

TOWN OF PENHOLD

2021 Offsite Levies

March 8, 2021

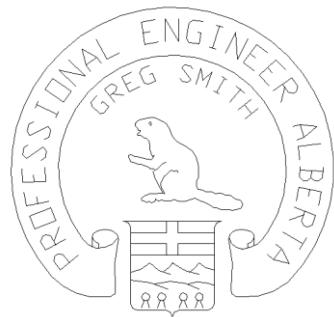
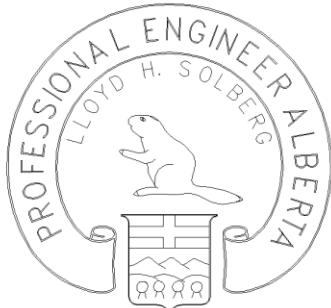
Job # TPN38



Revisions:

<i>Date</i>	<i>Description</i>
Dec 2014	Draft Version 1 Issued for Review
Apr 2015	Draft Version 2 Issued for Review
Apr 2015	Final Version Issued for Review
June 2015	Revisions made from Public Process. Final Version Issued for Review.
June 2015	Revisions made to project costs. Final Version Issued for Review.
Oct 2015	Revisions made to New Oxford Landing Water Reservoir Cost
Jan 2019	Updated Levies for the 2019 Master Servicing Study – Issued for Draft
July 2019	Revisions to the 2019 Offsite Levies – Issued for Draft
Nov 2019	Revisions to the 2019 Offsite Levies After Developer Open House - Issued for Draft
Jan 2020	Revisions to the 2019 Offsite Levies – Issued for Draft
Nov 2020	Revisions based on Legal Review – Issued for Draft
Mar 2021	Revisions based on Town Review and added Firehall

Corporate Authorization:



Prepared by Lloyd Solberg, P.Eng.

Reviewed by Greg Smith, P.Eng.

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Appendix A – Water System (Global) Cost Estimates and Benefit Analysis

Appendix B – Sanitary System Cost Estimates and Benefit Analysis

Appendix C – Roadways (Global) Cost Estimates and Benefit Analysis

Appendix D – Community Facilities (Global) Cost Estimates and Benefit Analysis

1.0 INTRODUCTION

1.1 Purpose

Tagish Engineering Ltd. was commissioned by the Town of Penhold to assist with an update and restructure the existing offsite levies for the Town area. The previous levies were completed in 2015.

There are four documents that provided engineering and planning analysis that have been relied upon in creation of this offsite levy report. These documents are:

1. Transportation Master Plan for Future Development in Penhold, dated March 2018 completed by AL-TERRA Engineering (Red Deer) Ltd.
2. 2019 Master Servicing Study for the Town of Penhold, dated April 2019 completed by Tagish Engineering Ltd.
3. Background Information – Town of Penhold, dated August 2016 completed by Parkland Community Planners (PCPS).
4. Town of Penhold Municipal Development Plan, dated October 2019 completed by Parkland Community Planners (PCPS).

The overall purpose of this offsite levies report is to provide the Town of Penhold with an assessment of the existing and future costs that they have allocated for municipal infrastructure upgrades. Offsite levies are a mechanism used by the municipality to recover capital costs incurred for infrastructure improvements for new development and growth related costs. The Town of Penhold collects these levies through an adopted offsite levy bylaw which is reviewed on a regular basis.

1.2 Conditions for Offsite Levies

Under the Municipal Government Act (MGA), the Town of Penhold is allowed to implement offsite levies against development in order to cover the capital costs in the following scenarios:

- New or expanded facilities for the storage, transmission, treatment or supply of water
- New or expanded facilities for the treatment, movement or disposal of sanitary sewage
- New or expanded storm sewer drainage facilities

- New or expanded roads required for, or impacted by a subdivision or development
- New or expanded transportation infrastructure required to connect, or to improve the connection of, municipal roads to provincial highways resulting from a subdivision development
- Lands required for or in connection with any facilities described in the points above

In addition to the capital cost of new or expanded infrastructure described above, an offsite levy may be used to pay for all or part of the capital costs for any of the following purposes (including any related appurtenances and required land):

- New or expanded community recreation facilities
- New or expanded fire hall facilities
- New or expanded police station facilities
- New or expanded libraries

The infrastructure projects included in this offsite levy report have been analyzed for residual benefit to ensure both the existing Town areas and future growth areas are considered. Offsite levies are collected from the developers at the time of development as these are required for the servicing of larger areas of the municipality which are typically required outside of the development area or subdivision to service that development. The cost benefit analysis included for each project can be found in the corresponding appendices of this report.

2.0 CONTRIBUTING AREAS

2.1 General Overview

In this section, the contributing areas will be broken down as follows:

- Global Boundary Area
- Non Benefitting Areas
 - Open Space & Environmental Reserve
 - Public Utility Lot & Storm Pond Facilities
- Applicable Benefitting Areas

The areas have been correlated to the future land use mapping determined in the Town of Penhold Municipal Development Plan dated October 2019

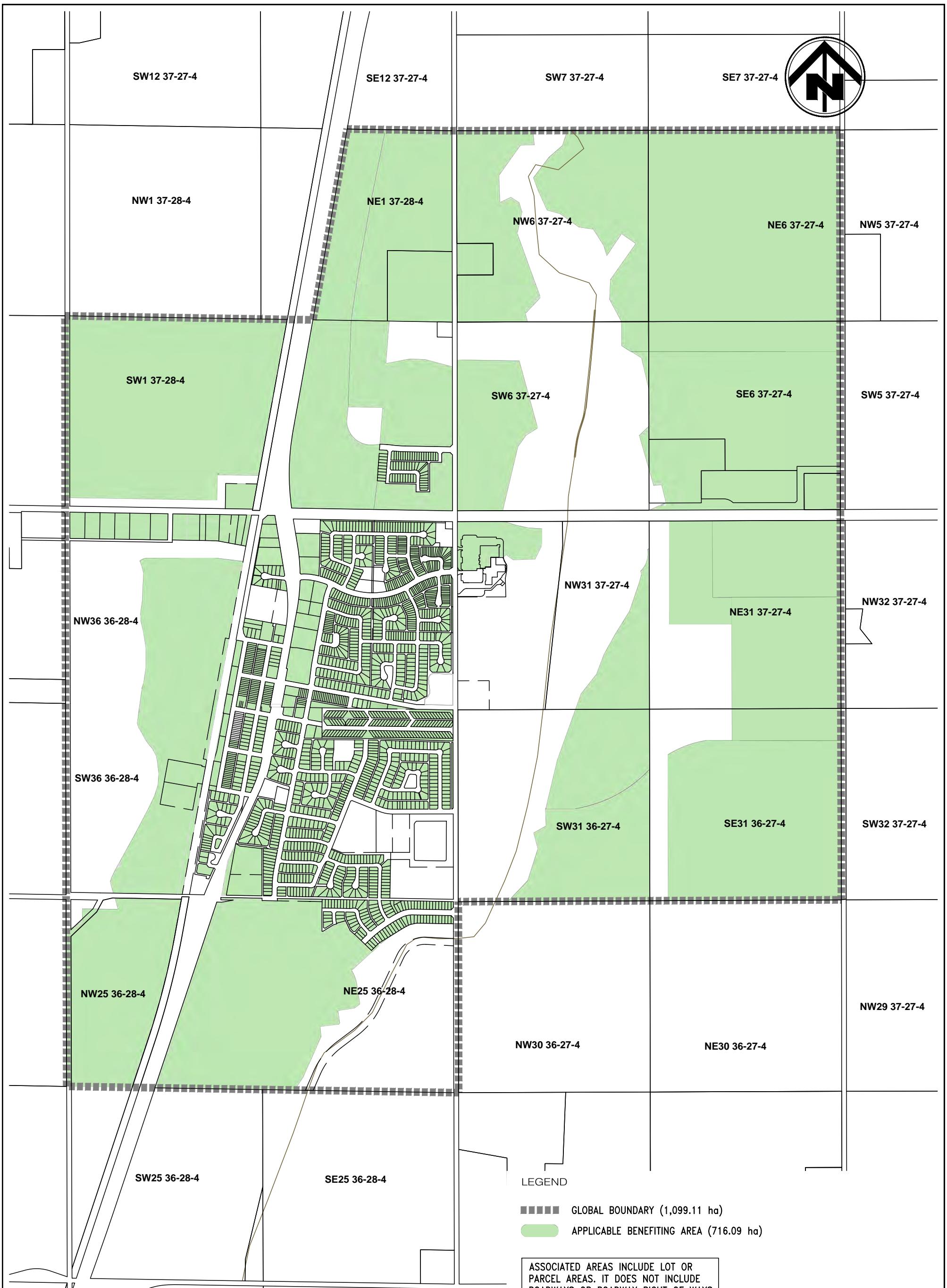
2.2 Global Boundary Area and Growth Horizon

Figure 1 shows the global boundary for the development area for Penhold. The global boundary of Penhold is comprised of the existing Town centre, future residential, and future commercial/industrial lands. The gross area within the global boundary is 1,099.11 hectares (ha). This boundary matches the newly annexed Town of Penhold boundary. As stated in the 2016 Background Information - Town of Penhold report completed by PCPS, this allows for a growth horizon of 30 – 35 years.

2.3 Non-Benefitting Areas

Figure 2 shows the non benefiting areas for Penhold. These non benefiting areas include roadway right of way, environmental reserve for Waskasoo Creek/Fleming Marsh, open space/park areas, storm pond facilities and public utility lots.

Open space and environmental areas along with existing road right of way (R.O.W.) and existing public utility lots have been taken out of the benefiting area as they are considered non developable. Fleming Marsh, Waskasoo Creek and existing storm pond facilities have also been taken out benefiting acreage because they are considered environmental areas and are not developable.



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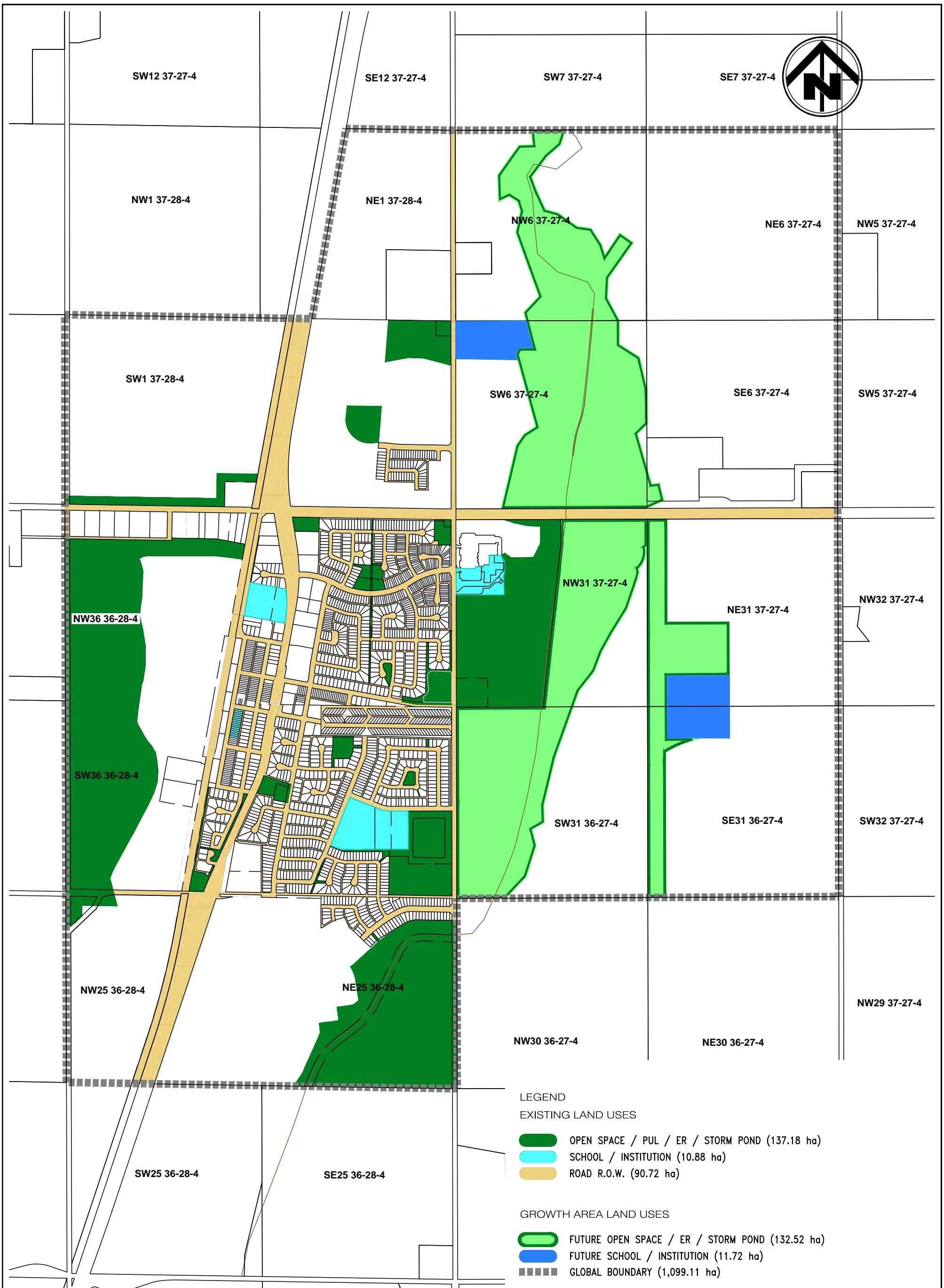
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Drawing
**GLOBAL
BOUNDARY PLAN**

