TOTAL CORE ASSET SUMMARY (2021 AMP)

BRANTFORD — THE CORPORATION OF THE CITY OF

TOTAL REPLACEMENT COST

$2.57B

REPLACEMENT COST BY ASSET CLASS

$158M (6%)
$697M (27%)
$593M (23%)
$643M (25%)
$481M (19%)

ASSET CLASS
- BRIDGES & CULVERTS
- ROADS
- STORMWATER
- WASTEWATER
- WATER
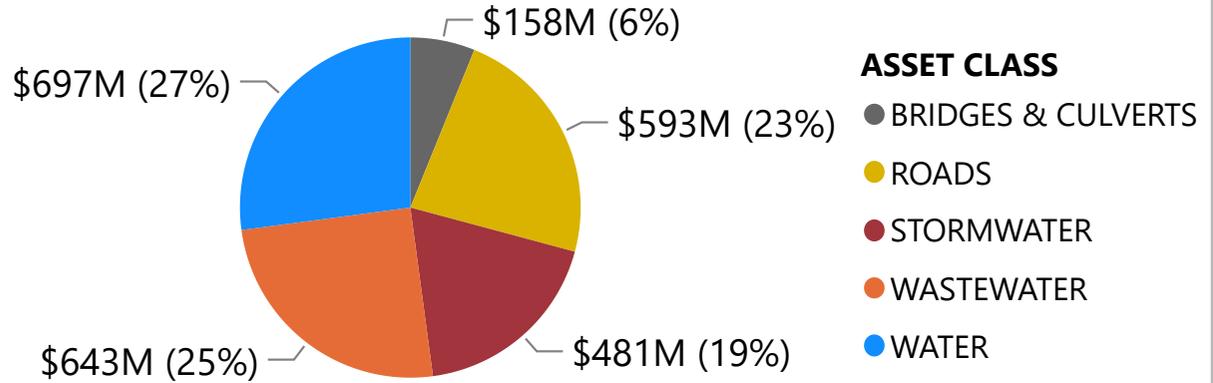
AVERAGE AGE (% OF ESTIMATED SERVICE LIFE EXPENDED)

31 YEARS (55%)

AVERAGE AGE VERSUS AVERAGE ESTIMATED SERVICE LIFE

- AVERAGE AGE
- AVERAGE ESTIMATED SERVICE LIFE

Bar chart: ASSET CLASS (y-axis) versus YEARS (x-axis, 0 to 80) for BRIDGES & CULVERTS, ROADS, STORMWATER, WASTEWATER, WATER.
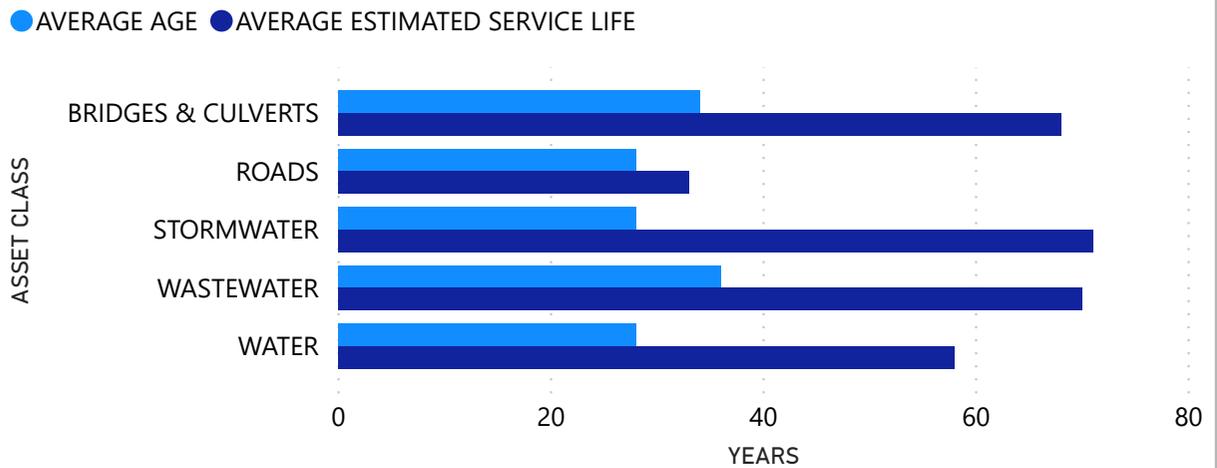
AVERAGE CONDITION

FAIR

ASSET CLASS	AVERAGE CONDITION	DATA CONFIDENCE
BRIDGES & CULVERTS	FAIR	MEDIUM
ROADS	FAIR	HIGH
STORMWATER	FAIR	MEDIUM
WASTEWATER	GOOD	MEDIUM
WATER	GOOD	MEDIUM

TOTAL ASSETS CAPITAL BUDGET FORECAST BY YEAR FOR STATE OF GOOD REPAIR (SOGR)

ASSET CLASS ● BRIDGE & CULVERT ● ROAD ● STORM ● WASTEWATER ● WATER

AVERAGE 10-YEAR REQUIRED CAPITAL COST FOR SOGR: $54.9M

Stacked bar chart, BUDGET ($) ($0M to $60M) by YEAR (2021–2030):

Year	Values
2021	WATER $8M, WASTEWATER $15M, ROAD $10M
2022	WATER $11M, WASTEWATER $17M, ROAD $18M, BRIDGE $8M
2023	WATER $15M, WASTEWATER $22M, ROAD $17M
2024	WATER $10M, WASTEWATER $10M, ROAD $13M
2025	WATER $11M, WASTEWATER $8M, ROAD $9M
2026	WATER $7M, WASTEWATER, ROAD $10M
2027	WATER $9M, ROAD $15M
2028	
2029	
2030	WASTEWATER $11M

