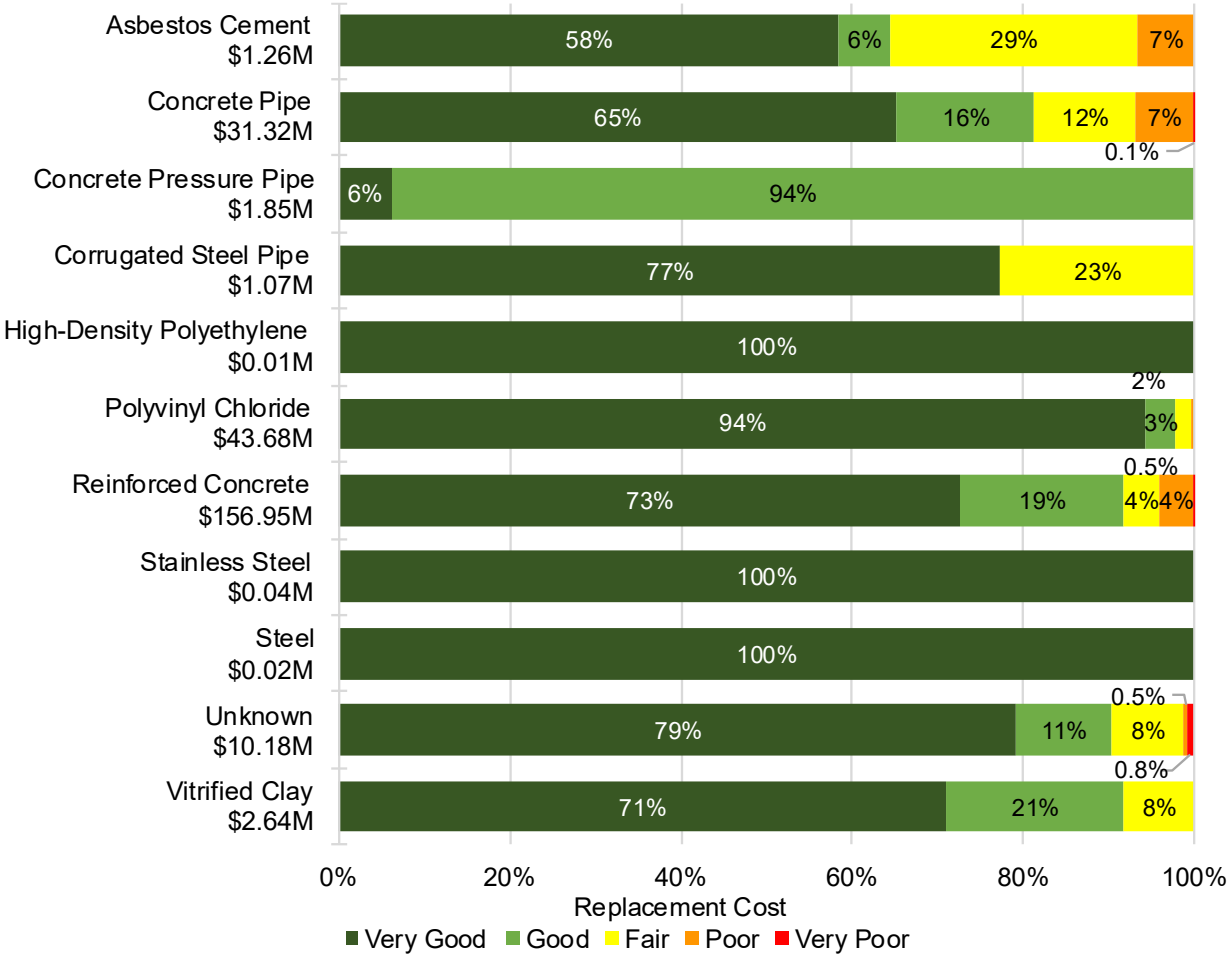


FIGURE 13-36: STORM SEWER COLLECTION SYSTEM CONDITION DISTRIBUTION BY PIPE MATERIAL

13.4.1.4. Data Sources and Maturity

Table 13-26 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 13-26: STORM SEWER COLLECTION SYSTEM DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Storm Sewers	Good	High	11% are missing inspection year. Approx. 9% of assets missing condition data and 5% of assets have unknown pipe material.
Oil Grit Separators	Fair	Medium	Condition data is not paired to GIS (sediment levels). Data completeness is fair, and therefore data confidence is affected.
Stormwater Retention Ponds	Good	Medium	Condition data not paired to GIS (sediment levels).

13.4.2. Levels of Service

The City's goal is to provide a reliable, operational, and environmentally sustainable storm sewer collection system to all its residents and businesses. This means protecting all properties from flood waters, ensuring all assets remain in a state of good repair by performing regular maintenance, and minimizing environmental impacts, all while optimizing lifecycle costs.

Note that the City has defined a subservice for its Combined Sewer Collection System, which is separate from the Storm Sewer Collection System. Some of the mandatory O.Reg. 588/17 Levels of Service detailed below refer to storm sewers. They are provided within this section as well as in the Combined Sewer Collection System Levels of Service Subsection (Subsection 13.2.2).

In addition to the levels of service herein, the City produces an annual report to comply with all wastewater related regulations. It contains additional details of the services provided at a more granular level.

The mandated O.Reg 588/17 community and technical LOS for the Storm sewer collection system are shown in Table 13-27 and Table 13-29, while the customer and technical LOS measures outlined by the City are shown in Table 13-28 and Table 13-30.

TABLE 13-27: STORM SEWER COLLECTION SYSTEM COMMUNITY LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES

Community Measures	Performance
Service Attributes: **Scope**	
Description, which may include maps, of the user groups or areas of the municipality that are protected from flooding, including the extent of the protection provided by the municipal stormwater management system.*	Urban areas will continue to be protected from ROW/ infrastructure flooding through urban ditch system or underground storm collection, some with defined outlets. Most rural areas protected from flooding through provision of municipal drains or rural ditch systems, some with defined outlets.

TABLE 13-28: STORM SEWER COLLECTION SYSTEM COMMUNITY LEVELS OF SERVICE – CITY OUTLINED

Community Measures	Performance
Service Attributes: **Reliable; Operational;**	
Property impacts from flooding are minimized	The technical LOS measures indicate that the system has a high degree of reliability. The system's operational objectives also indicate that the City has kept its infrastructure in state that minimizes the impacts of flooding. The City will continue to maintain this level of service.
Transportation impacts from flooding are minimized	The technical LOS measures indicate that the system has a high degree of reliability. The system's operational objectives also indicate that the City has kept its infrastructure in state that minimizes the impacts of flooding. The City will continue to maintain this level of service.
Service Attributes: **Reliable; Operational; Environmentally Sustainable**	
Environmental impacts from flooding are minimized	The technical LOS measures indicate that the system has a high degree of reliability. The system's operational objectives also indicate that the City has kept its infrastructure in state that minimizes the impacts of flooding. The City will continue to maintain this level of service.

TABLE 13-29: STORM SEWER COLLECTION SYSTEM TECHNICAL LEVELS OF SERVICE - MANDATORY O.REG. 588/17 MEASURES

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Scope**			
Percentage of properties in municipality resilient to a 100-year storm	All	99%	Improve
Percentage of the municipal stormwater management system resilient to a 5-year storm	All	100%	Maintain

TABLE 13-30: STORM SEWER COLLECTION SYSTEM TECHNICAL LEVELS OF SERVICE – CITY OUTLINED

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of storm sewers that are in fair or better condition	Storm Sewers	96%	Improve
Percentage of oil and grit separators that are not past their service life	Oil And Grit Separators	100%	Maintain
Percentage of stormwater retention ponds that are not past their service life	Stormwater Retention Ponds	93%	Improve
Service Attribute: **Operational**			
% of oil and grit separators with sediment levels that are above their required levels	Oil And Grit Separators	0%	Maintain
% of ponds with sediment levels that are above their required levels[5]	Stormwater Retention Ponds	3%	Maintain below the 5%

[5] Frequency of cleaning was used to determine if ponds were above their sediment levels. The City is in the process of digitizing the sediment data.

13.4.3. Lifecycle Management Strategies

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's storm sewer collection system. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship.

As climate change leads to more frequent and intense rainfall events, properly managing stormwater is more important than ever. The City is committed to making responsible and forward-thinking investments that improve system performance, reduce flooding risk, protect the environment, and support the safety and well-being of residents and businesses.

Table 13-31 summarizes the lifecycle activities performed on storm sewers, Table 13-32 outlines the lifecycle activities performed on oil grit separators and Table 13-33 outlines the lifecycle activities performed on stormwater retention ponds.



TABLE 13-31: LIFECYCLE ACTIVITIES – STORM SEWERS

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Stormwater model	As required, based on needs
CCTV inspections	Annual, 10-year frequency for entire network (10% of network per year)
Water usage reduction incentives	Ongoing
Flood risk reduction program	Ongoing
Operations and Maintenance Activities	
Spot repairs	As required
Catch basin, lateral and maintenance hole repairs	As required. Note that repairs are also completed in conjunction with asphalt resurfacing works
Flushing	Prior to and during construction or commissioning, and as required
Renewal Activities (Rehabilitations & Replacements)	
Full pipe replacement	When assets reach poor condition/end of service life
Maintenance hole and catchbasin/ditch inlet replacement	Coordinated with sewer replacement
Disposals	
Removed as part of the project or abandoned	Coordinated with sewer replacement
Growth/Service Improvement Activities	
Pipe upsizing	Based on growth, modelling and studies
New subdivisions	Through development
Replacement of ditches with storm sewers	As needed
Coordination with other works	Based on corridor analysis

TABLE 13-32: LIFECYCLE ACTIVITIES – OIL GRIT SEPARATORS

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Stormwater model	As required, based on needs
Water usage reduction incentives	Ongoing
Flood risk reduction program	Ongoing
Operations and Maintenance Activities	
Sediment surveys	Annually
Spot cleaning of sediment	As required
Renewal Activities (Rehabilitations & Replacements)	
Asset replacement	When assets reach end of service life
Disposals	
Removed as part of the project	Coordinated with asset replacement
Growth/Service Improvement Activities	
Expansion	Through development

TABLE 13-33: LIFECYCLE ACTIVITIES – STORMWATER RETENTION PONDS

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Stormwater model	As required, based on needs

Description	Frequency
Visual inspections	Annually
Bathymetric Surveys	Annually
Water usage reduction incentives	Ongoing
Operations and Maintenance Activities	
Flood risk reduction program	Ongoing
Grate and structure cleaning	As required
Renewal Activities (Rehabilitations & Replacements)	
Vegetation removal	As required
Erosion control	As identified through inspections
Outlet reconstruction	As identified through inspections
Outfall reconstruction	As identified through inspections
Dredging/Cleanouts	As identified through inspections
Disposals	
Sediment disposal	Coordinated with dredging/cleanouts

13.4.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 13.4.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 13-31, Table 13-32 and Table 13-33. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's financial strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 13-37, Figure 13-38, Figure 13-39, and Figure 13-40 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

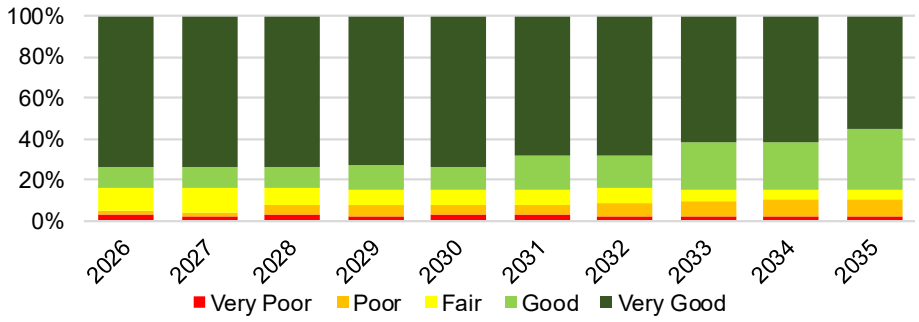


FIGURE 13-37: STORMWATER SEWER COLLECTION SYSTEM ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST



FIGURE 13-38: STORMWATER SEWER COLLECTION SYSTEM MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

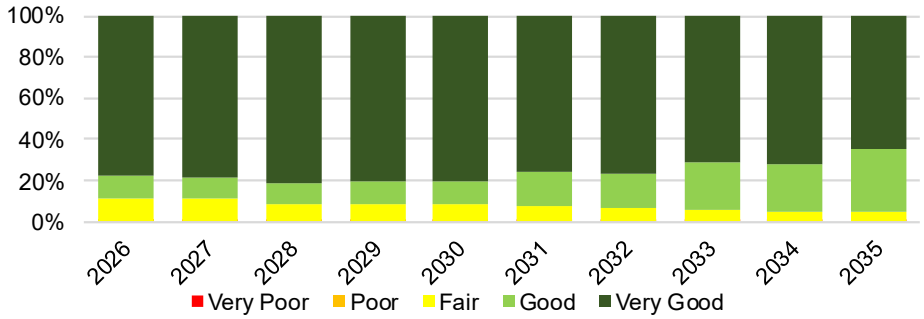


FIGURE 13-39: STORMWATER SEWER COLLECTION SYSTEM BACKLOG ANALYSIS PERFORMANCE FORECAST

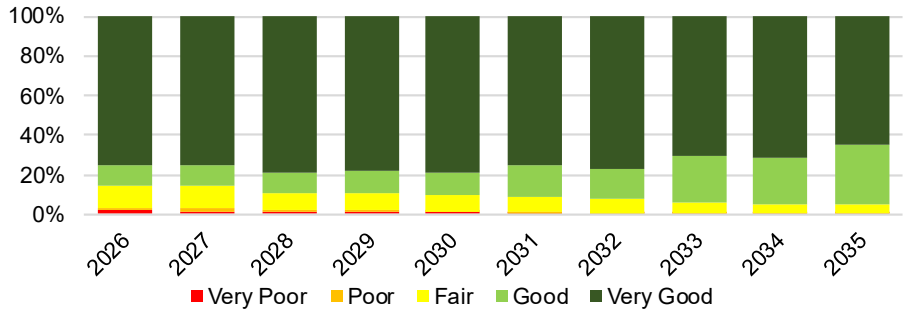


FIGURE 13-40 STORMWATER SEWER COLLECTION SYSTEM PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 96% of the City's Storm sewer collection system meets the LOS threshold of being in fair or better condition. Under the current anticipated capital budget of $0.31 million for renewals for the next 10 years, Storm sewer collection system assets are expected to decrease in overall LOS, resulting in 89% of assets meeting their LOS. To maintain Storm sewer collection system assets in their current LOS of 96%, it was determined the City would need to spend an annual average of $0.80 million in renewals. To eliminate all the backlog in the Storm sewer collection system portfolio, it would cost $1.38 million per year in renewals according to the Backlog Analysis. Using the results of the scenarios and to balance cost, risk and LOS, the City has proposed to reach 100% of assets to meet the LOS threshold by the end of 10 years, costing the City an annual average of $1.26 million in renewals for the next 10 years.

Table 13-34 and Figure 13-41 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for Storm sewer collection system. The bars on the Figure 13-41 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

TABLE 13-34: STORM SEWER COLLECTION SYSTEM BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$0.05M	$0.05M	$0.05M	$0.05M
Service Improvements	$0	$0	$0	$0
Growth Activities	$0	$0	$0	$0
Renewal & Replacement	**$0.31M**	**$0.80M**	**$1.38M**	**$1.26M**
Total Lifecycle Expenditures	$0.36M	$0.85M	$1.43M	$1.31M
Total Infrastructure Gap		$0.49M	$1.07M	$0.95M

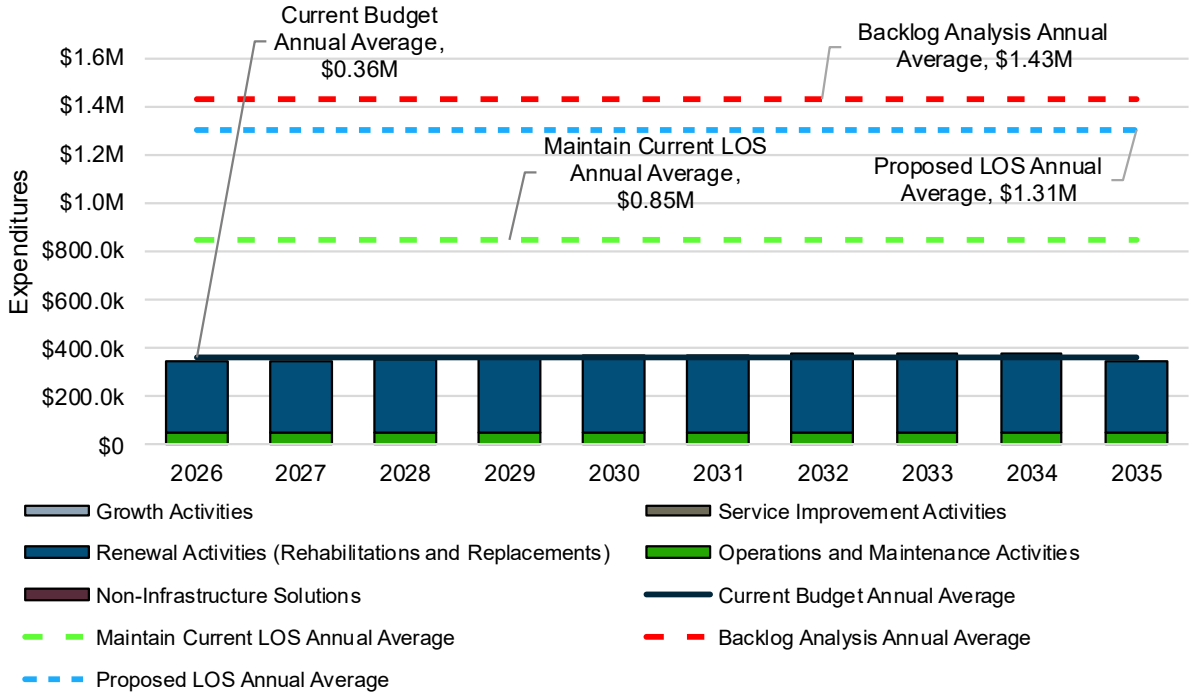


FIGURE 13-41: STORM SEWER COLLECTION SYSTEM SCENARIO ANALYSIS SUMMARY

13.4.5. Findings

Overall, the City maintains its $252.18 million Storm sewer collection system in very good condition, with all of its assets still within their service lives on average. Both data completeness and confidence are high, due to the City staying on top of data collection and maintaining it in asset repositories and GIS records. In the community and technical levels of service measures outlined by the City, Cornwall currently has high levels and intends to maintain community measures and reliability of the system, while continuing to improve functionality and longevity of the network.

Looking at the City's anticipated budgets with regards to the Storm sewer collection system, the City's anticipated budget of $0.36 million resulted in a decrease in overall LOS, leaving 89% of assets meeting the LOS threshold. To maintain the Storm sewer collection system at 96% of assets meeting the LOS, it would cost the City an additional $0.49 million in investments annually. To address and remove all backlog from the network for the next 10 years, the City would need to spend $1.43 million annually in total lifecycle costs. Thus, to balance cost, risk and LOS, the City has proposed to eliminate the backlog in the Storm sewer collection system by the end of 10 years, resulting in an annual cost of $1.31 million in lifecycle costs.

13.5. Water Distribution Network

The City of Cornwall responsible for the operation, maintenance, and long-term management of the municipal water distribution network, which delivers potable water to residents, businesses, and institutions across the city. The assets within the scope of this subservice include the network of distribution mains, as well as reservoirs and storage tanks that provide essential storage and pressure regulation to ensure reliable water supply. Figure 13-42 illustrates the Water Distribution Network asset hierarchy, while Figure 13-43 captures the locations of the City's Water Distribution Network.