Drawn: AW	Scale: 1:15,000	Drawing No. FIG. 1
Designed: LS	Date: NOV 07, 2019	
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Drawing
NON-BENEFITTING AREAS

Drawn: AW	Scale: 1:15,000	Drawing No. FIG. 2
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Checked: JP	File No.: TPN38_Levies8_30Oct2020.dwg	
Approved: GS	Project No.: TPN38	

A summary of the non-benefitting areas for Penhold is shown below on Table 2.1.

Table 2.1 Non-Benefitting Areas Summary

Item	Estimated Area (Hectares)
Existing Open Space, PUL, ER, & Storm Pond	137.18
School Areas / Institutional	10.88
Existing Roadway R.O.W.	90.72
Future Open Space, ER, & Storm Pond	132.52
Future School & Institutional.	11.72
Total Non-Benefitting Areas	383.02

For the purpose of this report the non-benefitting total area was calculated to be 383.02 hectares.

2.4 Applicable Benefitting Areas

To determine the applicable benefitting areas that can be used for offsite levies calculations, non benefitting areas must be taken out of the gross acreage. The gross area was determined to be 1,099.11 hectares, while the total non benefitting area was determined to be 383.02 hectares. Thus the global applicable boundary area for Penhold is 716.09 hectares.

However not all levies are based off of the global boundary.

A summary of the levies for this report based on their applicable benefitting areas are:

- Water will have one (1) global levy. The levy will be based on the benefitting area associated with the global boundary (Refer to Figure 3).
- Sanitary may have one (1) levy of which there are three (3) distinct benefitting areas. The levy will be based on the benefitting area for the particular upgrade. (Refer to Figure 4).

- Roadways will have one (1) global levy. The levy will be based on the benefitting area associated with the global boundary (Refer to Figure 5).
- Community Facilities will have one (1) global levy. The levy will be based on the benefitting area associated with the global boundary (Refer to Figure 6).

The benefitting areas associated with each type of infrastructure upgrade are shown on the corresponding Figures as well as in the cost breakdowns in the attached corresponding Appendices.

It is important to note that all parcels of land are subject to all levies that they are within the benefitting area of. For example, land within the central zone would be subject to the global water levy, central sanitary levy, global roadways levy, and global community facilities levy.

3.0 WATER SYSTEM (GLOBAL)

3.1 General

As indicated in the 2019 Master Servicing Study, a new water treatment plant (Pumphouse/Reservoir) is recommended for the future eastern development as well as the future expansion of the Oxford Reservoir. The studies also recommend the upgrade of a water distribution main on Lucina and a future main to the proposed eastern pumphouse and reservoir to improve fire flow capacities. The studies also include other various water system proposed projects.

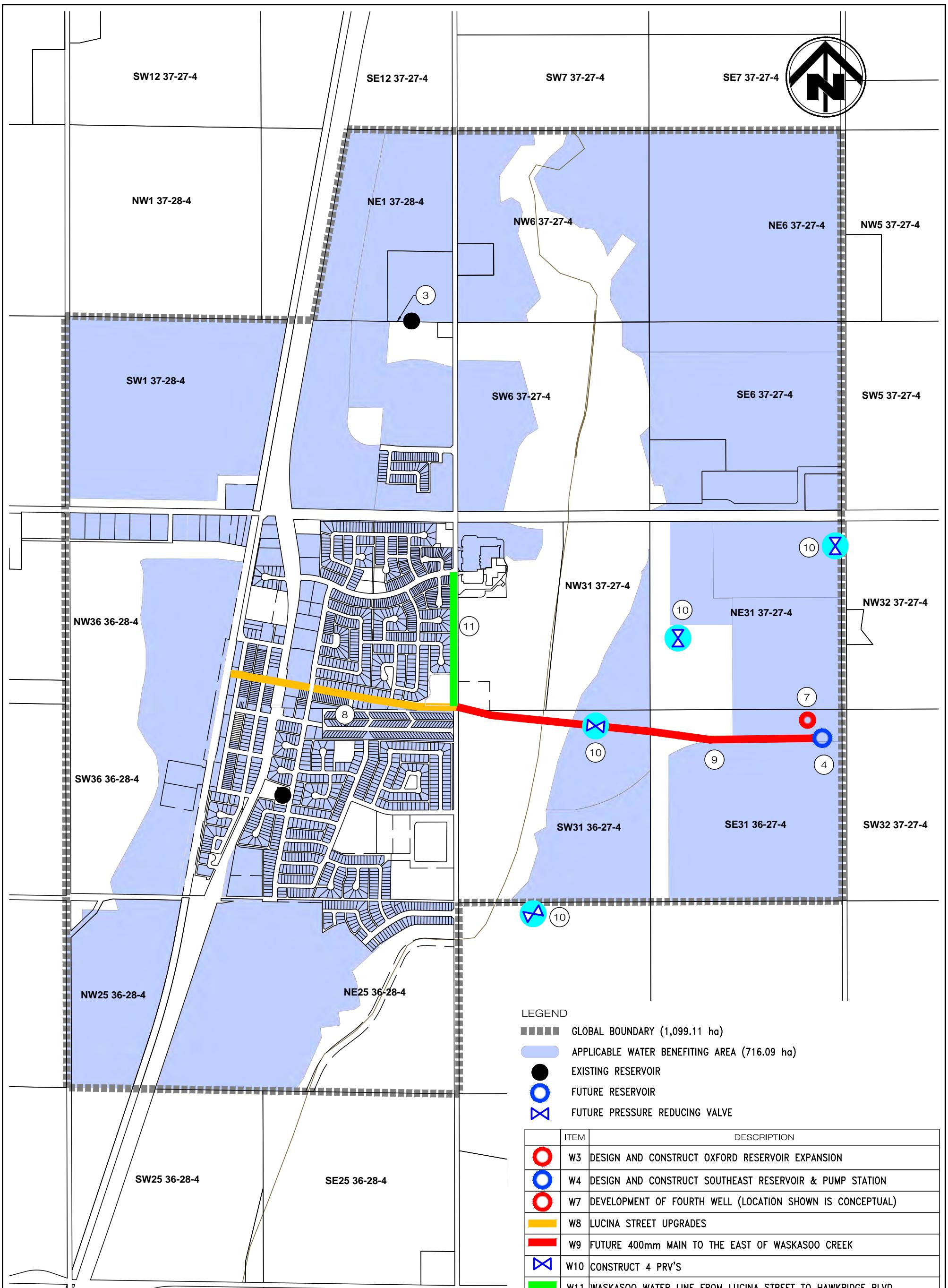
Refer to Figure 3 for the global water benefitting areas. A detailed breakdown of these projects are shown in Appendix A. Appendix A also provides cost estimates and benefit analysis for the global water system.

3.2 Water Infrastructure Costs

A summary of the water infrastructure costs are shown below in Table 3.1. Refer to Appendix A for detailed breakdown of project costs, applicable benefiting areas and cost benefit analysis.

Table 3.1 Water Infrastructure Costs Summary

Item	Estimated or Constructed Cost
Water Reservoir Total	\$9,766,869
Water Supply Total	\$2,565,525
Water Distribution Total	\$5,353,792
Total for Water Infrastructure Cost	\$17,686,185



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Drawing
GLOBAL WATER
BENEFITING AREAS

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4.0 SANITARY SYSTEM

4.1 General

As indicated in the 2019 Master Servicing Study, two (2) future lift stations and a force main will be required to service the future eastern developments. Similarly two (2) future lift stations and a force main will be required to service the future western developments.

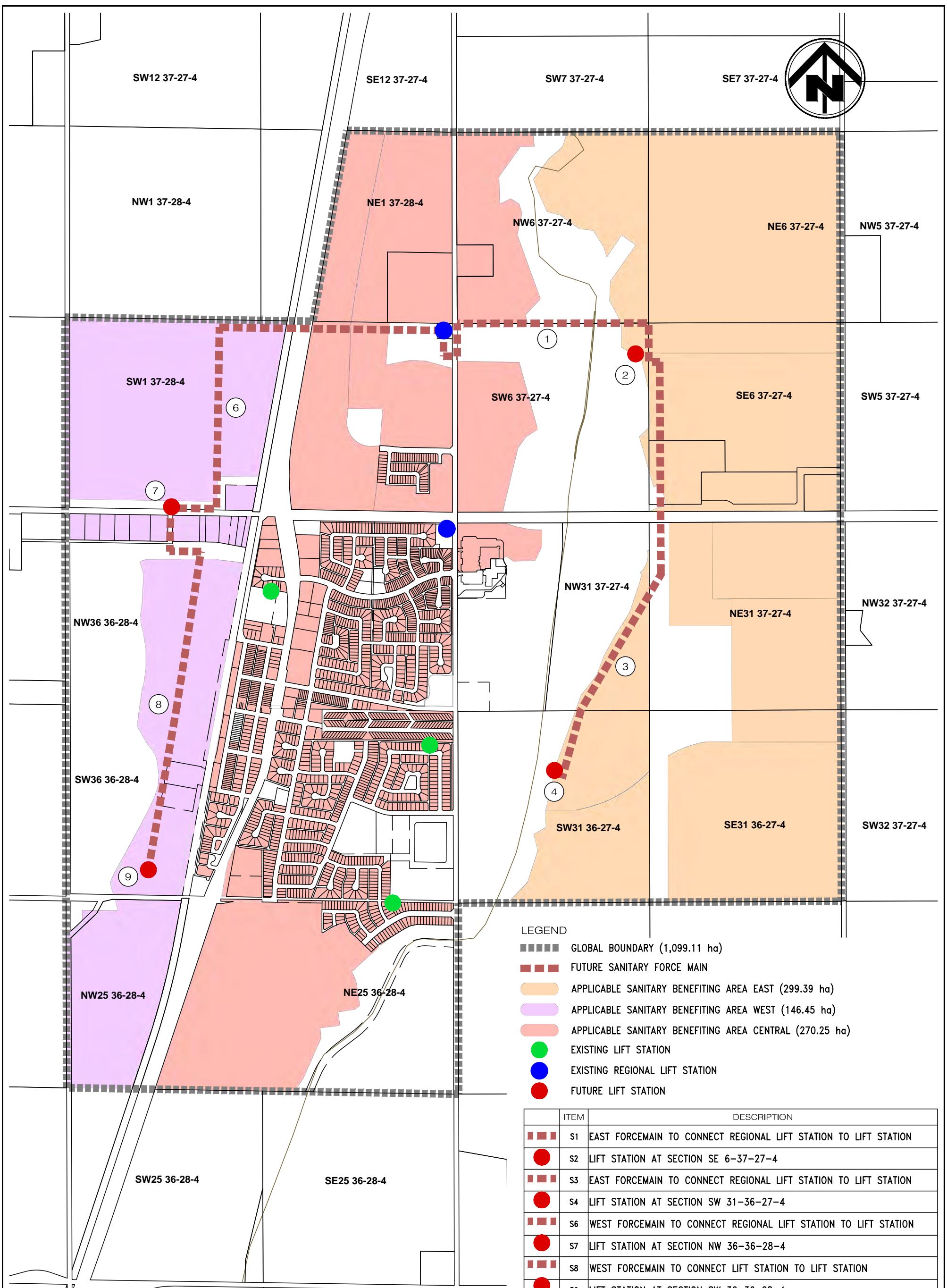
Refer to Figure 4 for the sanitary basin benefitting areas. A detailed breakdown of these projects are shown in Appendix B. Appendix B also provides cost estimates and benefit analysis for the sanitary system.

