

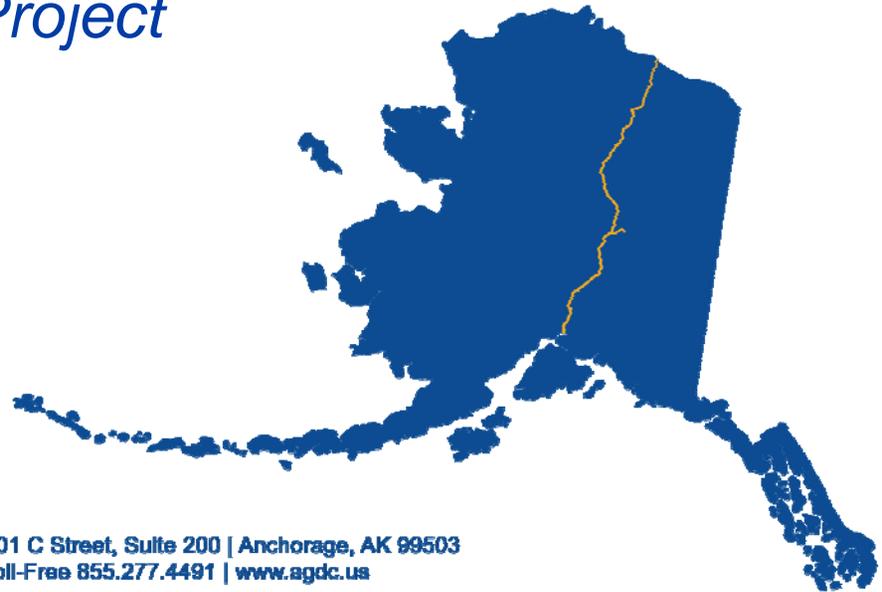
# ASAP

Alaska's In-State Gas Pipeline

## Alaska Stand Alone Pipeline Project

*Municipal Advisory Gas Project  
Review Board*

*October 1<sup>st</sup>, 2014  
Anchorage, AK*



Alaska Gasline Development Corporation | 3201 C Street, Suite 200 | Anchorage, AK 99503  
P 907.330.6300 | F 907.330.6309 | Toll-Free 855.277.4491 | [www.agdc.us](http://www.agdc.us)

# Presentation Outline

- ASAP Project Development
- AGDC Authorities
- Design Objectives
- Description & Components
- Routing & Alignment
- Design Revisions
- Timeline & Milestones
- Progress and Work Activities
- Cost Refinement

ASAP

Alaska Gasline Development Corporation | 3201 C Street, Suite 200 | Anchorage, AK 99503  
P 907.330.6300 | F 907.330.6309 | Toll-Free 855.277.4491 | [www.agdc.us](http://www.agdc.us)



# ASAP Project Development

**2009:** Legislature begins taking deliberate steps to develop an in-state pipeline, independent of other North Slope commercialization efforts.

**2011:** **Alaska Stand Alone Pipeline (ASAP)** plan developed and delivered to the Legislature. Plan further optimized during 2012.

**2013:** **Alaska Gasline Development Corporation (AGDC)** is established as an independent, public corporation to advance the **ASAP** project (*HB 4*).

Represents a substantial state commitment and *public investment* (\$400+ million) in an Alaska-centric energy solution

ASAP

Alaska Gasline Development Corporation | 3201 C Street, Suite 200 | Anchorage, AK 99503  
P 907.330.6300 | F 907.330.6309 | Toll-Free 855.277.4491 | [www.agdc.us](http://www.agdc.us)



# AGDC Powers & Authorities

*Legislature granted AGDC extraordinary authority to expedite the development of a North Slope natural gas pipeline*

- Confidentiality to protect proprietary and commercial information
- State exemptions: procurement code, administrative procedures and personnel act
- Expedited RCA review and state permit processing
- Bonding authority
- Property tax exemption prior to start of commercial operations

ASAP

Alaska Gasline Development Corporation | 3201 C Street, Suite 200 | Anchorage, AK 99503  
P 907.330.6300 | F 907.330.6309 | Toll-Free 855.277.4491 | [www.agdc.us](http://www.agdc.us)