BRIDGE & CULVERT
ASSET SUMMARY (2021 AMP)

TOTAL REPLACEMENT COST

$158M

AVERAGE AGE (% OF ESTIMATED SERVICE LIFE EXPENDED)

34 YEARS (50%)

## AVERAGE WEIGHTED CONDITION

FAIR

BRIDGE & CULVERT
ASSET INVENTORY SUMMARY

NUMBER OF LONG SPAN CULVERTS

45

NUMBER OF BRIDGES
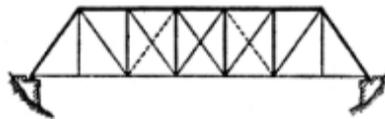
40

NUMBER OF SHORT SPAN CULVERTS
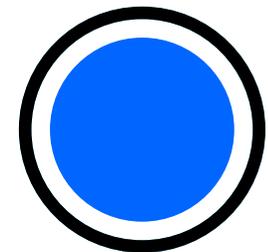
186

NUMBER OF RETAINING WALLS
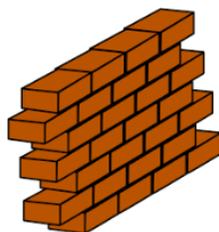
36

NUMBER OF BRIDGE STAIRWAYS

6

BRIDGE & CULVERT ASSET ANALYSIS

DATA CONFIDENCE LEVEL

CONDITION	INVENTORY	REPLACEMENT COST
MEDIUM	MEDIUM	MEDIUM

CONDITION DISTRIBUTION-BRIDGE & CULVERT ASSETS

CONDITION ● 0-N/A ● 1-GOOD ● 2-FAIR ● 3-POOR
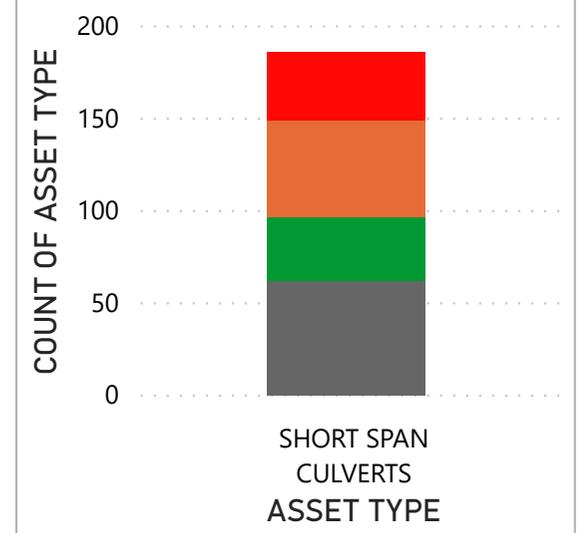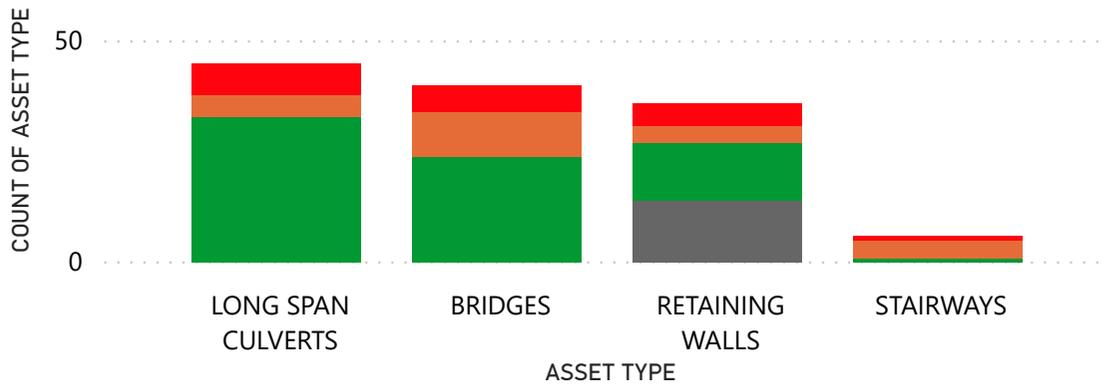
10 YEAR COST EXPENDITURES

AVERAGE 10-YEAR REQUIRED CAPITAL COST FOR SOGR:	$2.74M
CURRENT AVERAGE 10-YEAR SOGR CAPITAL BUDGET AMOUNT:	$2.50M
AVERAGE ANTICIPATED ANNUAL 10-YEAR O&M COST:	$197.1K

KEY 2020 TECHNICAL LEVELS OF SERVICE

AVERAGE BRIDGE CONDITION INDEX (BCI) FOR BRIDGES:	67.8
AVERAGE BCI FOR LONG SPAN CULVERTS:	68.1
NUMBER OF BRIDGES WITH LOADING RESTRICTIONS	1
NUMBER OF CLOSED PEDESTRIAN BRIDGES:	5
NUMBER OF BRIDGE CONDITION COMPLAINTS:	3

NOTE: TARGETS TO BE COMPLETED IN FUTURE ITERATIONS OF THE AMP

BRIDGE & CULVERT ASSETS CAPITAL BUDGET FORECAST BY YEAR FOR STATE OF GOOD REPAIR (SOGR)