4.2 Sanitary Infrastructure Costs

A summary of the sanitary infrastructure costs are shown below in Table 4.1. Refer to Appendix B for detailed breakdown of project costs, applicable benefiting areas and cost benefit analysis.

Table 4.1 Sanitary Infrastructure Costs Summary

Item	Estimated or Constructed Cost
Sanitary Benefitting Area East Total	\$6,007,191
Sanitary Benefitting Area West Total	\$7,406,012
Sanitary Benefitting Area Central Total	\$64,388
Total for Sanitary Infrastructure Cost	\$13,477,592



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Drawing
**SANITARY
BENEFITING AREAS**

Drawn: AW	Scale: 1:15,000	Drawing No. FIG. 4
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Approved: GS	Project No.: TPN38	

5.0 ROADWAYS (GLOBAL)

5.1 General

As indicated in the 2019 Master Servicing Study, numerous arterial road upgrades are required for the future build out of Penhold. Additionally, numerous future intersection improvements will be required at these arterial road crossings. The study also proposed two (2) potential bridge crossings on Waskasoo Creek as part of the transportation network.

Note: Any intersection upgrades for Highway 2A and Highway 42 have not been included in the Town of Penhold Levies as these costs are expected to be paid by Alberta Transportation. Should anything change in regards to this intersection upgrade, the Offsite Levies will be updated accordingly.

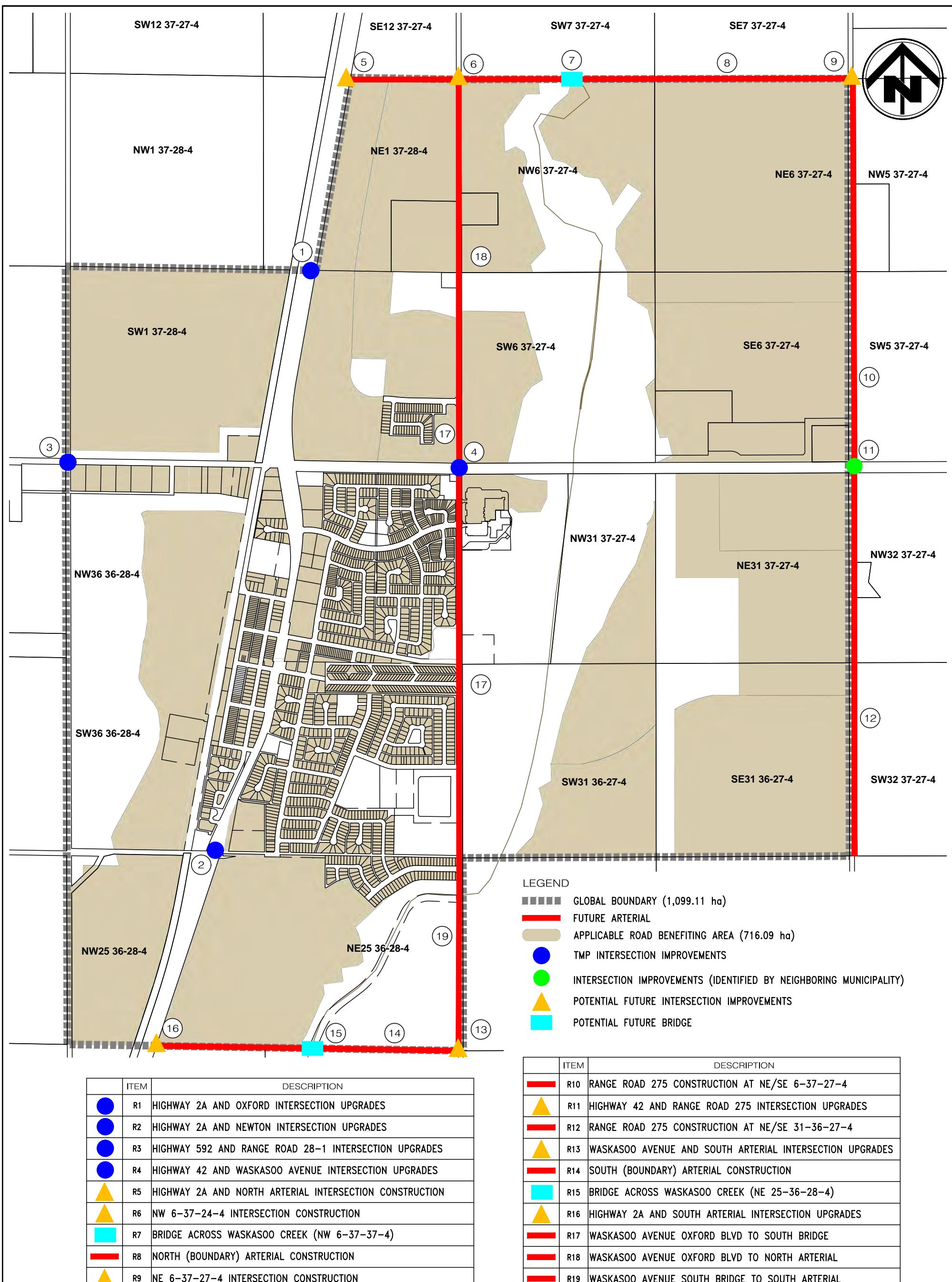
Refer to Figure 5 for the global roadway benefitting areas. A detailed breakdown of these projects are shown in Appendix C. Appendix C also provides cost estimates and benefit analysis for the roadways system.

5.2 Roadway Infrastructure Costs

A summary of the roadway infrastructure costs are shown below in Table 5.1. Refer to Appendix C for detailed breakdown of project costs, applicable benefiting areas and cost benefit analysis.

Table 5.1 Roadway Infrastructure Costs Summary

Item	Estimated or Constructed Cost
Total for Roadways Infrastructure Cost	\$31,029,783



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Drawing
GLOBAL ROAD BENEFITING AREAS

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Approved: GS	Project No.: TPN38

Drawing No.
FIG. 5

6.0 COMMUNITY FACILITIES

6.1 General

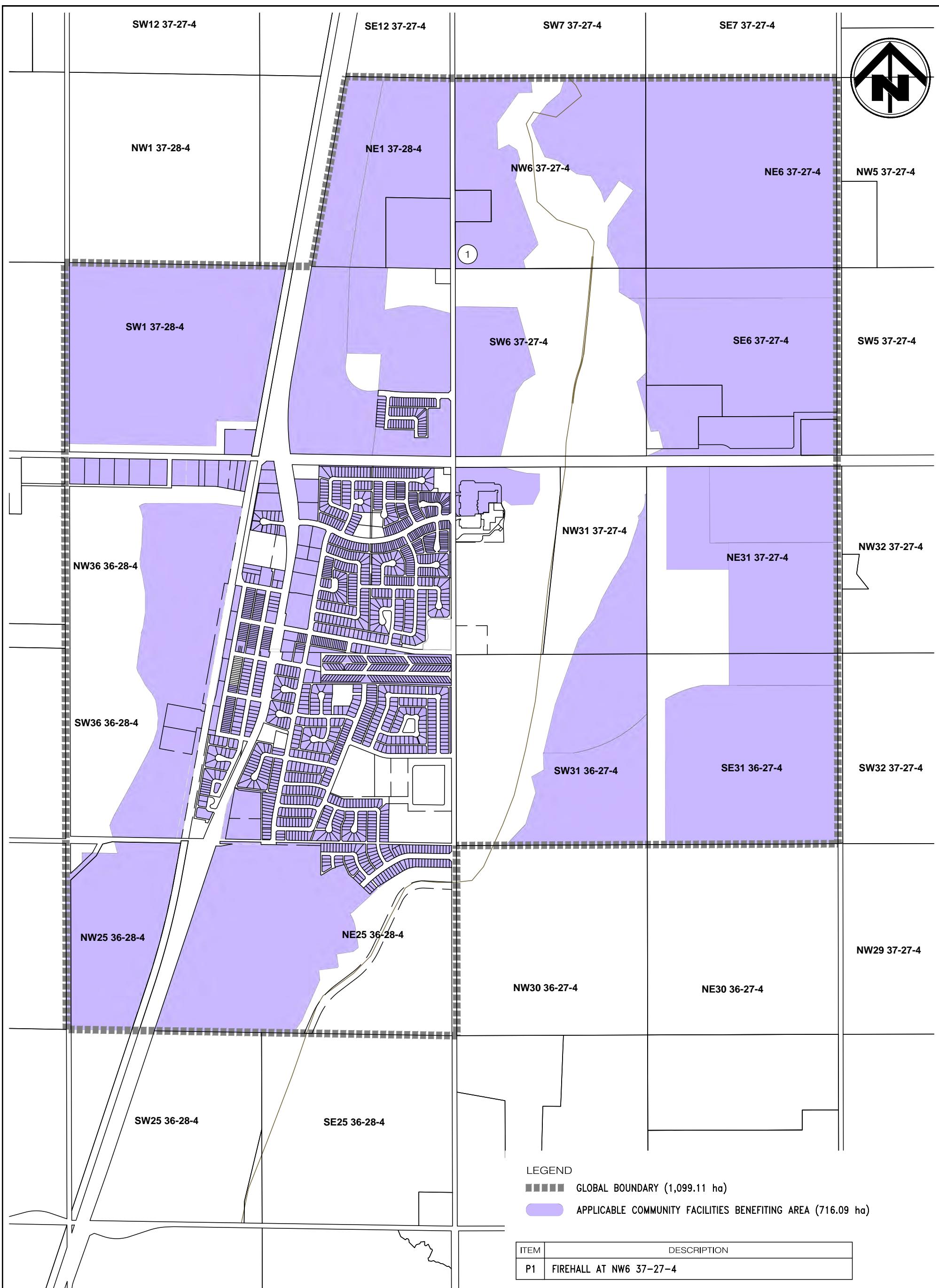
As indicated by the Town of Penhold, a Firehall is required on the Public Works Lot located on NW6 37-27-4. Refer to Figure 6 for Global Community Facilities benefitting areas. A detailed breakdown of these projects are shown in Appendix D. Appendix D also provides cost estimates and benefit analysis for the Community Facilities

6.2 Community Facilities Costs

A summary of the Community Facilities infrastructure costs are shown below in Table 6.1. Refer to Appendix D for detailed breakdown of project costs, applicable benefiting areas and cost benefit analysis.