FIGURE 13-42: WATER DISTRIBUTION NETWORK ASSET HIERARCHY

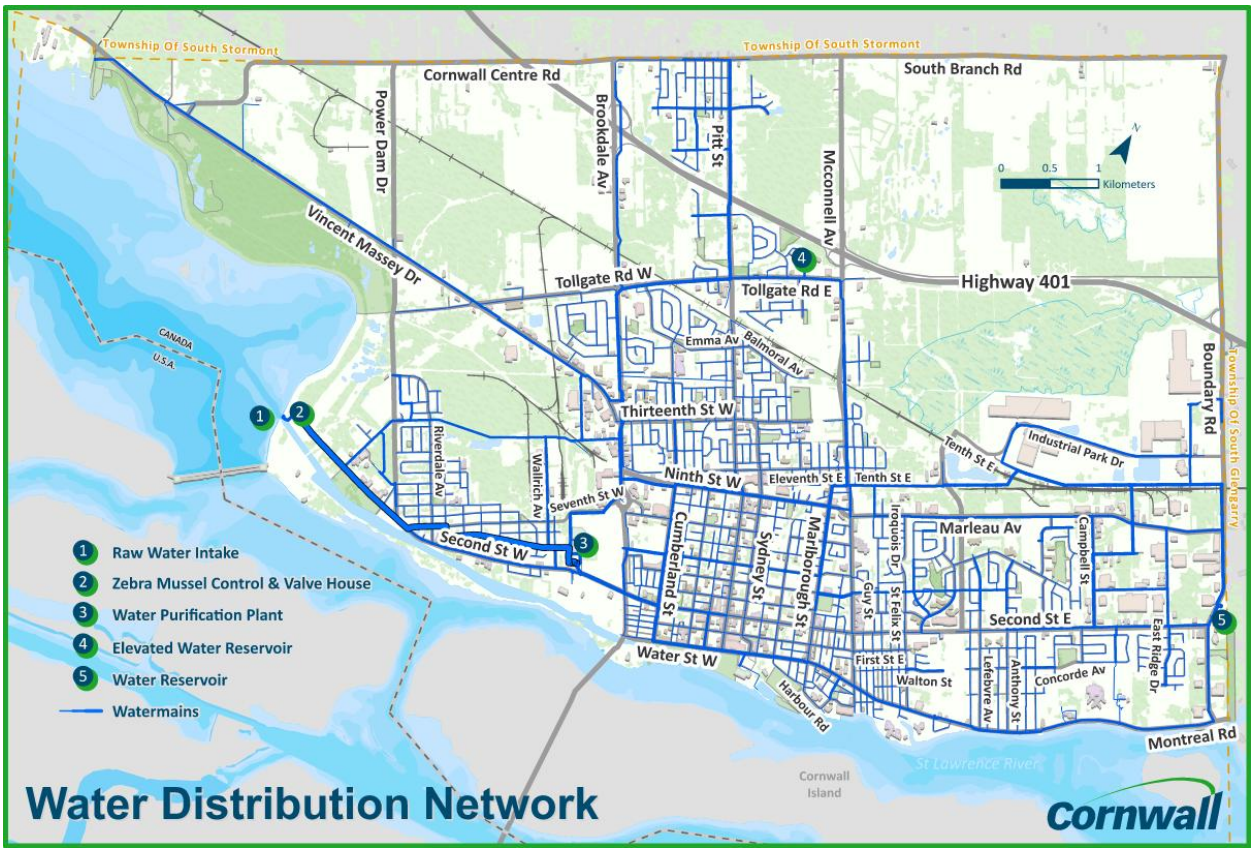


FIGURE 13-43: MAP OF THE CITY'S WATER DISTRIBUTION NETWORK

13.5.1. State of the Infrastructure

This section outlines the state of infrastructure for Cornwall's water distribution network, including asset inventory and valuation, age and estimated service life, asset condition, data sources and maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

13.5.1.1. Asset Inventory and Valuation

The replacement cost for the City's Water distribution network assets is $564.17 million and is summarized in Table 13-35 and Figure 13-44.

TABLE 13-35: WATER DISTRIBUTION NETWORK ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Linear ($548.70M)		
Watermains	274.84 km	$548.70M
Vertical ($15.47M)		
Reservoirs and Storage Tanks	28,541 Facility Components	$15.47M
Total		**$564.17M**

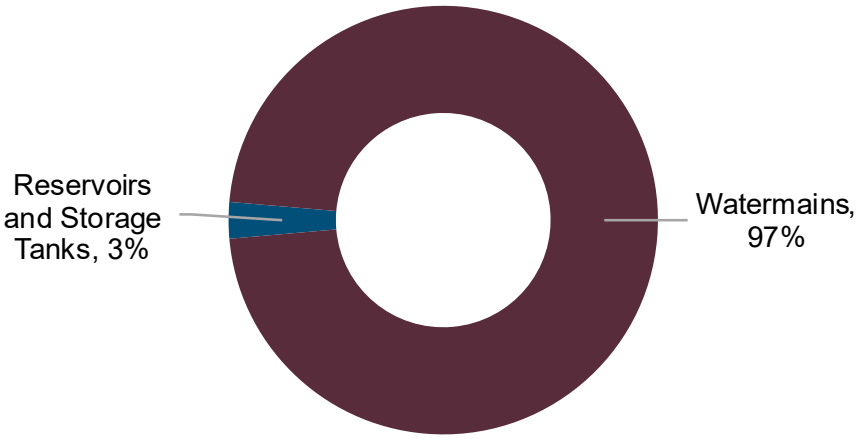


FIGURE 13-44: WATER DISTRIBUTION NETWORK VALUATION DISTRIBUTION

13.5.1.2. Age and Estimated Service Life

The average age of the City's Water distribution network portfolio is 43 years old with an average ESL of 95 years. Figure 13-45 provides a breakdown of the ages by asset class.

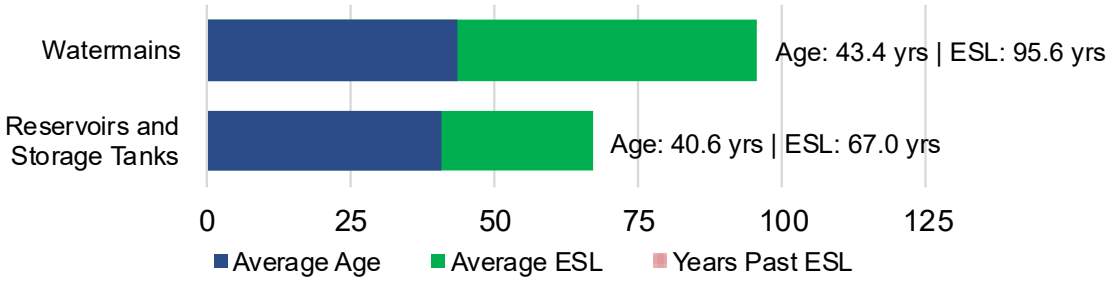


FIGURE 13-45: WATER DISTRIBUTION NETWORK SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

For the City's watermains, a comparison of average age to the average estimated service lives is provided by pipe material in Figure 13-46.

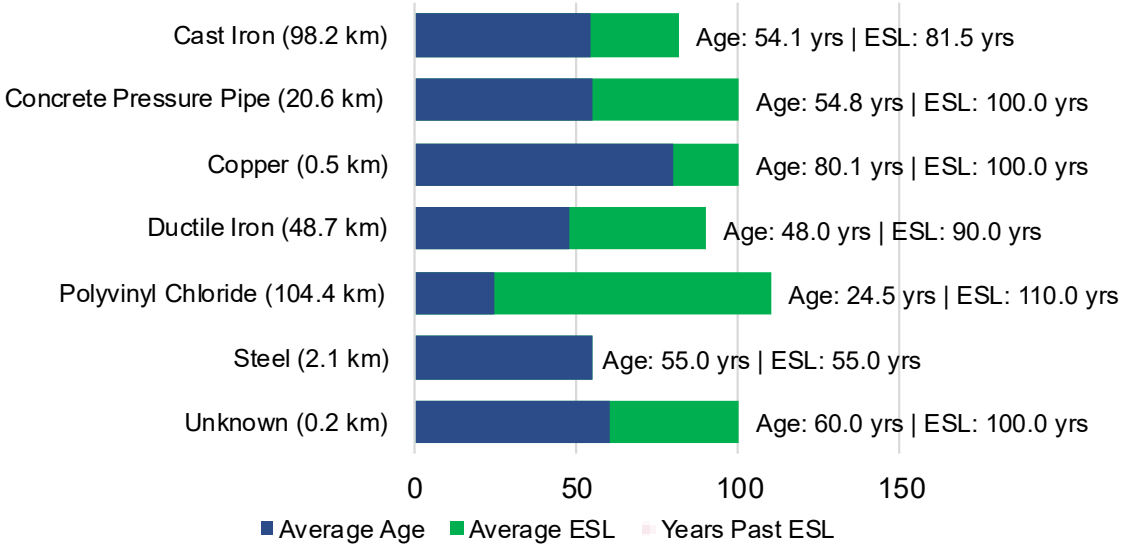


FIGURE 13-46: WATERMAIN SERVICE LIFE PROFILE BY PIPE MATERIAL (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 13-47 below captures the installation decades in which the various asset classes were acquired and or installed by the City for the water distribution network. The installation decades represented in Figure 13-47 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029). According to the data, the City started steadily installing watermains in the 1880s and saw its first major additions in the 1920s. The City began increasing the network again in the 1950s and 1960s and saw significant additions in the 1970s. In the following decades, the City kept on steadily adding to its water distribution network, even until present day. With the average age of the City's Water distribution network being 43 years old and the average ESL of 95 years, a bulk of renewals and rehabilitations are likely to be due in approximately 52 years or so.

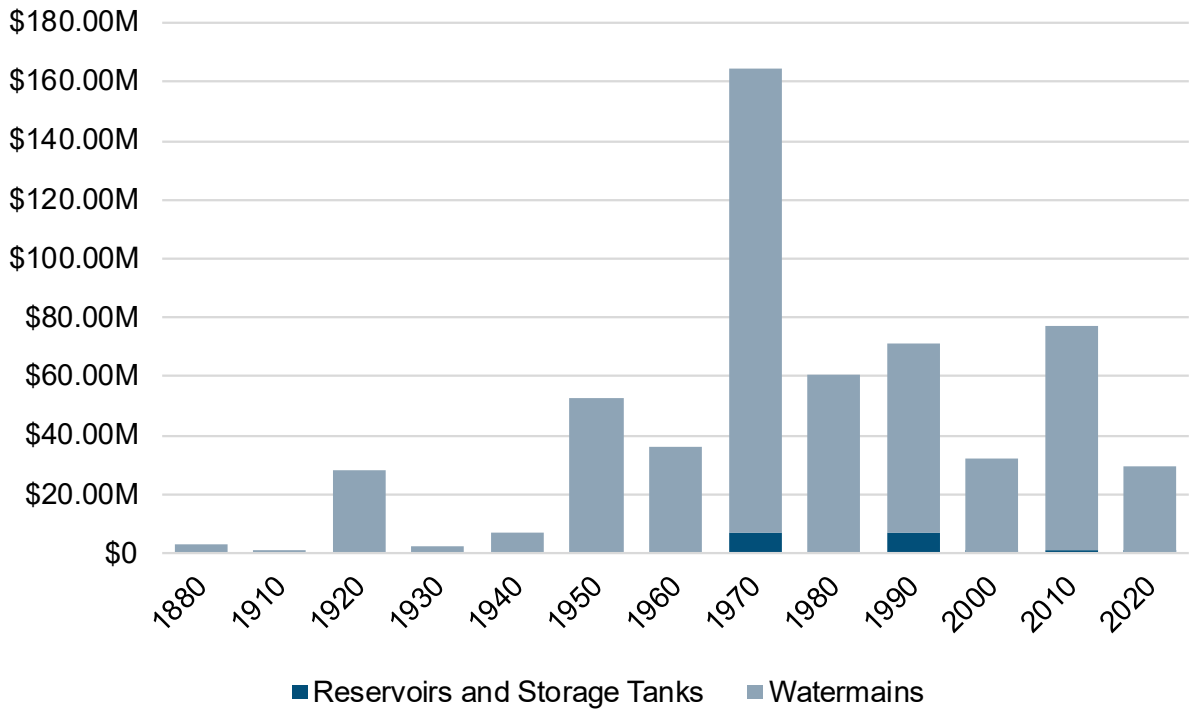


FIGURE 13-47: WATER DISTRIBUTION NETWORK INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

13.5.1.3. Asset Condition

The City assesses the condition of watermains using a watermain performance index (WPI) rating. The WPI ranges from 0 to 100 and is calculated based on the remaining life of a watermain, the number of breaks, average length, and whether or not the watermain meets fire flow requirements.

In addition, the City has recently completed building condition assessments (BCAs) of the majority of its facilities in preparation for this Asset Management Plan. The BCA study identified current and future needs for all building elements within the City's facilities. Building elements were evaluated based on their current condition, as well as remaining life based on expert opinion. This information was then taken into account, and each facility element was given a score between one (Very good condition) to five (Very poor condition).

Table 13-36 captures the condition data collection techniques utilized for the different water distribution assets, while Table 13-37 presents the logic used to convert life consumed and the watermain performance (WPI) index scores into a condition rating.

TABLE 13-36: WATER DISTRIBUTION NETWORK ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• Watermains	Watermain break records recorded and logged in the City's watermain break database. WPI score updated.	Ongoing
• Reservoirs and Storage Tanks	Building Condition Assessments	Every 5-years (min) or as required

TABLE 13-37: WATER DISTRIBUTION NETWORK ASSETS CONDITION RATINGS

Category	Watermains (WPI Score)	Reservoirs and Storage Tanks (Facility Component Rating)
Very Good	100 – 80	1
Good	80 – 50	2
Fair	50 – 20	3
Poor	20 – 10	4
Very Poor	10 – 0	5

Overall, the City's Water distribution network portfolio is in Fair condition. 83% of assets are in Very Good to Fair condition, with a small portion in Poor and Very Poor condition. A breakdown of the various condition categories within the Water distribution network portfolio can be found in Figure 13-48, while a breakdown of the asset classes can be found in Figure 13-49. Furthermore, a condition distribution amongst the City's watermains and their respective pipe materials can be found in Figure 13-50.

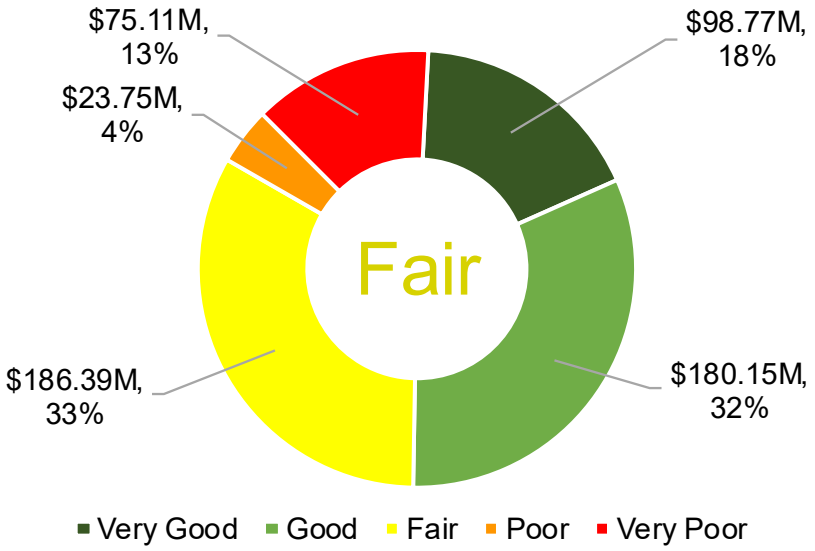


FIGURE 13-48: WATER DISTRIBUTION NETWORK CONDITION SUMMARY

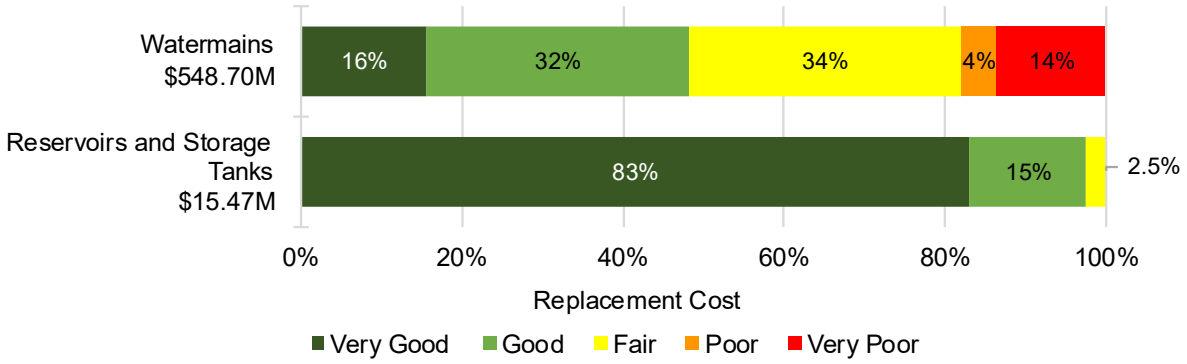


FIGURE 13-49: WATER DISTRIBUTION NETWORK CONDITION DISTRIBUTION BY ASSET CLASS

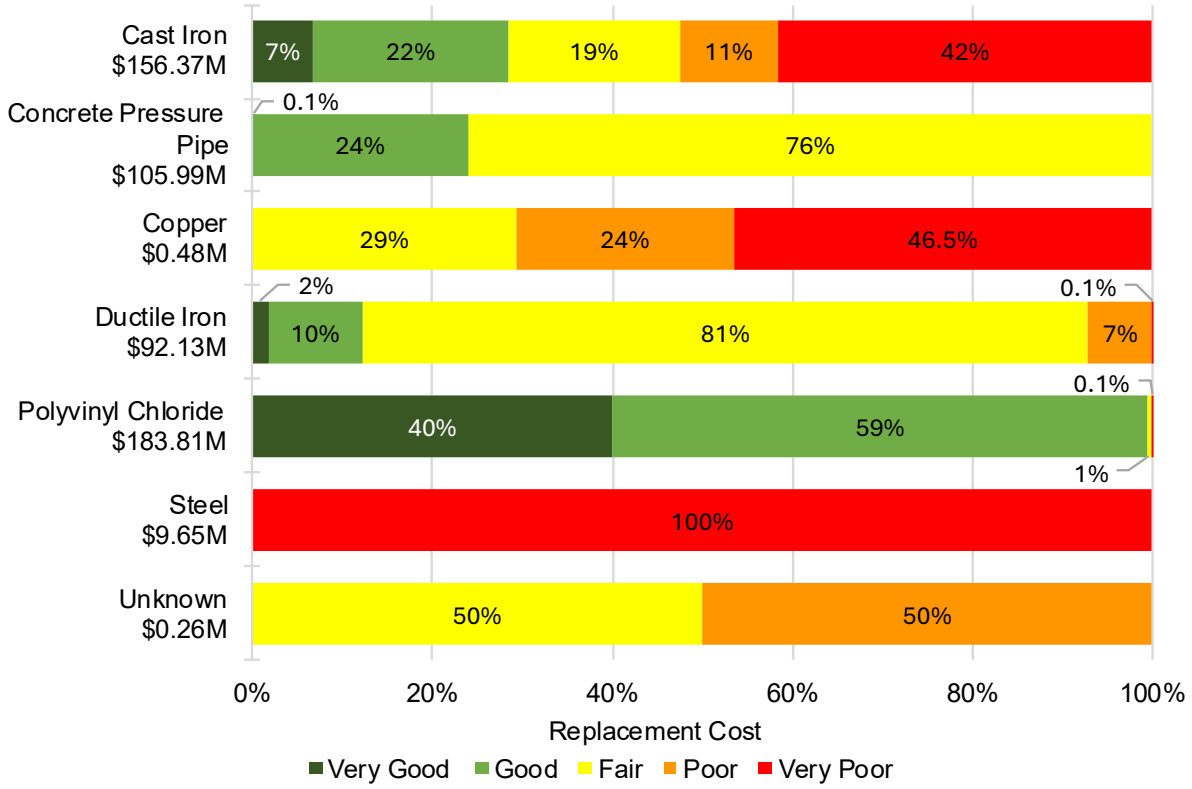


FIGURE 13-50: WATER DISTRIBUTION NETWORK CONDITION DISTRIBUTION BY PIPE MATERIAL

13.5.1.4. Data Sources and Maturity

Table 13-38 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 13-38: WATER DISTRIBUTION NETWORK DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Watermains	Good	High	No data gaps.
Facilities	Good	High	These assets were assessed in 2024, which provided the City with a complete and high confidence dataset.

13.5.2. Levels of Service

The City's goal is to provide a reliable, high quality, and safe water distribution network to all its residents and businesses. This is achieved by minimizing service disruptions, ensuring the water is safe for consumption by complying with water quality regulations, and being able to protect the communities with adequate fire flow.

In addition to the levels of service herein, the City produces an annual report to comply with all potable water related regulations. It contains additional details of the services provided at a more granular level.

The mandated O.Reg 588/17 community and technical LOS for the Water distribution network are shown in Table 13-39 and Table 13-41, while the customer and technical LOS measures outlined by the City are shown in Table 13-40 and Table 13-42.

TABLE 13-39: WATER DISTRIBUTION NETWORK COMMUNITY LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES

Community Measures	Performance
Service Attributes: **Scope**	
Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system.	The City will maintain that almost 98% of properties within urban areas will be connected to the municipal water system.
Description, which may include maps, of the user groups or areas of the municipality that have fire flow.	The City will maintain that almost 91% of properties within urban areas will be connected to the municipal water system for fire flow.
Service Attributes: **Reliable**	
Description of boil water advisories and service interruptions.	No boil water advisories, few service interruptions due to City responsibilities. The City will continue to maintain this level of service.

TABLE 13-40: WATER DISTRIBUTION NETWORK COMMUNITY LEVELS OF SERVICE – CITY OUTLINED

Community Measures	Performance
Service Attributes: **Reliable**	
Water is available when needed	The technical LOS measures relating to reliability indicate that the system is generally reliable but still has some room for improvement. The percentage of assets are in poor or worse condition is 18%, which could result in more breaks and an interruption of service. On the other hand, the City's breaks per 100km have been reducing over time, which indicates that service levels have been improving.
Service Attributes: **Reliable; Quality**	
Water had adequate pressure	The City's reliability metrics are not fully met but have seen improvement. This could have an associated impact on water pressure. The City will continue to limit any impacts on water pressure.
Service Attributes: **Safe**	
Water is safe to drink	The City is meeting and will maintain its technical safety objectives with respect to water quality.
Service Attributes: **Quality; Safe**	
Water is of high quality (taste, smell and colour)	The City's Quality and Safety Technical metrics indicate that the City's water is of high quality. The City is meeting 100% of its water quality objectives and has received no complaints with respect to quality in the most recent recorded year.
Service Attributes: **Safe; Reliable**	
Water is available for fire services	Currently, almost 90% of the community has adequate fire flow protection. Also, it should be noted that approximately 1/3 of the City's watermains are in poor or worse condition, which may affect reliability, and in turn could affect availability of water for fire services. The City's proposed LOS is over 90% of the community having adequate fire flow protection. Significant improvements have been made to the City's watermains, with a reduction from over 30% over the City's watermains in poor or worse condition down to 17%. This limits any impact to reliability and provide availability of water for fire services.