THE IMPACTS RESULTING FROM THESE FUNDING GAPS WILL BE MONITORED AND REPORTED AS APPROPRIATE

AVERAGE 10-YEAR REQUIRED CAPITAL COST FOR SOGR: $2.74M
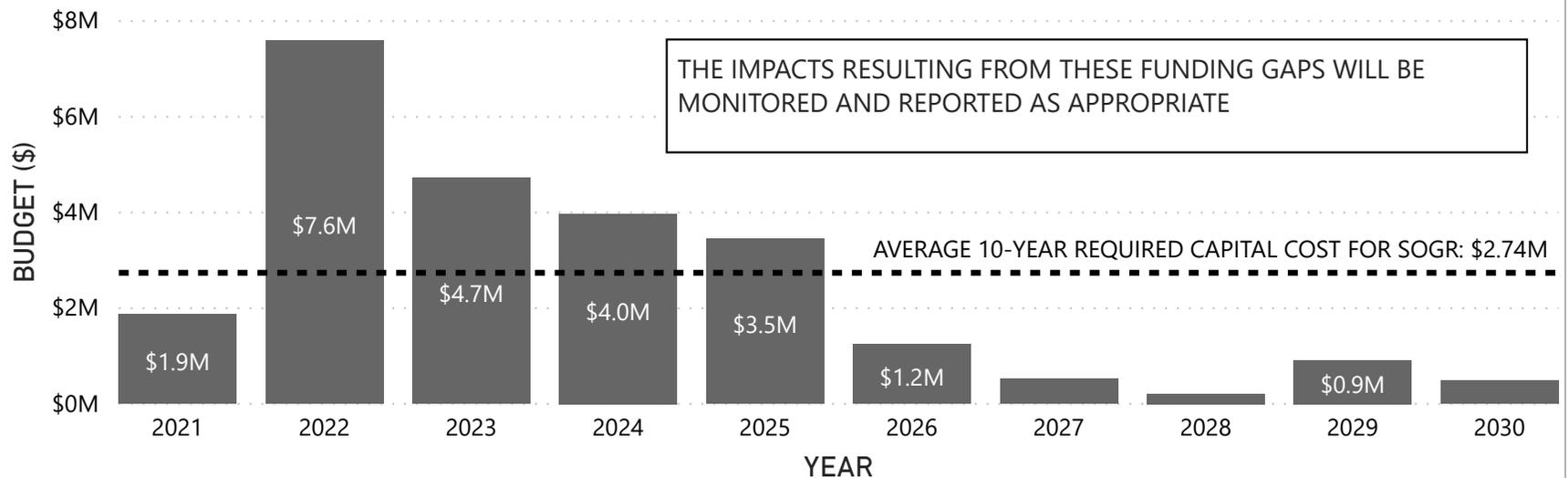
ROAD ASSET SUMMARY (2021 AMP)

TOTAL REPLACEMENT COST	AVERAGE AGE (% OF ESTIMATED SERVICE LIFE EXPENDED)	AVERAGE WEIGHTED CONDITION
$593M	28 YEARS (86%)	FAIR

ROAD ASSET INVENTORY SUMMARY

TOTAL LANE KILOMETERS	NUMBER OF SIGNALED INTERSECTIONS	LENGTH OF ON-ROAD PAINTED BICYCLE LANES (km)
1,067	140	37.7

TOTAL LENGTH OF GUIDE RAIL (km)	NUMBER OF REGULATORY/WARNING SIGNS	TOTAL LENGTH OF SIDEWALK (km)
28.68	19,875	587.36
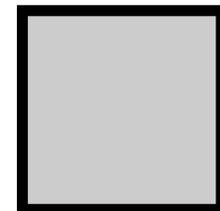
NUMBER OF STREETLIGHTS	NUMBER OF STREETLIGHT POLES
10,378	4,096
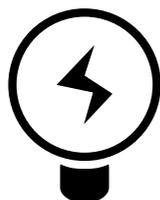
ROAD ASSET ANALYSIS (2021 AMP)

DATA CONFIDENCE LEVEL

CONDITION	INVENTORY	REPLACEMENT COST
HIGH	HIGH	MEDIUM

CONDITION DISTRIBUTION-ROAD ASSETS

CONDITION ● 0-N/A ● 1-GOOD ● 2-FAIR ● 3-POOR
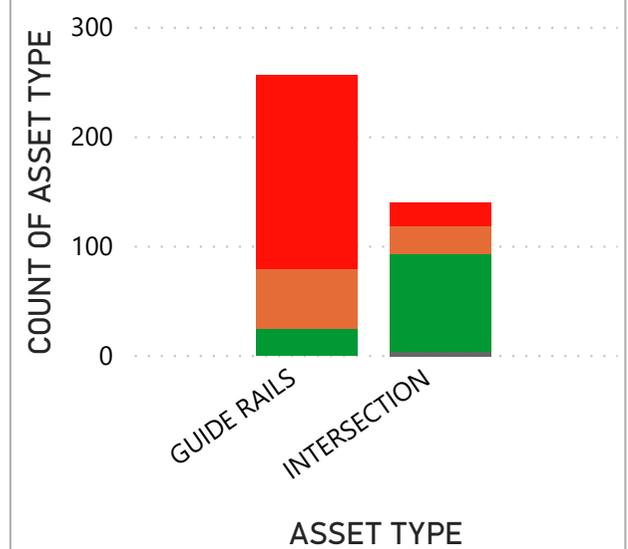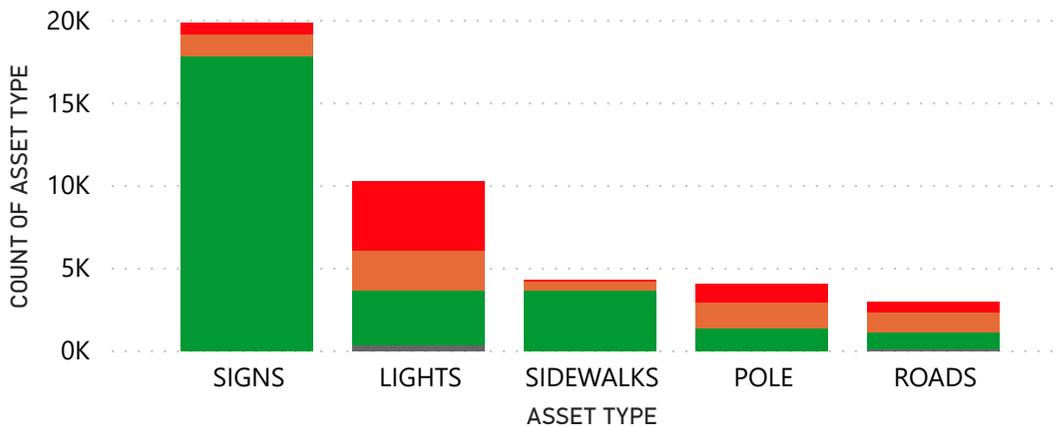
10 YEAR COST EXPENDITURES