Table 6.1 Community Facilities Infrastructure Costs Summary

Item	Estimated or Constructed Cost
Total for Community Facilities Cost	\$5,330,000



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Drawing
GLOBAL COMMUNITY FACILITIES
BENEFITTING AREAS

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7.0 SUMMARY OF LEVIES

7.1 Results

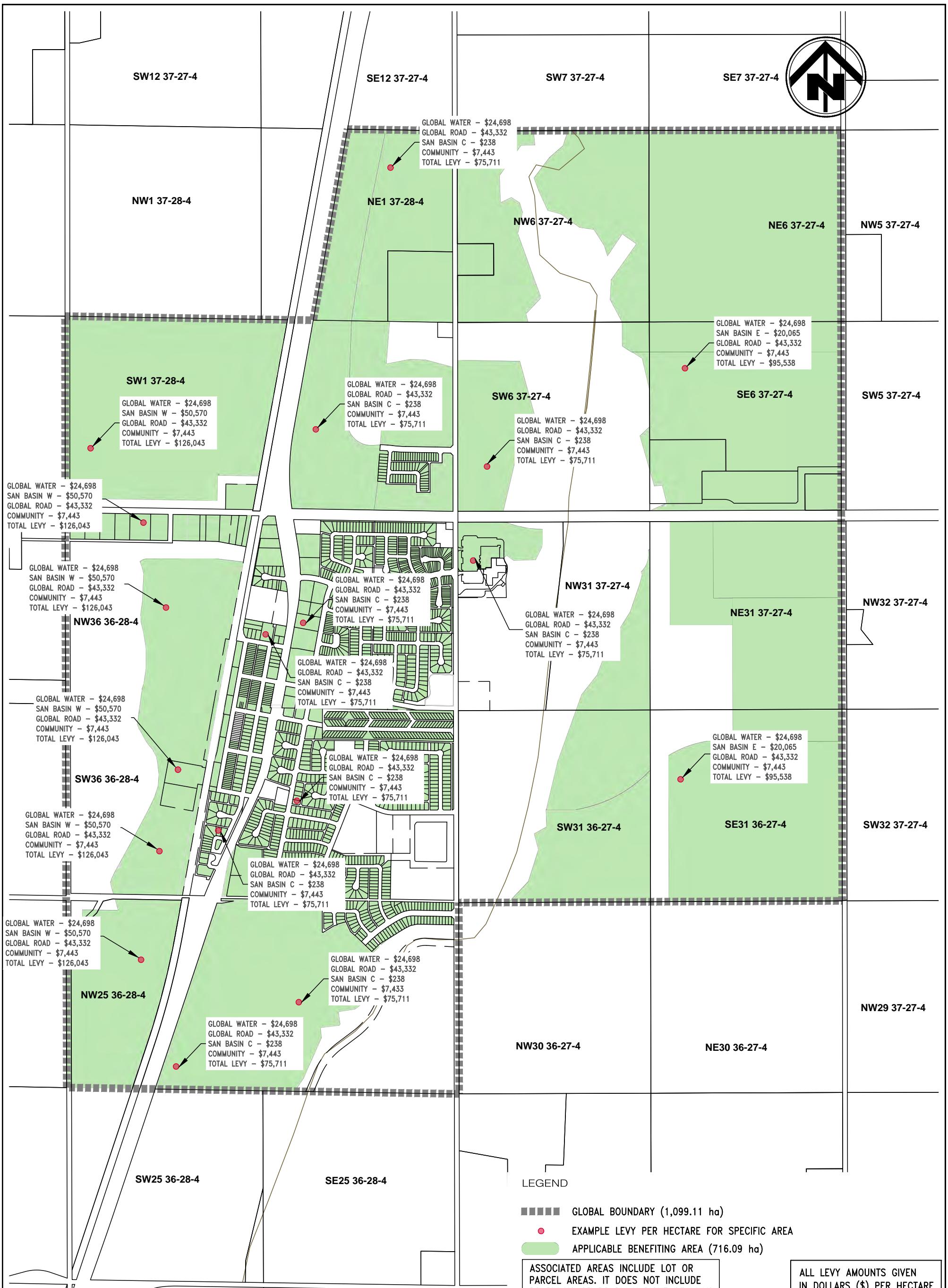
A summary of the levies are shown below in Table 7.1. These levies are derived from the detailed information found in Appendices A-D.

Table 7.1 Penhold Offsite Levies

Item	Cost (\$)	Benefiting Area (ha)	Proposed Levy (\$ / ha)
Global - Water	\$17,456,186	716.09	\$24,698
Sanitary Basin East	\$6,007,191	299.39	\$20,065
Sanitary Basin West	\$7,406,012	146.45	\$50,570
Sanitary Basin Central	\$64,388	270.25	\$238
Global – Roadways	\$20,571,625	716.09	\$43,332
Global – Community Facilities	\$5,330,000	716.09	\$7,443

7.2 Levies Summary Map

A summary of the levies are shown in Figure 7. Figure 7 shows an example of areas and the levy cost associated for that area based on the global boundaries, area specific limits, and sanitary basins. The levies range from \$75,711-126,043 per hectare depending on location within the Town of Penhold.



8.0 CONCLUSION

The Town of Penhold's offsite levies have been calculated on sound methodology and reviewed by affected stakeholders. These levies reflect the development size areas, the complexity of municipal infrastructure requirements and transportation connections. The Town of Penhold levies are competitive and comparable in nature with the other Central Alberta communities. These levies reflect and exercise the philosophy that the developer contributes to growth within the Town.

Tagish Engineering recommends the new offsite levies be considered through bylaw and to be used by the Town. Furthermore, Tagish Engineering recommends that the Town's offsite levies continue to be reviewed on a regular basis in order to re-asses projected costs, future growth projects and market inflation.

**Appendix A
Water System (Global)
Cost Estimates and Benefit Analysis**

Table A1 Water Infrastructure Costs and Levies

Item #	Water Reservoirs		Benefitting Area (Hectare)	Actual Levy (per Hectare)
W1	Upgrade Existing Pumping Station	Constructed	\$538,316	
W2	Water Storage Reservoir and Pumping Station - Oxford (less grants)	Constructed	\$1,584,553	
W3	Design and construct Oxford Reservoir Expansion	Estimated	\$3,120,000	
W4	Design and construct Southeast Reservoir & Pump Station	Estimated	\$4,524,000	
	Total Water Reservoirs		\$9,766,869	716.09
				\$13,639.16
	Water Supply			
W5	Well 2	Constructed	\$105,525	
W6	Regional Water Line	Estimated	\$2,210,000	
W7	Development of Fourth Well	Estimated	\$250,000	
	Total Water Supply		\$2,565,525	716.09
				\$3,583
	Water Distribution			
W8	Lucina Street Upgrades	Estimated	\$2,340,000	
W9	Future 400mm main to the East of Waskasoo Creek	Estimated	\$1,989,000	
W10	Construct 4 PRV's	Estimated	\$624,000	
W11	Waskasoo Waterline from Lucina to Hawkridge Blvd.	Constructed	\$230,000	
W12	Studies and Future Modeling	Estimated	\$170,792	
	Total Water Distribution		\$5,353,792	716.09
				\$7,476
	Total Water Supply, Reservoirs & Distribution		\$17,686,185	716.09
				\$24,698

Water Infrastructure Cost Estimates and Benefit Analysis

Revised : November 4, 2020

The following is an itemized breakdown of infrastructure list in Appendix “A” – Water Infrastructure Offsite Levies.

Water Reservoirs

Item # W1

Upgrade Existing Pump Station

Scope of Work

- Decommission old pressure tank
- New pumps with variable speed drives
- New electrical panels and install VFD drivers
- Emergency generator system
- New chlorination system with chlorine analyzers
- New stainless steel header system and outside pipe connections
- Security fencing Around Facility to comply with AE Guidelines

Grant Support

The Town of Penhold secured a Grant from the Alberta Municipal Water Wastewater Partnership program to help construct the works. \$494,410 was available for the project and has been included below.

Estimated Cost

The existing pump station has been constructed. The total construction cost is \$1,032,726 based on progress payments to date.

Total Cost of Construction	\$1,032,726.00
Less Grant from AMWWP	\$494,410.00
Town of Penhold Share	\$538,316.00

Benefiting Area

The benefitting area for this project is the entire global boundary (applicable benefitting area) for Penhold which is 716.09 hectares.

2021 OFFSITE LEVY REPORT

Cost Benefit

The Infrastructure Report showed deficiencies in the water system in delivering adequate fire flows south of Lucina St. and to the Palisades and Future Newton development areas. In order to meet the necessary flow capabilities the existing Reservoir and Pumping Station has to be upgraded. All areas would benefit from the upgrades. Included are future development areas west of the CP Rail line in the Stewart property, and to future developments in the north and west areas of the Town of Penhold. In the 2021 Penhold Offsite Levies report, all global water infrastructure upgrades have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares.

2021 OFFSITE LEVY REPORT

Water Reservoirs

Item # W2

New Water Storage Reservoir, and Pumping Station – Oxford Landing

Scope of Work

- 2500 m³ Reservoir
- Pump station complete with variable speed pumps, etc.

Constructed Costs

1. Reservoir, site work, general expenses, landscaping	\$1,692,000.00
2. Pumping station building, heat, ventilation	\$219,600.00
3. Mechanical including piping, pumps, connections, commission & testing	\$411,600.00
4. Standby generator	\$180,000.00
5. Electrical including service connection	\$132,000.00
6. Instrumentation, SCADA	\$217,200.00
7. Contingency	\$285,600.00
8. Engineering	\$462,000.00
9. Less Grants	-\$2,015,447.00
	<u>Total</u>
	\$1,584,553.00

Benefitting Area

The benefitting area for this project is the entire global boundary (applicable benefitting area) for Penhold which is 716.09 hectares.

Cost Benefit

A second reservoir and pumping station provides water distribution to the north areas and distribution service to the south areas. All new development and existing Town will benefit from the increased storage and fire fighting capacity that is added to the water system. In the 2021 Penhold Offsite Levies report, all global water infrastructure upgrades have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares.

2021 OFFSITE LEVY REPORT

Water Reservoirs

Item # W3

Design and Construct Oxford Reservoir Expansion

Scope of Work

- Design and construct 3,000 cu.m reservoir expansion

Estimated Cost for the Oxford Reservoir Expansion

The following is a cost breakdown for the water infrastructure project:

1 Construction	\$2,000,000
2 Miscellaneous	\$ 400,000
3 Engineering	\$360,000
4 Contingency	\$360,000
Total Estimated Construction Costs	\$3,120,000

Benefitting Area

The benefitting area for this project is the entire global boundary (applicable benefitting area) for Penhold which is 716.09 hectares.

Cost Benefit

As indicated in the 2019 Master Servicing Study, The Oxford Reservoir expansion is recommended to service adjacent parcels of land as they are developed for full build out. In the 2021 Penhold Offsite Levies report, all global water infrastructure upgrades have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares.

2021 OFFSITE LEVY REPORT

Water Reservoirs

Item # W4

Design and Construct Southeast Reservoir and Pump Station

Scope of Work

- Design and construct 3,000 cu.m reservoir and pump station

Estimated cost for design and construction of 3,000 cu.m. concrete reservoir and pump station located in the SE 31 36-27-4

The following is a cost breakdown for the water infrastructure project:

1 Construction	\$ 2,900,000
2 Miscellaneous	\$ 580,000
3 Engineering	\$ 522,000
4 Contingency	\$ 522,000
Total Estimated Construction Costs	\$ 4,524,000

Benefitting Area

The benefitting area for this project is the entire global boundary (applicable benefitting area) for Penhold which is 716.09 hectares.

Cost Benefit

As indicated in the 2019 Master Servicing Study, a new water treatment plant (Pumphouse/Reservoir) is recommended to service eastern parcels of land as they are developed for full build out. In the 2021 Penhold Offsite Levies report, all global water infrastructure upgrades have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares.

2021 OFFSITE LEVY REPORT

Water Supply

Item # W5

Well 2

Scope of Work

- Costs from Water Supply #2 constructed in 2002 included in estimate

Estimated Cost

Water Supply Well #2 – 2002 construction	
2006 levy cost	\$175,525.00
- \$70,000 previously funded charges	<u>-\$70,000.00</u>
Total Water Supply	<u>\$105,525.00</u>

Benefitting Area

The benefitting area for this project is the entire global boundary (applicable benefitting area) for Penhold which is 716.09 hectares.