TABLE 13-41: WATER DISTRIBUTION NETWORK TECHNICAL LEVELS OF SERVICE - MANDATORY O.REG. 588/17 MEASURES

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Scope**			
Percentage of properties connected to the municipal water system.	All	98%	Maintain
Percentage of community with sufficient fire flow[6] protection (i.e. established by the City's water model to have adequate pressure to meet fire flow requirements)	All	91%	Improve/Maintain
Service Attribute: **Reliable**			
The number of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system.	All	0	Maintain
The number of connection-days per year due to watermain breaks compared to the total number of properties connected to the municipal water system.	Watermains	0	Maintain

TABLE 13-42: WATER DISTRIBUTION NETWORK TECHNICAL LEVELS OF SERVICE – CITY OUTLINED

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of Assets in Fair or Better Condition	Watermains	82%	Improve
Percentage of Assets in Poor or Better Condition	Storage Tanks and Reservoirs	100%	Maintain
Annual number of breaks per 100km	Watermains	11	Improve
Number of service interruptions per year	All	31	Improve

[6] Sufficient fire flow is defined as having adequate pressure for firefighting needs as per the water model.

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Safe**			
Percentage of assets in compliance with all applicable water quality regulations	All	100%	Maintain
Percentage of community with sufficient fire flow protection	All	91%	Maintain
Service Attribute: **Quality**			
Annual number of complaints due to low pressure or discoloured water	All	3 discoloured water, 0 low pressure	Improve

13.5.3. Lifecycle Management Strategies

Effective lifecycle management of these assets is critical to maintaining water quality, system reliability, and service continuity. This includes proactive inspection, maintenance, rehabilitation, and replacement strategies to minimize service disruptions and extend asset life. By monitoring asset condition and performance, the City can make informed decisions that balance service delivery, risk management, and cost-effectiveness while ensuring the long-term sustainability of the water distribution system. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship.

Table 13-43 summarizes the lifecycle activities performed on watermains and Table 13-44 outlines the lifecycle activities performed reservoirs and storage tanks.

TABLE 13-43: LIFECYCLE ACTIVITIES – WATERMAINS

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Water model	As required, based on needs
Water usage reduction incentives	Ongoing
Operations and Maintenance Activities	
Break repairs (clamping)	As required
Service and chamber repairs	As required
Exercise valves	Annually
Valve replacements	As required
Hydrant flushing	Annually
Renewal Activities (Rehabilitations & Replacements)	
Hydrant repairs	As required
Lining	When asset reaches poor condition, where feasible
Full pipe replacement	When asset reaches poor condition, when relining not undertaken
Valves, services and chamber replacement	As needed, or coordinated with watermain replacement
Disposals	
Removed as part of the project or abandoned	Coordinated with watermain replacement
Growth/Service Improvement Activities	
Pipe upsizing	Based on growth, modelling and studies
New subdivisions	Through development
Coordination with other works	Based on corridor analysis

TABLE 13-44: LIFECYCLE ACTIVITIES – RESERVOIRS AND STORAGE TANKS

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Water model	As required, based on needs
Water usage reduction incentives	Ongoing
Building condition assessment program	Every 5-years (min)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations & Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Major equipment or structural building component replacement	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new facilities in new subdivisions or expansion of existing facilities to accommodate for increased demand and population growth.	As identified through growth and development studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

13.5.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 13.5.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 13-43 and Table 13-44. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's financial strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 13-51, Figure 13-52, Figure 13-53, and Figure 13-54 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

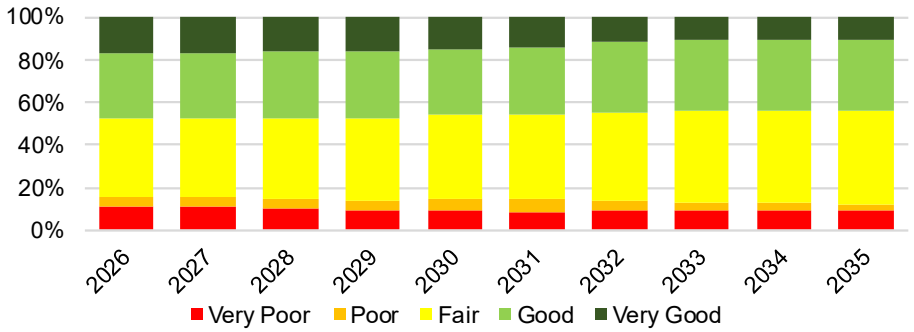


FIGURE 13-51: WATER DISTRIBUTION NETWORK ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

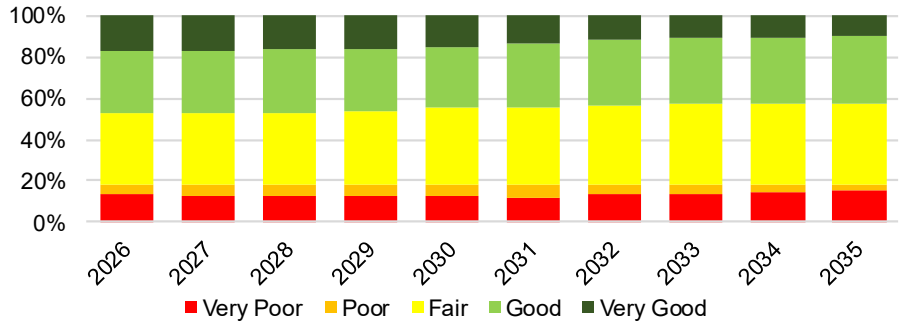


FIGURE 13-52: WATER DISTRIBUTION NETWORK MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

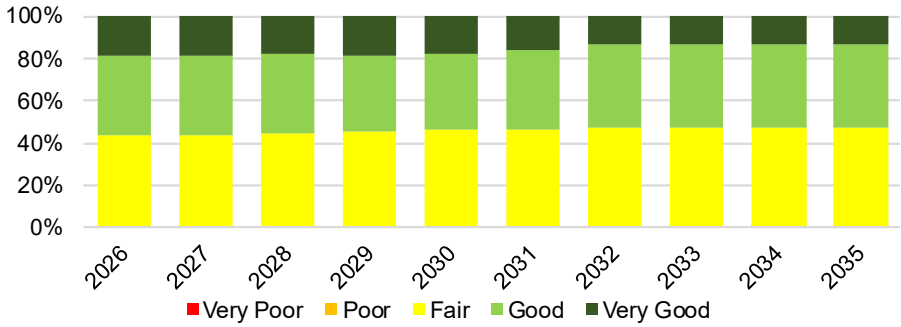


FIGURE 13-53: WATER DISTRIBUTION NETWORK BACKLOG ANALYSIS PERFORMANCE FORECAST

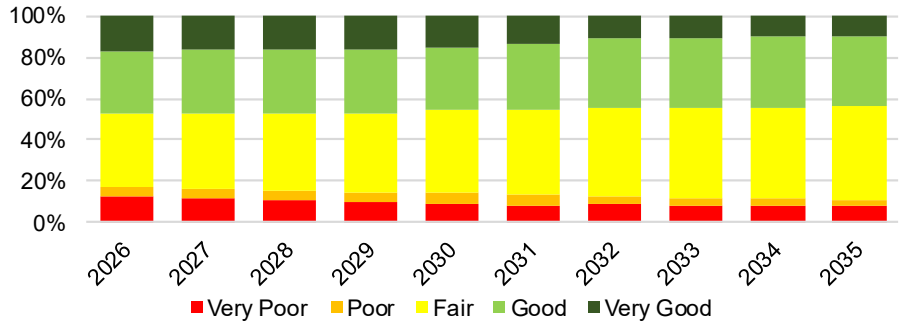


FIGURE 13-54 WATER DISTRIBUTION NETWORK PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 84% of the City's Water distribution network meets the LOS threshold of being in fair or better condition. Under the current anticipated capital budget of $3.64 million for renewals for the

next 10 years, Water distribution network assets are expected to improve in overall LOS, resulting in 88% of assets meeting their LOS. To maintain Water distribution network assets in their current LOS of 84%, it was determined the City would need to spend an annual average of $1.29 million in renewals. To eliminate all the backlog in the Water distribution network portfolio, it would cost $9.05 million per year in renewals according to the Backlog Analysis. Using the results of the scenarios and to balance cost, risk and LOS, the City has proposed to reach 100% of assets to meet the LOS threshold by the end of 25 years, costing the City an annual average of $8.69 million in renewals for the next 25 years.

Table 13-45 and Figure 13-55 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for Water distribution network.

TABLE 13-45: WATER DISTRIBUTION NETWORK BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$1.75M	$1.75M	$1.75M	$1.75M
Service Improvements	$2.40M	$2.40M	$2.40M	$2.40M
Growth Activities	$0.001M	$0.001M	$0.001M	$0.001M
Renewal & Replacement	**$3.64M**	**$1.29M**	**$9.05M**	**$8.69M**
Total Lifecycle Expenditures	**$7.79M**	**$5.44M**	**$13.21M**	**$12.85M**
Total Infrastructure Gap		**No gap**	**$5.42M**	**$5.06M**

The bars on the Figure 13-55 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

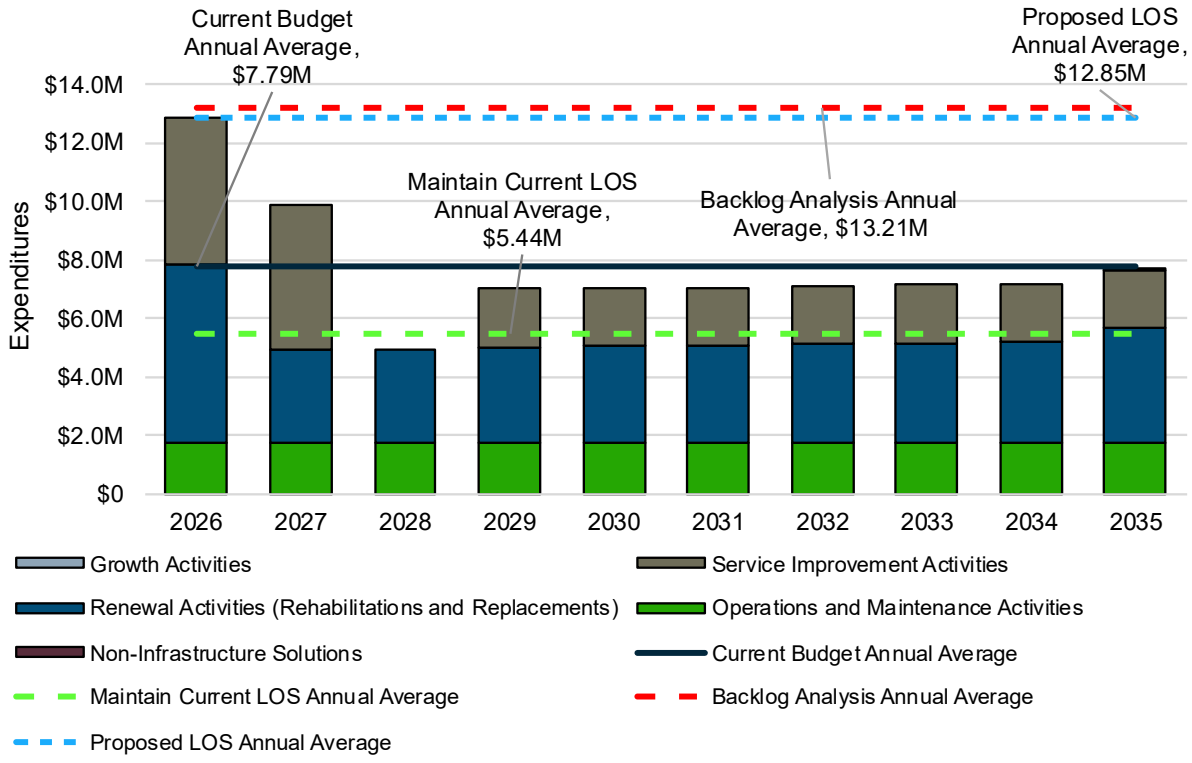


FIGURE 13-55: WATER DISTRIBUTION NETWORK SCENARIO ANALYSIS SUMMARY

The analysis indicates that maintaining the current LOS would cost less than the anticipated budget scenario, reflecting the City's ongoing commitment to improving the overall water distribution network. However, achieving the proposed LOS, would still require investments beyond the anticipated budget.

13.5.5. Findings

Overall, the City maintains its $546.17 million Water distribution network in fair condition, with all its assets still within their service lives on average. Both data completeness and confidence are high, due to the City staying proactive with data collection and maintaining it in asset repositories and GIS records. In the community and technical levels of service measures outlined by the City, Cornwall intends to maintain community measures and reliability of the system, while continuing to improve functionality and longevity of the network.

Looking at the City's anticipated budgets with regards to the Water distribution network, the City's anticipated budget of $7.79 million in total lifecycle activities resulted in an improvement in overall LOS, leaving 88% of assets meeting the LOS threshold. To maintain the Water distribution network at 84% of assets meeting the LOS, it would cost the City $5.44 million in total lifecycle activity investments annually. To address and remove all backlog from the network for the next 10 years, the City would need to spend $13.21 million annually in total lifecycle costs. Thus, to balance cost, risk and LOS, the City has proposed to eliminate the backlog in the Water distribution network by the end of 25 years, resulting in an annual cost of $12.85 million in lifecycle costs.

13.6. Wastewater Treatment

The City of Cornwall is responsible for the treatment of its wastewater to protect public health and the environment. Wastewater generated by residents, businesses, and institutions is conveyed through the City's sewer network to the Wastewater Treatment Plant (WWTP), where it undergoes a series of treatment processes to remove contaminants before being safely discharged. The WWTP serves as a critical component of the City's wastewater management system, ensuring compliance with regulatory requirements and environmental standards. Figure 13-56 illustrates the Water Distribution Network asset hierarchy.



Wastewater Treatment

Processing Equipment
- Process Electrical
- Process Instrumentation
- Process Mechanical
- Process Piping

Vertical
- Wastewater Treatment Plant (WWTP)

FIGURE 13-56: WASTEWATER TREATMENT ASSET HIERARCHY

13.6.1. State of the Infrastructure

This section outlines the state of infrastructure for Cornwall's Wastewater treatment, including asset inventory and valuation, age and estimated service life, asset condition, data sources and maturity.

Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

13.6.1.1. Asset Inventory and Valuation

The replacement cost for the City's Wastewater treatment assets is $233.99 million and is summarized in Table 13-46 and Figure 13-57.



TABLE 13-46: WASTEWATER TREATMENT NETWORK ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Processing Equipment ($132.67M)		
Process Electrical	182 Assets	$30.50M
Process Instrumentation	181 Assets	$6.78M
Process Mechanical	414 Assets	$69.75M
Process Piping	9 Assets	$25.64M
Vertical ($101.32M)		
Wastewater Treatment Plant	194,256 Facility Components	$101.32M
Total		**$233.99M**

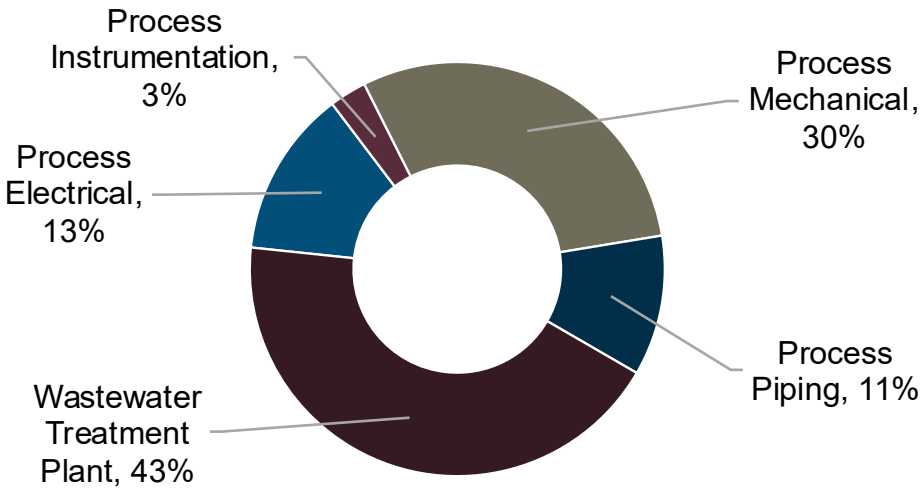


FIGURE 13-57: WASTEWATER TREATMENT VALUATION DISTRIBUTION

13.6.1.2. Age and Estimated Service Life

The average age of the City's Wastewater treatment portfolio is 23 years old with an average ESL of 41 years. Figure 13-58 provides a breakdown of the ages by asset class.

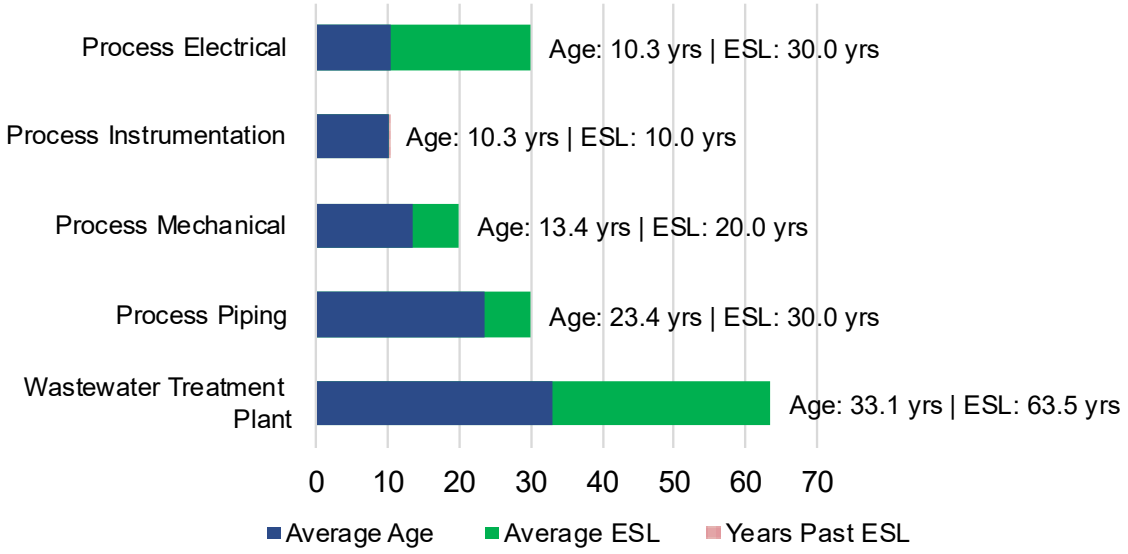


FIGURE 13-58: WASTEWATER TREATMENT SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 13-59 below captures the installation decades in which the various asset classes were acquired and or installed by the City for their Wastewater treatment portfolio. The installation decades represented in Figure 13-59 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029). In the 1960s, the City acquired its wastewater treatment plant. The City made additions to the building and the processing system in the 1980s through the 2000s, followed by significant additions to the building and processing equipment in the 2010s. With the average age of the City's Wastewater treatment assets being 23 years old and the average ESL of 41 years, a bulk of renewals and rehabilitations are likely to be due in approximately 18 years or so.