AVERAGE 10-YEAR REQUIRED
CAPITAL COST FOR SOGR: $20.9M

CURRENT AVERAGE 10-YEAR
SOGR CAPITAL BUDGET AMOUNT: $11.2M

AVERAGE ANTICIPATED ANNUAL
10-YEAR O&M COST*: $19.6M

KEY 2020 TECHNICAL LEVELS OF SERVICE

AVERAGE PAVEMENT CONDITION INDEX (PCI) OF PAVED ROADS:	64
NUMBER OF ROAD CONDITION COMPLAINTS:	275
NUMBER OF UNEXPECTED ROAD CLOSURES:	2
NUMBER OF WEATHER DEPLOYMENT EVENTS:	31
LENGTH OF FULL ROAD RECONSTRUCTION:	2.8 km

NOTE: TARGETS TO BE COMPLETED IN FUTURE ITERATIONS OF THE AMP

ROAD ASSETS CAPITAL BUDGET FORECAST BY YEAR FOR STATE OF GOOD REPAIR (SOGR)

AVERAGE 10-YEAR REQUIRED CAPITAL COST FOR SOGR: $20.9M

THE IMPACTS RESULTING FROM THESE FUNDING GAPS WILL BE MONITORED AND REPORTED AS APPROPRIATE.

*NOTE: O&M BUDGET GAPS WILL BE INCLUDED IN FUTURE ITERATIONS OF THE AMP FOLLOWING THE IMPLEMENTATION OF AIM
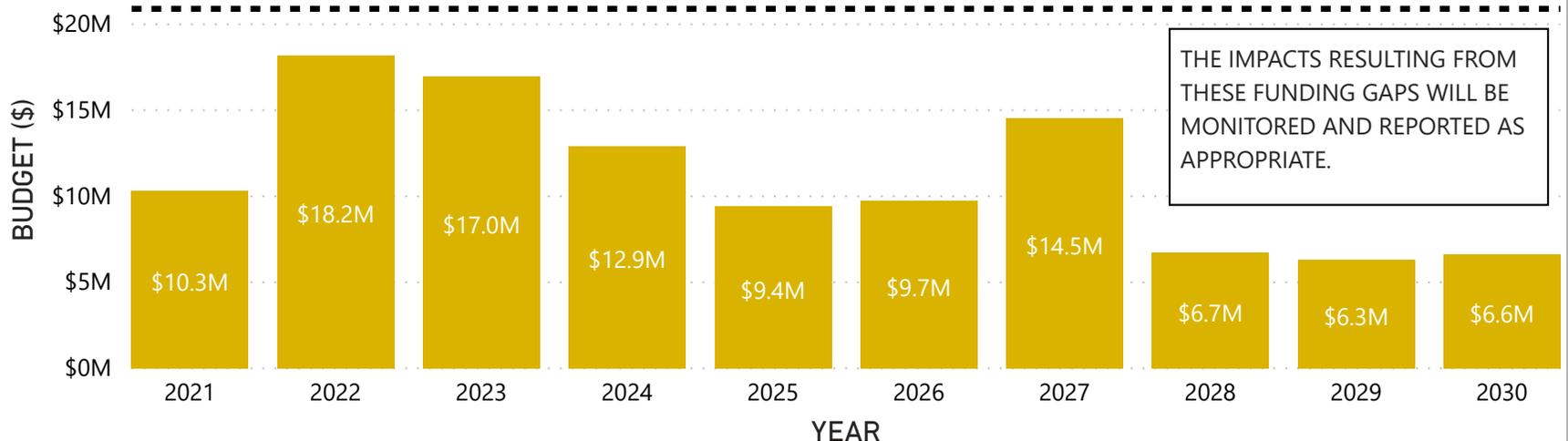
# WATER ASSET SUMMARY (2021 AMP)

TOTAL REPLACEMENT COST	AVERAGE AGE (% OF ESTIMATED SERVICE LIFE EXPENDED)	AVERAGE WEIGHTED CONDITION
$697M	29 YEARS (49%)	GOOD

LINEAR ASSET INVENTORY SUMMARY

LENGTH OF WATERMAIN (km)	NUMBER OF SERVICES	NUMBER OF HYDRANTS
507.7	32,846	2,795
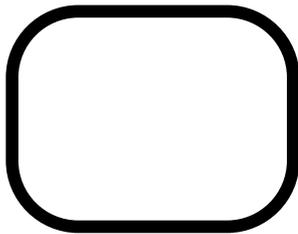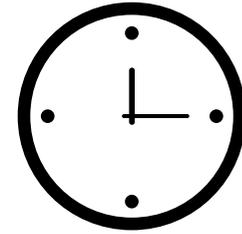
NUMBER OF CHAMBERS	NUMBER OF VALVES	NUMBER OF METERS
237	8,673	35,175