Cost Benefit

Existing Well 2 which was constructed in 2002 provides the Town of Penhold with water supply. In the 2021 Penhold Offsite Levies report, all global water infrastructure upgrades have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares.

2021 OFFSITE LEVY REPORT

Water Supply

Item # W6

Regional Water Line

Scope of Work

- 350mm pipe to Penhold
- Regional line is approximately 21km long from supply line from Anthony Henday Water Treatment Plant to Penhold
- Total Capital Cost of \$22.1 million
- It is estimated that the Town of Penhold would be responsible for 10% of Capital Cost

Estimated Cost

Regional Water Line	
21 km long regional water line	\$22,100,000.00
(10% Town of Penhold cost share)	\$2,210,000.00
Total Water Supply	<u>\$2,210,00.00</u>

Benefitting Area

The benefitting area for this project is the entire global boundary (applicable benefitting area) for Penhold which is 716.09 hectares.

Cost Benefit

To meet future development needs Penhold is anticipating joining the Regional Water Supply Line from the Anthony Henday Water Treatment Plant. The existing well system meets current demands but future growth will need more supply. The regional water line will provide a better sustainable water source for the Town of Penhold for the existing portions of Town as well as future development. In the 2021 Penhold Offsite Levies report, all global water infrastructure upgrades have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares.

2021 OFFSITE LEVY REPORT

Water Supply

Item # W7

Development of Fourth Well

Scope of Work

- Well Development

Estimated Cost to establish a well as defined in the Master servicing Study

The following is a cost breakdown for the water infrastructure project:

Total Estimated Construction Costs	\$ 250,000
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Benefitting Area

The benefitting area for this project is the entire global boundary (applicable benefitting area) for Penhold which is 716.09 hectares.

Cost Benefit

As indicated in the 2019 Master Servicing Study, the development of a fourth well is recommended for water supply for future build out. In the 2021 Penhold Offsite Levies report, all global water infrastructure upgrades have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares.

2021 OFFSITE LEVY REPORT

Water Distribution

Item # W8

Lucina Street upgrades

Scope of Work

- Remove 1,000 m - 200 mm water main and replace with 400 mm water main
- Roadway repairs

Estimated Cost for the Distribution Main on Lucina Street Section NE 36-36-28-4

The following is a cost breakdown for the water infrastructure project:

1 Construction	\$ 1,500,000
2 Miscellaneous	\$ 300,000
3 Engineering	\$ 270,000
4 Contingency	\$ 270,000
Total Estimated Construction Costs	\$ 2,340,000

Benefitting Area

The benefitting area for this project is the entire global boundary (applicable benefitting area) for Penhold which is 716.09 hectares.

Cost Benefit

As indicated in the 2019 Master Servicing Study, it is recommended that the existing 200mm water main on Lucina be replaced with a 400mm water main for future build out. In the 2021 Penhold Offsite Levies report, all global water infrastructure upgrades have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares.

2021 OFFSITE LEVY REPORT

Water Distribution

Item # W9

Future 400mm Main to the East of Waskasoo Creek

Scope of Work

- Design and construct a 1,700 m - 400 mm diameter trunk main

Estimated cost for design and construction 400 mm diameter trunk main located in SW 31 36-27-4 and SE 31 36-27-4

The following is a cost breakdown for the water infrastructure project:

1 Construction	\$ 1,275,000
2 Miscellaneous	\$ 255,000
3 Engineering	\$ 229,500
4 Contingency	\$ 229,500
Total Estimated Construction Costs	\$ 1,989,000

Benefitting Area

The benefitting area for this project is the entire global boundary (applicable benefitting area) for Penhold which is 716.09 hectares.

Cost Benefit

As indicated in the 2019 Master Servicing Study, it is recommended that a future 400mm water main be constructed east of Waskasoo Creek for future build out, which will connect with the Southeast Reservoir and Pump Station. In the 2021 Penhold Offsite Levies report, all global water infrastructure upgrades have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares.

2021 OFFSITE LEVY REPORT

Water Distribution

Item # W10

Construct 4 PRV's

Scope of Work

- Design and construct 4-PRVs

Estimated cost for design and construction of four PRVs located east of Waskasoo Creek

The following is a cost breakdown for the water infrastructure project:

1 Construction	\$ 400,000
2 Miscellaneous	\$ 80,000
3 Engineering	\$ 72,000
4 Contingency	\$ 72,000
Total Estimated Construction Costs	\$ 624,000

Benefitting Area

The benefitting area for this project is the entire global boundary (applicable benefitting area) for Penhold which is 716.09 hectares.

Cost Benefit

As indicated in the 2019 Master Servicing Study, it is recommended that four future PRV's be installed east of Waskasoo Creek for future build out. In the 2021 Penhold Offsite Levies report, all global water infrastructure upgrades have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares.

2021 OFFSITE LEVY REPORT

Water Distribution

Item # W11

Waskasoo Waterline from Lucina Street to Hawkridge Blvd.

Scope of Work

- Water line installed from Lucina to Hawkridge Boulevard
- Provide looping from Lucina to Hawkridge Blvd. Area for Hawkridge, High School, Multiplex, and Oxford development areas

Estimated Cost

- Costs reported from the Town was **\$230,000.00**. This item was a carry forward from the previous levy bylaw

Benefitting Area

The benefitting area for this project is the entire global boundary (applicable benefitting area) for Penhold which is 716.09 hectares.

Cost Benefit

This water line provides looping to the north east areas identified above, and provided improvement to the entire water distribution network, therefore this cost has been assigned to the entire global boundary (applicable benefitting area) of 716.09 hectares.

2021 OFFSITE LEVY REPORT

Water Distribution

Item # W12

Studies and Future Modeling

Scope of Work

- Various infrastructure studies, offsite levy reports etc. for future planning and development of Penhold.

Estimated/ Actual Costs

The following is a cost breakdown for the water infrastructure project:

1	2011 Infrastructure Study and Offsite Levy Report	\$137,053
2	2019 Master Servicing Study	\$ 54,530
	Total Water Portion @50%	\$ 95,792
3	Future Water Model Update	\$ 75,000
	Total Estimated Construction Costs	\$ 170,792

Benefitting Area

The benefitting area for this project is the entire global boundary (applicable benefitting area) for Penhold which is 716.09 hectares.

Cost Benefit

These Studies are essential for future planning to provide Penhold with infrastructure services or to identify any problems within the infrastructure system. The previously completed Offsite Levies, Infrastructure and Master Servicing Studies have been assigned to both the Global Water and Global Sanitary Levies at 50% each. In the 2021 Penhold Offsite Levies report, all studies have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares

**Appendix B
Sanitary System
Cost Estimates and Benefit Analysis**

Table B1 Sanitary Infrastructure Costs and Levies

Item #	Sanitary - Basin East		Benefitting Area (Hectare)	Actual Levy (per Hectare)
S1	East Force Main to Connect Regional Lift Station to Lift Station	Estimated	\$943,800	
S2	Lift Station at Section SE 6-37-27-4	Estimated	\$1,170,000	
S3	East Force Main to Connect Lift Station to Lift Station	Estimated	\$1,482,000	
S4	Lift Station at Section SW 31-36-27-4	Estimated	\$2,340,000	
S5	Studies and Future Modeling	Estimated	\$71,391	
	Sanitary - Basin East		\$6,007,191	299.39
				\$20,065
	Sanitary - Basin West			
S6	West Force Main to Connect Regional Lift Station to Lift Station	Estimated	\$1,521,000	
S7	Lift Station at Section NW 36-36-28-4	Estimated	\$2,340,000	
S8	West Force Main to Connect Lift Station to Lift Station	Estimated	\$1,170,000	
S9	Lift Station at Section SW 36-36-28-4	Estimated	\$2,340,000	
S10	Studies and Future Modeling	Estimated	\$35,012	
	Sanitary - Basin West		\$7,406,012	146.45
				\$50,570
	Sanitary - Basin Central			
S11	Studies and Future Modeling	Estimated	\$64,388	
	Sanitary - Basin Central		\$64,388	270.25
				\$238

Sanitary Infrastructure Cost Estimates and Benefit Analysis

Revised : October 30, 2020

The following is an itemized breakdown of infrastructure list in Appendix “B” – Sanitary Infrastructure Offsite Levies.

Sanitary – Basin East

Item # S1

East Force Main to Connect Regional Lift Station to Lift Station

Scope of Work

- The 2019 Master Servicing Study for Penhold identified the need for a required force main to provide service to eastern quarter sections
- Installation of a sanitary force main (1,100m in length)
- Installation of force main underneath Waskasoo Creek
- Connection of force main to Regional Lift Station to Lift Station S2
- Engineering planning and designs

Estimated Cost for the East Force Main to Connect to Regional Lift Station

The following is a cost breakdown for the sanitary infrastructure project:

1. Installation of sanitary main	\$	605,000
2. Miscellaneous	\$	121,000
3. Engineering	\$	108,900
4. Contingency	\$	108,900
Total Estimated Construction Costs	\$	943,800

Benefiting Area

The benefitting area is based on the assigned sanitary basin area for the particular sanitary infrastructure upgrade. The benefitting area of Sanitary Area East is 299.39 hectares.

Cost Benefit

A sanitary force main will be required in order to service the east side of Waskasoo Creek. The force main will connect from the existing regional lift station to the future lift station at SE 6-37-27-4. In the 2021 Penhold Offsite Levies report, sanitary infrastructure upgrades have been assigned to the benefiting area based on its corresponding sanitary basin area. The benefitting area of Sanitary Area East is 299.39 hectares.

2021 OFFSITE LEVY REPORT

Sanitary – Basin East

Item # S2

Lift Station at Section SE 6-37-27-4

Scope of Work

- The 2019 Master Servicing Study for Penhold identified the need for a required lift station at SE 6-37-27-4 to provide sanitary service within these areas.
- Installation of sanitary lift station
- Engineering planning and designs

Estimated Cost for the Lift Station at Section SE 6-37-27-4

The following is a cost breakdown for the sanitary infrastructure project:

1. Installation of sanitary lift station	\$	750,000
2. Miscellaneous	\$	150,000
3. Engineering	\$	135,000
4. Contingency	\$	135,000
Total Estimated Construction Costs	\$	1,170,000

Benefiting Area

The benefitting area is based on the assigned sanitary basin area for the particular sanitary infrastructure upgrade. The benefitting area of Sanitary Area East is 299.39 hectares.

Cost Benefit

A sanitary lift station will be required in order to service the east side of Waskasoo Creek at SE 6-37-27-4. In the 2021 Penhold Offsite Levies report, sanitary infrastructure upgrades have been assigned to the benefiting area based on its corresponding sanitary basin area. The benefitting area of Sanitary Area East is 299.39 hectares.

2021 OFFSITE LEVY REPORT

Sanitary – Basin East

Item # S3

East Force Main to Connect to Lift Station S2 and Lift Station S4

Scope of Work

- The 2019 Master Servicing Study for Penhold identified the need for a required force main to provide service to eastern quarter sections
- Installation of an sanitary force main (1,900m in length)
- Connection of force main to Lift Station S2 to Lift Station S4
- Engineering planning and designs

East Force Main to Connect to Lift Station S2 to Lift Station S4

The following is a cost breakdown for the sanitary infrastructure project:

1. Installation of sanitary main	\$	950,000
2. Miscellaneous	\$	190,000
3. Engineering	\$	171,000
4. Contingency	\$	171,000
Total Estimated Construction Costs	\$	1,482,000

Benefiting Area

The benefitting area is based on the assigned sanitary basin area for the particular sanitary infrastructure upgrade. The benefitting area of Sanitary Area East is 299.39 hectares.