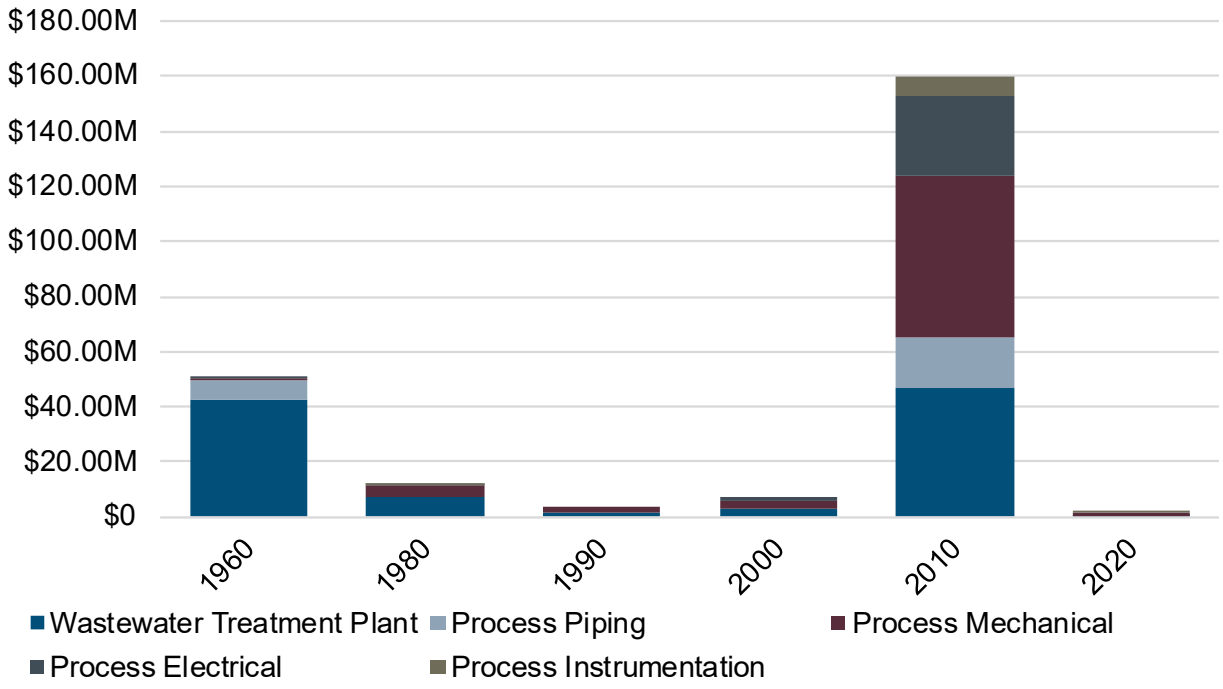


FIGURE 13-59: WASTEWATER TREATMENT INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

13.6.1.3. Asset Condition

The City has recently completed building condition assessments (BCAs) of the majority of its facilities in preparation for this Asset Management Plan. The BCA study identified current and future needs for all building elements within the City's facilities. Building elements were evaluated based on their current condition, as well as remaining life based on expert opinion. This information was then taken into account, and each facility element was given a score between one (Very good condition) to five (Very poor condition).

Furthermore, an assessment was completed by consultants on the processing equipment and the data was captured at an asset level. Like a BCA, this assessment was completed by experts in wastewater processing and treatment, thus, assets were assigned scores based on current performance as well as remaining life.

Table 13-47 captures the condition data collection techniques utilized for the different active transportation assets, while Table 13-48 presents the logic used to convert life consumed and the visual inspection scores into a condition rating.

TABLE 13-47: WASTEWATER TREATMENT ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• WWTP (Facility)	Building Condition Assessments	Every 5-years (min)
• Process Equipment (Assets)	Process Equipment Condition Assessments	Every 5-years (min)

TABLE 13-48: WASTEWATER TREATMENT ASSETS CONDITION RATINGS

Category	Processing Equipment (Life Consumed)	WWTP (Facility Component Rating)
Very Good	0% to 25%	1
Good	25% to 50%	2
Fair	50% to 75%	3
Poor	75% to 100%	4
Very Poor	>100%	5

Overall, the City's Wastewater treatment portfolio is in Good condition. 90% of assets are in Very Good to Poor condition, with a small portion in Very Poor condition. A breakdown of the various condition categories within the Wastewater treatment portfolio can be found in Figure 13-60, while a breakdown of the asset classes can be found in Figure 13-61.

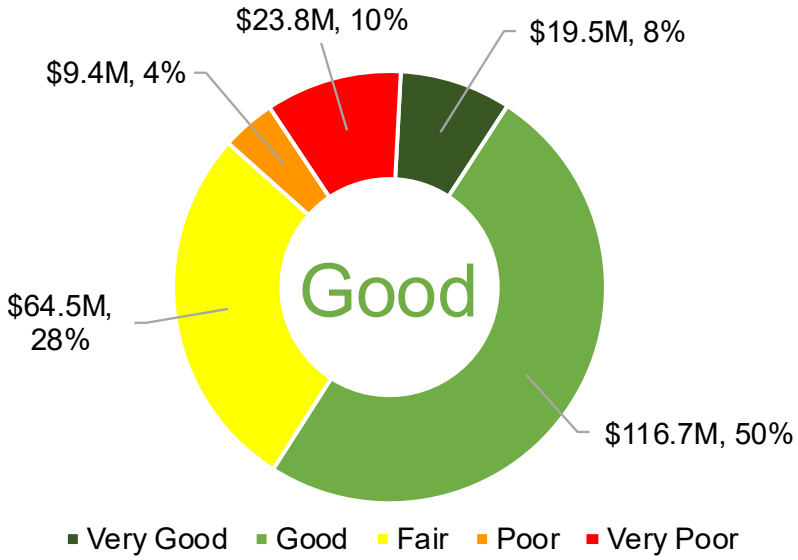


FIGURE 13-60: WASTEWATER TREATMENT CONDITION SUMMARY

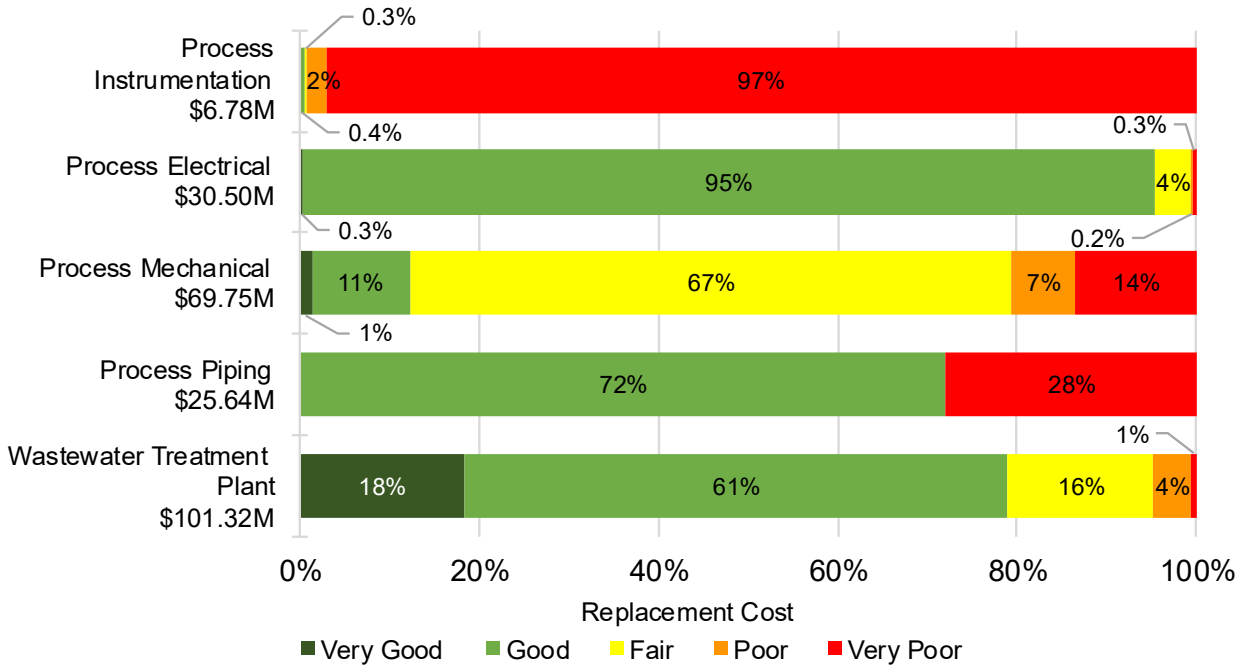


FIGURE 13-61: WASTEWATER TREATMENT CONDITION DISTRIBUTION BY ASSET CLASS

13.6.1.4. Data Sources and Maturity

Table 13-49 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 13-49: WASTEWATER TREATMENT DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
WWTP	Good	High	These assets were assessed in 2024, which provided the City with a complete and high confidence dataset.
Processing Equipment	Good	High	These assets were assessed in 2024, which provided the City with a complete and high confidence dataset.

13.6.2. Levels of Service

The City's objectives are to provide reliable, operation and environmentally sustainable Wastewater Treatment to all its residents and businesses. This means ensuring minimal service disruptions, ensuring all assets remain in a state of good repair by performing regular maintenance, and minimizing environmental impacts on the St. Lawrence River.

In addition to the levels of service herein, the City produces an annual report to comply with all potable water related regulations. It contains additional details of the services provided at a more granular level.

The mandated O.Reg 588/17 community and technical LOS for the Wastewater treatment are shown in Table 13-50 and Table 13-52, while the customer and technical LOS measures outlined by the City are shown in Table 13-51 and Table 13-53, respectively.

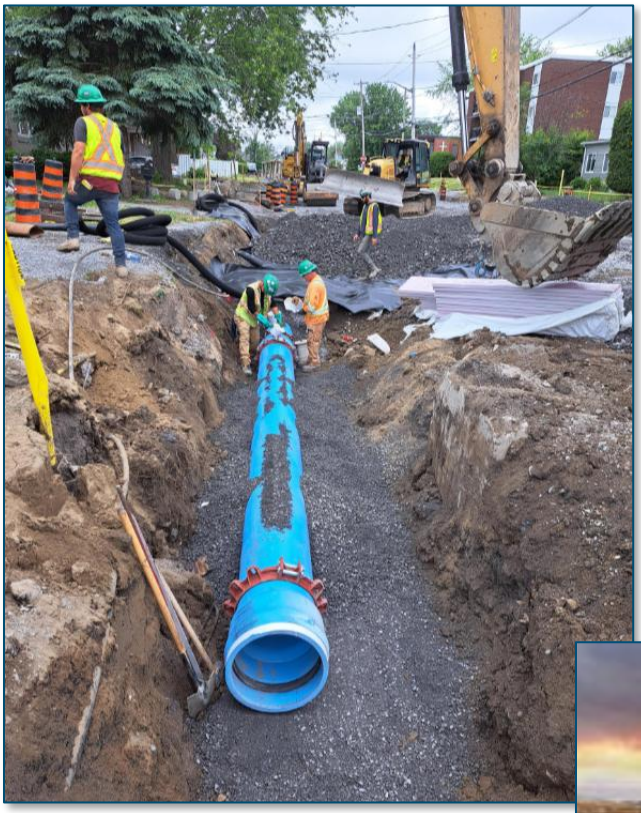




TABLE 13-50: WASTEWATER TREATMENT COMMUNITY LEVELS OF SERVICE – MANDATORY O.REG. 588/17 MEASURES

Community Measures	Performance
Service Attributes: **Reliable**	
Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system*	Effluent is sewage that has been treated to remove contaminants and then discharged into the environment. The City will continue to document the aspects of treated effluent, as required by regulations. The City will continue to remain in compliance with MECP regulations.

TABLE 13-51: WASTEWATER TREATMENT COMMUNITY LEVELS OF SERVICE – CITY OUTLINED

Community Measures	Performance
Service Attributes: **Environmentally Sustainable**	
Wastewater does not harm the environment	The technical metrics for environmental sustainability report no overflows as a result of mechanical failures, which indicates that the City is achieving its customer objectives. The City will continue to ensure minimal to no overflow events occur due to mechanical failures in the wastewater treatment process.
Service Attributes: **Quality**	
Adverse odours are minimized	Odour complaints are addressed on a case-by-case basis, the other service attributes also indirectly address odour issues by providing reliability, etc. The City will continue to address odour complaints on a case-by-case basis, to ensure the needs of its customer will remain being met.

TABLE 13-52: WASTEWATER TREATMENT TECHNICAL LEVELS OF SERVICE - MANDATORY O.REG. 588/17 MEASURES

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system*	WWTP	1	Continue to minimise effluent violations to wastewater discharge to the total number of properties connected to the municipal wastewater system

TABLE 13-53: WASTEWATER TREATMENT TECHNICAL LEVELS OF SERVICE – CITY OUTLINED

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of Assets in Poor or Better Condition	All	90%	Improve
Service Attribute: **Environmentally Sustainable**			
Annual report objectives met.	All	WWTP met all the effluent objectives for the 2024 reporting period.	Maintain
Service Attribute: **Quality**			
Number of odour of complaints	All	1 odour complaints reported for the year 2024	Improve

13.6.3. Lifecycle Management Strategies

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's Wastewater treatment. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery. Lifecycle management activities, including inspection, maintenance, rehabilitation and eventual replacement of assets enable the City to deliver efficient, cost-effective wastewater services while minimizing risks to the community and the environment. Effective operations and maintenance of the plant, along with supporting infrastructure such as pumping stations and sewers, is essential for maintaining reliable service, and preventing environmental impacts.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents. Lifecycle strategies also play a key role in mitigating risks associated with asset ownership and stewardship.

Table 13-54 summarizes the lifecycle activities performed on wastewater treatment assets.



TABLE 13-54: LIFECYCLE ACTIVITIES – WASTEWATER TREATMENT ASSETS

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Building condition assessment program	Every 5-years (min)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations & Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Major equipment or structural building component replacement	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new facilities in new subdivisions or expansion of existing facilities to accommodate for increased demand and population growth.	As identified through growth and development studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

13.6.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 13.6.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 13-54. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's financial strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that do not meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 13-62, Figure 13-63, Figure 13-64, and Figure 13-65 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

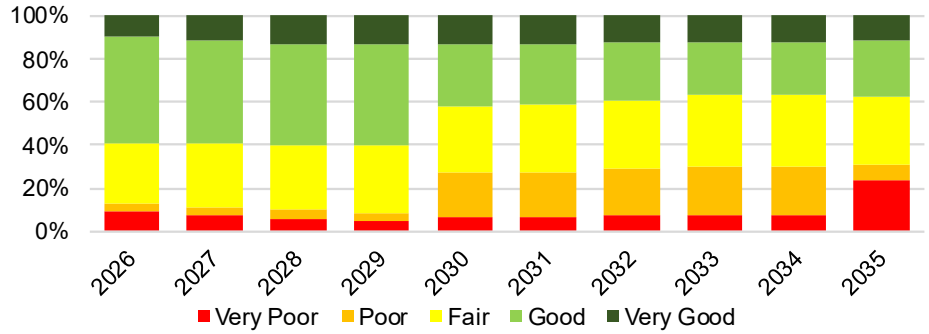


FIGURE 13-62: WASTEWATER TREATMENT ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

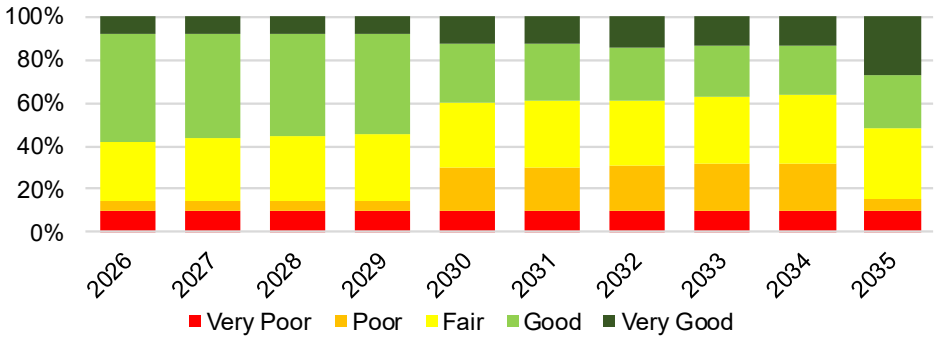


FIGURE 13-63: WASTEWATER TREATMENT MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

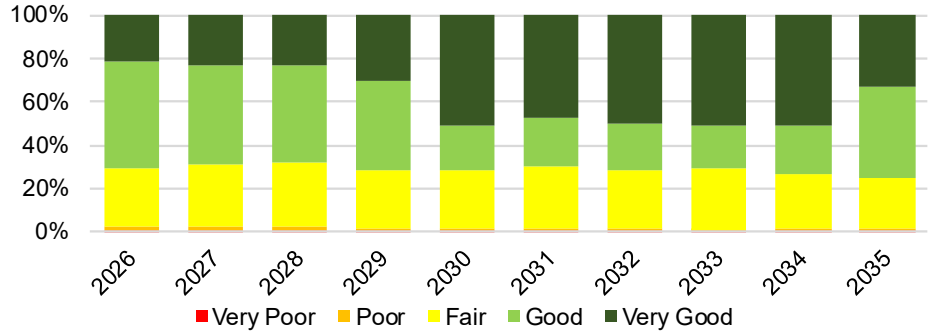


FIGURE 13-64: WASTEWATER TREATMENT BACKLOG ANALYSIS PERFORMANCE FORECAST

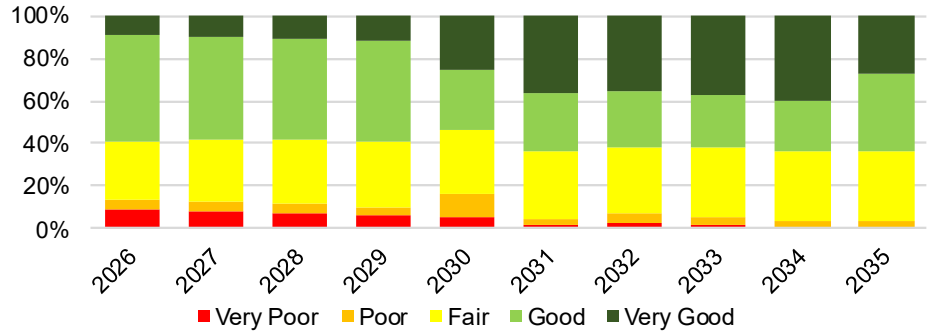


FIGURE 13-65 WASTEWATER TREATMENT PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 90% of the City's Wastewater treatment meets the LOS threshold of being in poor or better condition. Under the current anticipated capital budget of $2.68 million for renewals for the next 10

years, Wastewater treatment assets are expected to decrease in overall LOS, resulting in 76% of assets meeting their LOS. To maintain Wastewater treatment assets in their current LOS of 90%, it was determined the City would need to spend an annual average of $5.85 million in renewals. To eliminate all the backlog in the Wastewater treatment portfolio, it would cost $12.53 million per year in renewals according to the Backlog Analysis. Using the results of the scenarios and to balance cost, risk and LOS, the City has proposed to reach 100% of assets to meet the LOS threshold by the end of 10 years, costing the City an annual average of $9.24 million in renewals for the next 10 years.

Table 13-55 and Figure 13-66 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for Wastewater treatment. The bars on the Figure 13-66 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

TABLE 13-55: WASTEWATER TREATMENT BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$3.42M	$3.42M	$3.42M	$3.42M
Service Improvements	$0	$0	$0	$0
Growth Activities	$0	$0	$0	$0
Renewal & Replacement	**$2.68M**	**$5.85M**	**$12.53M**	**$9.24M**
Total Lifecycle Expenditures	$6.11M	$9.27M	$15.95M	$12.66M
Total Infrastructure Gap		$3.16M	$9.84M	$6.55M

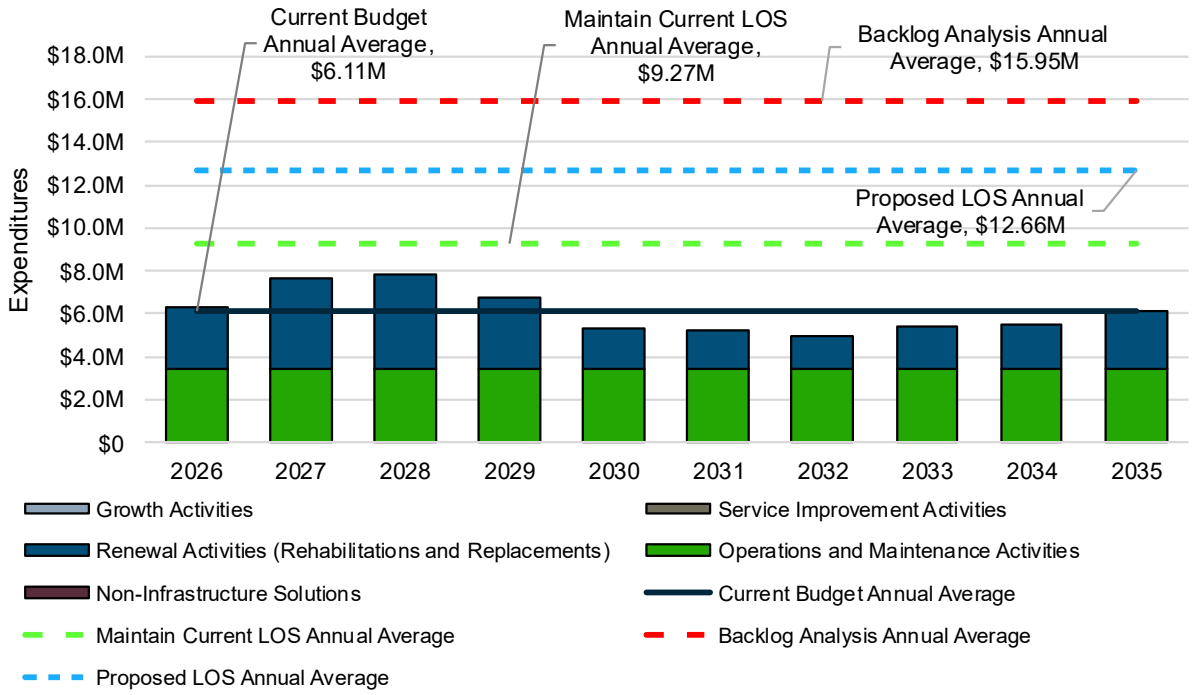


FIGURE 13-66: WASTEWATER TREATMENT SCENARIO ANALYSIS SUMMARY

13.6.5. Findings

Overall, the City maintains its $233.99 million Wastewater treatment in good condition, with all of its assets still within their service lives on average and 90% of assets that are in poor or better condition. Both data completeness and confidence are high, due to the City staying on top of data collection and maintaining it in asset repositories. In the community and technical levels of service measures outlined by the City, Cornwall currently has high levels and intends to maintain community measures and reliability of the system, while continuing to improve functionality and longevity of the system.

