



Anchorage Water & Wastewater Utility – Water Master Plan

Presentation to Government Hill Community Council

By

Brian Baus

Planning and Development Services Manager





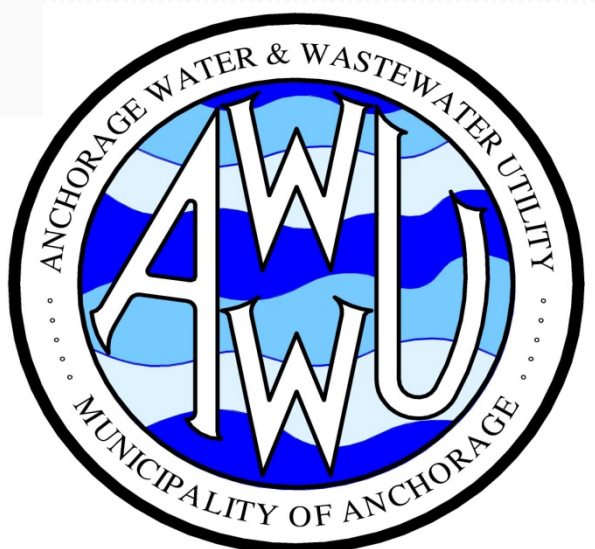
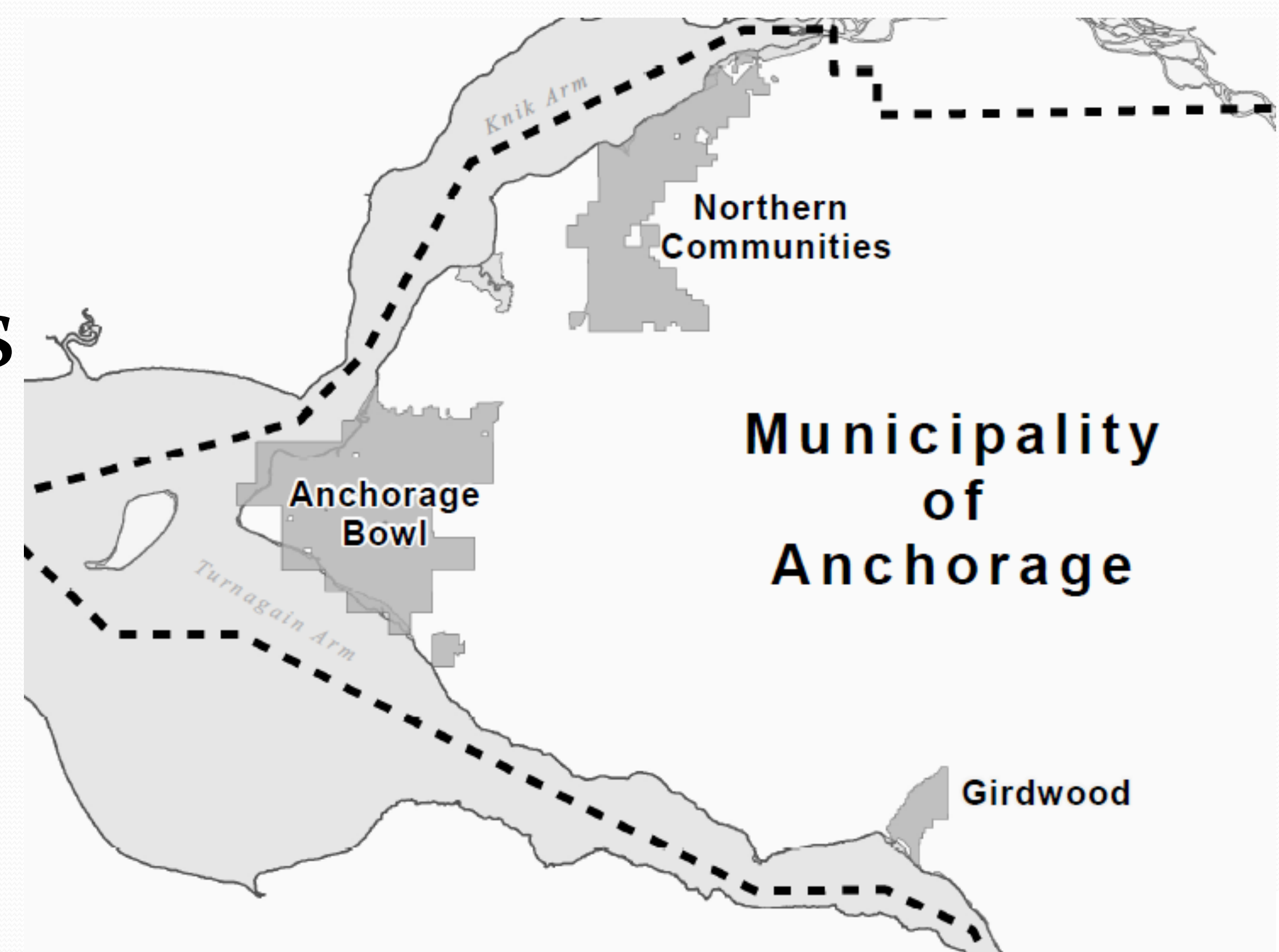
About the Utility

Clearly Reliable Water

Mission - To support the public health, safety and economic interests of the community by providing quality Water and Wastewater services in a responsible, efficient and sustainable manner.

Service to ~ 80 percent MOA residents

- Anchorage Bowl
- Northern Communities
- Girdwood





Water Master Plan Process

- Intended to Guide Future Expansion/Modification
 - Increase efficiency
 - Increase reliability
 - Maintain quality service
- Updated every 5-7 years
- Tool for Capital Program Planning
 - Capital Improvement Program (CIP)
 - Capital Improvement Budget (CIB)
- Current update covers a 20-year period, 2012-2032.

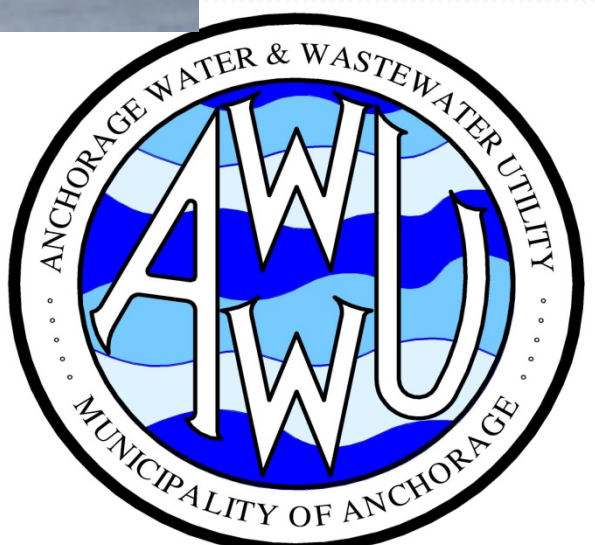
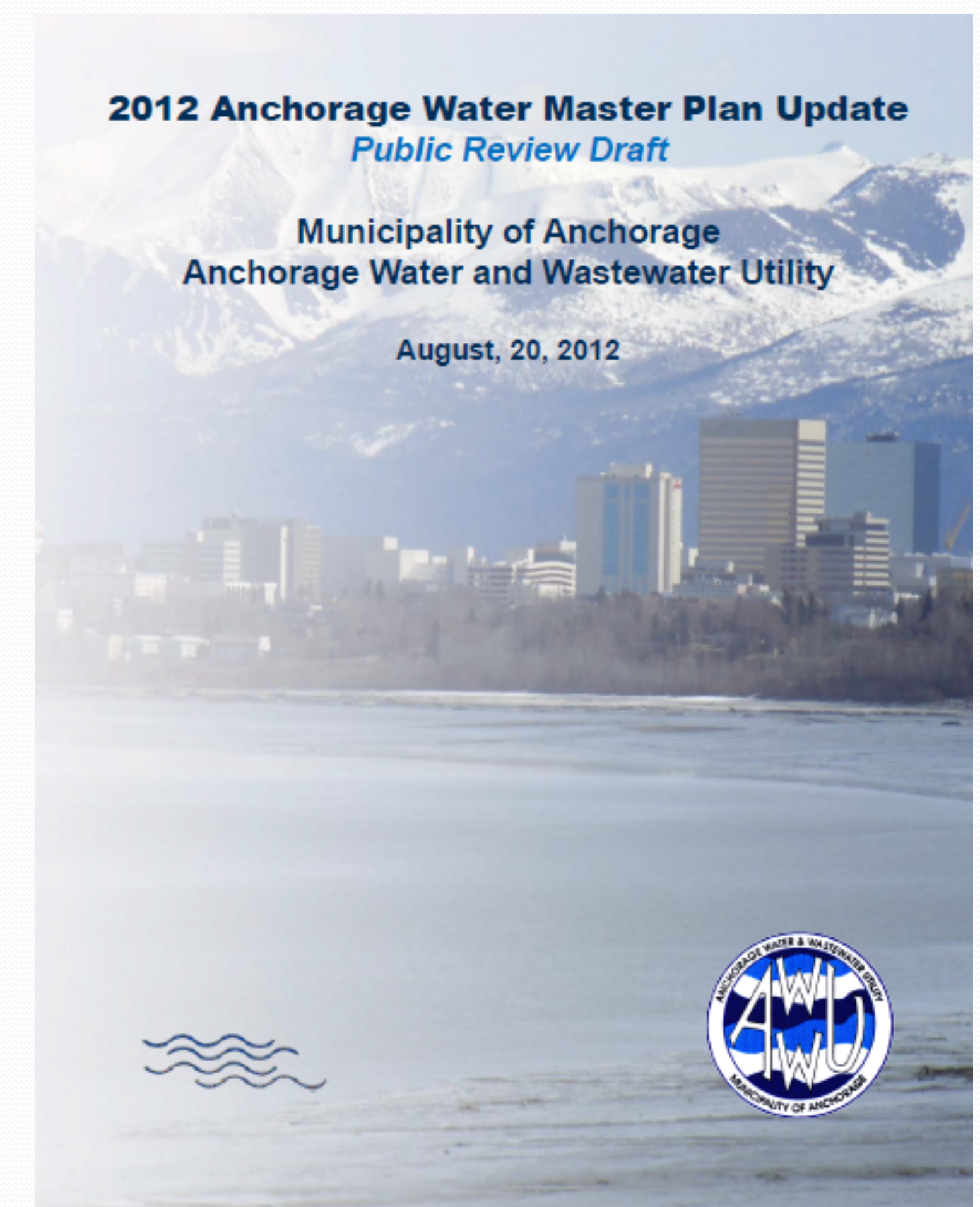