Cost Benefit

A sanitary force main will be required in order to service the east side of Waskasoo Creek. The force main will connect from the future lift station (SE6-37-27-4) to the future lift station (SW 31-36-27-4). In the 2021 Penhold Offsite Levies report, sanitary infrastructure upgrades have been assigned to the benefiting area based on its corresponding sanitary basin area. The benefitting area of Sanitary Area East is 299.39 hectares.

2021 OFFSITE LEVY REPORT

Sanitary – Basin East

Item # S4

Lift Station at Section SW 31-36-27-4

Scope of Work

- The 2019 Master Servicing Study for Penhold identified the need for a required lift station at SW 31-36-27-4 to provide sanitary service within these areas.
- Installation of sanitary lift station
- Engineering planning and designs

Estimated Cost for the Lift Station at Section SW 31-36-27-4

The following is a cost breakdown for the sanitary infrastructure project:

1. Installation of sanitary lift station	\$	1,500,000
2. Miscellaneous	\$	300,000
3. Engineering	\$	270,000
4. Contingency	\$	270,000
Total Estimated Construction Costs	\$	2,340,000

Benefiting Area

The benefitting area is based on the assigned sanitary basin area for the particular sanitary infrastructure upgrade. The benefitting area of Sanitary Area East is 299.39 hectares.

Cost Benefit

A sanitary lift station will be required in order to service the east side of Waskasoo Creek at SW 31-36-27-4. In the 2021 Penhold Offsite Levies report, sanitary infrastructure upgrades have been assigned to the benefiting area based on its corresponding sanitary basin area. The benefitting area of Sanitary Area East is 299.39 hectares.

2021 OFFSITE LEVY REPORT

Sanitary – Basin East **Item # S5** **Studies and Future Modeling**

Scope of Work

Various infrastructure studies and offsite levy reports etc. for future planning and development of Penhold.

Estimated/ Actual Costs

1. 2011 Infrastructure Study and Offsite Levy Report	\$	137,053
2. 2019 Master Servicing Study	\$	54,530
Total Sanitary Portion @50%	\$	95,792
3. Future Sanitary System Model Update	\$	75,000
Total Estimated Sanitary Construction Costs	\$	170,792
Total Estimated Sanitary East Basin Construction Cost @41.8%	\$	71,391

Benefiting Area

The benefitting area is based on the assigned sanitary basin area for the particular sanitary infrastructure upgrade. The benefitting area of Sanitary Area East is 299.39 hectares.

Cost Benefit

These studies are essential for future planning to provide Penhold with infrastructure services or to identify any problems within the entire infrastructure system. The previously completed Offsite Levies, Infrastructure and Master Servicing Studies have been assigned to both the Global Water and Global Sanitary Levies at 50% each. In the 2021 Penhold Offsite Levies Report, all studies have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares and distributed based on area of each sanitary basin. The East Basin is 299.39 hectares or 41.8% of the global boundary.

2021 OFFSITE LEVY REPORT

Sanitary – Basin West

Item # S6

West Force Main to Connect Regional Lift Station to Lift Station

Scope of Work

- The 2019 Master Servicing Study for Penhold identified the need for a required force main to provide service to western quarter sections
- Installation of a sanitary force main (1,950m in length)
- Connection of force main to Regional Lift Station to Lift Station
- Installation of force main underneath Highway 2A
- Engineering planning and designs

Estimated Cost for the West Force Main to Connect Regional Lift Station to Lift Station

The following is a cost breakdown for the sanitary infrastructure project:

1. Installation of sanitary main	\$	975,000
2. Miscellaneous	\$	195,000
3. Engineering	\$	175,500
4. Contingency	\$	175,500
Total Estimated Construction Costs	\$	1,521,000

Benefiting Area

The benefitting area is based on the assigned sanitary basin area for the particular sanitary infrastructure upgrade. The benefitting area of Sanitary Area West is 146.45 hectares.

Cost Benefit

A sanitary force main will be required in order to service the west side of Penhold future lands. The force main will connect from the existing regional lift station to the future lift station at NW 36-36-28-4. In the 2021 Penhold Offsite Levies report, sanitary infrastructure upgrades have been assigned to the benefiting area based on its corresponding sanitary basin area. The benefitting area of Sanitary Area West is 146.45 hectares.

2021 OFFSITE LEVY REPORT

Sanitary – Basin West

Item # S7

Lift Station at Section NW 36-36-28-4

Scope of Work

- The 2019 Master Servicing Study for Penhold identified the need for a required lift station at NW 36-36-28-4 to provide sanitary service within these areas.
- Installation of sanitary lift station
- Engineering planning and designs

Estimated Cost for the Lift Station at Section NW 36-36-28-4

The following is a cost breakdown for the sanitary infrastructure project:

1. Installation of sanitary lift station	\$ 1,500,000
2. Miscellaneous	\$ 300,000
3. Engineering	\$ 270,000
4. Contingency	\$ 270,000
Total Estimated Construction Costs	\$ 2,340,000

Benefiting Area

The benefitting area is based on the assigned sanitary basin area for the particular sanitary infrastructure upgrade. The benefitting area of Sanitary Area West is 146.45 hectares.

Cost Benefit

A sanitary lift station will be required in order to service the west side of Penhold future lands at NW 36-36-28-4. In the 2021 Penhold Offsite Levies report, sanitary infrastructure upgrades have been assigned to the benefiting area based on its corresponding sanitary basin area. The benefitting area of Sanitary Area West is 146.45 hectares.

2021 OFFSITE LEVY REPORT

Sanitary – Basin West

Item # S8

West Force Main to Connect Lift Station S6 to Lift Station S8

Scope of Work

- The 2019 Master Servicing Study for Penhold identified the need for a required force main to provide service to western quarter sections
- Installation of a sanitary force main (1,500m in length)
- Connection of force main to Lift Station S6 to Lift Station S8
- Engineering planning and designs

Estimated Cost for the West Force Main to Connect Lift Station to Lift Station

The following is a cost breakdown for the sanitary infrastructure project:

1. Installation of sanitary main	\$	750,000
2. Miscellaneous	\$	150,000
3. Engineering	\$	135,000
4. Contingency	\$	135,000
Total Estimated Construction Costs	\$	1,170,000

Benefiting Area

The benefitting area is based on the assigned sanitary basin area for the particular sanitary infrastructure upgrade. The benefitting area of Sanitary Area West is 146.45 hectares.

Cost Benefit

A sanitary force main will be required in order to service the west side of Penhold future lands. The force main will connect from the future lift station (NW 36-36-28-4) to the future lift station (SW 36-36-28-4). In the 2021 Penhold Offsite Levies report, sanitary infrastructure upgrades have been assigned to the benefiting area based on its corresponding sanitary basin area. The benefitting area of Sanitary Area West is 146.45 hectares.

2021 OFFSITE LEVY REPORT

Sanitary – Basin West

Item # S9

Lift Station #6 at Section SW 36-36-28-4

Scope of Work

- The 2019 Master Servicing Study for Penhold identified the need for a required lift station at SW 36-36-28-4 to provide sanitary service within these areas.
- Installation of sanitary lift station
- Engineering planning and designs

Estimated Cost for the Lift Station at Section SW 36-36-28-4

The following is a cost breakdown for the sanitary infrastructure project:

1. Installation of sanitary lift station	\$ 1,500,000
2. Miscellaneous	\$ 300,000
3. Engineering	\$ 270,000
4. Contingency	\$ 270,000
Total Estimated Construction Costs	\$ 2,340,000

Benefiting Area

The benefitting area is based on the assigned sanitary basin area for the particular sanitary infrastructure upgrade. The benefitting area of Sanitary Area West is 146.45 hectares.

Cost Benefit

A sanitary lift station will be required in order to service the west side of Penhold future lands at SW 36-36-28-4. In the 2021 Penhold Offsite Levies report, sanitary infrastructure upgrades have been assigned to the benefiting area based on its corresponding sanitary basin area. The benefitting area of Sanitary Area West is 146.45 hectares.

2021 OFFSITE LEVY REPORT

Sanitary – Basin West

Item # S10

Studies and Future Modeling

Scope of Work

Various infrastructure studies and offsite levy reports etc. for future planning and development of Penhold.

Estimated/ Actual Costs

1. 2011 Infrastructure Study and Offsite Levy Report	\$	137,053
2. 2019 Master Servicing Study	\$	54,530
Total Sanitary Portion @50%	\$	95,792
3. Future Sanitary System Model Update	\$	75,000
Total Estimated Sanitary Construction Costs	\$	170,792
Total Estimated Sanitary East Basin Construction Cost @20.5%	\$	35,012

Benefiting Area

The benefitting area is based on the assigned sanitary basin area for these sanitary projects. The benefitting area of Sanitary Area West is 146.45 hectares.

Cost Benefit

These studies are essential for future planning to provide Penhold with infrastructure services or to identify any problems within the entire infrastructure system. The previously completed Offsite Levies, Infrastructure and Master Servicing Studies have been assigned to both the Global Water and Global Sanitary Levies at 50% each. In the 2021 Penhold Offsite Levies Report, all studies have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares and distributed based on area of each sanitary basin. The West Basin is 146.45 hectares or 20.5% of the global boundary

2021 OFFSITE LEVY REPORT

Sanitary – Basin Central

Item # S11

Studies and Future Modeling

Scope of Work

Various infrastructure studies and offsite levy reports etc. for future planning and development of Penhold.

Estimated/ Actual Costs

1. 2011 Infrastructure Study and Offsite Levy Report	\$	137,053
2. 2019 Master Servicing Study	\$	54,530
Total Sanitary Portion @50%	\$	95,792
3. Future Sanitary System Model Update	\$	75,000
Total Estimated Sanitary Construction Costs	\$	170,792
Total Estimated Sanitary East Basin Construction Cost @37.7%	\$	64,388

Benefiting Area

The benefitting area is based on the assigned sanitary basin area for these sanitary projects. The benefitting area of Sanitary Area Central is 270.25 hectares.

Cost Benefit

These studies are essential for future planning to provide Penhold with infrastructure services or to identify any problems within the entire infrastructure system. The previously completed Offsite Levies, Infrastructure and Master Servicing Studies have been assigned to both the Global Water and Global Sanitary Levies at 50% each. In the 2021 Penhold Offsite Levies Report, all studies have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares and distributed based on area of each sanitary basin. The East Basin is 270.25 hectares or 37.7% of the global boundary.

Appendix C
Roadways (Global)
Cost Estimates and Benefit Analysis

Table C1 Roadway Infrastructure Costs and Levies

Item #	Global Roadways		Benefitting Area (Hectare)	Actual Levy (per Hectare)
R1	Highway 2A and Oxford Intersection Upgrades	Estimated	\$1,216,800	
R2	Highway 2A and Newton Intersection and Veterans Way Upgrades	Estimated	\$1,512,600	
R3	Highway 592 and Range Road 28-1 Intersection Upgrades @ 50%	Estimated	\$234,000	
R4	Highway 42 and Waskasoo Avenue Intersection Upgrades	Estimated	\$1,800,000	
R5	Highway 2A and North Arterial Intersection Construction @ 50%	Estimated	\$514,800	
R6	NW 6-37-24-4 Intersection Construction @ 50%	Estimated	\$514,800	
R7	Bridge Across Waskasoo Creek (NW 6-37-27-4) @ 50%	Estimated	\$507,000	
R8	North (Boundary) Arterial Construction @ 50%	Estimated	\$3,689,400	
R9	NE 6-37-27-4 Intersection Construction @ 50%	Estimated	\$514,800	
R10	Range Road 275 Construction at NE/SE 6-37-27-4 @ 50%	Estimated	\$2,831,400	
R11	Highway 42 and Range Road 275 Intersection Upgrades @ 50%	Estimated	\$965,000	
R12	Range Road 275 Construction at NE/SE 31-36-27-4 @ 50%	Estimated	\$2,831,400	
R13	Waskasoo Avenue and South Arterial Intersection Upgrades @ 50%	Estimated	\$514,800	
R14	South (Boundary) Arterial Construction @ 50%	Estimated	\$2,230,800	
R15	Bridge Across Waskasoo Creek (NE 25-36-28-4) @ 50%	Estimated	\$507,000	
R16	Highway 2A and South Arterial Intersection Upgrades @ 50%	Estimated	\$514,800	
R17	Waskasoo Avenue from Oxford Boulevard to Bridge South of Robinson Ave	Constructed	\$3,111,158	
R18	Waskasoo Avenue from Oxford Boulevard to North (Boundary) Arterial	Estimated	\$4,633,200	
R19	Waskasoo Avenue from Bridge to South (Boundary) Arterial	Estimated	\$2,230,800	
R20	Studies and Future Modeling	Estimated	\$155,225	
	Total Global Roadways		\$31,029,783	716.09
				\$43,332

Roadway Infrastructure Cost Estimates and Benefit Analysis

Revised : November 5, 2020

The following is an itemized breakdown of infrastructure list in Appendix “C” – Roadway Infrastructure Offsite Levies.