VERTICAL ASSET INVENTORY SUMMARY

NUMBER OF WTP STRUCTURES	NUMBER OF PUMP STATIONS	NUMBER OF ELEVATED STORAGE TANKS
12	4	2
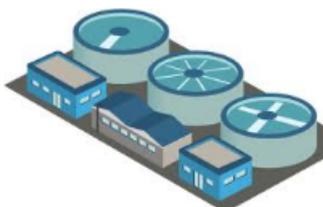
WATER ASSET ANALYSIS (2021 AMP)

DATA CONFIDENCE LEVEL

CONDITION	INVENTORY	REPLACEMENT COST
MEDIUM	MEDIUM	MEDIUM

CONDITION DISTRIBUTION-WATER ASSETS

CONDITION ● 0-N/A ● 1-GOOD ● 2-FAIR ● 3-POOR

Bar chart: COUNT OF ASSET vs ASSET TYPE (WATER SERVICE, WATER METERS, VALVES, WATERMAIN, HYDRANTS, CHAMBERS)

Bar chart: COUNT OF ASSET vs ASSET CLASS (WTP SITE, RESERVOIR, PUMP STATION, ELEVATED STORAGE TANK, BULK WATER STATION)
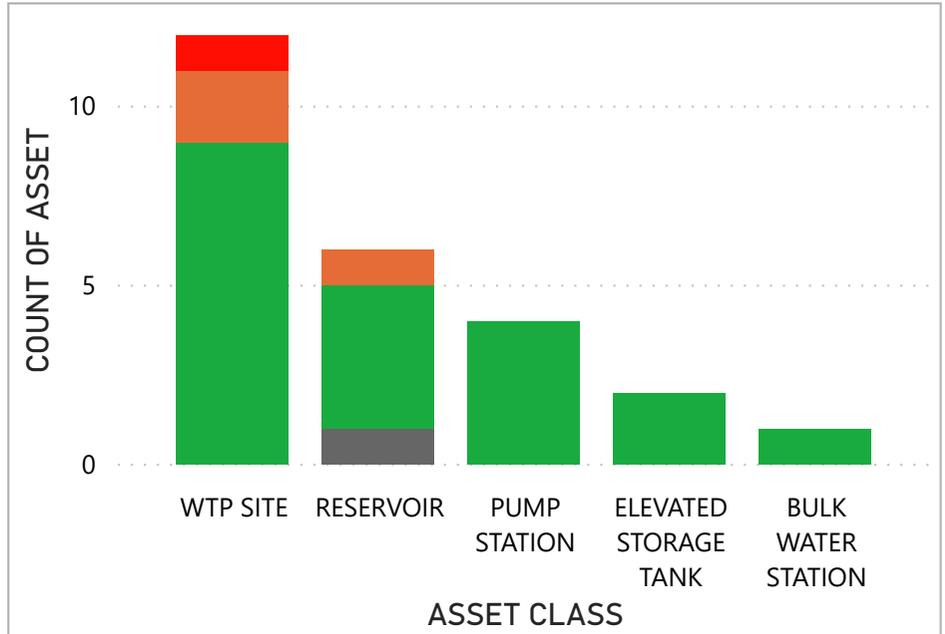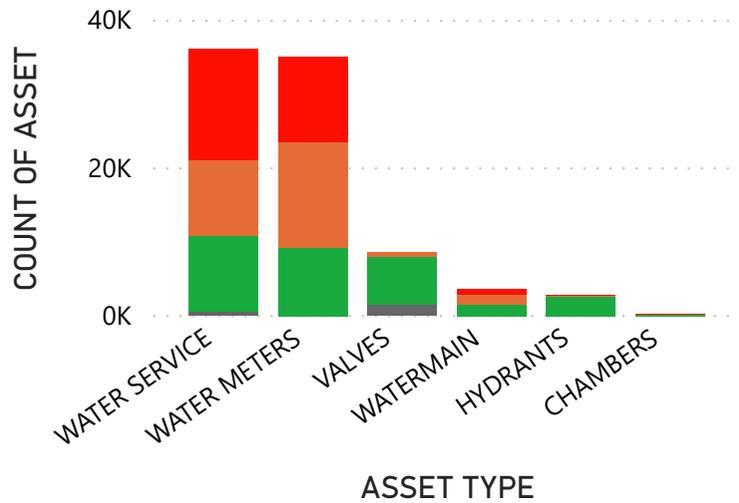
10-YEAR COST EXPENDITURES

AVERAGE 10-YEAR REQUIRED
CAPITAL COST FOR SOGR: $15.3M

CURRENT AVERAGE 10-YEAR
SOGR CAPITAL BUDGET AMOUNT: $7.78M

AVERAGE ANTICIPATED ANNUAL
10-YEAR O&M COST*: $32.5M

KEY 2019 TECHNICAL LEVELS OF SERVICE

% OF PROPERTIES CONNECTED TO THE WATER SYSTEM: 94.1%
NUMBER OF WATERMAIN BREAKS: 17
NUMBER OF BOIL WATER ADVISORIES: 0
WATER PRESSURE COMPLAINTS: 0.50 / 1000 ppl
LENGTH OF NEWLY INSTALLED WATERMAIN: 7.9 km

NOTE: TARGETS TO BE COMPLETED IN FUTURE ITERATIONS OF THE AMP

WATER ASSETS CAPITAL BUDGET FORECAST BY YEAR FOR STATE OF GOOD REPAIR (SOGR)

AVERAGE 10-YEAR REQUIRED CAPITAL COST FOR SOGR: 15.3M

THE IMPACTS RESULTING FROM THESE FUNDING GAPS WILL BE MONITORED AND REPORTED AS APPROPRIATE.