Looking at the City's anticipated budgets with regards to the Wastewater treatment, the City's anticipated budget of $6.11 million in total lifecycle activities resulted in a decrease in overall LOS, leaving 76% of assets meeting the LOS threshold. To maintain the Wastewater treatment at 90% of assets meeting the LOS, it would cost the City $9.27 million in total lifecycle activity investments annually. To address and remove all backlog from the network for the next 10 years, the City would need to spend $15.95 million annually in total lifecycle costs. Thus, to balance cost, risk and LOS, the City has proposed to eliminate the backlog in the Wastewater treatment by the end of 10 years, resulting in an annual cost of $12.66 million in lifecycle costs.

13.7. Water Treatment

The City of Cornwall for the treatment of drinking water supplied to residents, businesses, and institutions throughout the community. Delivering clean, safe, and reliable water is essential to protecting public health, supporting economic activity, and maintaining the overall quality. The assets within the scope of this subservice include the City's Water Purification Plant (WPP), raw water intake facilities and processing equipment in these facilities. Figure 13-67 illustrates the Water Treatment asset hierarchy.



Water Treatment

Processing Equipment
- Process Electrical
- Process Instrumentation
- Process Mechanical
- Process Piping

Vertical
- Raw Water Intake Facilities
- Water Purification Plant (WPP)

FIGURE 13-67: WATER TREATMENT ASSET HIERARCHY

13.7.1. State of the Infrastructure

This section outlines the state of infrastructure for Cornwall's Water Treatment, including asset inventory and valuation, age and estimated service life, asset condition, data sources and maturity. Please refer to Section 2.5.1 for further explanation and details on the information provided in the State of Infrastructure.

13.7.1.1. Asset Inventory and Valuation

The replacement cost for the City's Water treatment assets is $152.61 million and is summarized in Table 13-56 and Figure 13-68.

TABLE 13-56: WATER TREATMENT NETWORK ASSET SUMMARY

Asset Class	Quantity	Replacement Cost
Processing Equipment ($50.03M)		
Process Electrical	64 Assets	$12.11M
Process Instrumentation	83 Assets	$3.33M
Process Mechanical	264 Assets	$33.84M
Process Piping	2 Assets	$0.75M
Vertical ($102.58M)		
Raw Water Intake Facilities	1,655 Facility Components	$69.51M
Water Purification Plant	102,669 Facility Components	$33.08M
Total		**$152.61M**

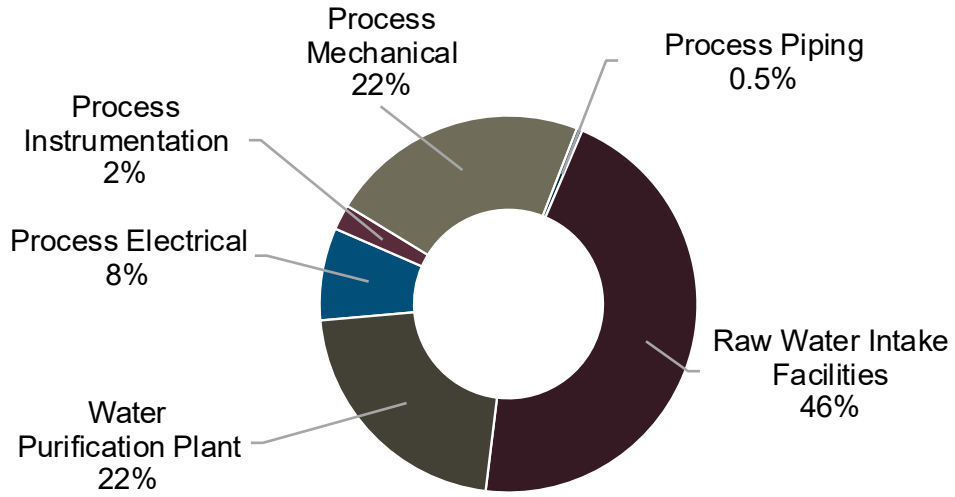


FIGURE 13-68: WATER TREATMENT VALUATION DISTRIBUTION

13.7.1.2. Age and Estimated Service Life

The average age of the City's Water Treatment portfolio is 47 years old with an average ESL of 56 years. Figure 13-69 provides a breakdown of the ages by asset class.

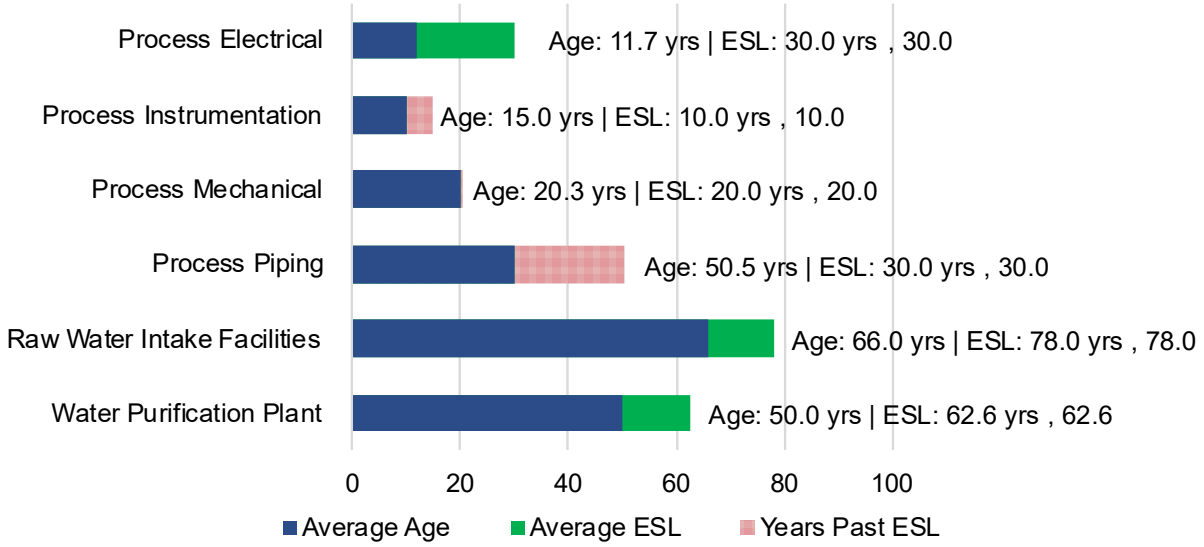


FIGURE 13-69: WATER TREATMENT SERVICE LIFE PROFILE (WEIGHTED BY REPLACEMENT COST)

Furthermore, Figure 13-70 below captures the installation decades in which the various asset classes were acquired and or installed by the City for their Water Treatment portfolio. The installation decades represented in Figure 13-70 capture the proceeding 10 years after the labels on the graph (e.g. the 2020 label represents 2020 to 2029). In the 1950s, the City acquired a significant portion of its water treatment portfolio of assets., followed by subtle additions from the 1970s to the 1980s. The City made substantial additions to the building and processing equipment starting in the 1990s, all the way to the 2020s. With the average age of the City's Water Treatment assets being 47 years old and the average ESL of 56 years, a bulk of renewals and rehabilitations are likely to be due in approximately 9 years or so.

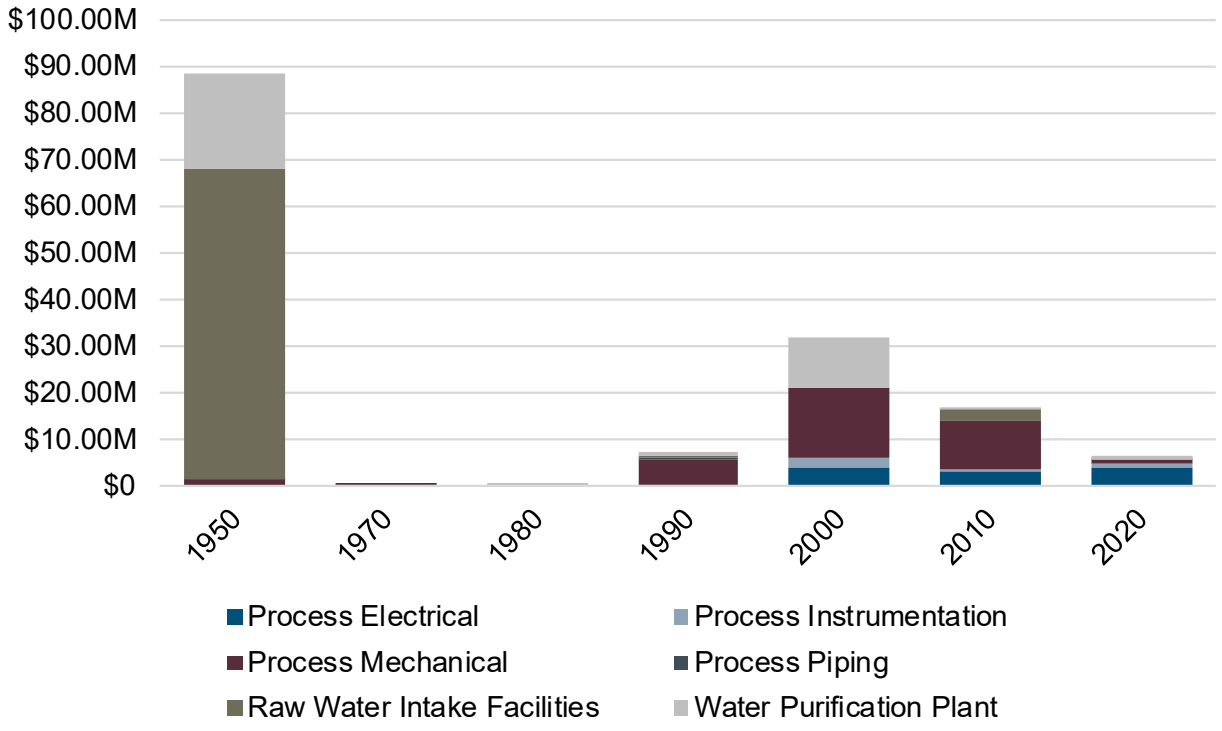


FIGURE 13-70: WATER TREATMENT INSTALLATION DECADE DISTRIBUTION BY ASSET CLASS

13.7.1.3. Asset Condition

The City has recently completed building condition assessments (BCAs) of the majority of its facilities in preparation for this Asset Management Plan. The BCA study identified current and future needs for all building elements within the City's facilities. Building elements were evaluated based on their current condition, as well as remaining life based on expert opinion. This information was then taken into account, and each facility element was given a score between one (Very good condition) to five (Very poor condition).

Furthermore, an assessment was completed by consultants on the processing equipment and data was captured at an asset level. Like a BCA, this assessment was completed by experts in wastewater processing and treatment, thus, assets were assigned scores based on current performance as well as remaining life.

Table 13-57 captures the condition data collection techniques utilized for the different active transportation assets, while Table 13-58 presents the logic used to convert life consumed and the visual inspection scores into a condition rating.

TABLE 13-57: WATER TREATMENT ASSETS CONDITION DATA COLLECTION

Asset Class	Condition Data Collection Technique	Frequency
• **WPP (Facility)**	Building Condition Assessments	Every 5-years (min)

Asset Class	Condition Data Collection Technique	Frequency
• Process Equipment (Assets)	Process Equipment Condition Assessments	Every 5-years (min)

TABLE 13-58: WATER TREATMENT ASSETS CONDITION RATINGS

Category	Processing Equipment (Life Consumed)	WPP and Raw Water Intake Facilities (Facility Component Rating)
Very Good	0% to 25%	1
Good	25% to 50%	2
Fair	50% to 75%	3
Poor	75% to 100%	4
Very Poor	>100%	5

Overall, the City's Water Treatment portfolio is in fair condition. 93% of assets are in Very Good to Poor condition, with less than 10% in Very Poor condition. Although 93% of assets meet the LOS threshold of being in Poor or Better condition, a substantial amount of assets are in Poor condition, meaning they will be due for renewal soon. A breakdown of the various condition categories within the Water treatment portfolio can be found in Figure 13-71, while a breakdown of the asset classes can be found in Figure 13-72.

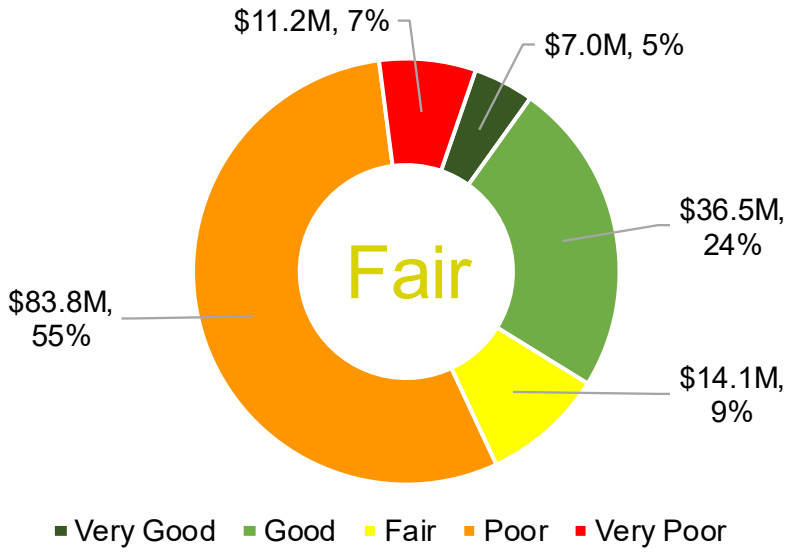


FIGURE 13-71: WATER TREATMENT CONDITION SUMMARY

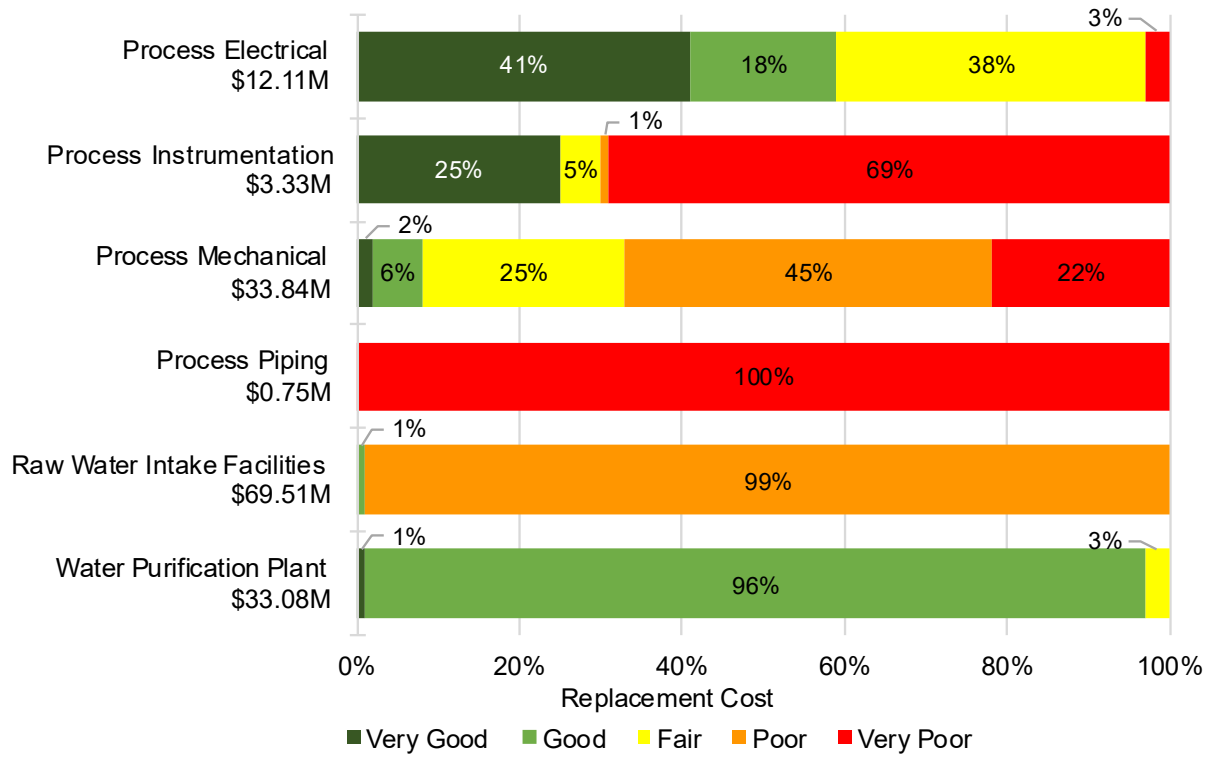


FIGURE 13-72: WATER TREATMENT CONDITION DISTRIBUTION BY ASSET CLASS

13.7.1.4. Data Sources and Maturity

Table 13-59 provides an assessment of the completeness and confidence of the data that was used to complete the analysis reported in this AMP.

TABLE 13-59: WASTEWATER TREATMENT DATA CONFIDENCE

Asset Class	Completeness	Confidence	Comments
Facilities	Good	High	These assets were assessed in 2024, which provided the City with a complete and high confidence dataset.
Process Equipment	Good	High	These assets were assessed in 2024, which provided the City with a complete and high confidence dataset.

13.7.2. Levels of Service

The City's objective is to provide reliable, high quality and safe water to all its residents and businesses. With respect to water treatment, this relates to ensuring that water is adequately treated before it is provided to the community. The City ensures that water is safe for consumption by complying with water quality regulations.

In addition to the levels of service herein, the City produces an annual report to comply with all potable water related regulations. It contains additional details of the services provided at a more granular level.

Community and technical levels of service for the City's Water treatment assets can be found in Table 13-60 and Table 13-61, respectively.





TABLE 13-60: WATER TREATMENT COMMUNITY LEVELS OF SERVICE

Community Measures	Performance
Service Attributes: **Safe**	
Water is safe to drink	The City ensures that all water quality parameters meet or exceed all provincially legislated requirements.
Service Attributes: **Quality**	
Water is of high quality (taste, smell and colour)	The City ensures that all water aesthetic parameters meet or exceed all provincially legislated requirements.
Water has adequate pressure	The City ensures that all water pressure parameters meet or exceed all provincially legislated requirements.

TABLE 13-61: WATER TREATMENT TECHNICAL LEVELS OF SERVICE

Performance Measure	Assets	Current Performance (2025)	Proposed Performance
Service Attribute: **Reliable**			
Percentage of Assets in Poor or Better Condition	WPP	100%	Maintain
Percentage of Assets in Poor or Better Condition	Raw Water Intake Facilities	100%	Maintain
Percentage of Assets in Poor or Better Condition	Processing Equipment	78%	Improve
Service Attribute: **Quality**			
Annual report objectives met.	WPP	The City has achieved a 95.30% Inspection Rating	Maintain

13.7.3. Lifecycle Management Strategies

Lifecycle activities are critical to sustaining the long-term functionality, reliability, and resilience of the City's Water Treatment assets. These activities guide asset management across the entire lifespan—supporting efficient, cost-effective service delivery.

Effective operation, maintenance, and long-term renewal of these assets are essential to maintaining regulatory compliance, ensuring service reliability, and managing risk. Ongoing lifecycle activities such as inspections, process optimization, upgrades to treatment technology, and asset rehabilitation help the City maintain system performance, protect public health, and plan for future growth and increasing service demands.

By applying best practices in asset management, including preventive maintenance and timely repairs, the City can extend asset life, reduce the need for major interventions, and maintain consistent, high-quality service for residents.

Table 13-62 summarizes the lifecycle activities performed on wastewater treatment facilities while Table 13-63 captures the lifecycle activities performed on processing equipment.



TABLE 13-62: LIFECYCLE ACTIVITIES – WATER TREATMENT FACILITIES

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Building condition assessment program	Every 5-years (min)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations & Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	When asset reaches poor condition, where feasible
Major equipment or structural building component replacement	When asset reaches poor condition
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Construction of new facilities in new subdivisions or expansion of existing facilities to accommodate for increased demand and population growth.	As identified through growth and development studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

TABLE 13-63: LIFECYCLE ACTIVITIES – PROCESSING EQUIPMENT

Description	Frequency
Non-Infrastructure Solutions	
Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
Community engagement to identify community needs.	Future initiative (annual)
Operations and Maintenance Activities	
Scheduled inspections and condition assessments of assets.	As required
Preventative maintenance programs to extend service lives.	Ongoing
Reactive maintenance to address issues from complaints, inspections, or preventative maintenance.	As required
Renewal Activities (Rehabilitations & Replacements)	
Rehabilitation based on inspections to extend service life where opportunities exist.	Where feasible
Replacement of assets at end of life.	As required
Disposals	
Asset disposal coordinated with asset replacement	Coordinated with asset replacement
Growth/Service Improvement Activities	
Purchase/procurement of additional equipment and fleet assets to support population growth or service expansion	As identified by staff or through studies
Upgrades or procurement of new assets.	As required to meet regulatory requirements or community needs/requests.

13.7.4. Funding the Lifecycle Activities

The lifecycle activities mentioned in Section 13.7.3 detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of lifecycle categories noted in Table 13-62 and Table 13-63. These years represent the most accurate data that the City has available for which to project spending needs forward. Note the analysis detailed below is for the City's capital budget forecast only. Many of these lifecycle activities are captured in operating budgets. Details of operating expenditures and associated budgets are provided as part of the City's financial strategy (Section 15).