Global Roadways

Item # R1

Highway 2A and Oxford Intersection Upgrades

Scope of Work

- The 2019 Master Servicing Study for Penhold referenced the TMP that identified required upgrades to the Highway 2A and Oxford Landing Intersection.
- Upgrade to Type IV intersection
- Road/Surface improvements
- Signalization in north/south direction
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Highway 2A and Oxford Intersection Upgrades

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements	\$	480,000
2. Signalization	\$	300,000
3. Miscellaneous (20% of item 1 and 2)	\$	156,000
4. Engineering (15% of item 1, 2 and 3)	\$	140,400
5. Contingency (15% of item 1, 2 and 3)	\$	140,400
Total Estimated Construction Costs		\$ 1,216,800

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

The Highway 2A and Oxford Intersection is recommended to be upgraded to provide additional traffic capacity. This roadway will act as a major gateway for traffic coming in and out of Penhold. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R2

Highway 2A and Newton Intersection Upgrades and Veterans Way Upgrades

Scope of Work

- The 2019 Master Servicing Study for Penhold referenced the TMP that identified required upgrades to the Highway 2A and Newton Quarter Section Intersection and upgrades to Veterans Way from Highway 2A to Robinson Ave.
- Addition of turning lanes
- Signalization for Pedestrians
- Road/Surface improvements
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Highway 2A and Newton Intersection Upgrades

The following is a cost breakdown for the transportation infrastructure project:

Intersection Upgrades

1. Surface Improvements	\$	480,000
2. Signalization	\$	180,000
3. Miscellaneous (20% of item 1 and 2)	\$	132,000
4. Engineering (15% of item 1, 2 and 3)	\$	118,800
5. Contingency (15% of item 1, 2 and 3)	\$	118,800

Veterans Way Upgrades

6. Surface Improvements	\$	250,900
7. Underground Improvements	\$	203,100
8. Removals and Disposals	\$	29,000

Total Estimated Construction Costs \$ 1,512,600

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

The Highway 2A and Newton Intersection and Veterans Way are recommended to be upgraded to provide additional traffic capacity. This roadway will act as a major gateway for traffic coming in and out of Penhold. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R3

Highway 592 and Range Road 28-1 Intersection Upgrades @ 50%

Scope of Work

- The 2019 Master Servicing Study for Penhold referenced the TMP that identified required upgrades to the Highway 592 and Range Road 28-1 Intersection.
- Addition of south leg to intersection
- Road/Surface improvements
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Highway 592 and Range Road 28-1 Intersection Upgrades

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements	\$	300,000
2. Miscellaneous (20% of item 1)	\$	60,000
3. Engineering (15% of item 1 and 2)	\$	54,000
4. Contingency (15% of item 1 and 2)	\$	54,000
Total Estimated Construction Costs	\$	468,000
Total Estimated Construction Costs @ 50%	\$	234,000

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

The Highway 592 and Range Road 28-1 is recommended to be upgraded to provide additional traffic capacity. This roadway will act as a major gateway for traffic coming in and out of Penhold. The costs have been split at 50% at this time as it is assumed that the cost will be shared with the neighbouring municipality or will be included in Penhold's Future Town Growth areas, as indicated in the MDP. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R4

Highway 42 and Waskasoo Avenue Intersection Upgrades

Scope of Work

- The 2019 Master Servicing Study for Penhold referenced the TMP that identified required upgrades to the Highway 42 and Waskasoo Avenue Intersection.
- Roundabout Construction
- Signalization for Pedestrians
- Road/Surface improvements
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Highway 42 and Waskasoo Avenue Intersection Upgrades

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements	\$ 770,000
2. Signalization	\$ 385,000
3. Miscellaneous (20% of item 1 and 2)	\$ 231,000
4. Engineering (15% of item 1, 2 and 3)	\$ 207,000
5. Contingency (15% of item 1, 2 and 3)	\$ 207,000
Total Estimated Construction Costs	\$ 1,800,000

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

The Highway 42 and Waskasoo Avenue Intersection is recommended to be upgraded to provide additional traffic capacity. This roadway will act as a major gateway for traffic coming in and out of Penhold. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R5

Highway 2A and North Arterial Intersection Construction @ 50%

Scope of Work

- The 2019 Master Servicing Study for Penhold identified construction of the Highway 2A and North Arterial Intersection.
- Construction of intersection
- Signalization for pedestrians
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Highway 2A and North Arterial Intersection Construction

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements	\$	480,000
2. Signalization	\$	180,000
3. Miscellaneous (20% of item 1 and 2)	\$	132,000
4. Engineering (15% of item 1, 2 and 3)	\$	118,800
5. Contingency (15% of item 1, 2 and 3)	\$	118,800
Total Estimated Construction Costs		\$ 1,029,600
Total Estimated Construction Costs @ 50%		\$ 514,800

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

The Highway 2A and North Arterial Intersection is recommended to be upgraded to provide additional traffic capacity. This roadway will act as a major gateway for traffic coming in and out of Penhold. The costs have been split at 50% at this time as it is assumed that the cost will be shared with the neighbouring municipality or will be included in Penhold's Future Town Growth areas, as identified in the MDP. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R6

NW 6-37-27-4 Intersection Construction @ 50%

Scope of Work

- The 2019 Master Servicing Study for Penhold identified construction of the NW 6-37-27-4 Intersection.
- Construction of intersection
- Signalization for pedestrians
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the NW 6-37-27-4 Intersection Construction

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements	\$	480,000
2. Signalization	\$	180,000
3. Miscellaneous (20% of item 1 and 2)	\$	132,000
4. Engineering (15% of item 1, 2 and 3)	\$	118,800
5. Contingency (15% of item 1, 2 and 3)	\$	118,800
Total Estimated Construction Costs		\$ 1,029,600
Total Estimated Construction Costs @ 50%		\$ 514,800

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

The Intersection at NW 6-37-27-4 is recommended to be constructed to provide traffic networking for future development. This roadway will act as a major gateway for traffic coming in and out of Penhold. The costs have been split at 50% as at this time it is assumed that the cost will be shared with the neighbouring municipality or will be included in Penhold's Future Town Growth areas, as identified in the MDP. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R7

Bridge Across Waskasoo Creek (NW 6-37-27-4) @ 50%

Scope of Work

- The 2019 Master Servicing Study for Penhold identified a bridge for access across Waskasoo Creek at NW 6-37-27-4.
- Construction of bridge
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Bridge Across Waskasoo Creek (NW 6-37-27-4)

The following is a cost breakdown for the transportation infrastructure project:

1. Bridge Construction	\$	650,000
2. Miscellaneous (20 % of item 1)	\$	130,000
3. Engineering (15% of item 1 and 2)	\$	117,000
4. Contingency (15% of item 1 and 2)	\$	117,000
Total Estimated Construction Costs	\$	1,014,000
Total Estimated Construction Costs @ 50%	\$	507,000

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

A bridge at NW 6-37-27-4 is recommended to be constructed to provide traffic networking for future development across Waskasoo Creek. This roadway/bridge will act as a major gateway for traffic coming in and out of Penhold. The costs have been split at 50% at this time as it is assumed that the cost will be shared with the neighbouring municipality or will be included in Penhold's Future Town Growth areas, as identified in the MDP. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R8

North (Boundary) Arterial Construction @ 50%

Scope of Work

- The 2019 Master Servicing Study for Penhold identified construction of an arterial road to connect Highway 2A and Range Road 275 at the north boundary.
- Approximately 2,150m of road construction
- Road/Surface construction
- Storm Sewer for surface drainage
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the North (Boundary) Arterial Construction

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements (\$2,200/m)	\$	4,730,000
2. Miscellaneous (20% of item 1)	\$	946,000
3. Engineering (15% of item 1 and 2)	\$	851,400
4. Contingency (15% of item 1 and 2)	\$	851,400
Total Estimated Construction Costs	\$	7,378,800
Total Estimated Construction Costs @ 50%	\$	3,689,400

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

The north Arterial roadway is recommended to be constructed to provide traffic networking for future development. This roadway will act as a major gateway for traffic coming in and out of Penhold. The costs have been split at 50% at this time as it is assumed that the cost will be shared with the neighbouring municipality or will be included in Penhold's Future Town Growth areas, as identified in the MDP. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R9

NE 6-37-27-4 Intersection Construction @ 50%

Scope of Work

- The 2019 Master Servicing Study for Penhold identified construction of the NE 6-37-27-4 Intersection.
- Construction of intersection
- Signalization for pedestrians
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the NE 6-37-27-4 Intersection Construction

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements	\$	480,000
2. Signalization	\$	180,000
3. Miscellaneous (20% of item 1 and 2)	\$	132,000
4. Engineering (15% of item 1, 2 and 3)	\$	118,800
5. Contingency (15% of item 1, 2 and 3)	\$	118,800
Total Estimated Construction Costs	\$	1,029,600
Total Estimated Construction Costs @ 50%	\$	514,800

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

The Intersection at NE 6-37-27-4 is recommended to be constructed to provide traffic networking for future development. This roadway will act as a major gateway for traffic coming in and out of Penhold. The costs have been split at 50% at this time as it is assumed that the cost will be shared with the neighbouring municipality or will be included in Penhold's Future Town Growth areas, as identified in the MDP. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R10

Range Road 275 Construction at NE/SE 6-37-27-4 @ 50%

Scope of Work

- The 2019 Master Servicing Study for Penhold identified the construction of Range Road 275 at NE/SE 6-37-27-4.
- Approximately 1,650m of road construction
- Road/Surface construction
- Storm Sewer for surface drainage
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Range Road 275 Construction at NE/SE 6-37-27-4

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements (\$2,200/m)	\$	3,630,000
2. Miscellaneous (20% of item 1)	\$	726,000
3. Engineering (15% of item 1 and 2)	\$	653,400
4. Contingency (15% of item 1 and 2)	\$	653,400
Total Estimated Construction Costs	\$	5,662,800
Total Estimated Construction Costs @ 50%	\$	2,831,400

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

Range Road 275 at NE/SE 6-37-27-4 is recommended to be upgraded to provide additional traffic capacity. This roadway will act as a major gateway for traffic coming in and out of Penhold. The costs have been split at 50% at this time as it is assumed that the cost will be shared with the neighbouring municipality or will be included in Penhold's Future Town Growth areas, as identified in the MDP. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R11

Highway 42 and Range Road 275 Intersection Upgrades @ 50%

Scope of Work

- The 2019 Master Servicing Study for Penhold identified construction of the Highway 42 and Range Road 275 Intersection.
- Roundabout Construction
- Signalization for Pedestrians
- Road/Surface improvements
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Highway 42 and Range Road 275 Intersection Upgrades

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements	\$	900,000
2. Signalization	\$	337,500
3. Miscellaneous (20% of item 1 and 2)	\$	247,500
4. Engineering (15% of item 1, 2 and 3)	\$	222,500
5. Contingency (15% of item 1,2 and 3)	\$	222,500
Total Estimated Construction Costs		\$ 1,930,000
Total Estimated Construction Costs @ 50%		\$ 965,000