Bar chart: BUDGET ($) vs YEAR

| Year	Budget
2021	7.7M
2022	11.1M
2023	15.0M
2024	10.1M
2025	10.9M
2026	6.8M
2027	9.1M
2028	3.0M
2029	1.5M
2030	2.6M

*NOTE: O&M BUDGET GAPS WILL BE INCLUDED IN FUTURE ITERATIONS OF THE AMP FOLLOWING IMPLEMENTATION OF AIM
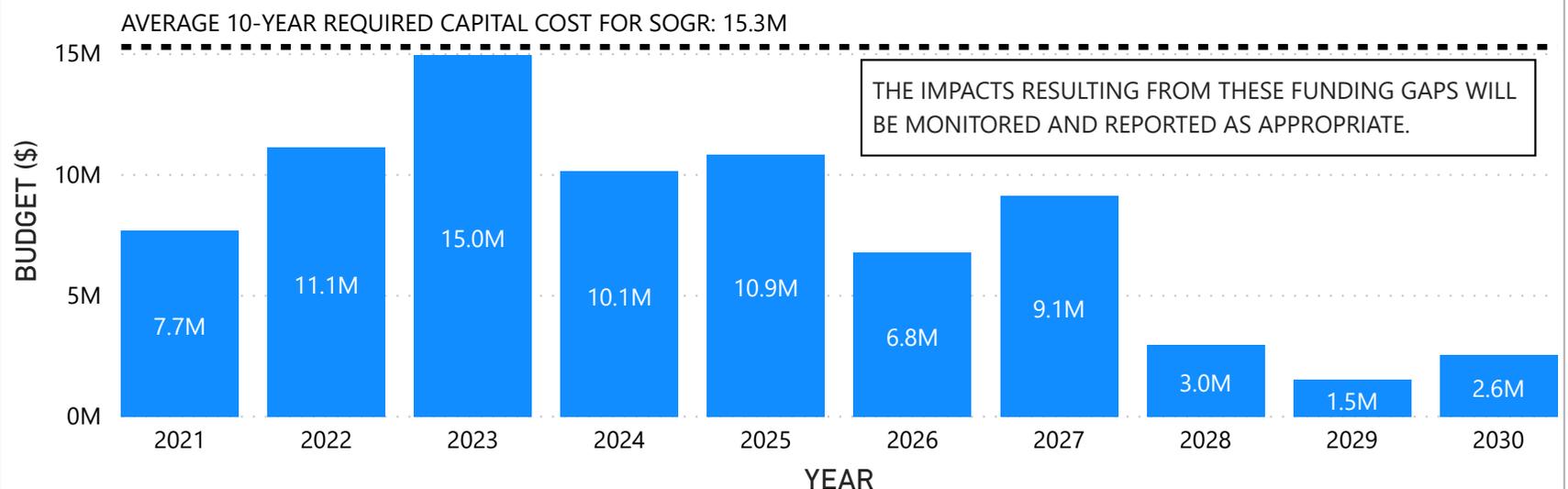
WASTEWATER ASSET SUMMARY (2021 AMP)

## TOTAL REPLACEMENT COST

$643M

AVERAGE AGE (% OF ESTIMATED SERVICE LIFE EXPENDED)

36 YEARS (51%)

AVERAGE WEIGHTED CONDITION

GOOD

LINEAR ASSET INVENTORY SUMMARY

LENGTH OF GRAVITY MAIN (km)

432.1

NUMBER OF SERVICES

10,233

LENGTH OF SIPHONS (km)

2.8

NUMBER OF MAINTENANCE HOLES

6,148

VERTICAL ASSET INVENTORY SUMMARY

NUMBER OF WASTEWATER TREATMENT PLANT STRUCTURES
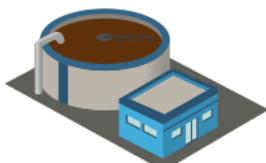
20

NUMBER OF PUMP STATIONS
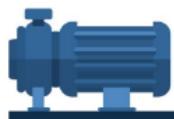
9

LENGTH OF FORCEMAIN (km)

3.7

WASTEWATER ASSET ANALYSIS (2021 AMP)
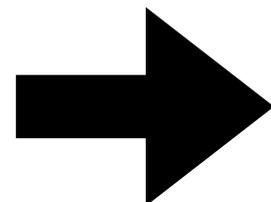
DATA CONFIDENCE

CONDITION	INVENTORY	REPLACEMENT COST
MEDIUM	MEDIUM	MEDIUM

CONDITION DISTRIBUTION-WASTEWATER ASSETS

CONDITION ● 0-N/A ● 1-GOOD ● 2-FAIR ● 3-POOR
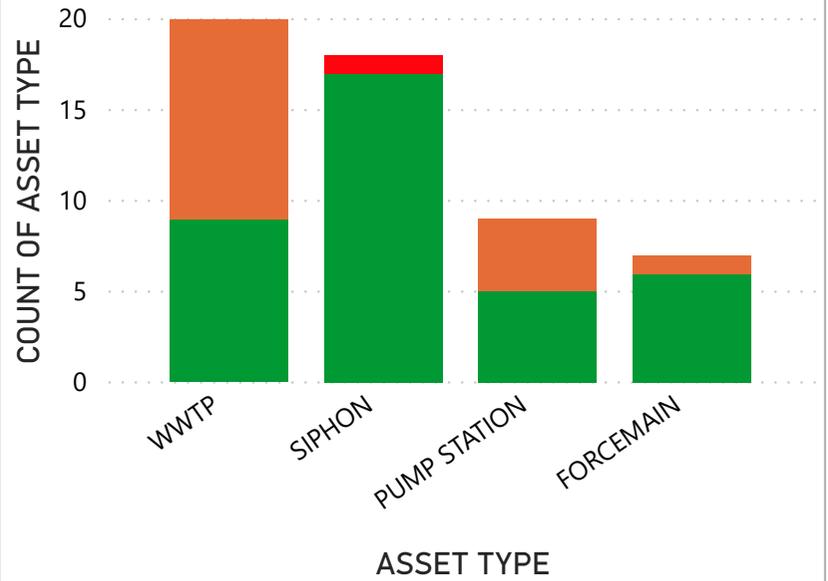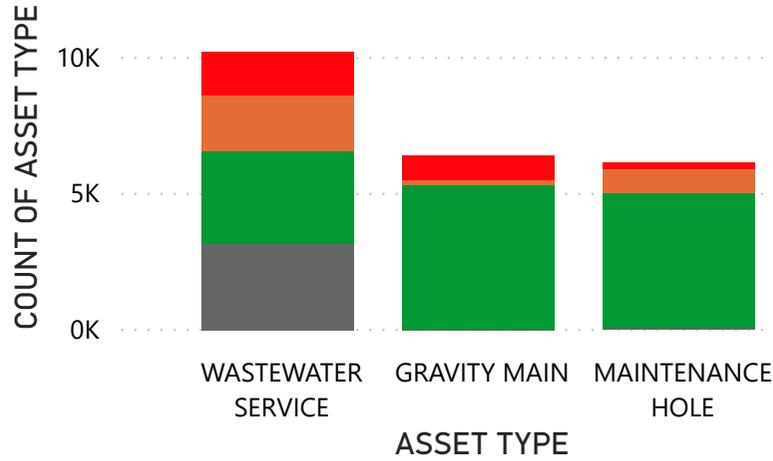
10 YEAR COST EXPENDITURES