Anchorage Water Master Plan

Key elements include:

- Growth/System Expansion
- Optimization
- Ongoing maintenance, rehabilitation, and repair





Capacity Considerations

- Utility must consider capacity to meet increased demand:
 - During peak use periods
 - Various elevations
 - For emergency use
- Planning for demand requires understanding of population growth
- Projected to growth during planning period
 - 0.75 percent annually in Anchorage Bowl
 - 1.2 percent annually in the Northern Communities
 - 2.0 percent annual residential growth in Girdwood





Anchorage Bowl Growth

| Year | Municipality of Anchorage | Anchorage Bowl |
|------|---------------------------|----------------|
| 2010 | 291,826 | 240,337 |
| 2011 | 294,277 | 242,328 |
| 2012 | 296,749 | 244,335 |
| 2013 | 299,242 | 246,356 |
| 2014 | 301,756 | 248,392 |
| 2015 | 304,290 | 250,444 |
| 2016 | 306,846 | 252,510 |
| 2017 | 309,424 | 254,592 |
| 2018 | 312,023 | 256,689 |
| 2019 | 314,644 | 258,802 |
| 2020 | 317,287 | 260,930 |
| 2021 | 320,047 | 262,988 |
| 2022 | 322,832 | 265,393 |
| 2023 | 325,641 | 267,650 |
| 2024 | 328,474 | 269,924 |
| 2025 | 331,331 | 272,216 |
| 2026 | 334,214 | 274,525 |
| 2027 | 337,122 | 276,852 |
| 2028 | 340,054 | 279,196 |
| 2029 | 343,013 | 281,558 |
| 2030 | 345,997 | 283,939 |
| 2031 | 347,658 | 285,230 |
| 2032 | 349,327 | 286,526 |

- Considerations:
 - Census Data
 - Area Specific Plans
 - 2020 Comprehensive Plan
 - Institute of Social and Economic Research Population Growth Rates





Population Served Growth

| Year | Anchorage Bowl | Northern Communities | Girdwood |
|------|----------------|----------------------|----------|
| 2010 | 205,372 | 20,078 | 1,533 |
| 2011 | 207,263 | 20,371 | 1,571 |
| 2012 | 209,180 | 20,667 | 1,611 |
| 2013 | 211,101 | 20,966 | 1,651 |
| 2014 | 213,037 | 21,270 | 1,692 |
| 2015 | 214,999 | 21,576 | 1,734 |
| 2016 | 216,965 | 21,887 | 1,778 |
| 2017 | 218,947 | 22,201 | 1,822 |
| 2018 | 220,944 | 22,518 | 1,868 |
| 2019 | 222,967 | 22,840 | 1,915 |
| 2020 | 224,995 | 23,165 | 1,962 |
| 2021 | 226,913 | 23,506 | 2,011 |
| 2022 | 229,208 | 23,851 | 2,062 |
| 2023 | 231,365 | 24,177 | 2,113 |
| 2024 | 233,529 | 24,507 | 2,166 |
| 2025 | 235,721 | 24,841 | 2,220 |
| 2026 | 237,920 | 25,168 | 2,273 |
| 2027 | 240,137 | 25,499 | 2,327 |
| 2028 | 242,371 | 25,834 | 2,382 |
| 2029 | 244,623 | 26,173 | 2,439 |
| 2030 | 246,904 | 26,517 | 2,497 |
| 2031 | 249,265 | 26,709 | 2,557 |
| 2032 | 250,511 | 26,902 | 2,618 |

• Considerations

- Area specific plans
- Housing Demand Study
- Comprehensive Plan
- General staff knowledge of future development projects





System Design Criteria

- Demand
 - Peak Day Demand – 285 gpcd
 - 2012 : 66 MGD (Million Gallons per Day)
 - 2032 : 79 MGD
 - Peak 7-Day Demand – 265 gpcd (Gallons per Capita per Day)
 - 2012 : 61 MGD
 - 2032 : 73 MGD
- Supply:
 - Current = 64 MGD
 - EWTF : 32 MGD
 - SCWTF : 10 -14 MGD
 - Wells : 20 MGD
 - Recommend 2032 = 76 MGD
 - New Wells
- Storage
 - Emergency Storage - 3 Days Average Non-Peak Period Demand (100 gpcd)
 - Operational Storage – 40% of Peak Period Day Demand
 - Fire Fighting Storage – 2 Fires Simultaneously: (3000 gpm and 5000 gpm for 3 Hours)
 - Emergency Storage is Greater than Sum of Operation and Fire
 - 2012 Minimum is 69 MG
 - 2032 Recommended is 83.3 MG





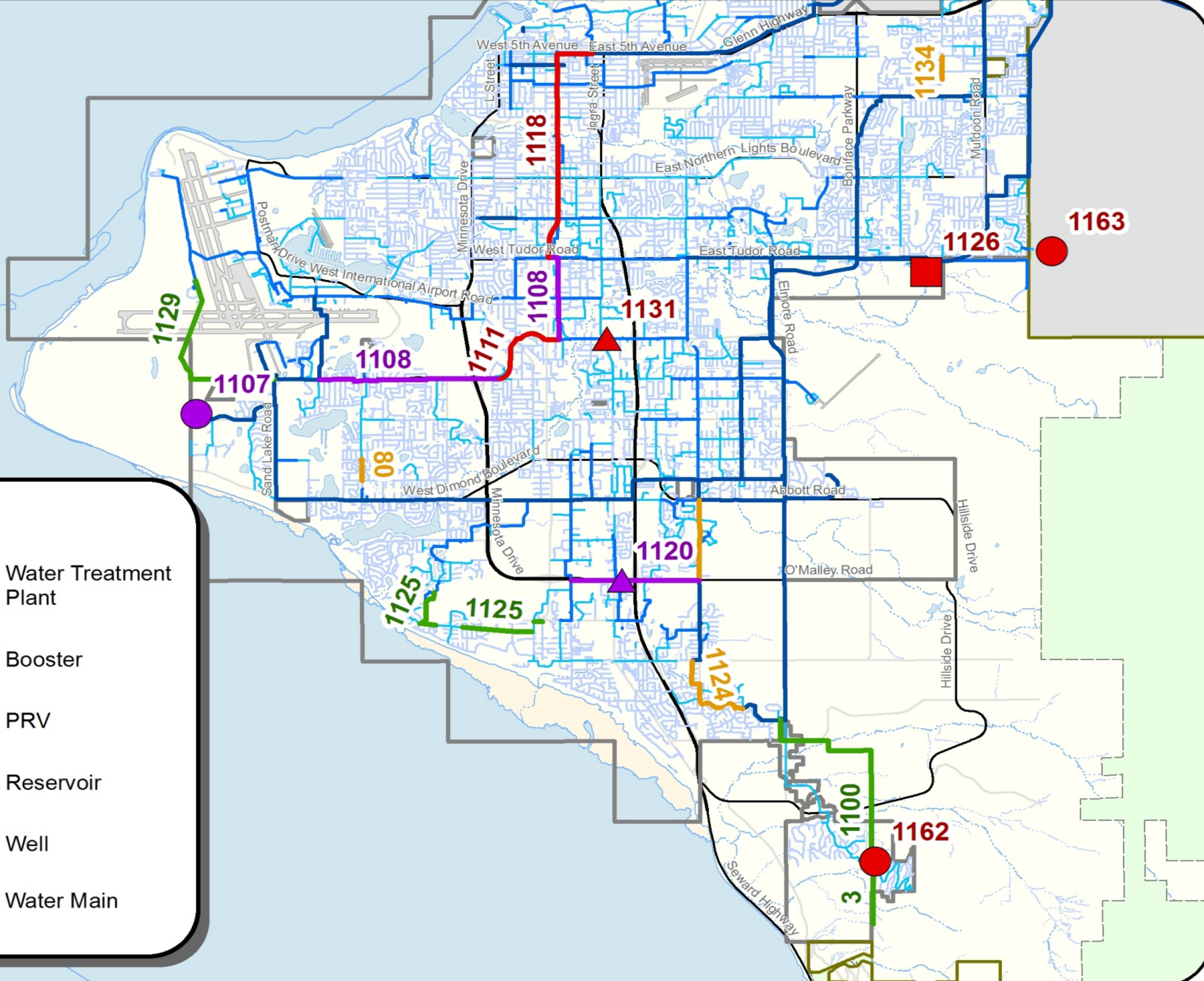
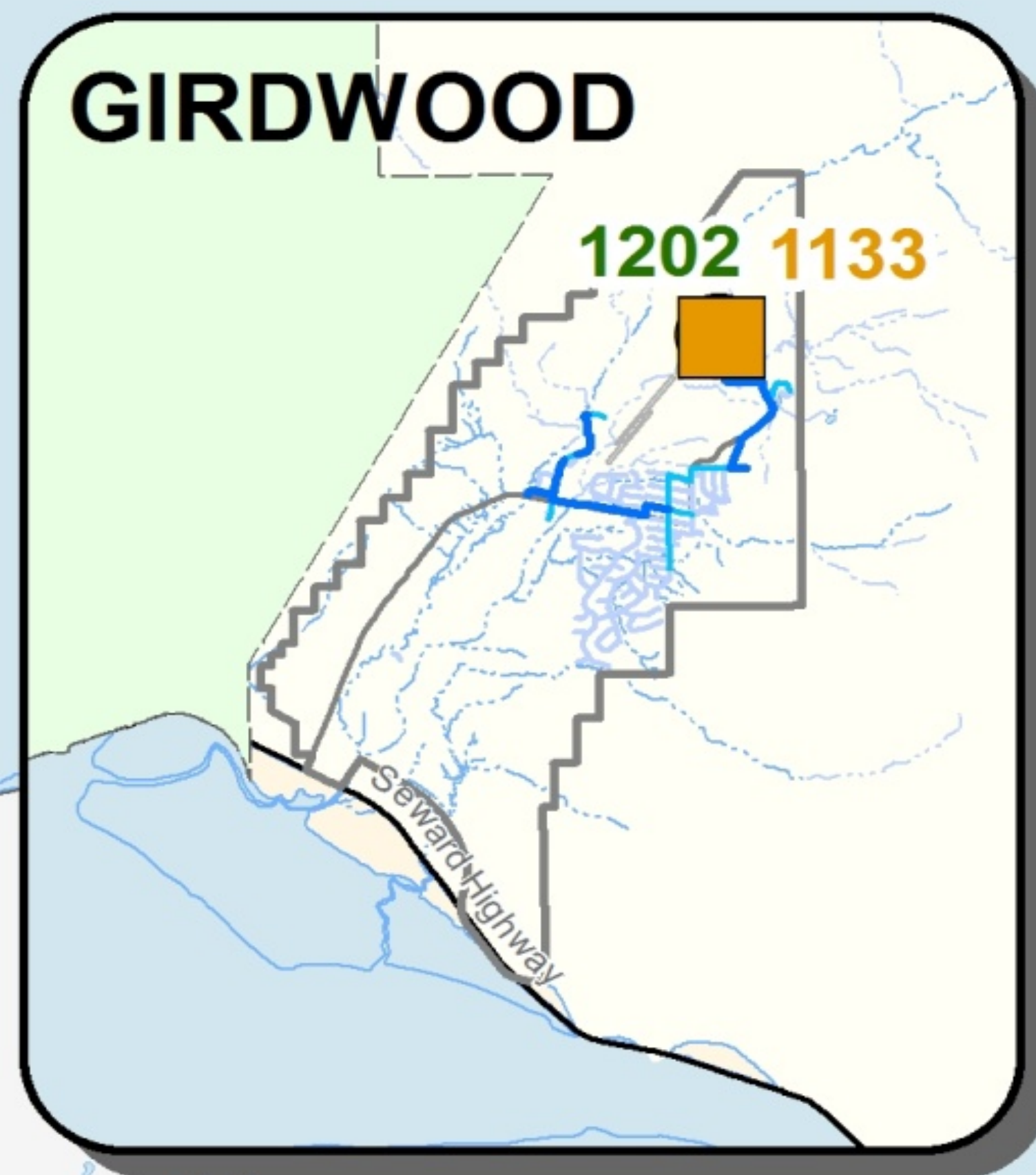
Considerations for Growth