# AGDC Authority Expanded in 2014

SB 138 enables AGDC to explore every option to provide gas and *maximum benefit to Alaskans*

Corporation now has the responsibility to advance two projects capable of providing gas to Alaskans:

- **Alaska Stand Alone Pipeline (ASAP)**
- **Alaska LNG**

AGDC Board has flexibility to progress both options in the most prudent and efficient manner



Ultimate Goal - to select the project that is in ***Alaska's long-term best interests***

**ASAP**

Alaska Gasline Development Corporation | 3201 C Street, Suite 200 | Anchorage, AK 99503  
P 907.330.6300 | F 907.330.6309 | Toll-Free 855.277.4491 | [www.agdc.us](http://www.agdc.us)



# ASAP Design Objectives

- Advance an in-state pipeline to deliver North Slope natural gas at the lowest possible cost
- Secure a stable, affordable, long-term gas supply
- Develop gas for the maximum benefit of Alaskans
- Deliver gas below the price of imported LNG

**AS 31.25.005** - AGDC shall “advance an in-state natural gas pipeline....in a safe, prudent, economical, and efficient manner, for the purpose of making natural gas....available to Fairbanks, the Southcentral region of the state, and other communities in the state at the lowest rates possible”

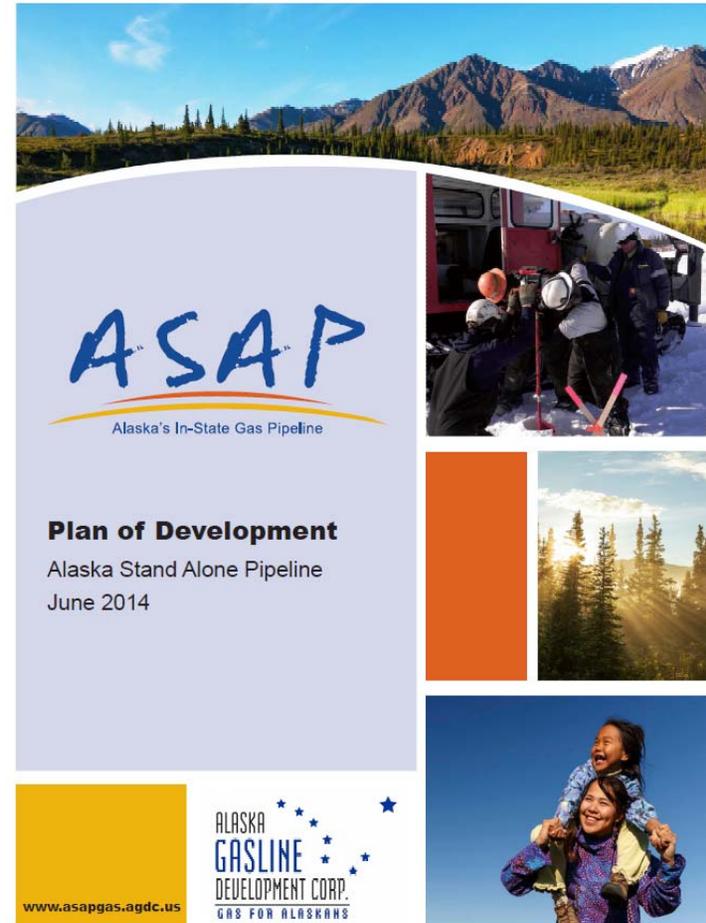
ASAP

Alaska Gasline Development Corporation | 3201 C Street, Suite 200 | Anchorage, AK 99503  
P 907.330.6300 | F 907.330.6309 | Toll-Free 855.277.4491 | [www.agdc.us](http://www.agdc.us)



# Project Description

- Gas Conditioning Facility (GCF) at Prudhoe Bay
- 500 MMscfd of utility grade “lean” gas - ready for consumption
- 727-mile, 36-inch mainline pipe from Prudhoe Bay to ENSTAR’s existing Beluga distribution system near Big Lake
- 29-mile, 12-inch, lateral line to Fairbanks
- In-state off-takes along the route
- 3-year summer/winter construction
- ~8,000 peak construction workforce and ~150 operational workforce