The budget analysis was integrated with the results of the scenario analysis to forecast asset renewal needs based on lifecycle models. The scenarios evaluated are as follows:

- Anticipated Budget – Using previous capital budgets as well as capital forecasts to determine what the City anticipates spending on its assets to determine the resulting performance and levels of service at the end of the forecast.
- Maintain Current LOS – Using the lifecycle models and the current asset conditions, this scenario evaluates the cost needed to maintain the assets at the same percentage of assets meeting the LOS threshold throughout the forecast period.
- Backlog Analysis – This scenario determines the cost required to address assets that don't meet the LOS threshold within the network and then ensure assets stay within the LOS threshold through the remainder of the forecast.
- Proposed LOS – Using the results of the previous three scenarios as well as balancing cost, risk and LOS, the City chose a target annual expenditure or a performance goal.

Figure 13-73, Figure 13-74, Figure 13-75, and Figure 13-76 represent the performance forecast for the Anticipated Budget, Maintain Current LOS, Backlog Analysis and Proposed LOS Scenarios, respectively.

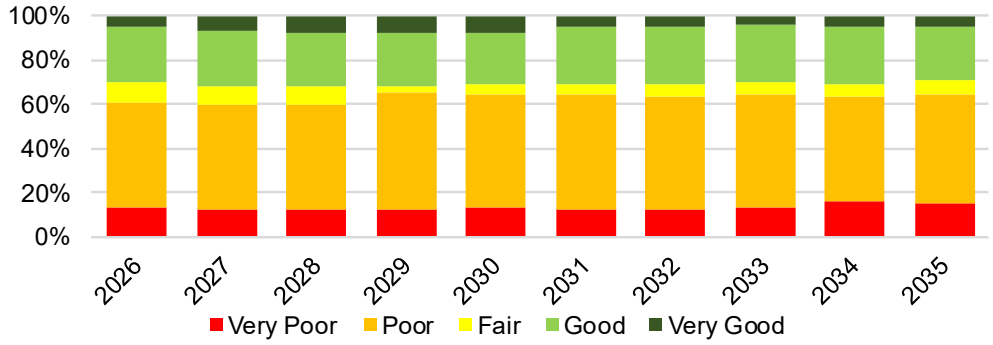


FIGURE 13-73: WATER TREATMENT ANTICIPATED BUDGET SCENARIO PERFORMANCE FORECAST

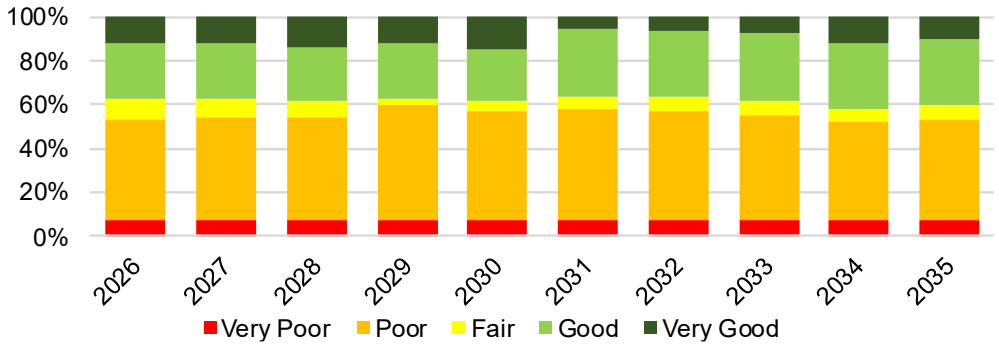


FIGURE 13-74: WATER TREATMENT MAINTAIN CURRENT LOS SCENARIO PERFORMANCE FORECAST

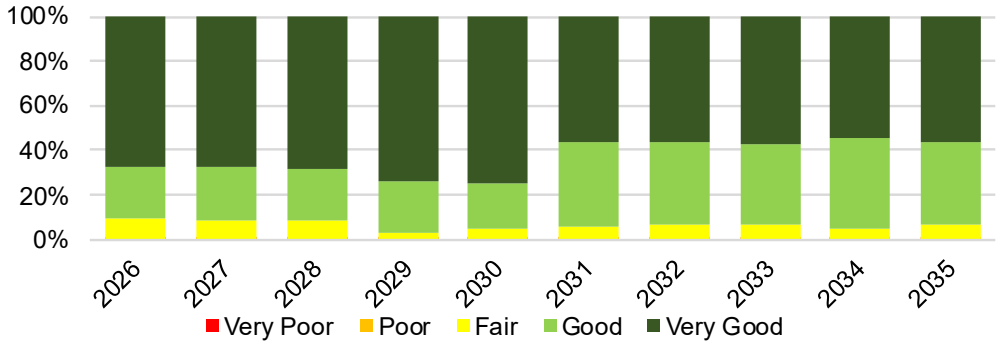


FIGURE 13-75: WATER TREATMENT BACKLOG ANALYSIS PERFORMANCE FORECAST

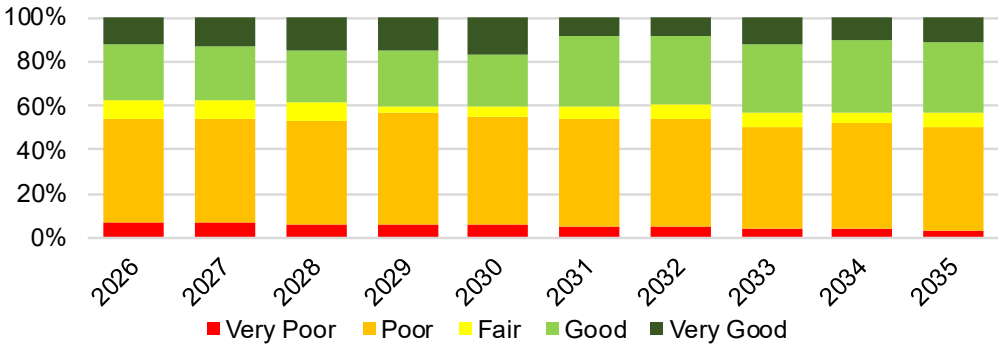


FIGURE 13-76 WATER TREATMENT PROPOSED LOS SCENARIO PERFORMANCE FORECAST

Currently, 93% of the City's Water Treatment portfolio meets the LOS threshold of being in poor or better condition. Under the current anticipated capital budget of $1.68 million for renewals for the next 10 years, Water treatment assets are expected to decrease in overall LOS, resulting in 85% of assets meeting their LOS. To maintain Water treatment assets in their current LOS of 93%, it was determined the City would need to spend an annual average of $3.38 million in renewals. To eliminate all the backlog in the Water treatment portfolio, it would cost $11.59 million per year in renewals according to the Backlog Analysis. Using the results of the scenarios and to balance cost, risk and LOS, the City has proposed to reach 100% of assets to meet the LOS threshold by the end of 25 years, costing the City an annual average of $6.10 million in renewals for the next 25 years.

Table 13-64 and Figure 13-77 provide a breakdown of the average lifecycle activity spending for each of the evaluated scenarios for Water treatment. The bars on the Figure 13-77 illustrate the City's 10-year capital plan broken down by the different lifecycle activities, while the lines represent the 10-year average of total lifecycle spending for each scenario evaluated.

TABLE 13-64: WATER TREATMENT BUDGET ANALYSIS

Lifecycle Activity	Anticipated Budget	Maintain Current LOS	Backlog Analysis	Proposed LOS
Non-Infrastructure	$0	$0	$0	$0
Operations & Maintenance	$1.91M	$1.91M	$1.91M	$1.91M
Service Improvements	$0	$0	$0	$0
Growth Activities	$0	$0	$0	$0
Renewal & Replacement	**$1.68M**	**$3.38M**	**$11.59M**	**$6.10M**
Total Lifecycle Expenditures	$3.60M	$5.30M	$13.50M	$8.02M
Total Infrastructure Gap		$1.70M	$9.91M	$4.42M

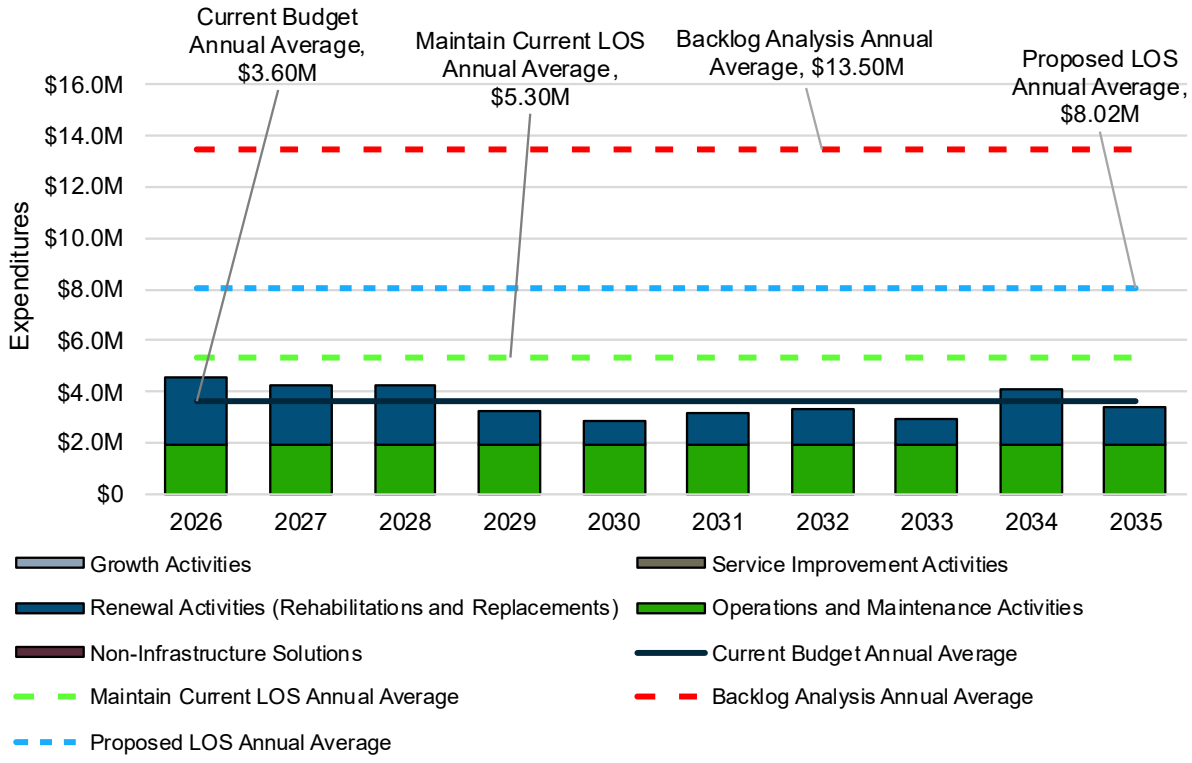


FIGURE 13-77: WATER TREATMENT SCENARIO ANALYSIS SUMMARY

This illustrates the City's gap between the anticipated budget and the various investment scenarios. The current budget is significantly lower than the funding required to maintain or enhance service levels.

13.7.5. Findings

Overall, the City maintains its $152.61 million Water Treatment assets in fair condition, with all of its assets still within their service lives on average and 93% of assets that are in poor or better condition. While a considerable amount of assets are still within the LOS threshold of Poor or better condition, a large portion of these assets are in poor condition and will need to be addressed by the City in the near future. Both data completeness and confidence are high, due to the recent BCA study and maintaining its data completeness. In the community and technical levels of service measures outlined by the City, currently has high levels and intends to maintain community measures and reliability of the system, while continuing to improve functionality and longevity.

Looking at the City's anticipated budgets with regards to the Water Treatment, the City's anticipated budget of $3.60 million in total lifecycle activities resulted in a decrease in overall LOS, leaving 85% of assets meeting the LOS threshold. To maintain the Water treatment at 93% of assets meeting the LOS, it would cost the City $5.30 million in total lifecycle activity investments annually. To address and remove all backlog from the network for the next 10 years, the City would need to spend $13.50 million annually in total lifecycle costs. Thus, to balance cost, risk and LOS, the City has proposed to eliminate the backlog in the Water Treatment, resulting in an annual cost of $8.02 million in lifecycle costs.

14. Growth Considerations

14.1. Comprehensive Review Growth Analysis Study

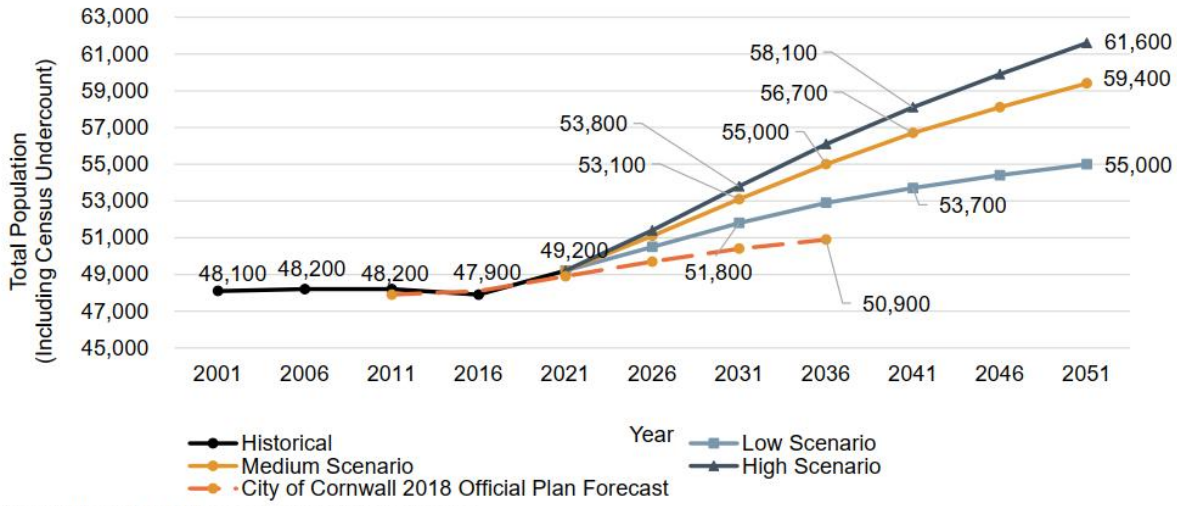
The City's Comprehensive Review Growth Analysis Study completed an assessment of growth within the City to 2051.

The City's population in 2021 was 49,200 people. The City's population is anticipated to reach between 55,000 and 61,600 by 2051, representing an annual growth rate of 0.4% to 0.6%. The following table and figure illustrate this analysis. Table 14-1 below captures the City's population forecast.

TABLE 14-1 CITY OF CORNWALL POPULATION FORECAST

Population Growth Scenario	2021	2051	2021-2051	Annual Growth	Annual Growth Rate
Low Scenario	49,200	55,000	5,800	195	0.4%
Medium Scenario	49,200	59,400	10,200	340	0.6%
High Scenario	49,200	61,600	12,400	315	0.8%

Source: Watson & Associates Economists Ltd., Comprehensive Review Growth Analysis Study, 2024.



Note: Population includes net Census undercount and has been rounded
Source: Historical derived from Statistics Canada Census data, 2001 to 2021. City of Cornwall 2018 Official Plan forecast from City of Cornwall Municipal Comprehensive Review, Growth Forecast and Urban Land Needs Analysis, May 12, 2015, Watson & Associates Economists Ltd., and City of Cornwall Low, Reference and High Scenarios by Watson & Associates Economists Ltd.

FIGURE 14-1: CITY OF CORNWALL POPULATION FORECAST

Table 14-2 and Figure 14-2 below show the City's Employment Forecasts from the same study. The City has an employment figure of 23,700 in 2023. That value is expected to reach between 28,700 and 33,600 by 2051, representing an annual growth rate of 0.7% to 1.3%.

TABLE 14-2 CITY OF CORNWALL EMPLOYMENT FORECAST

Employment Growth Scenario	2023	2051	2021-2051	Annual Growth	Annual Growth Rate
Low Scenario	23,700	28,700	5,000	180	0.7%
Medium Scenario	23,700	31,600	7,900	280	1.0%
High Scenario	23,700	33,600	9,900	360	1.3%

Source: Watson & Associates Economists Ltd., Comprehensive Review Growth Analysis Study, 2024.

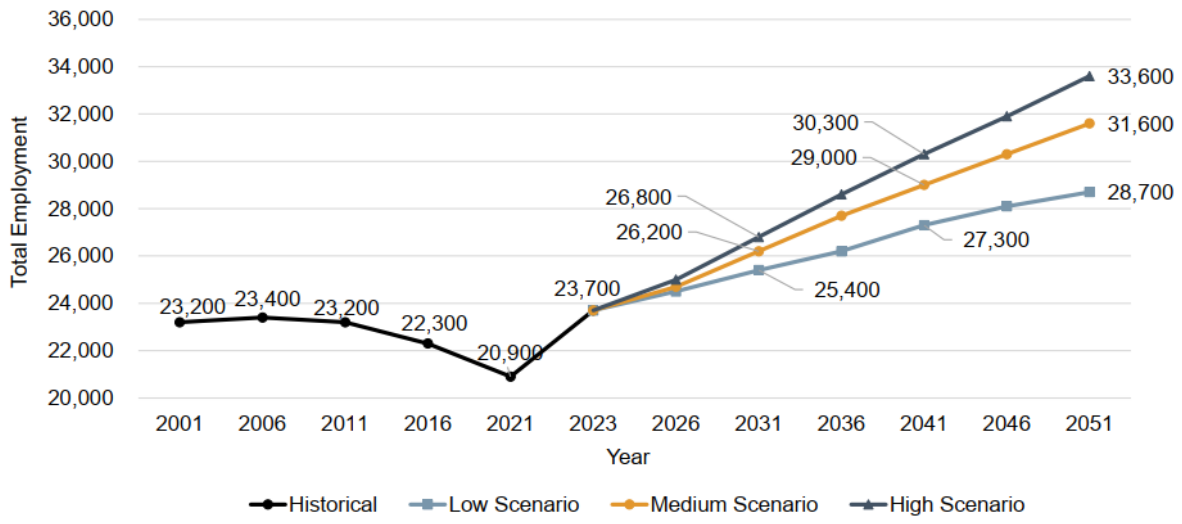


FIGURE 14-2: CITY OF CORNWALL EMPLOYMENT FORECAST

These forecasts are used to provide context to the findings of this AMP. For this AMP, the focus of growth projections has been the net capital costs (costs to be incurred by the City), and the operational impact.

Growth will likely correspond to increased demand on all assets, which could result in quicker deterioration of assets and reduced service levels if not addressed appropriately. Maintaining capacity, quality and reliability may also present a challenge as Cornwall's population increases.

The City will increase its asset portfolio to accommodate the increasing population through new development. This will also result in further additional and non-financial resources to operate and manage the lifecycle activities associated with these new assets.

More information on growth planning can be found in the Comprehensive Review Growth Analysis Study. The City's Financial Strategy within this AMP details the city's forecasted growth plan for in-scope assets to expand its asset portfolio and accommodate the expected population growth. A growing population creates a need for the expansion of construction of infrastructure, resulting in additional asset lifecycle needs, including operation and maintenance and eventually renewal. The financial impacts of growth were derived from a detailed budget analysis of the City's budget forecast, which was developed using existing planning documents at the City. These costs have been

incorporated into the growth, operations and maintenance lifecycle activities in this AMP's Financial Strategy.

14.2. Housing Needs Assessment

In 2025, the City conducted a Housing Needs Assessment (HNA) to assist with assessing their current and future housing needs, including identifying where houses are needed, the types of houses required and the associated financial requirements.

As a part of this assessment, low, medium and high-growth scenarios were studied to determine the projected household counts by 2036. The total number of households are expected to increase from 21,385 in 2021 to between 23,977 and 25,432 by 2036. Table 14-3 summarizes the results of these studies.

TABLE 14-3: PROJECTED HOUSEHOLD COUNT AND SPLIT BETWEEN INCOME CATEGORIES FOR LOW, MEDIUM, AND HIGH GROWTH SCENARIOS

Income Category	% of Total Households (HH)	Count of HH (2021)	Projected HH Count (2036) – Low Growth	Projected HH Count (2036) – Medium Growth	Projected HH Count (2036) – High Growth
Very Low Income (20% or under of AMHI)	1.12%	239	268	280	285
Low Income (21% to 50% of AMHI)	18.11%	3,875	4,343	4,528	4,611
Moderate Income (51% to 80% of AMHI)	19.49%	4,169	4,674	4,873	4,959
Median Income (81% to 120% of AMHI)	21.46%	4,587	5,144	5,365	5,457
High Income (more than 120% of AMHI)	39.81%	8,515	9,548	9,953	10,120
Total HHs	100%	21,385	23,977	25,000	25,432

More information on the City's identified housing needs can be found in both the City of Cornwall Housing Needs Assessment, and the City's Housing Services section within this AMP.

15. Financial Strategy

15.1. Introduction

The financial strategy of this AMP aims to identify the appropriate funding levels required to maintain current service levels. It takes into consideration revenues, operating and capital expenditures, debt, and any future commitment for all the asset classes in the plan. It outlines the suggested financial approaches to funding the City's recommended strategies to address asset lifecycle needs and maintain service levels. It is not intended to be a capital plan, prescribing projects to be completed but rather to ensure that funding levels are enough to maintain current service levels over a 10-year period.