- Required Planning
 - allowing the Utility to meet projected maximum daily demands
 - support infill/redevelopment
- Project Examples
 - Storage projects
 - Transmission mains
 - Water supply projects





GIRDWOOD



| Years | 1-5 | 6-10 | 11-15 | 16-20 | |
|-------|-----|------|-------|-------|-----------------------|
| | | | | | Water Treatment Plant |
| | | | | | Booster |
| | | | | | PRV |
| | | | | | Reservoir |
| | | | | | Well |
| | | | | | Water Main |



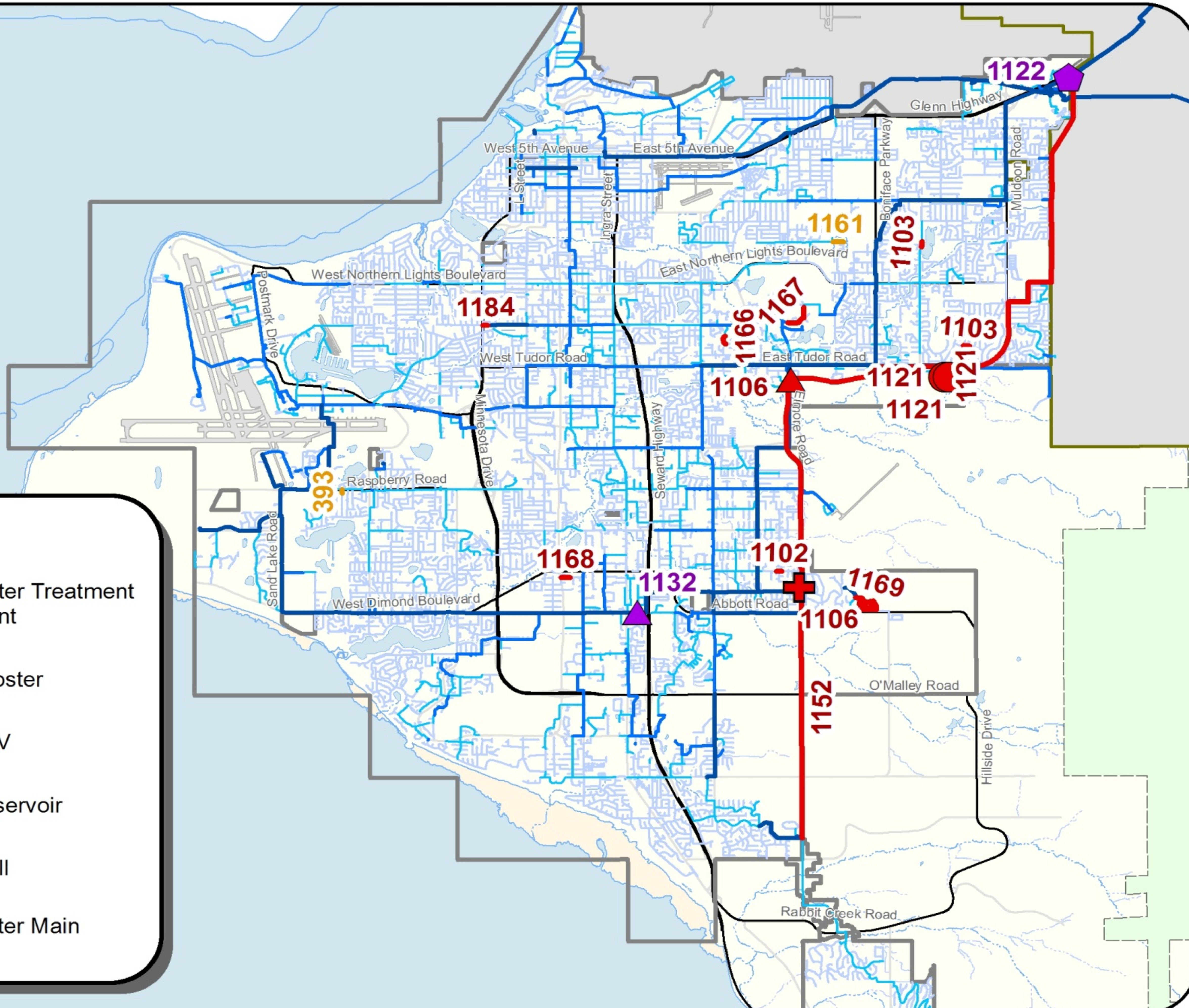
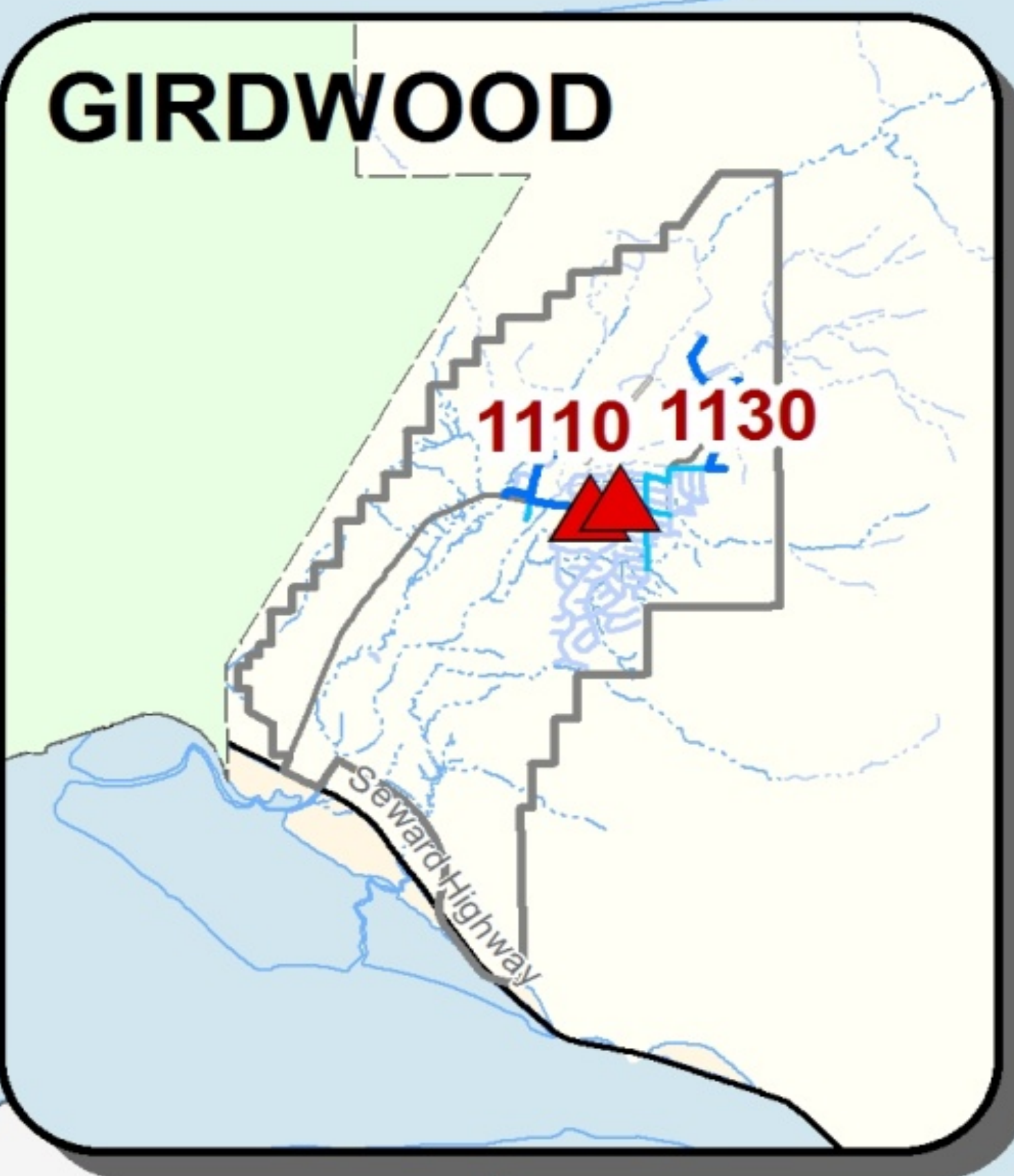
Optimize Existing Resources