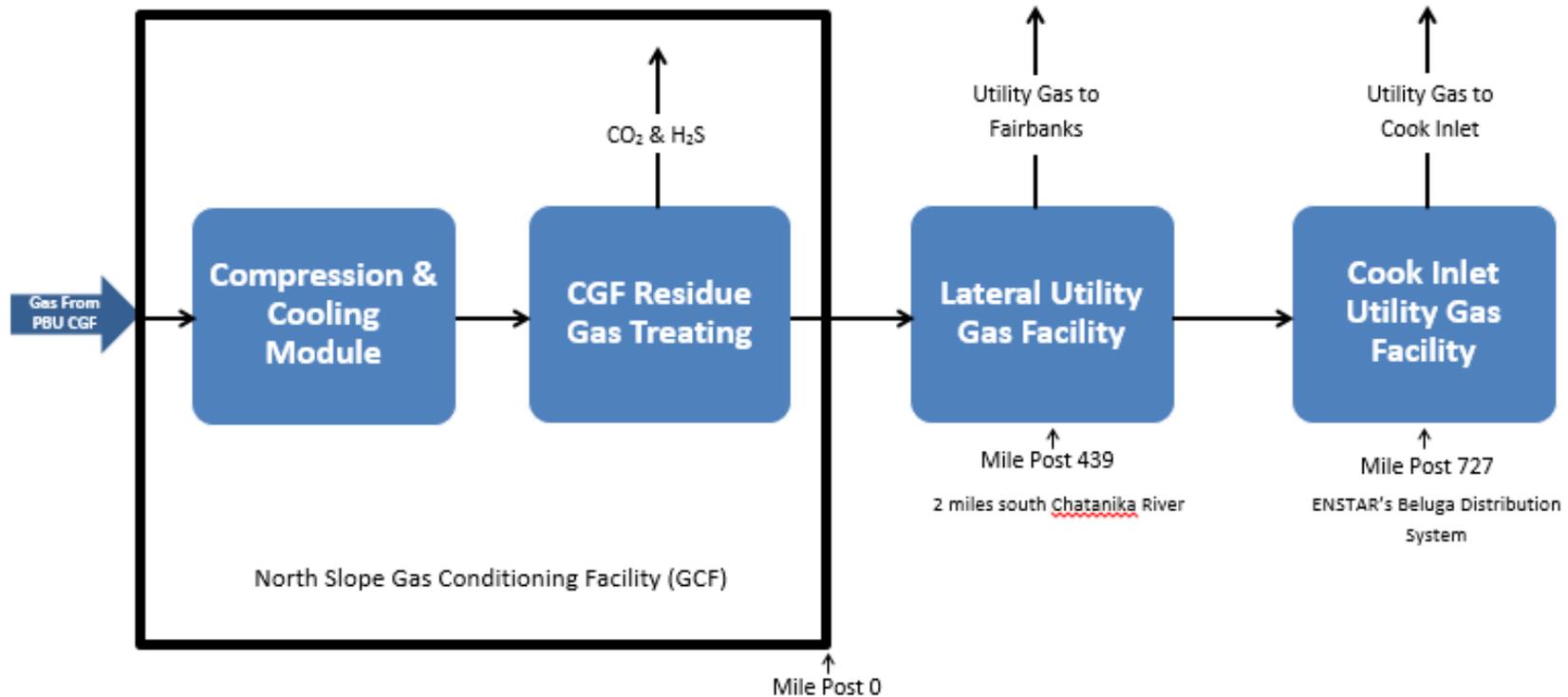


ASAP

Alaska Gasline Development Corporation | 3201 C Street, Suite 200 | Anchorage, AK 99503  
P 907.330.6300 | F 907.330.6309 | Toll-Free 855.277.4491 | www.agdc.us