AVERAGE 10-YEAR REQUIRED
CAPITAL COST FOR SOGR: $11.7M

CURRENT AVERAGE 10-YEAR
SOGR CAPITAL BUDGET AMOUNT: $10.1M

AVERAGE ANTICIPATED ANNUAL
10-YEAR O&M COST: $32.5M

KEY 2019 TECHNICAL LEVELS OF SERVICE

% OF PROPERTIES CONNECTED TO WASTEWATER SYSTEM: 93.4%
NUMBER OF WASTEWATER SYSTEM BACKUPS: 0
NUMBER OF EFFLUENT VIOLATIONS: 0
NUMBER OF ODOUR COMPLAINTS: 10
LENGTH OF NEWLY INSTALLED GRAVITY MAIN: 5.8 km

NOTE: TARGETS TO BE COMPLETED IN FUTURE ITERATIONS OF THE AMP

WASTEWATER ASSETS CAPITAL BUDGET FORECAST BY YEAR FOR STATE OF GOOD REPAIR (SOGR)

THE IMPACTS RESULTING FROM THESE FUNDING GAPS WILL BE MONITORED AND REPORTED AS APPROPRIATE.

AVERAGE 10-YEAR REQUIRED CAPITAL COST FOR SOGR: $11.7M

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Budget	$14.5M	$17.3M	$22.4M	$10.1M	$8.2M	$5.4M	$5.4M	$3.0M	$2.8M	$11.4M
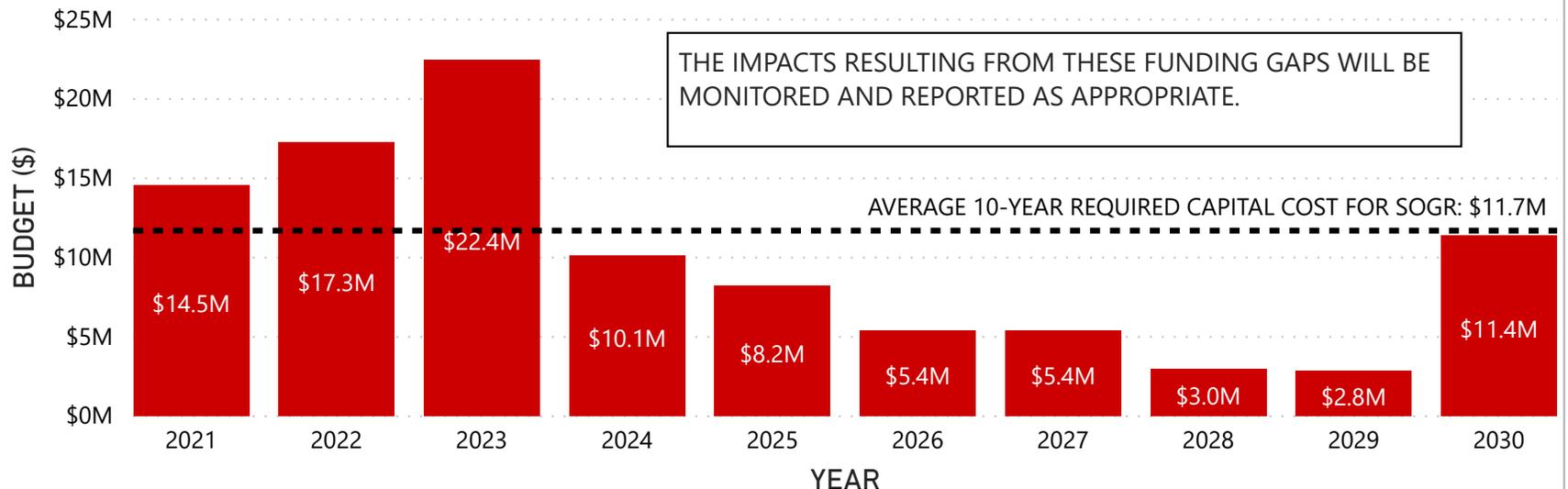
STORMWATER ASSET SUMMARY (2021 AMP)

TOTAL REPLACEMENT COST

$481M

AVERAGE AGE (% OF ESTIMATED SERVICE LIFE EXPENDED)

28 YEARS (40%)

AVERAGE WEIGHTED CONDITION

FAIR

STORMWATER ASSET INVENTORY SUMMARY

NUMBER OF PUMP STATIONS
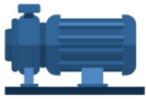
1

LENGTH OF GRAVITY MAIN (km)