- Required Planning
 - Minimize operational cost
 - Provide operational flexibility
 - Maximizes back-up capacity for existing customers.
- Project Examples
 - Looping pipe networks
 - Adding pumping capacity
 - Pressure Zone Consolidation
 - Installing redundant power at well sites
 - Energy recovery





GIRDWOOD



| Years | 1-5 | 6-10 | 11-15 | 16-20 | |
|-------|-----|------|-------|-------|-----------------------|
| | | | | | Water Treatment Plant |
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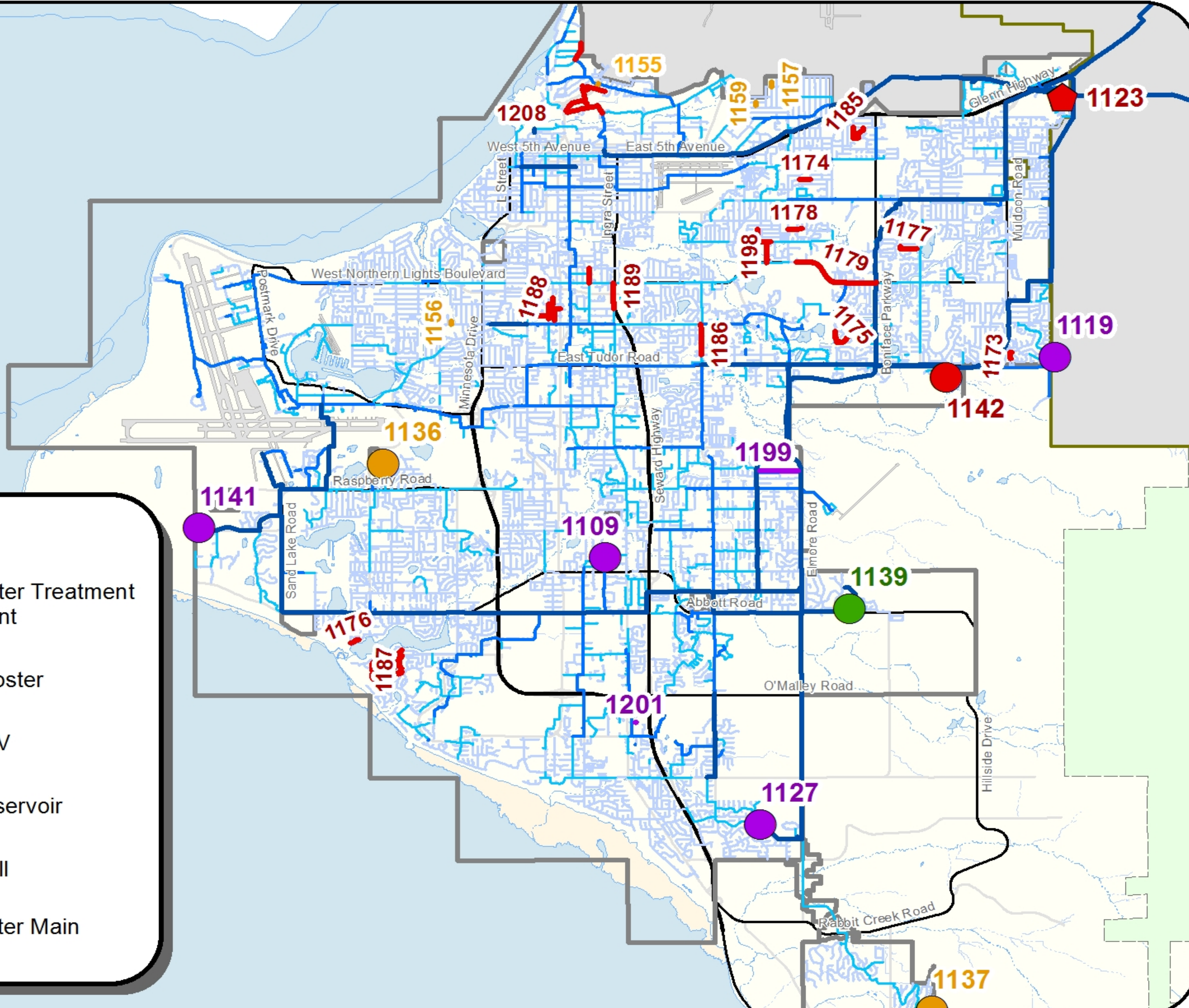
Ongoing Maintenance

- Required Planning
 - Condition of existing system
 - Level of service
 - Economic Impacts
- Project Examples
 - Replacing pipes
 - Increasing water flow through existing pipes
 - Installing corrosion protection systems





| Years | 1-5 | 6-10 | 11-15 | 16-20 | |
|-------|-----|------|-------|-------|-----------------------|
| | | | | | Water Treatment Plant |
| | | | | | Booster |
| | | | | | PRV |
| | | | | | Reservoir |
| | | | | | Well |
| | | | | | Water Main |





Implementation of Recommendations

- Near Term (1 to 6 years) Recommendations:
 - Maintain existing service levels
 - Reduce growth in operating costs
- Long Term (6 to 20 Years) Recommendations:
 - Mitigate Risk to our system
 - Meet future growth
 - Meet subsequent demand at a current level of service





Government Hill Area Considerations

- Unique Aspects
 - Port of Anchorage
 - Alaska Railroad
 - JBER (Military Base)
 - Knik Arm Crossing
 - Government Hill Neighborhood Plan
- Associated questions required mini study
 - Coordinate AWWU driven Master Plan/CIP projects
 - React to expansion/growth