# Project Schematic

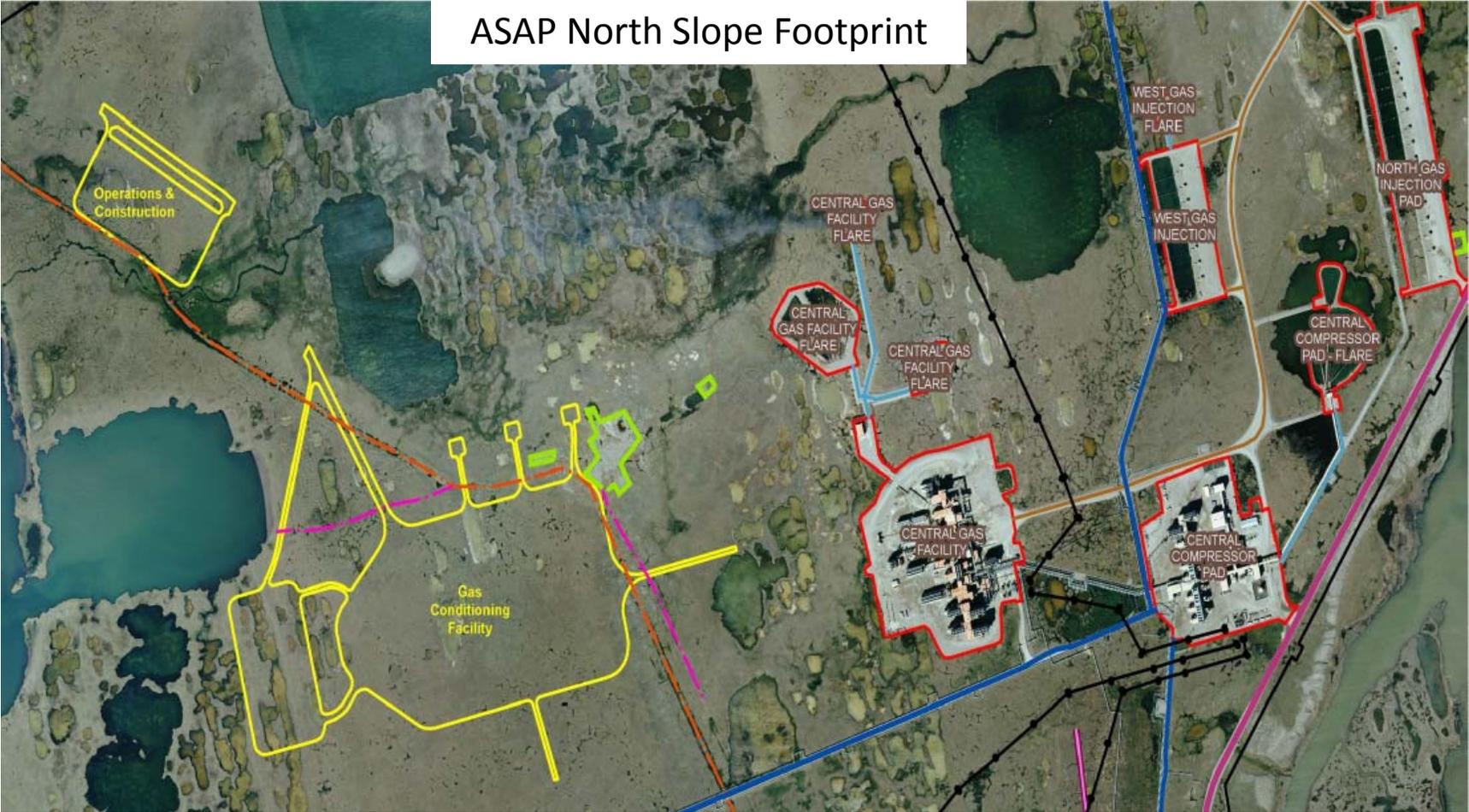


ASAP

Alaska Gasline Development Corporation | 3201 C Street, Suite 200 | Anchorage, AK 99503  
P 907.330.6300 | F 907.330.6309 | Toll-Free 855.277.4491 | [www.agdc.us](http://www.agdc.us)