As part of the City's AMP development, the City also developed a Risk Management Strategy. This strategy provides a tactical assessment of risk against individual asset records. In conjunction with the lifecycle strategy, the Risk strategy assists the City in identifying the strategies that minimize risk while maintaining service levels. This helped the City understand asset needs from a combined lifecycle and risk-based approach, for which to complete its financial forecasts.

The City's budgets are developed to allocate the necessary funding to provide services, maintain, and construct infrastructure assets. These are based on required costs (expenditures) and available funding (revenues). The City allocates a portion of their revenues from property taxes and user rates for various services to support current year projects, contribute to reserves, and make debt repayments for past capital projects.

Property taxes fund the City's core asset programs and services including the majority of services in this AMP. Water and wastewater rates fund the Utilities assets (Water Treatment, Wastewater Treatment, etc.) reported herein.

In this section, the asset classes are summarized into the following three (3) categories:

- **Taxation:** Includes all asset classes except for Water and Wastewater assets.
- **Water:** Includes the Water Distribution Network and Water Treatment assets.
- **Wastewater:** Includes Wastewater Treatment, Combined Sewer, Sanitary Sewer and Storm Sewer Collection System assets.

In terms of expenditures, the City categorizes their budget into the following:

- **Operating budget:** Supports the day-to-day activities and functions conducted to provide City services. Samples of the expenditures funded from the operating budget include staff salaries, equipment maintenance, materials supply, and facilities services. These are expensed within the fiscal year.
- **Capital budget:** A comprehensive financial plan that addresses the financial requirements of growth and the renewal and replacement of existing infrastructure.

As part of the annual budget development process, the City ensures continued financial sustainability through effective financial planning and risk management. The City will use one or more of these financial strategies to fund its projects:

- **Pay as you go:** Saving funds in advance to acquire an asset. This strategy often requires sacrificing short-term needs to retain funds long-term for a larger capital project.
- **Financing:** A loan issued to acquire an asset which requires annual repayments with interest (limited to an annual payment limit or 25% of the City's own source revenue, as per O.Reg. 403/02). The City practices an internal policy of 10% of own source revenue and it is considered to be an important avenue for financing capital projects while practicing good budget management.
- **Reserve Accounts:** Contributing to a reserve account to maintain a threshold for unexpected costs and to save for larger planned projects.
- **Government Grants:** Funding provided by Provincial and Federal Governments.
- **Development Charges:** Fees collected from new development to fund growth-related infrastructure and services.
- **User Fees:** Fees from the user of a service.

The financial strategies outlined in these sections uses short- and long-term strategies to ensure fiscal responsibility and provide the necessary services to the residents and businesses of Cornwall. This includes the continued preparation and distribution of the 10-year capital plan allocations.

Procurement strategies also form part of the City's financial plan to meet service levels and address backlogs. The City actively selects its projects to minimize financial impacts, by bundling procurement where possible, and balancing projects and City resources to ensure cost efficiency.

The following section details the financial results of each scenario analyzed for this AMP, as well as asset backlogs and shortfalls/excess. It discusses various strategies and avenues to fund asset shortfalls, as well as risks associated with the lifecycle activities under each strategy. It also discusses the consequences of deferring work and not addressing backlog. The results of this AMP and financial strategy are expected to be used to inform the City's Long-Term Financial Plan. The Long-Term Financial Plan document further provides the City with specific strategies to fund shortfalls.

15.2. Total Portfolio Summary

The results of the asset management analyses completed as part of the development of this AMP are summarized in the following tables. Each table summarizes replacement values, current backlogs and backlogs as a percentage of replacement values for each asset grouping.

Backlog was identified using current asset data, coupled with a decision support analysis, which combines asset installation dates, current condition, lifecycle models and LOS targets in order to determine asset needs.

The current backlog value represents the amount of immediate work that is required (not including additional work that may occur over the forecast periods) to meet the City's LOS targets. Most municipalities operate with some level of backlog. The forecasting analysis detailed in subsequent sections, which is based on asset lifecycle modelling, provides an evaluation of the change in that backlog over time.

Table 15-1 provides a summary of the current replacement value and backlogs for each of the three categories of this financial strategy: Taxation, Water and Wastewater. Table 15-2, Table 15-3 and Table 15-4 provide breakdowns of the subservices in each of the categories.

TABLE 15-1 REPLACEMENT VALUE AND CURRENT BACKLOG SUMMARY

Category	Current Replacement Value (2025 $)	Current Backlog (2025 $)	Backlog as % of Replacement Value
Taxation	$1,917.03M	$107.49M	5%
Water	$716.78M	$99.85M	6%
Wastewater	$988.99M	$59.79M	14%

TABLE 15-2 REPLACEMENT VALUE AND CURRENT BACKLOG SUMMARY – TAXATION

Subservice	Current Replacement Value (2025 $)	Current Backlog (2025 $)	Backlog as % of Replacement Value
Library Services	$30.44M	$0	0%
Museums	$2.32M	$0	0%
Parks	$28.44M	$1.34M	5%
Recreation	$212.10M	$0.44M	0%
Fire Services	$63.21M	$0.33M	1%
Paramedic Services	$34.79M	$0.31M	1%
Police Services	$6.46M	$0.76M	12%
Solid Waste Management Services	$20.79M	$0	0%
Administration	$120.00M	$1.88M	2%
Community Housing	$413.41M[7]	$0.09M	0%
Long-term Care	$64.97M	$1.82M	3%
Transit	$48.27M	$2.11M	4%
Road Network	$798.87M	$98.20M	12%
Active Transportation	$72.96M	$0.21M	0%
Total Taxation	**$1,917.03M**	**$107.49M**	**5%**

[7] Including City-owned and -operated housing assets (internal housing, fleet and equipment)

TABLE 15-3 REPLACEMENT VALUE AND CURRENT BACKLOG SUMMARY – WATER

Subservice	Current Replacement Value (2025 $)	Current Backlog (2025 $)	Backlog as % of Replacement Value
Water Distribution Network	$564.17M	$88.83M	16%
Water Treatment	$152.61M	$11.02M	7%
Total Water	$716.78M	$99.85M	14%

TABLE 15-4 REPLACEMENT VALUE AND CURRENT BACKLOG SUMMARY – WASTEWATER

Subservice	Current Replacement Value (2025 $)	Current Backlog (2025 $)	Backlog as % of Replacement Value
Combined Sewer Collection System	$156.43M	$18.00M	12%
Sanitary Sewer Collection System	$346.39M	$15.77M	5%
Storm Sewer Collection System	$252.18M	$9.15M	4%
Wastewater Treatment	$233.99M	$16.87M	7%
Total Wastewater	$988.99M	$59.79M	6%

15.3. Capital and Maintenance Budget Forecasts

The lifecycle activities discussed in this AMP detail the works that the City undertakes to ensure service levels are provided to the community. These activities inform the City's budget planning and forecasting to plan work and determine future expenditure needs. A review of the City's 10-year capital budget forecast has identified the costs that the City anticipates for each of the lifecycle activity categories, which includes:

- **Non-infrastructure Solutions:** Activities undertaken to increase the service life of assets, that are not direct maintenance or renewal works.
- **Renewal Activities:** Major rehabilitations/repairs and asset replacements that increase or restore the asset's service life.
- **Disposals:** The activities required to decommission or dispose of assets. Often these activities are tied to renewals.
- **Service Improvement Activities:** Activities that are required to accommodate regulatory changes, or otherwise improve asset function/service provisions, and are not specifically related to asset condition.
- **Growth Activities:** The activities required to accommodate growth and the associated expansion of infrastructure.

Each of the activities is totaled into the following categories:

- **Total Capital Activities:** The total amount for all capital forecasts (Non-infrastructure, Renewals, Disposals, Service Improvements and Growth).

In addition, Operating Activities are reported in the following category:

- **Total Operating Activities:** The total amount for all operating activities, including maintenance and asset operation. These activities are derived primarily from the City's operating budget, but also can be obtained from the capital budget, since operating activities may be allocated there, if significant in nature.

Table 15-5 (Taxation), Table 15-6 (Water) and Table 15-7 (Wastewater) summarize the City's capital and maintenance budget forecasts for the next 10-years.

TABLE 15-5 CAPITAL AND MAINTENANCE BUDGET FORECASTS – TAXATION ($000,000'S)

Lifecycle Activity	2026	2027	2028	2029	2030	2032	2033	2034	2035
Non-Infrastructure Solutions	$0.55	$0.10	$0.10	$0.34	$0.34	$0.34	$0.34	$0.34	$0.34
Operations and Maintenance Activities	$41.78	$41.78	$41.78	$41.78	$41.78	$41.78	$41.78	$41.78	$41.78
Renewal Activities (Rehabilitations and Replacements)	$18.36	$21.45	$18.55	$22.28	$15.48	$18.16	$25.52	$14.10	$14.05
Service Improvement Activities	$0	$5.05	$0.05	$2.28	$2.28	$2.28	$2.28	$2.28	$2.28
Growth Activities	$0.84	$0.86	$0.88	$0.90	$0.92	$0.94	$0.96	$0.98	$1.00
Total Capital Activities	$19.75	$27.46	$19.58	$25.80	$19.03	$21.72	$29.10	$17.70	$17.67
Total Operating Activities	$41.78	$41.78	$41.78	$41.78	$41.78	$41.78	$41.78	$41.78	$41.78

Taxation capital asset budget forecasts show higher investments on average from 2026 to 2033 and decrease beyond those years. The capital budget forecast is predominantly driven by renewal needs. The most significant investment occurs in 2033, followed by 2027 and then 2029.

Operating budget forecasts are projected to increase moderately over time, to account for the additional expenses associated with the acquisition of new assets, as well as the aging of existing assets.

TABLE 15-6 CAPITAL AND MAINTENANCE BUDGET FORECASTS - WATER ($000,000'S)

Lifecycle Activity	2026	2027	2028	2029	2030	2032	2033	2034	2035
Non-Infrastructure Solutions	$0	$0.05	$0	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01
Operations and Maintenance Activities	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67
Renewal Activities (Rehabilitations and Replacements)	$8.70	$5.50	$5.55	$4.55	$4.25	$4.55	$4.75	$4.40	$5.60
Service Improvement Activities	$5.00	$5.00	$0	$2.00	$2.00	$2.00	$2.00	$2.00	$2.00
Growth Activities	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Capital Activities	$13.70	$10.55	$5.55	$6.56	$6.26	$6.56	$6.76	$6.41	$7.61
Total Operating Activities	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67

Water asset budget forecasts for renewals generally remain steady over the next 10 years. The most significant capital budget impact comes from renewal activities. From 2026 to 2032, the City has forecasted a service improvement need related to the Raw Water Intake Redundancy capital project. This project is estimated to cost $42.3 million in 2022, increasing to $51.6 million in 2027 and $65.9 million in 2032. The City has begun lobbying for senior government funding to support the project. It is hoped that the City will receive two-thirds funding. The municipal component of the project, assumed to be one-third of project costs, is included in the 10-year financial plan and reflected above. The City plans to finance its share of the project.

Operating budget forecasts are projected to increase moderately over time, to account for the additional expenses associated with the acquisition of new assets, as well as the aging of existing assets.

TABLE 15-7 CAPITAL AND MAINTENANCE BUDGET FORECASTS - WASTEWATER ($000,000'S)

Lifecycle Activity	2026	2027	2028	2029	2030	2032	2033	2034	2035
Non-Infrastructure Solutions	$0	$0.05	$0	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01
Operations and Maintenance Activities	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67
Renewal Activities (Rehabilitations and Replacements)	$8.70	$5.50	$5.55	$4.55	$4.25	$4.55	$4.75	$4.40	$5.60
Service Improvement Activities	$5.00	$5.00	$0	$2.00	$2.00	$2.00	$2.00	$2.00	$2.00
Growth Activities	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Capital Activities	$13.70	$10.55	$5.55	$6.56	$6.26	$6.56	$6.76	$6.41	$7.61
Total Operating Activities	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67	$3.67

Wastewater asset budget forecasts have a significant investment in 2026 and 2027, and then level off to a relatively steady forecast over the next 10 years. Most of the City's capital activities are made up of renewal activities as well as service improvements. The service improvement activities the City has forecasted investment in largely the combined sewer separation projects.

Operating budget forecasts are projected to increase moderately over time, to account for the additional expenses associated with the acquisition of new assets, as well as the aging of existing assets.

15.4. Total Funding Shortfall

While the City forecasts its capital budgets over a 10-year period, it has the most confidence in the first three-years of that forecast (2026 to 2028), as it represents the most accurate information that the City has available for which to project spending needs forward. The expenditures in the 10-year capital forecast were used to project spending for asset renewal activities. The expenditures from 2026 to 2028 for the other lifecycle activities (non-infrastructure, operations and maintenance, service improvements, and growth activities) were projected using the capital forecast. Expenditures from 2029 and onward were projected using the 5-year average from 2024 to 2028.

The City's total funding shortfall is calculated by comparing the existing budget forecast to the City's proposed LOS scenarios completed in the AM analyses. By understanding the difference between existing and target levels, the City can understand the funding shortfall required to meet LOS objectives over the medium and long term.

The results of the scenario analyses and financial plan are illustrated in the following tables and figures. The AM analyses were conducted under the assumption that operating expenditures will remain the same for all scenarios and are fully accommodated under the City's existing Operating Budget. Since the lifecycle models were developed around capital works interventions, the forecasting analysis provided a comparison of capital needs (backlog) against anticipated capital funding.

To articulate the gaps further, Table 15-8, Table 15-9 and Table 15-10 detailed below provide a comparison of the equivalent annual costs for each of the analysis scenarios for taxation, water and wastewater funding groups, respectively. The tables compare the renewal portion of the work only, which is the lifecycle activity where shortfalls are identified.

Figure 15-1, Figure 15-2 and Figure 15-3 illustrate the City's asset needs in a bar graph format for taxation, water and wastewater funding groups, respectively. They show all forecasted lifecycle activities, and not just renewals. Bars illustrate the costs from the City's 10-year forecasts. The equivalent annual cost of these bars is illustrated as a solid line, labeled Scenario 1: Anticipated Budget, which is based on the projected expenditures for each lifecycle activity:

- Expenditures for renewal activities are projected using the 10-year capital forecast;
- The annual expenditures for non-renewal lifecycle activities for the first 3 years are projected using the first 3 years of the 10-year capital forecast (2026 to 2028); and
- The annual expenditures for non-renewal lifecycle activities from 2029 and onwards are projected using the 5-year average (2024 to 2028) of the capital forecast.

The results of the forecasting scenarios are illustrated as dashed lines on the figures. The figure serves as a means to compare and contrast the scenario results. The equivalent annual costs of the City's anticipated budget (solid line) forecast, as well as other analyzed scenarios (dashed lines) are also plotted to compare and contrast the scenario results. Gaps are visualized by the difference between the City's anticipated budget (solid line), and the various scenarios (dashed lines).

TABLE 15-8 FUNDING SHORTFALL (RENEWAL) EQUIVALENT ANNUAL COSTS – TAXATION

Subservice	Scenario 1: Anticipated Budget	Scenario 2: Maintain Current LOS	10-year Funding Shortfall/ (Excess) vs. Scenario 2	Scenario 3: Backlog Analysis	10-year Funding Shortfall/ (Excess) vs. Scenario 3	Scenario 4: Proposed LOS	10-year Funding Shortfall/ (Excess) vs. Scenario 4
Libraries and Museums	$0.40M	$0.09M	No Gap	$0.61M	$0.21M	$0.09M	No Gap
Parks	$0.31M	$0.38M	$0.07M	$4.73M	$4.42M	$0.38M	$0.07M
Recreation	$0.47M	$1.02M	$0.55M	$5.75M	$5.28M	$1.02M	$0.55M
Fire Services	$0.73M	$3.29M	$2.56M	$3.78M	$3.05M	$1.93M	$1.20M
Paramedic Services	$0.99M	$1.56M	$0.57M	$2.94M	$1.94M	$1.56M	$0.57M
Police Services	$0.45M	$0.59M	$0.14M	$0.84M	$0.39M	$0.59M	$0.14M
Solid Waste Management Services	$0.74M	$1.10M	$0.36M	$1.72M	$0.97M	$1.85M	$1.11M
Administration	$1.80M	$2.57M	$0.77M	$4.83M	$3.03M	$2.57M	$0.77M
Community Housing	$1.40M	$4.31M	$2.90M	$13.67M	$12.26M	$32.39M	$30.99M
Long-term Care	$0.35M	$0.61M	$0.26M	$0.87M	$0.52M	$1.50M	$1.15M
Transit	$1.30M	$2.33M	$1.02M	$3.26M	$1.95M	$1.24M	No Gap
Road Network	$12.32M	$13.03M	$0.71M	$23.40M	$11.08M	$16.08M	$3.77M
Active Transportation	$0.94M	$0.97M	$0.03M	$1.74M	$0.80M	$1.91M	$0.96M
Total Capital Activities	**$22.20M**	**$31.84M**	**$9.94M**	**$68.13M**	**$45.93M**	**$63.10M**	**$41.27M**
Total Operating Activities	**$41.78M**	**$41.78M**		**$41.78M**		**$41.78M**	

The results of the forecasting analysis revealed a gap of $9.94 million annually to maintain levels of service when comparing the anticipated budget for the next 10-years. The gap is primarily driven by the Community Housing, which makes up approximately 30% of that gap. Other service areas with large gaps include Fire Services ($2.56 million annually) and Transit ($1.02 million annually). Service areas that are able to meet or exceed current levels of service given anticipated funding are Arts and Cultural services. Furthermore, a gap of $41.27 million annually was identified to achieve proposed LOS over the next 10-year period, largely made up of proposed budgets from the City's Community Housing and Road Network.

Figure 15-1 illustrates the forecast results for all lifecycle activities.

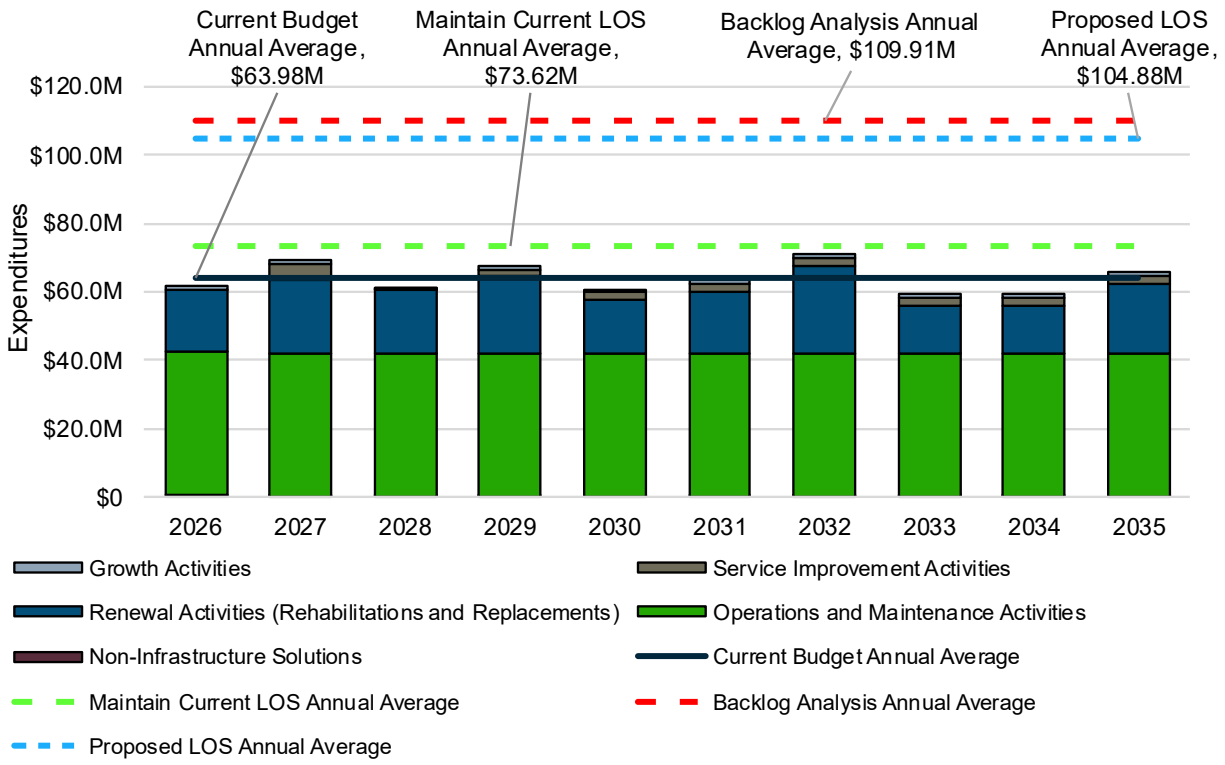


FIGURE 15-1: FINANCIAL FORECAST SCENARIOS SUMMARY – TAXATION

TABLE 15-9 FUNDING SHORTFALL (RENEWAL) – EQUIVALENT ANNUAL COSTS – WATER

Subservice	Scenario 1: Anticipated Budget	Scenario 2: Maintain Current LOS	10-year Funding Shortfall/ (Excess) vs. Scenario 2	Scenario 3: Backlog Analysis	10-year Funding Shortfall/ (Excess) vs. Scenario 3	Scenario 4: Proposed LOS	10-year Funding Shortfall/ (Excess) vs. Scenario 4
Water Distribution Network	$6.04M	$3.69M	No Gap	$11.46M	$5.42M	$11.10M	$5.06M
Water Treatment	$1.70M	$3.39M	$1.70M	$11.60M	$9.91M	$6.12M	$4.42M
Total Capital Activities	**$7.74M**	**$7.08M**	**No Gap**	**$23.06M**	**$15.32M**	**$17.21M**	**$9.47M**
Total Operating Activities	**$3.67M**	**$3.67M**	-	**$3.67M**	-	**$3.67M**	-

The results of the forecasting analysis revealed a gap of $1.70 million annually to maintain levels of service when comparing the anticipated budget to asset needs over the 10-year forecast period. However, an additional investment of $9.47 million will be required to ensure the City meets its proposed service levels over the next 10-years. Figure 15-2 illustrates the forecast results for all lifecycle activities.