Legend

Existing Water Main by Diameter

- 6" TO 10"
- 12"
- 16"
- Non-AWWU Water Pipe

Existing Sewer Gravity Main by Diameter

- 4" to 12"
- 14" to 22"
- 24" to 30"
- 36"
- Non-AWWU Sewer Pipe

Streets

- ROW
- Major
- Secondary and Local

JBER BOUNDARY

Owners

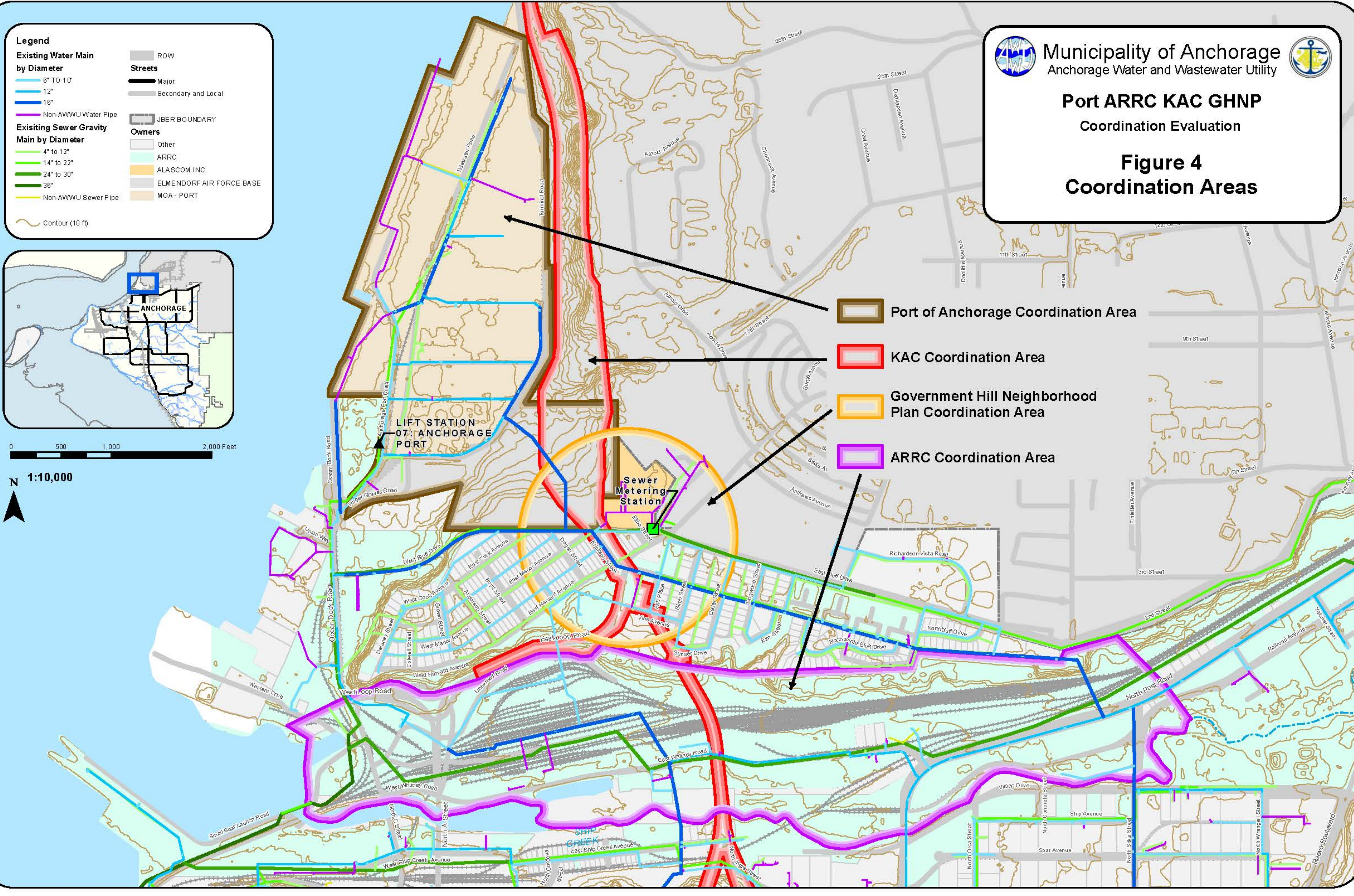
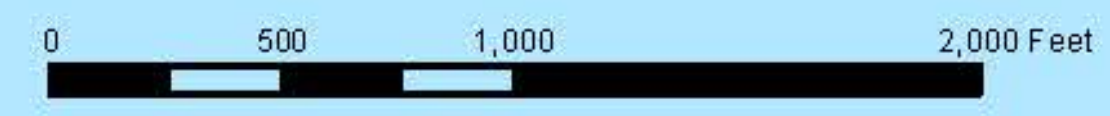
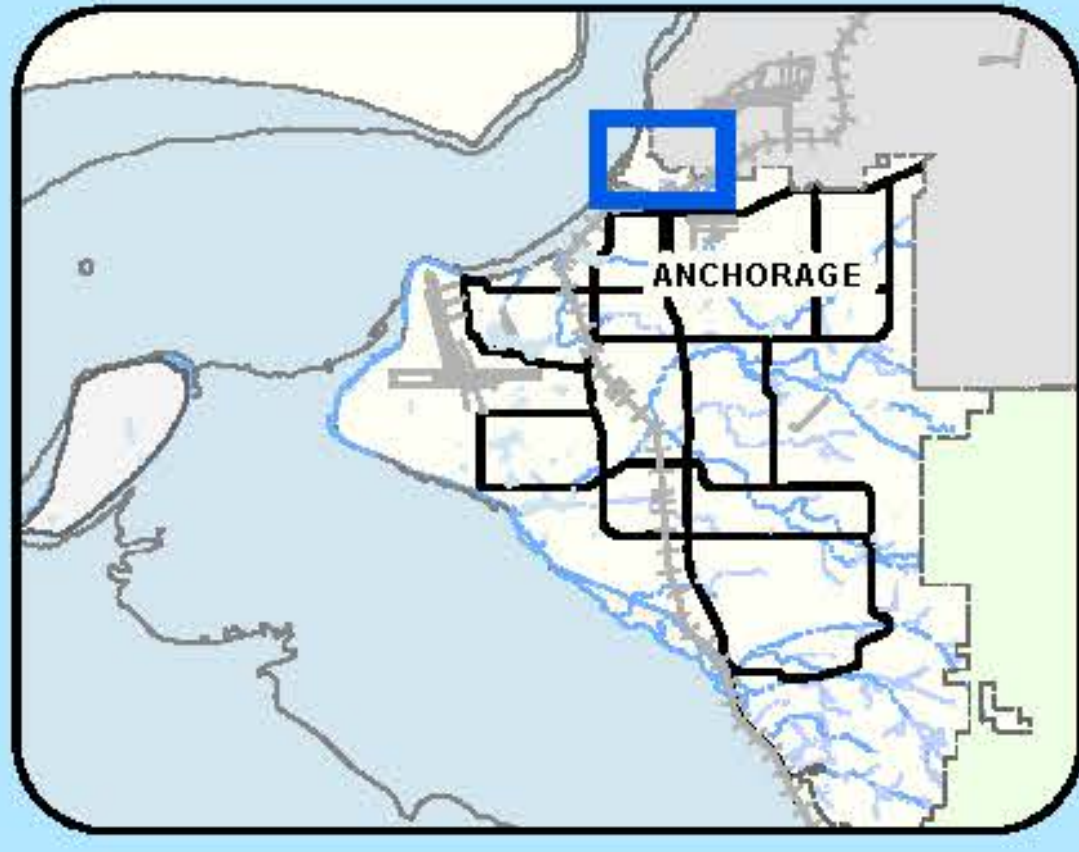
- Other
- ARRC
- ALASCOM INC
- ELMENDORF AIR FORCE BASE
- MOA - PORT

Contour (10 ft)

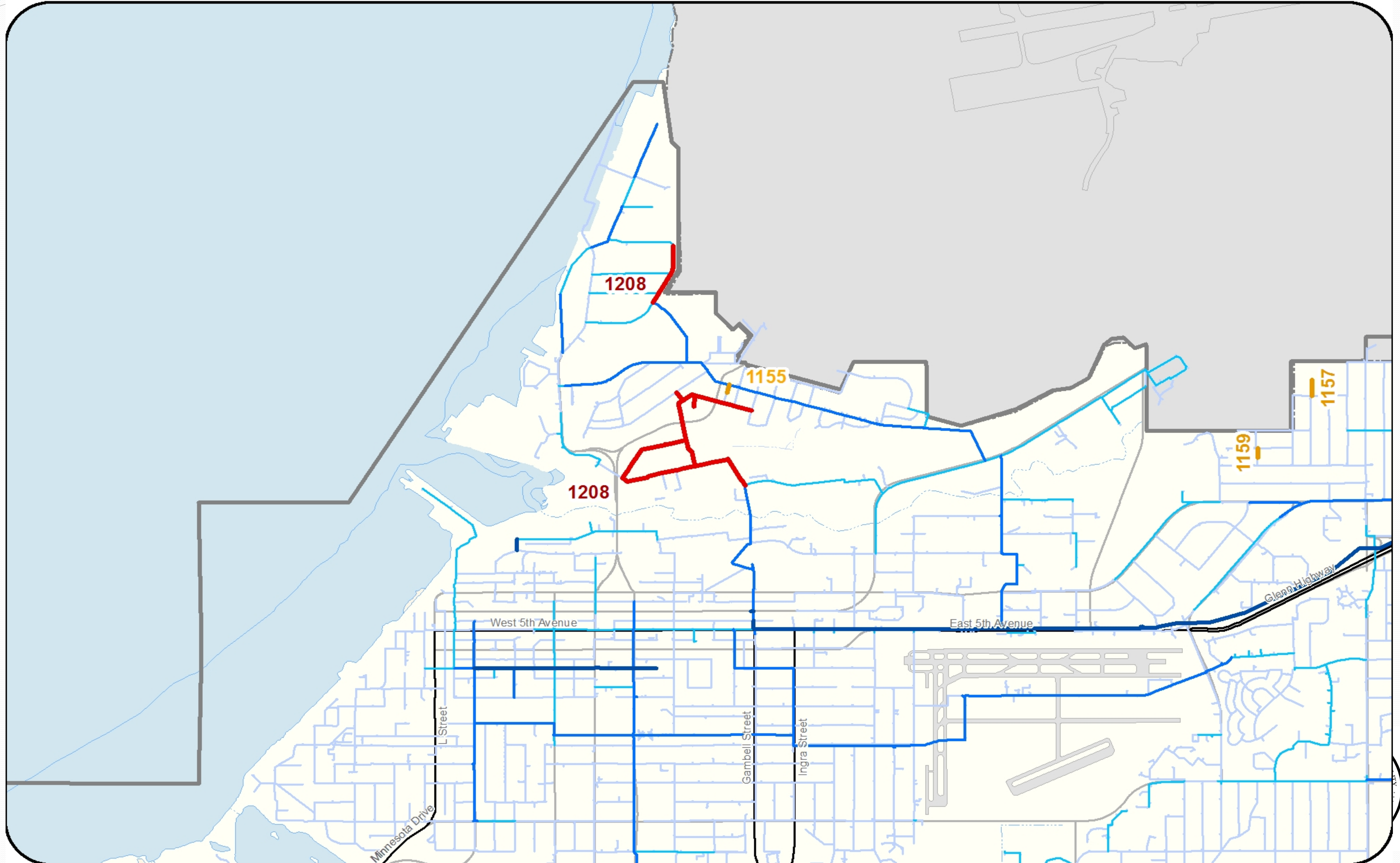
Municipality of Anchorage
Anchorage Water and Wastewater Utility