# Gas Conditioning Facility (GCF)



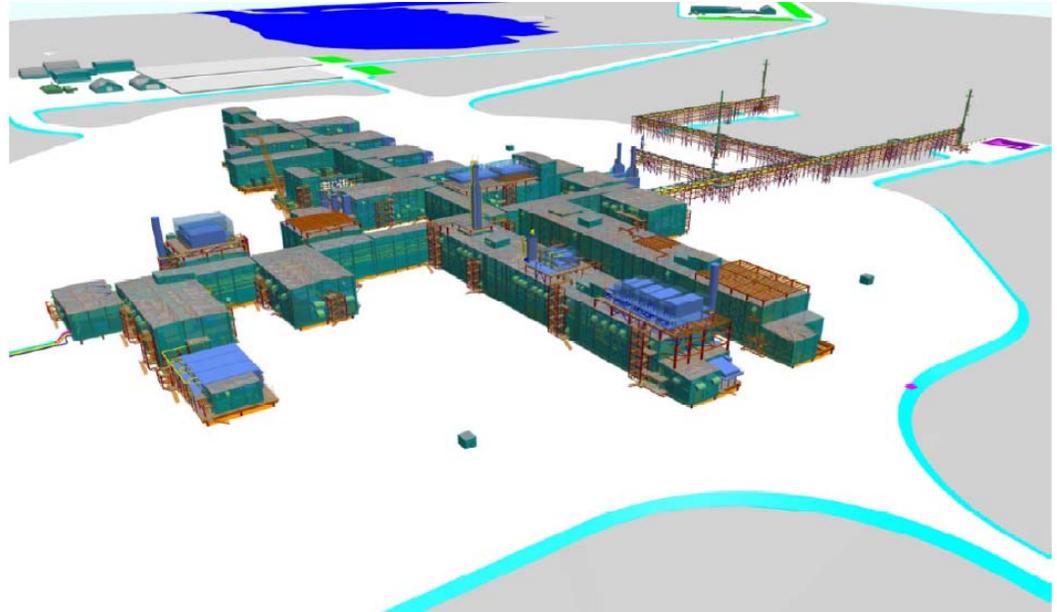
ASAP

Alaska Gasline Development Corporation | 3201 C Street, Suite 200 | Anchorage, AK 99503  
P 907.330.6300 | F 907.330.6309 | Toll-Free 855.277.4491 | [www.agdc.us](http://www.agdc.us)



# Gas Conditioning Facility (GCF)

- GCF located on 73 acre gravel pad near Prudhoe Bay's Central Gas Facility
- 2 x 250 MMscfd trains
- 20 acres for construction and operations camp
- 24 acres for warehousing, shops, storage and maintenance facilities
- Access roads and modular buildings to house equipment, utilities, work space and people