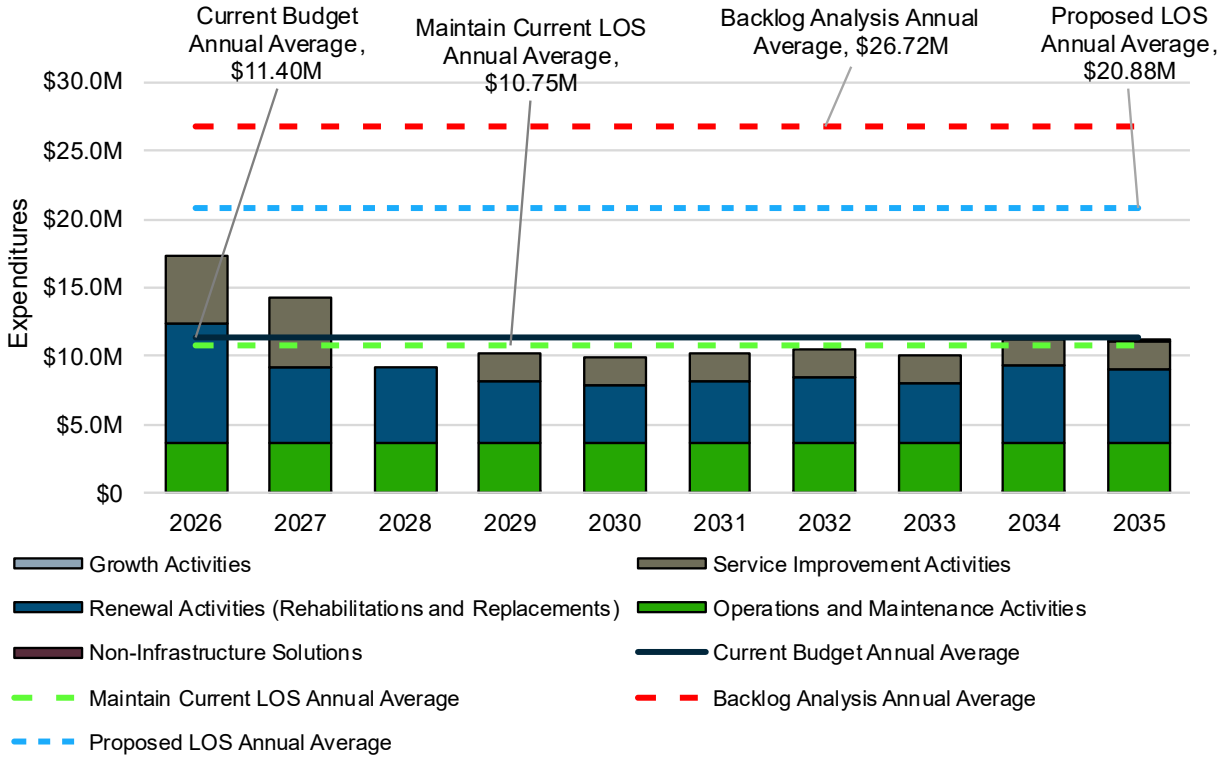


FIGURE 15-2: FINANCIAL FORECAST SCENARIOS SUMMARY - WATER

TABLE 15-10 FUNDING SHORTFALL (RENEWAL) – EQUIVALENT ANNUAL COSTS - WASTEWATER

Subservice	Scenario 1: Anticipated Budget	Scenario 2: Maintain Current LOS	10-year Funding Shortfall/ (Excess) vs. Scenario 2	Scenario 3: Backlog Analysis	10-year Funding Shortfall/ (Excess) vs. Scenario 3	Scenario 4: Proposed LOS	10-year Funding Shortfall/ (Excess) vs. Scenario 4
Combined Sewer Collection System	$0.84M	$4.35M	$3.51M	$6.62M	$5.79M	$1.49M	$0.66M
Sanitary Sewer Collection System	$0.94M	$2.14M	$1.20M	$5.18M	$4.24M	$3.23M	$2.30M
Storm Sewer Collection System	$0.31M	$0.80M	$0.49M	$1.38M	$1.07M	$1.26M	$0.95M
Wastewater Treatment	$2.68M	$5.85M	$3.16M	$12.53M	$9.84M	$9.24M	$6.55M
Total Capital Activities	$4.77M	$13.14M	$8.37M	$25.72M	$20.95M	$15.22M	$10.45M
Total Operating Activities	$4.69M	$4.69M	-	$4.69M	-	$4.69M	-

The results of the forecasting analysis revealed an investment gap of $8.37 million between the anticipated budget and the funding required to maintain wastewater's service levels. Furthermore, an additional investment of $10.45 million annually will be required to achieve the proposed LOS over the next 10-years.

Figure 15-3 illustrates the forecast results for all lifecycle activities.

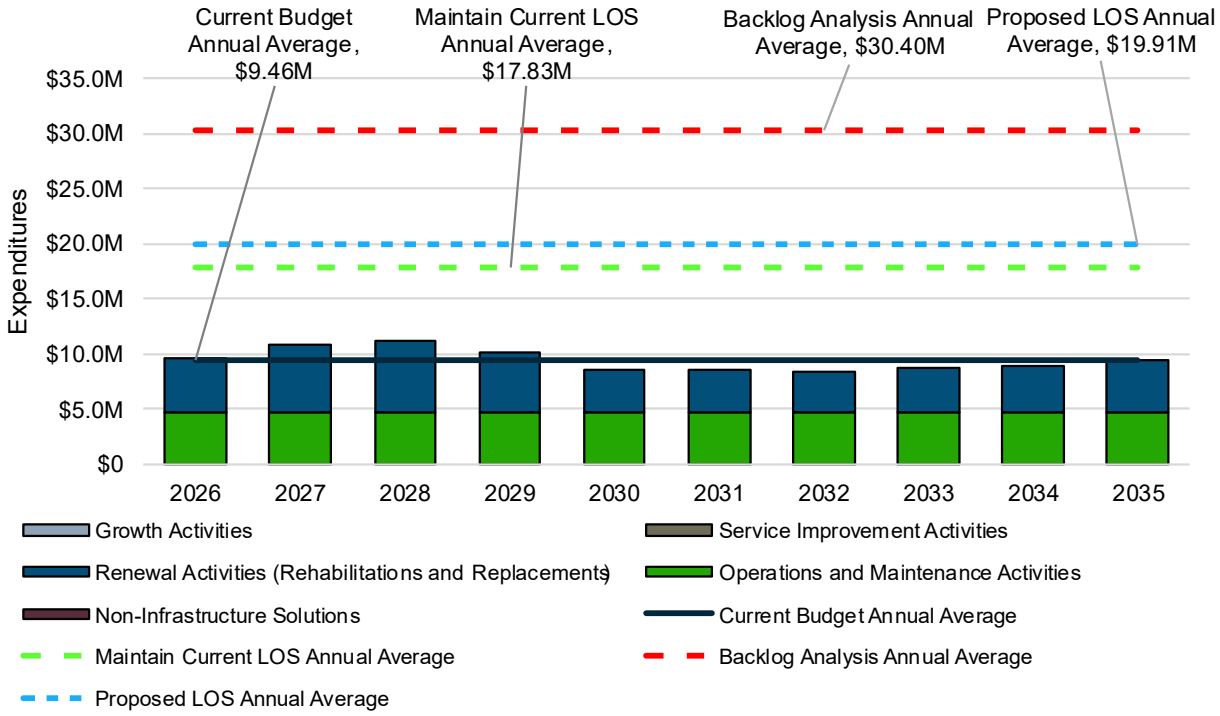


FIGURE 15-3: FINANCIAL FORECAST SCENARIOS SUMMARY - WASTEWATER

15.5. Funding the Shortfall

The City has several options for addressing funding shortfalls. Financial strategies can be used to maintain or improve service levels.

The first strategy is to increase overall net spending to improve asset performance. For this strategy, there are several options to consider:

- Modest increases to property taxation and water/wastewater user rates above-baseline revenue increases to fund the infrastructure funding shortfall.
- Seek funding from the Provincial or Federal governments to fund infrastructure. The City has been successful in securing grant funding in the past which has supported funding its backlog; however it is not typically provided for renewal of assets. The City is hopeful that its past successes in securing grant funding will continue into the future. In fact, the development of this AMP may have a positive impact in the City's ability to secure additional funding. Although grant funding will be helpful, it should not be relied upon by the City, since it is not guaranteed.
- Draw from available reserves. A reserve analysis should be completed to identify the impact of this case. Reserves can assist in balancing shortfalls and excesses.

- Consider debt financing. The City has included anticipated future debt in its long-term financial forecast. Established through its Long-Term Financial Plan, the City practices prudent borrowing. Long-term financing is to be used for only capital projects that involve significant capital dollars (>$2.5M) and have a lifecycle greater than 20 years. Reserve funding based on lifecycle replacement should be considered for funding assets that do not meet these criteria.
- The City can consider allocating to reserves a minimum percentage (guidelines suggest 1.4%-4%) of the current replacement value of an asset to plan and provide for asset renewal over a lifecycle period.

The second strategy is to adjust asset performance expectations. Funding shortfalls may be reduced by revisiting stakeholder objectives against affordability/willingness to pay. This is applicable to some service areas, however, other service areas with critical assets (such as emergency services) may not be able to tolerate an adjustment of performance expectations. Furthermore, for those service areas with large shortfalls, adjusting performance expectations may not be enough to bridge the gap.

A third strategy is to examine the trade-offs between the allocation of current funds between and within asset groups. This practice is generally not enacted by the City and should only be considered if necessary.

15.6. Summary of Findings

The City has identified funding shortfalls (i.e. gaps), for the majority of the service areas reported in this AMP to achieve proposed service levels. Gaps are particularly large for Community Housing, Wastewater Treatment, Water Distribution Network, Water Treatment, and the Road Network. Note that these gaps are reported as the gaps required to achieve proposed service levels. In many cases, such as with Community Housing and Long-term Care, these service areas are currently operating at a high level of service, and the forecasts are anticipating a significant financial need over the next 10-years, based on the results of building condition assessments that were completed in 2024, as well as the City's goals to achieve growth as outlined in master plans.

Lack of funding may result in a decreased level of service to some asset classes, which may increase overall risk to the City. Without funding in some particular areas, the City can expect service levels to decline. This may also put pressures on operating budgets, which will be stressed by the increased maintenance that may be required as assets age and more issues arise. The City will have to balance its allocation of funds and resources needs to ensure that critical asset needs are addressed, which could result in deferring non-critical work to a later time. This could result in an increase in financial pressures, as it may create a situation whereby the City is not able to intervene at the optimal time.

Deferred work may also require emergency intervention to replace assets that have failed. Emergency intervention is often costly, as it requires less planning and additional unforeseen costs to address issues immediately. The City should focus its efforts on critical projects, and those that would be more efficient to address financially at the appropriate time.

Note that the financial strategy presented in this section is a high-level summary of the detailed information that can be found in the previous sections of this AMP. Findings that are pertinent to each of the in-scope service areas are detailed in Sections 0 to 0.

16. Risks

This section summarizes the risks associated with the lifecycle strategies and funding analyses/recommendations, as detailed within this AMP. Risks are described below, and potential mitigation strategies are also discussed.

Data Confidence

The asset management analyses completed as part of this AMP are reliant on the City's asset and financial data. The confidence of that data affects the confidence of the results of each analysis. Data confidence, with respect to key asset management data, is detailed for each major asset class in Sections 0 to 0. Overall, most of the data was complete and had high confidence. In particular, the City supported this AMP by recently completing building condition assessments for most of its facilities, which provided current data to support the analyses herein. Refer to the service area sections for details on the data maturity for each subservice area.

Due to the high confidence of the City's data, this risk is considered to be low for most assets. However, for some asset groups, data confidence was moderate or low. In these cases, the information presented herein may change as data maturity increases.

Funding and Costs

Through the analyses within this AMP, the City has identified several asset classes that require additional funding in order to meet LOS targets. Without an increase in funding, the City could risk operating at a lower LOS.

Economic Climate

The current economic environment also contains a degree of uncertainty in the wake of the COVID-19 pandemic. In recent years, the economic environment that has seen phenomena such as supply chain constraints and a rise in inflation to high levels at the time of writing of this AMP, which may impact the costs of construction projects and asset renewals. Although inflationary pressures have begun to subside, high prices from past years of inflation remain for many assets. These economic pressures have not yet been adjusted to for many of the service areas and may result in increased financial impacts to maintain infrastructure.

Climate Change

Climate change also poses a significant risk to the City. The effects of climate change could result in impacts to assets that would require additional funding from the City. Impacts could include increased risk of failures, accelerated deterioration or a reduction in capacity of some assets that are impacted by the effects of climate change.

Climate change hazards, including increased precipitation, heat waves and other changes to the elements could change the City's needs and ultimately result in impacts to its financial strategy.

The City declared a climate emergency on December 13, 2021, and subsequently prepared a Climate Action Plan, which was approved by City Council on April 11, 2023. The Climate Action Plan outlines a strategy to achieve a 40-45% reduction in greenhouse gas emissions below 2005 levels by 2030 and aims for the city to become net-zero by 2050.

The plan focuses on reducing greenhouse gas emissions in Cornwall in five action areas: Efficient and Carbon Neutral Buildings, Active and Zero Emission Mobility and Transportation, Waste Transformed, Enhanced Nature-Based Solutions, and Municipal Leadership. The City of Cornwall is committed to monitoring progress and reporting on results to ensure the plan's success.

Regulatory Environment

There are also some risks associated with a changing business environment. Regulatory changes could impact the way that the City renews and replaces its infrastructure. These risks are generally considered to be low, since the City endeavours to keep current with regulation changes, and incorporate them into its planning, which ensures that assets are up to date with the current regulatory environment. This means that the City will be adequately equipped to adapt to any future regulatory changes.

Change in Government or Government Priorities

Much like changes in regulation, changes in government priorities, or changes in governments at the Federal and Provincial levels have the ability to affect the availability of grant funding to support the City. Election years are forthcoming at both the Federal and Provincial levels, which could result in changes. The City’s prudent financial planning and risk-based approach to asset management will help it prepare for and adapt to any changes that come its way.

17. Improvement Plan

The City's 2025 AMP is an integral part of its AM System, which dictates the business practices and processes that make-up Asset Management at the City. An integral part of any AM system is the concept of continual improvement. This is a mechanism, whereby the outputs of the AMP system, including this AMP, provide inputs into the remainder of the components of the system to inform the continued improvement and increased maturity of the overall system.

Throughout the development of the City's 2022 and 2024 AMPs for core and non-core infrastructure assets, opportunities for continual improvement were identified. Some of those initiatives have been undertaken by the City since 2022 and 2024. This 2025 AMP provides recommendations for continual improvement by incorporating and building on the recommendations that were made in 2022 and 2024. Within each section, the AMP identifies past improvement activities that are ongoing or have been completed. It also identifies past improvement activities that are planned for the future, as well as new improvement activities that were developed since 2022.

To identify the status of the improvement activities, the following labels are provided:

Completed – indicates an initiative that was recommended in 2022 and 2024 and has been completed

Ongoing – indicates an initiative that is currently underway or that is anticipated to occur with regular frequency or perpetually

Future – indicates an initiative that has been identified but not yet commenced.

New – indicates an initiative that has been recently identified since the 2022 and 2024 AMP

The following sections summarize these opportunities and provide observations and recommendations to apply continual improvement practices into the strategies that support this AMP. This will advance the maturity of AM at the City, as well as the maturity of future AMPs.

17.1. General Asset Management

The City's Asset Management program is well developed and has a level of maturity that ensures that it has the appropriate systems and data in place to meet the requirements of O.Reg. 588/17.

The following table provides recommendations for continual improvement – General Asset Management.

TABLE 17-1 IMPROVEMENT PLAN RECOMMENDATIONS – GENERAL ASSET MANAGEMENT

Item	Description	Status
AM-1	Expand the LOS, lifecycle management, and risk management strategies to other asset classes, including non-core assets.	Completed
AM-2	Complete an assessment to understand the maturity of the organization's asset management practices. This can be used as a monitoring tool to record continual improvement activities detailed within this improvement plan.	Future
AM-3	Complete climate change analysis to determine the potential effects on infrastructure, and possible strategies to ensure that the City continues to work towards meeting its service level objectives.	Ongoing

17.2. State of the Infrastructure

The City's state of the infrastructure assessment is based on its wealth of asset data, that has been collected and maintained over the years to support asset management.

The following table provides recommendations for continual improvement – General Asset Management.

TABLE 17-2 IMPROVEMENT PLAN RECOMMENDATIONS – STATE OF THE INFRASTRUCTURE

Item	Description	Status
SI-1	Increase the City's data maturity by collecting additional data to fill gaps where identified.	Ongoing
SI-2	Continue to collect and update asset data in line with the City's Data and Condition Assessment Plan.	Ongoing
SI-3	Continue to complete condition assessments and collect asset condition data in line with the City's Data and Condition Assessment Plan.	Ongoing
SI-4	For assets that do not have a controlled and standardized data format, implement a data structure/database to standardize and formalize the way asset data is recorded.	Ongoing

17.3. Levels of Service

The City has developed its LOS strategy, in line with the requirements of O.Reg. 588/17.

The following table provides recommendations for continual improvement – Levels of Service.

TABLE 17-3 IMPROVEMENT PLAN RECOMMENDATIONS – LEVELS OF SERVICE

Item	Description	Status
LOS-1	Record LOS performance measures annually to establish a historical compendium of LOS information to assist in refinement, improvement of the LOS strategy over time and to track progress in achieving proposed LOS.	Ongoing
LOS-2	Continue to collect and update data to support future LOS measures that were identified in the City's LOS strategy, for which the City did not have available data to report on in this AMP.	Future
LOS-3	Review and revise the LOS framework annually to ensure that the LOS framework is up to date and best reflects the City's objectives and strategies.	Ongoing
LOS-4	Establish proposed levels of service, in line O.Reg. 588/17 requirements.	Completed through the 2025 AMP
LOS-5	Complete internal and community engagement to ensure that proposed LOS align with the needs of the City and community.	Future

17.4. Lifecycle Management Strategy

The City's lifecycle strategies are based on lifecycle activities and lifecycle models, which mathematically model asset deterioration and common lifecycle interventions. Where possible, the models were based on a review of historical condition data. Many of the models were based on or supported by professional judgment and expertise. Wherever possible, developing models based solely on asset historical condition data is preferable.

The following table provides recommendations for continual improvement – Lifecycle Management Strategy.

TABLE 17-4 IMPROVEMENT PLAN RECOMMENDATIONS – LIFECYCLE MANAGEMENT STRATEGY

Item	Description	Status
LC-1	Continue to collect asset condition data, and use it to validate existing lifecycle models, modify existing lifecycle models or develop new lifecycle models. Ensure that appropriate asset data is also collected and tied to the observed condition data, such as asset type, number of past asset interventions/rehabilitations, asset age, etc.	Ongoing
LC-2	Wherever possible, develop lifecycle models based on a review of historical asset data, as opposed to professional judgment.	Future
LC-3	Continue to collect asset intervention costs digitally, and tie them to asset classes, to increase the maturity of forecasting costs.	Ongoing

17.5. Financial Strategy

A challenge in developing the City's financial strategy was to complete a detailed analysis of historical and forecasted capital budgets and allocate them to specific asset classes so that they can be compared to asset needs forecasts. It is common to find that project costs and asset replacement costs don't often align, and significant effort is required to discretize projects and isolate the costs of certain lifecycle activities so that they can be compared to asset needs. Completing this analysis when projects are identified and submitted as part of the budget process can significantly improve efficiency when completing asset management or other budgetary analyses.

The following table provides recommendations for continual improvement – Financial Strategy.

TABLE 17-5 IMPROVEMENT PLAN RECOMMENDATIONS – LIFECYCLE MANAGEMENT STRATEGY

Item	Description	Status
FS-1	Implement a process to categorize project and budget data by certain attributes to assist in analyses, including asset class (or the City's asset hierarchy), lifecycle activity and other pertinent metrics.	Future
FS-2	Develop a standardized data format, such as a database or controlled data fields, to be able to utilize budget and project data for data analysis.	New
FS-3	Align projects in the capital budget to specific assets using asset IDs. This alignment should be done by asset ID, to better track costs and to compare project costs to renewal needs.	New
FS-4	Integrate AM Financial analysis into annual capital planning to better align asset needs with municipal budgeting	Future