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

The Highway 42 and Range Road 275 Intersection is recommended to be upgraded to provide additional traffic capacity. This roadway will act as a major gateway for traffic coming in and out of Penhold. The costs have been split at 50% at this time as it is assumed that the cost will be shared with the neighbouring municipality or will be included in Penhold's Future Town Growth areas, as identified in the MDP. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R12

Range Road 275 Construction at NE/SE 31-36-27-4 @ 50%

Scope of Work

- The 2019 Master Servicing Study for Penhold identified construction of Range Road 275 at NE/SE 31-36-27-4.
- Approximately 1,650m of road construction
- Road/Surface construction
- Storm Sewer for surface drainage
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Range Road 275 Construction at NE/SE 31-36-27-4

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements (\$2,200/m)	\$	3,630,000
2. Miscellaneous (20% of item 1)	\$	726,000
3. Engineering (15% of item 1 and 2)	\$	653,400
4. Contingency (15% of item 1 and 2)	\$	653,400
Total Estimated Construction Costs	\$	5,662,800
Total Estimated Construction Costs @ 50%	\$	2,831,400

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

Range Road 275 at NE/SE 31-36-27-4 is recommended to be upgraded to provide additional traffic capacity. This roadway will act as a major gateway for traffic coming in and out of Penhold. The costs have been split at 50% at this time as it is assumed that the cost will be shared with the neighbouring municipality or will be included in Penhold's Future Town Growth areas, as identified in the MDP. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R13

Waskasoo Avenue and South Arterial Intersection Upgrades @ 50%

Scope of Work

- The 2019 Master Servicing Study for Penhold identified construction of the Waskasoo Avenue and South Arterial Intersection.
- Construction of Intersection
- Signalization for Pedestrians
- Road/Surface improvements
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Waskasoo Avenue and South Arterial Intersection Upgrades

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements	\$	480,000
2. Signalization	\$	180,000
3. Miscellaneous (20% of item 1 and 2)	\$	132,000
4. Engineering (15% of item 1, 2 and 3)	\$	118,800
5. Contingency (15% of item 1, 2 and 3)	\$	118,800
Total Estimated Construction Costs		\$ 1,029,600
Total Estimated Construction Costs @ 50%		\$ 514,800

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

The Waskasoo Avenue and south Arterial Intersection is recommended to be constructed to provide traffic networking for future development. This roadway will act as a major gateway for traffic coming in and out of Penhold. The costs have been split at 50% at this time as it is assumed that the cost will be shared with the neighbouring municipality or will be included in Penhold's Future Town Growth areas, as identified in the MDP. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R14

South (Boundary) Arterial Construction @ 50%

Scope of Work

- The 2019 Master Servicing Study for Penhold identified construction of an arterial road to connect Highway 2A and Wasksasoo Avenue at the south boundary.
- Approximately 1,300m of road construction
- Road/Surface construction
- Storm Sewer for surface drainage
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the South (Boundary) Arterial Construction

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements (\$2,200/m)	\$	2,860,000
2. Miscellaneous (20% of item 1)	\$	572,000
3. Engineering (15% of item 1 and 2)	\$	514,800
4. Contingency (15% of item 1 and 2)	\$	514,800
Total Estimated Construction Costs	\$	4,461,600
Total Estimated Construction Costs @ 50%	\$	2,230,800

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

The south Arterial roadway is recommended to be constructed to provide traffic networking for future development. This roadway will act as a major gateway for traffic coming in and out of Penhold. The costs have been split at 50% at this time as it is assumed that the cost will be shared with the neighbouring municipality or will be included in Penhold's Future Town Growth areas, as identified in the MDP. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R15

Bridge Across Waskasoo Creek (NE 25-36-28-4) @ 50%

Scope of Work

- The 2019 Master Servicing Study for Penhold identified a bridge for access across Waskasoo Creek at NE 25-36-28-4.
- Construction of bridge
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Bridge Across Waskasoo Creek (NE 25-36-28-4)

The following is a cost breakdown for the transportation infrastructure project:

1. Bridge Construction	\$	650,000
2. Miscellaneous (20% of item 1)	\$	130,000
3. Engineering (15% of item 1 and 2)	\$	117,000
4. Contingency (15% of item 1 and 2)	\$	117,000
Total Estimated Construction Costs	\$	1,014,000
Total Estimated Construction Costs @ 50%	\$	507,000

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

A bridge at NE 25-36-28-4 is recommended to be constructed to provide traffic networking for future development across Waskasoo Creek. This roadway/bridge will act as a major gateway for traffic coming in and out of Penhold. The costs have been split at 50% at this time as it is assumed that the cost will be shared with the neighbouring municipality or will be included in Penhold's Future Town Growth areas, as identified in the MDP. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R16

Highway 2A and South Arterial Intersection Upgrades @ 50%

Scope of Work

- The 2019 Master Servicing Study for Penhold identified the construction of the Highway 2A and South Arterial intersection.
- Construction of intersection
- Signalization for pedestrians
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Highway 2A and South Arterial Intersection Upgrades

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements	\$	480,000
2. Signalization	\$	180,000
3. Miscellaneous (20% of item 1 and 2)	\$	132,000
4. Engineering (15% of item 1, 2 and 3)	\$	118,800
5. Contingency (15% of item 1, 2 and 3)	\$	118,800
Total Estimated Construction Costs		\$ 1,029,600
Total Estimated Construction Costs @ 50%		\$ 514,800

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

The Highway 2A and South Arterial Intersection is recommended to be upgraded to provide additional traffic capacity. This roadway will act as a major gateway for traffic coming in and out of Penhold. The costs have been split at 50% at this time as it is assumed that the cost will be shared with the neighbouring municipality or will be included in Penhold's Future Town Growth areas, as identified in the MDP. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R17

Waskasoo Avenue Upgrades from Oxford Boulevard to Bridge South of Robinson Avenue

Scope of Work

- The 2019 Master Servicing Study for Penhold identified the construction of an arterial road to connect Oxford Boulevard to the bridge south of Robinson Avenue along Waskasoo Avenue.
- Approximately 2,100m of road construction
- Road/Surface construction
- Storm Sewer for surface drainage
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Waskasoo Avenue Upgrades

The following is a cost breakdown for the transportation infrastructure project:

1. North of Highway 42 to Oxford Boulevard	\$	673,920.00
2. Highway 42 to South of Intersection at Hawkridge Boulevard	\$	941,458.86
3. South of Hawkridge Boulevard to Lucina Street	\$	857,914.18
4. Lucina Street to Lincoln Street (Town portion + Streetlights)	\$	287,174.02
5. Lincoln Street to Bridge South of Robinson Avenue (Town portion + Streetlights)	\$	350,990.46
Total Estimated Construction Costs	\$	3,111,157.52

Note: ACRP project was \$3,946,840.07 of which \$3,362,788.05 was funded from the Alberta Government. The First 3.0 million is a 90/10 funding breakdown, the remaining costs are 70/30. The multiplex land balancing is; Grant = \$992,859.82, Town = \$110,317.76. Waskasoo Avenue is; Grant = \$2,369,928.23, Town = \$473,734.26.

Fortis street lighting estimate was \$167.79 per m. for 980 m.

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

2021 OFFSITE LEVY REPORT

Cost Benefit

Waskasoo Avenue is recommended to be upgraded to provide additional traffic capacity. This roadway will act as a major gateway for traffic coming in and out of Penhold. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R18

Waskasoo Avenue Upgrades North of Oxford Boulevard

Scope of Work

- The 2019 Master Servicing Study for Penhold identified the construction of an arterial road to connect Oxford boulevard and North (Boundary) Arterial construction along Waskasoo Avenue.
- Approximately 1,350m of road construction
- Road/Surface construction
- Storm Sewer for surface drainage
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Waskasoo Avenue Upgrades

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements (\$2,200/m)	\$	2,970,000
2. Miscellaneous (20% of item 1)	\$	594,000
3. Engineering (15% of item 1 and 2)	\$	534,600
4. Contingency (15% of item 1 and 2)	\$	534,600
Total Estimated Construction Costs	\$	4,633,000

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

Waskasoo Avenue is recommended to be upgraded to provide additional traffic capacity. This roadway will act as a major gateway for traffic coming in and out of Penhold. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways

Item # R19

Waskasoo Avenue Upgrades South of Bridge South of Robinson Avenue

Scope of Work

- The 2019 Master Servicing Study for Penhold identified the construction of an arterial road to connect the South Bridge and South (Boundary) Arterial Construction along Waskasoo Avenue.
- Approximately 650m of road construction
- Road/Surface construction
- Storm Sewer for surface drainage
- Site grading and landscaping
- Engineering planning and designs

Estimated Cost for the Waskasoo Avenue Upgrades

The following is a cost breakdown for the transportation infrastructure project:

1. Surface Improvements (\$2,200/m)	\$	1,430,000
2. Miscellaneous (20% of item 1)	\$	286,000
3. Engineering (15% of item 1 and 2)	\$	257,400
4. Contingency (15% of item 1 and 2)	\$	257,400
Total Estimated Construction Costs	\$	2,230,800

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

Waskasoo Avenue is recommended to be upgraded to provide additional traffic capacity. This roadway will act as a major gateway for traffic coming in and out of Penhold. In the 2021 Penhold Offsite Levies report all arterial roads used within the transportation grid have been assigned to the global boundary (applicable benefitting area) of 716.09 hectares because they are essential to creating a functioning arterial network allowing traffic to flow throughout the entire area.

2021 OFFSITE LEVY REPORT

Global Roadways Item # R20 Studies and Future Modeling

Scope of Work

- Various infrastructure studies and traffic impact studies for future planning and development in Penhold

Estimated/ Actual Costs

1. Traffic Impact Study	\$	30,225
2. Future Transportation Model Update	\$	125,000
Total Estimated Construction Costs	\$	155,225

Benefiting Area

The benefitting area for this project is the entire global (applicable benefitting area) boundary for Penhold which is 716.09 hectares.

Cost Benefit

These studies are essential for future planning to provide Penhold with infrastructure services or to identify any problems within the entire infrastructure system. In the 2021 Penhold Offsite Levies Report, all studies have been assigned to the global boundary (applicable benefitting area) of 719.09 hectares.

Appendix D
Community Facilities (Global)
Cost Estimates and Benefit Analysis

Table D1 Community Facilities Costs and Levies

Item #	Global Community Facilities	Estimated	Benefitting Area (Hectare)	Actual Levy (per Hectare)	
P1	Firehall	\$5,330,000			
	Total Global Community Facilities	\$5,330,000	716.09	\$7,443	

Community Facilities Cost Estimates and Benefit Analysis

Revised : March 1, 2021

The following is an itemized breakdown of infrastructure list in Appendix "D" – Community Facilities Infrastructure Offsite Levies.

Community Facilities

Item # P1

Firehall

Scope of Work

- The Town of Penhold identified the need for a new firehall to provide improved fire protection for expanded development
- Construction of the Firehall
- Installation of water and sanitary service connections
- Land purchasing and site development
- Engineering planning and designs

Estimated Cost for the Firehall

The following is a cost breakdown for the community facilities infrastructure project:

1. Construction of Firehall	\$	3,500,000
2. Servicing and Land Acquisition (based on 3 acres at \$200,000/acre)	\$	600,000
3. Engineering (15% of item 1 and 2)	\$	615,000
4. Contingency (15% of item 1 and 2)	\$	615,000
Total Estimated Construction Costs	\$	5,330,000

Benefiting Area

The benefitting area is based on the assigned Community Facility area for the particular Community Facility upgrade. The benefitting area of Community Facilities is 716.09 hectares.

Cost Benefit

A Firehall will be required to provided fire protection and service to the Town of Penhold. In the 2021 Penhold Offsite Levies report, Community Facilities upgrades have been assigned to the global benefitting area. The benefitting area of the Community Facilities is 716.09 hectares.