Port ARRC KAC GHNP
Coordination Evaluation

Figure 4
Coordination Areas



- Port of Anchorage Coordination Area
- KAC Coordination Area
- Government Hill Neighborhood Plan Coordination Area
- ARRC Coordination Area



Legend

Construct, Rehabilitate, or Relocate Water Pipe

- ARRC Yard 12" Rehab
- ARRC Yard Wtr Transfer
- Alascom North Wtr
- Bluff Terminal Wtr Relocate
- E Bluff Wtr Rehab Ph II
- Erickson Wtr Relocate
- North Portal Wtr
- North Yard Wtr
- Railroad Yard Wtr Rehab 16"
- Terminal Road Wtr Rehab
- Whitney Wtr Main

Abandon, Remove or Transfer Water Pipe

- ARRC Yard Wtr Transfer
- Alascom North Wtr
- Bluff Terminal Wtr Relocate
- E Bluff Wtr Rehab Ph II
- Erickson Wtr Relocate
- Harvard Yard Wtr Abandon
- North Portal Wtr
- North Yard Wtr

Owners

- Other
- ARRC
- ALASCOM INC
- ELMENDORF AIR FORCE BASE
- MOA - PORT

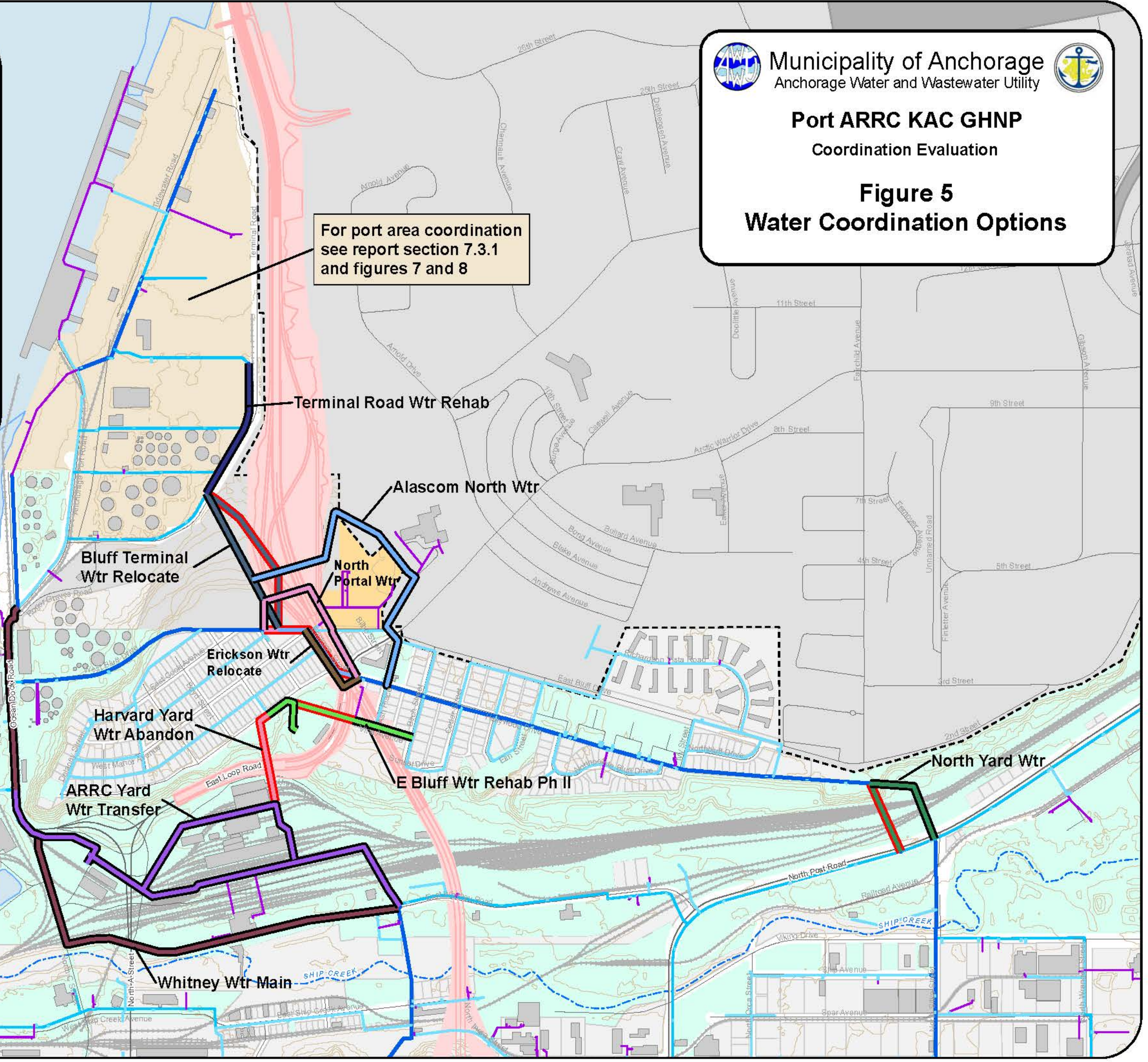
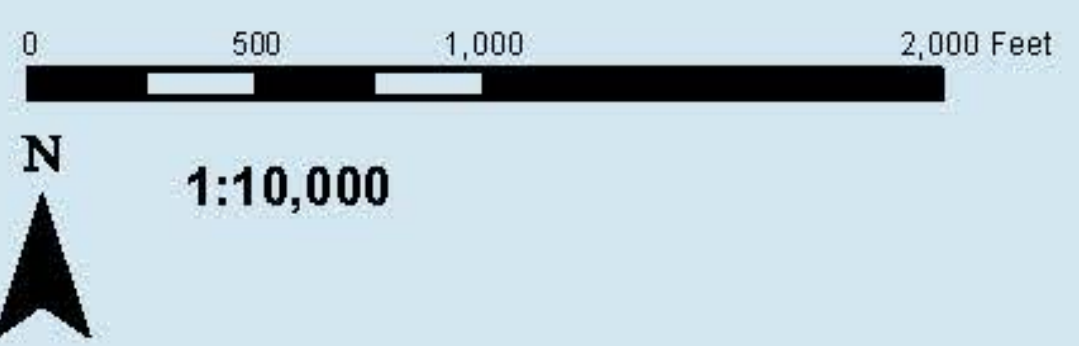
Streets

- Major
- Secondary
- Local

Existing Water Main by Diameter

- 6" TO 10"
- 12"
- 16"
- Non-AWWU Water Pipe

Kabata Buildout
 Row Aquisition Complete Buildout
 Railroad
 Contour (10 ft)
 Military Land