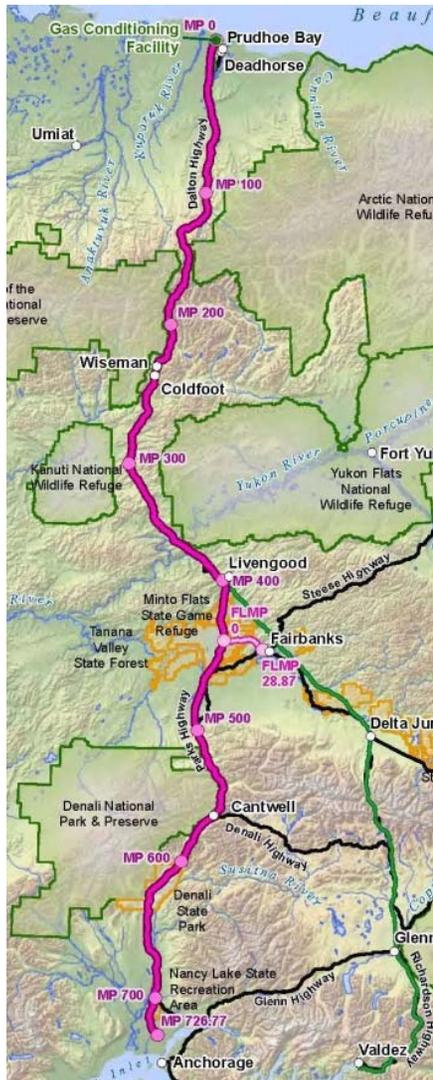


# Pipeline

- Mainline Pipe
  - 727 miles
  - 32-inch diameter
  - 1,480 psi
- Fairbanks Lateral
  - 29 miles
  - 12-inch diameter
  - 1,400 psi
- Block valves – approx. every 20 miles
- Open-cut trenching and Horizontal Direction Drilling (HDD) for construction
- 120 foot construction right-of-way; 53 foot permanent right of way
- Buried pipeline except at major fault crossings, elevated bridge crossings, pig launching and receiving facilities, block valves, metering and off-take locations



# Routing & Alignment

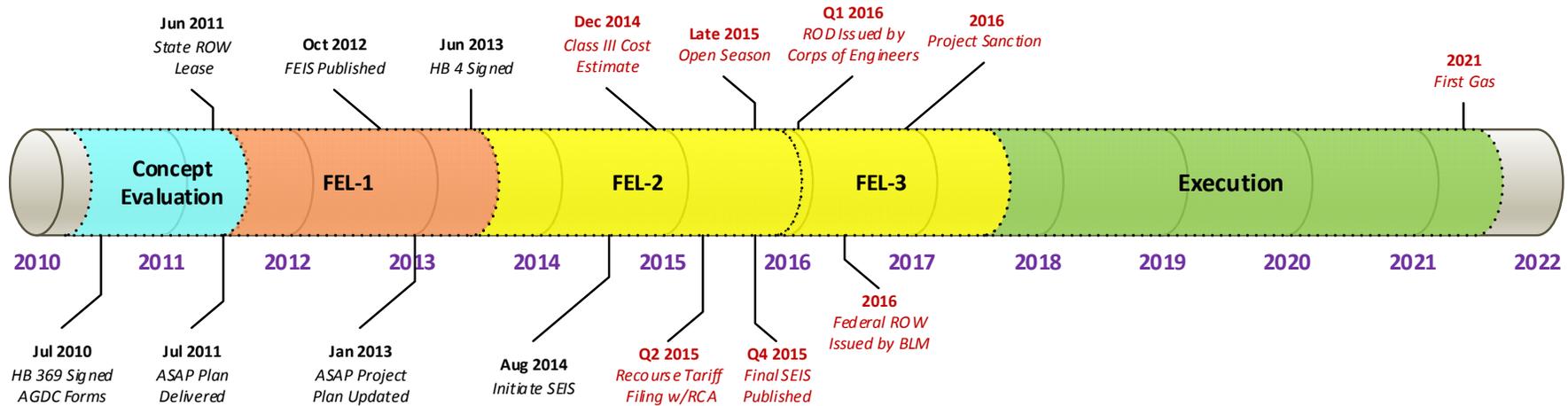


- Generally parallels TAPS and Dalton Highway to Livengood, NW of Fairbanks
- Mainline continues south to the west of Fairbanks and Nenana
- Passes Denali National Park to the east and generally parallels Parks Highway to Willow
- Runs southwest of Big Lake, ties into ENSTAR's Beluga distribution system
- Fairbanks lateral ties in two miles south of Chatanika River; traverses east along Murphy Dome Road; extends SE into Fairbanks
- Working towards common routing and alignment with Alaska LNG project