413.6

NUMBER OF STORM PONDS

23

NUMBER OF STORM SERVICES

5,010

NUMBER OF MAINTENANCE HOLES

6,222

NUMBER OF INLETS

12,290

NUMBER OF OIL & GRIT SEPARATORS

25

NUMBER OF OUTFALLS

290

LENGTH OF DITCHES (km)
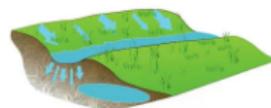
121.3

NUMBER OF FLOOD GATES

39

STORMWATER ASSET ANALYSIS (2021 AMP)

DATA CONFIDENCE LEVEL

CONDITION	INVENTORY	REPLACEMENT COST
MEDIUM	MEDIUM	LOW

CONDITION DISTRIBUTION-STORMWATER ASSETS

CONDITION ● 0-N/A ● 1-GOOD ● 2-FAIR ● 3-POOR
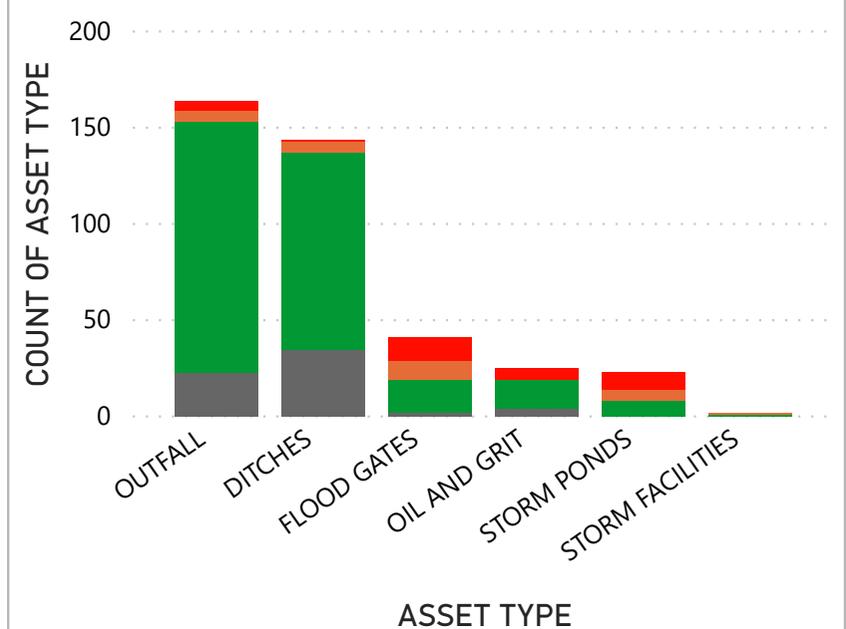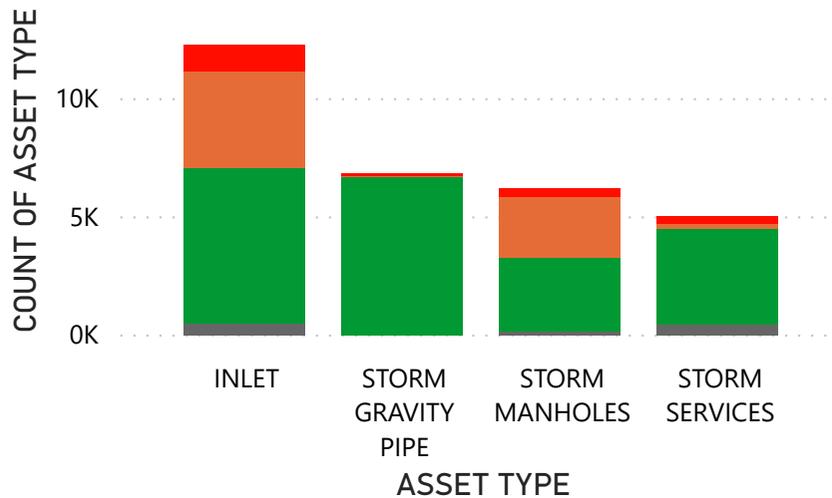
10-YEAR COST EXPENDITURES

AVERAGE 10-YEAR REQUIRED
CAPITAL COST FOR SOGR: $4.4M

CURRENT AVERAGE 10-YEAR
SOGR CAPITAL BUDGET AMOUNT: $2.4M

AVERAGE ANTICIPATED ANNUAL
10-YEAR O&M COST*: $0.9M

KEY 2020 TECHNICAL LEVELS OF SERVICE

% OF STORMWATER SYSTEM RESILIENT TO A 5-YEAR STORM: 52.3%
FLOODING COMPLAINTS DUE TO SYSTEM ISSUE (2019): 0.21 / 1000 ppl
NUMBER OF STORM EVENTS: 12
LARGEST RETURN YEAR STORM EVENT: 1.8
LENGTH OF NEWLY INSTALLED GRAVITY MAIN: 0.8 km

NOTE: TARGETS TO BE COMPLETED IN FUTURE ITERATIONS OF THE AMP

STORMWATER ASSETS CAPITAL BUDGET FORECAST BY YEAR FOR STATE OF GOOD REPAIR (SOGR)

AVERAGE 10-YEAR REQUIRED CAPITAL COST FOR SOGR: 4.4M

THE IMPACTS RESULTING FROM THESE FUNDING GAPS WILL BE MONITORED AND REPORTED AS APPROPRIATE.

YEAR	BUDGET ($)
2021	2.6M
2022	5.2M
2023	3.7M
2024	1.8M
2025	1.8M
2026	1.3M
2027	1.8M
2028	1.2M
2029	0.7M
2030	4.4M