Port ARRC KAC GHNP
Coordination Evaluation

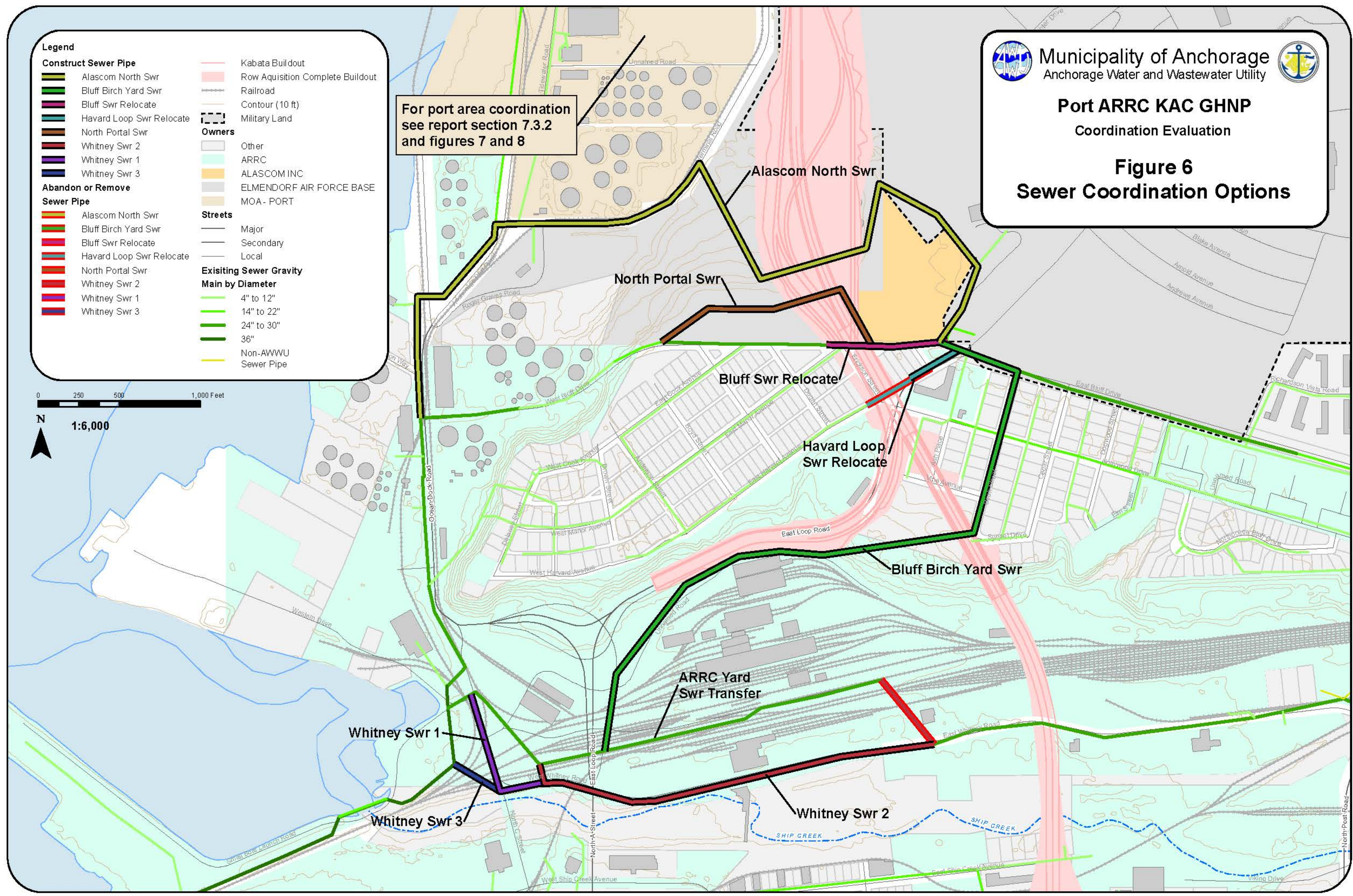
Figure 6
Sewer Coordination Options

- Legend**
- Construct Sewer Pipe**
- Alascom North Swr
 - Bluff Birch Yard Swr
 - Bluff Swr Relocate
 - Havard Loop Swr Relocate
 - North Portal Swr
 - Whitney Swr 2
 - Whitney Swr 1
 - Whitney Swr 3
- Abandon or Remove Sewer Pipe**
- Alascom North Swr
 - Bluff Birch Yard Swr
 - Bluff Swr Relocate
 - Havard Loop Swr Relocate
 - North Portal Swr
 - Whitney Swr 2
 - Whitney Swr 1
 - Whitney Swr 3
- Owners**
- Other
 - ARRC
 - ALASCOM INC
 - ELMENDORF AIR FORCE BASE
 - MOA - PORT
- Streets**
- Major
 - Secondary
 - Local
- Existing Sewer Gravity Main by Diameter**
- 4" to 12"
 - 14" to 22"
 - 24" to 30"
 - 36"
 - Non-AWWU Sewer Pipe
- Kabata Buildout**
- Row Aquisition Complete Buildout**
- Railroad**
- Contour (10 ft)**
- Military Land**

For port area coordination see report section 7.3.2 and figures 7 and 8

0 250 500 1,000 Feet

N 1:6,000





www.awwu.biz

Welcome to the Anchorage Water and Wastewater Utility

For Customers | Access My Account | Projects - Public Information Center | News | Career Opportunities



Tap Water Delivers...

Public Health

Fire Protection

Economic Development

Quality of Life

**AWWU Board of Directors Website Link
Next Regular Board Meeting**

3000 Arctic Blvd. - Basement Conference Room
October 3, 2012 - 12:00-2:00 pm

**I would like to testify at this meeting
'Appearance Request'**

Anchorage Water and Wastewater Utility, located in Anchorage, Alaska, is recruiting for its top executive position of General Manager. Click here to view additional information on the position.

Vision: Excellence Through Innovation

Mission: Supporting the public health, safety and economic interests of the community by providing quality Water and Wastewater services in a responsible, efficient and sustainable manner.

Anchorage Water & Wastewater Utility (AWWU)
3000 Arctic Boulevard, Anchorage, Alaska 99503-3813
Customer Service: 907-564-2700, Hearing Impaired Access: www.akrelay.com or dial 711
Toll Free Number: 1-866-650-2700
24-Hour Emergency Number: 907-564-2762
Email: awwucustserv@awwu.biz

Utility Developments

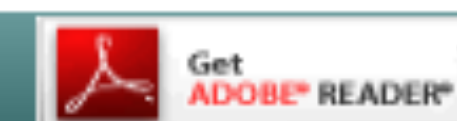
New - 2012 Draft AWWU Water Master Plan

Clearly Reliable Water
30 second source water video

Projects - Public Information Center

2012 - Design & Construction Practices Manual

Year-Round Protection Anchorage Fire Hydrants





How to Review the Draft Document

Welcome to the Anchorage Water and Wastewater Utility

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Public Information Center

Public Information Center - Utility project and fire hydrant interactive information map.

- **Water & Sewer Projects** - Review status of on-going Capital Improvement and Private Development projects.
 - **Capital Projects** - Utility improvement projects for the expansion, repair, upgrade or replacement of a Utility asset to ensure safe and adequate water and wastewater services are always available for AWWU customers.
 - **Private System Projects** - A privately funded, on-site project, under construction which is reviewed by AWWU to ensure the project is built to existing system specifications and standards. Examples of these are single resident lot improvement projects.
 - **Private Development Projects** - Privately funded and managed projects extending water and sewer mains to serve private property. Initiated and managed by property owners with AWWU issuing permits to ensure safe and adequate water and wastewater service. Examples of these are private subdivision developments and extension projects.
- **Hydrant Information** - Locations and Red Top Fire Hydrants for permit holders.

Capital Projects of Special Interest

- **2012 Draft - Water Master Plan**
- **Condition Assessment**
- **Girdwood Wastewater Treatment Facility Upgrade**

AWWU maintains a 20-year master plan for both its Water and Wastewater Utility. Click on either Master Plan in the index to the left to view and research Utility Projects. An AWWU Capital Improvement Program is contained in each Master Plan. The Master Plans maintain a six year capital improvement budget forecast. AWWU reviews and revises it annually to remain responsive to ongoing customer's needs.

These plans, however, do not take precedent over emergencies, critical or important issues which may delay some planned improvements. For more information contact:

AWWU Planning Division. 564-2739. or AWWU's Information Office: info@awwu.biz

[AWWU Projects
Public Information Center](#)

[View Current Project Bid
Notices](#)

[2012 - Design and
Construction Practices
Manual](#)

[Water & Sewer
Improvement District
\(View Brochure\)](#)

[Apply for Water & Sewer
Connections
\(View Brochure\)](#)

[2005 Water Master Plan](#)

[2006 Wastewater Master
Plan](#)





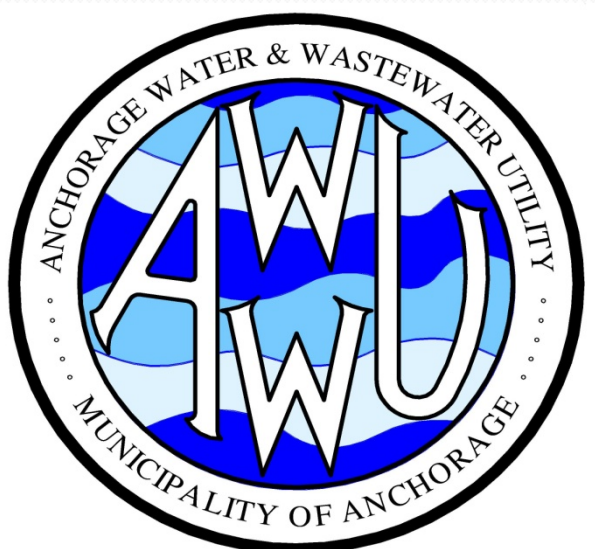
We want to hear from you!

Send your comments and suggestions to improve the Water Master Plan to:

Steve Nuss, Capital Projects Manager
Anchorage Water & Wastewater Utility
PO Box 196626
Anchorage, AK 99519-6626

Email: AWWUWaterMasterPlan@awwu.biz

Please submit your comments by **December of 2012**





Questions or Comments?

Brian Baus, Planning and Development Services Manager

Anchorage Water & Wastewater Utility

PO Box 196626

Anchorage, AK 99519-6626

Email: brian.baus@awwu.biz

Phone: (907) 564-2765



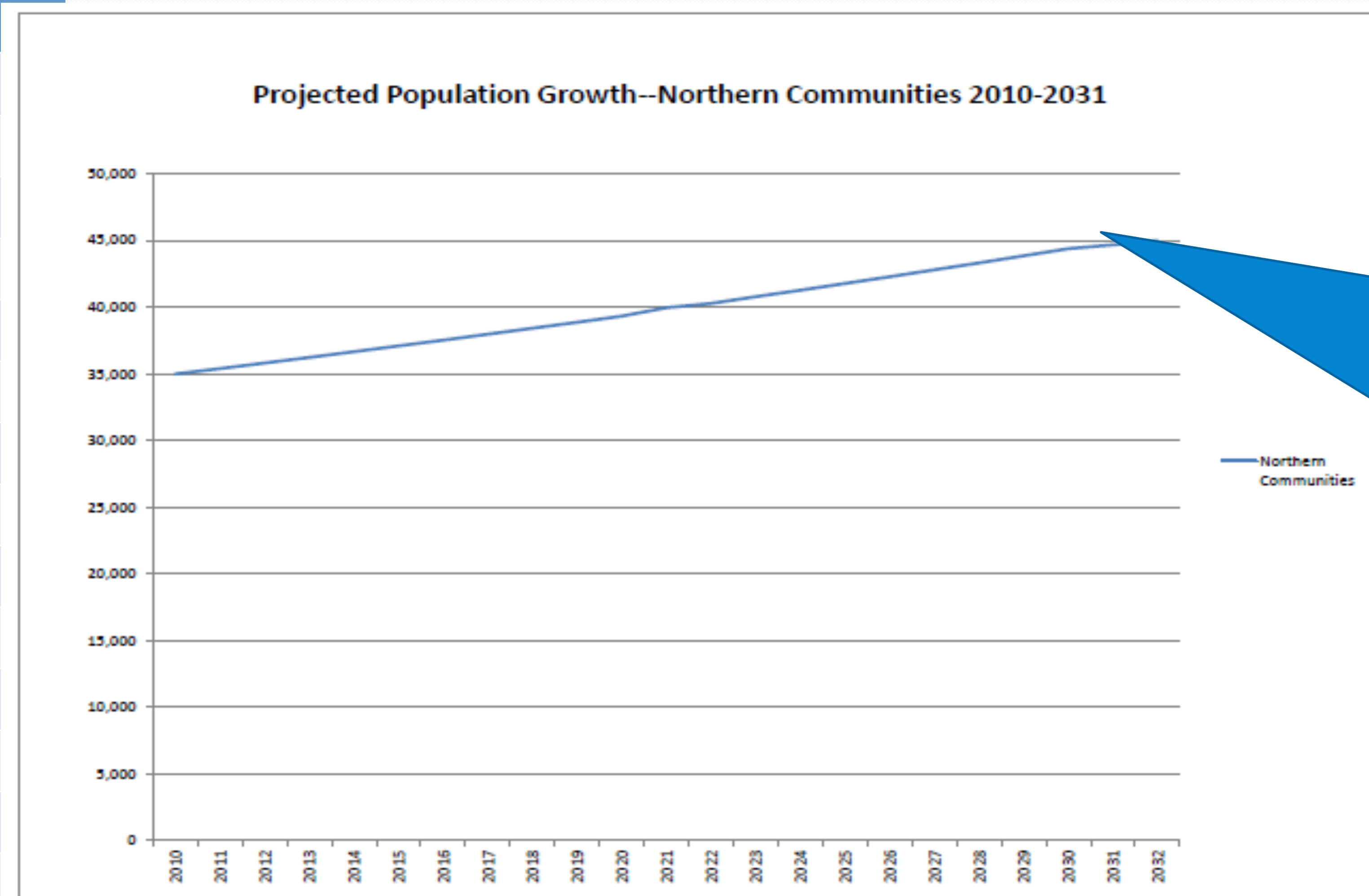






Northern Communities Growth

| Year | Northern Communities |
|------|----------------------|
| 2010 | 34,982 |
| 2011 | 35,393 |
| 2012 | 35,810 |
| 2013 | 36,231 |
| 2014 | 36,657 |
| 2015 | 37,088 |
| 2016 | 37,524 |
| 2017 | 37,965 |
| 2018 | 38,412 |
| 2019 | 38,864 |
| 2020 | 39,321 |
| 2021 | 39,965 |
| 2022 | 40,284 |
| 2023 | 40,775 |
| 2024 | 41,272 |
| 2025 | 41,774 |
| 2026 | 42,283 |
| 2027 | 42,798 |
| 2028 | 43,319 |
| 2029 | 43,847 |
| 2030 | 44,381 |
| 2031 | 44,679 |
| 2032 | 44,979 |



Population in the Northern Communities is projected to grow 1.2 percent annually between now and 2032

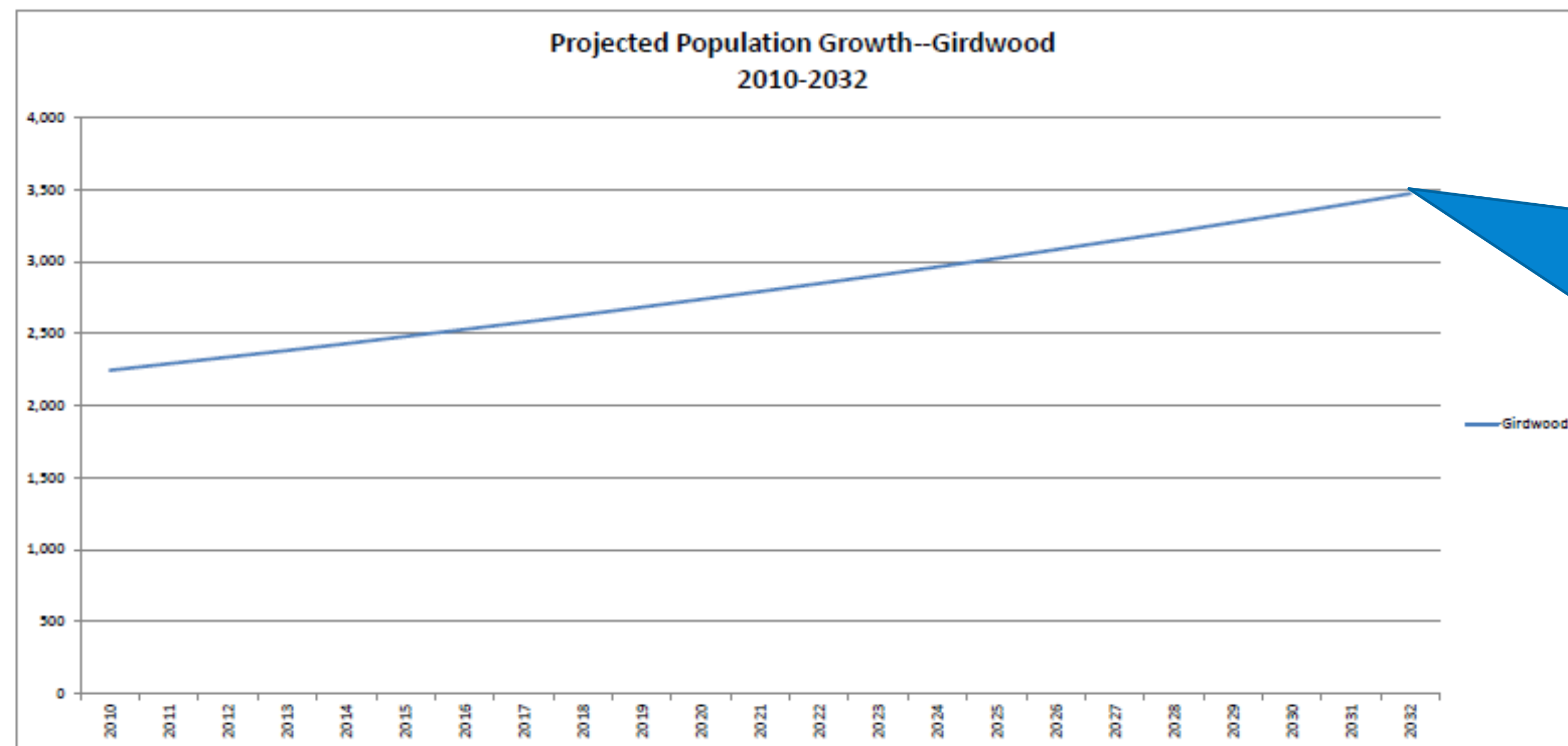
Growth rates vary by planning area, with greater growth planned in areas currently served by the Utility.





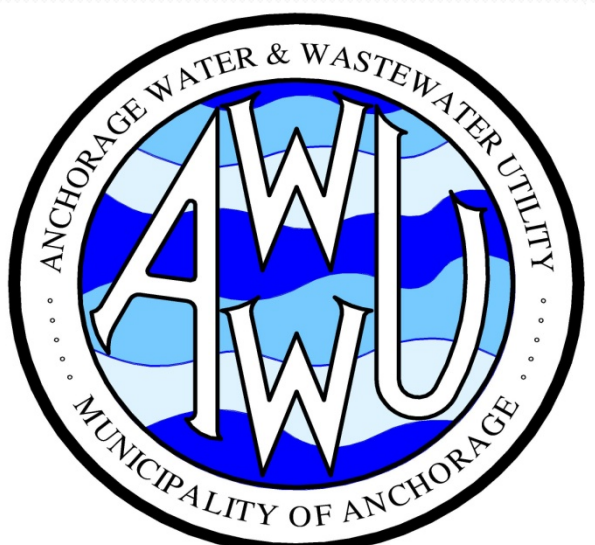
Girdwood Growth

| Year | Girdwood |
|------|----------|
| 2010 | 2,245 |
| 2011 | 2,290 |
| 2012 | 2,336 |
| 2013 | 2,382 |
| 2014 | 2,430 |
| 2015 | 2,479 |
| 2016 | 2,528 |
| 2017 | 2,579 |
| 2018 | 2,630 |
| 2019 | 2,683 |
| 2020 | 2,737 |
| 2021 | 2,791 |
| 2022 | 2,847 |
| 2023 | 2,904 |
| 2024 | 2,962 |
| 2025 | 3,021 |
| 2026 | 3,082 |
| 2027 | 3,144 |
| 2028 | 3,206 |
| 2029 | 3,271 |
| 2030 | 3,336 |
| 2031 | 3,403 |
| 2032 | 3,471 |



Girdwood's population is projected to grow 2.0 percent annually between now and 2032.

While overall growth in Girdwood is anticipated at 2 percent annually, growth with the Utility-served areas is anticipated to have 2.5 percent annual growth, which assumes all new growth will use the Utility's water system.





Municipality of Anchorage
Anchorage Water and Wastewater Utility



Area Out of Water without System Resiliency Project