# Design Revisions

	Original Design 2012	Current Design 2014	Benefits/ Rationale
<b>Gas Composition</b>	<b>Enriched Natural Gas</b> – w/Natural Gas Liquids (NGLs)	<b>Lean Natural Gas</b> - Utility Grade, almost pure Methane	<ul style="list-style-type: none"> <li>• Reduces costs and risk</li> <li>• Increases in-state access and off-take economics</li> </ul>
<b>Mainline Pipe</b>	<ul style="list-style-type: none"> <li>• 737 miles</li> <li>• 24-inch, 2500psi</li> </ul>	<ul style="list-style-type: none"> <li>• 727 miles (<i>10 fewer miles</i>)</li> <li>• 36-inch, 1480 psi</li> </ul>	<ul style="list-style-type: none"> <li>• Shortens and straightens</li> <li>• Industry standard pipe</li> <li>• Lower pressure</li> </ul>
<b>Fairbanks Lateral</b>	<ul style="list-style-type: none"> <li>• 34 miles</li> <li>• Aligned primarily along AK Railroad right-of-way</li> </ul>	<ul style="list-style-type: none"> <li>• 29 miles (<i>5 fewer miles</i>)</li> <li>• Aligned primarily along Murphy Dome Road</li> </ul>	<ul style="list-style-type: none"> <li>• Avoids AKRR and AKDOT right-of-way</li> <li>• Maximizes existing fire breaks and utility corridors</li> <li>• Improves construction access and maintenance</li> </ul>
<b>Support Facilities</b>	<ul style="list-style-type: none"> <li>• Straddle Plant at lateral</li> <li>• NGL extraction facility at Pt. Mackenzie</li> <li>• Multiple compressor stations</li> </ul>	<ul style="list-style-type: none"> <li>• Single compression at Prudhoe Bay</li> </ul>	<ul style="list-style-type: none"> <li>• Improves safety and reliability</li> <li>• Reduces footprint</li> <li>• Reduces wetlands and carbon impacts</li> </ul>
<b>West Dock Causeway at Prudhoe Bay</b>	<i>Conceptual designs and preliminary Plan of Development anticipated no modifications to currently permitted activities</i>	<ul style="list-style-type: none"> <li>• Modify Dock Head 3</li> <li>• Winter channel dredging</li> <li>• Dredge material dispersion</li> <li>• Temporary use of ballasted barge bridge</li> </ul>	<ul style="list-style-type: none"> <li>• Facilitates off-site modular construction</li> <li>• Summer barging of materials</li> </ul>

# Project Timeline



## Key Milestones

2014	<ul style="list-style-type: none"> <li>Initiate Owner Builder Operator (OBO) Discussions</li> <li>Amend State Right-of-Way Lease</li> <li>Initiate SEIS with U.S. Army Corps of Engineers</li> <li>Complete Updated Cost Estimates</li> </ul>
2015	<ul style="list-style-type: none"> <li>Open Season</li> <li>RCA Approval - Tariffs, Precedent Agreements, and Certificate of Public Conveyance and Necessity (CPCN)</li> </ul>
2016	<ul style="list-style-type: none"> <li>U.S. Army Corps Record of Decision (ROD)</li> <li>404 Permit and Federal Right-of-Way</li> <li>Project Sanctioning Decision</li> </ul>
2018	<ul style="list-style-type: none"> <li>Order long lead time items</li> <li>Three year summer and winter construction begins</li> </ul>
2021	<ul style="list-style-type: none"> <li>First gas</li> </ul>

**ASAP**

Alaska Gasline Development Corporation | 3201 C Street, Suite 200 | Anchorage, AK 99503  
 P 907.330.6300 | F 907.330.6309 | Toll-Free 855.277.4491 | www.agdc.us



# Ongoing Work Activities



- Advancing pipeline and facilities engineering
- Planning construction and logistics
- Engaging state/federal regulators
- Conducting SEIS Public Scoping
- Communicating with public through Community Advisory Council (CAC)
- Progressing Recourse Tariff Work w/RCA
- Finalizing updated project cost estimates
- Advancing Owner-Builder-Operator (OBO) discussions
- Coordinating work and data with Alaska LNG
- Engaging major foreign fabrication yards



# 2014 Field Season

- Cultural Resources
  - 450 miles by foot, vehicle or helicopter
- Wetlands Delineation
  - 300 wetland points
- Hydrologic & Fish
  - 680 hydro survey points
  - 75 stream locations
- Geotechnical
  - 140 new boreholes drilled
  - 400+ drilled to date
- Geohazard
  - 3 seismic trench sites
  - 47 landslide survey points
- Material Sites
  - 65 boreholes

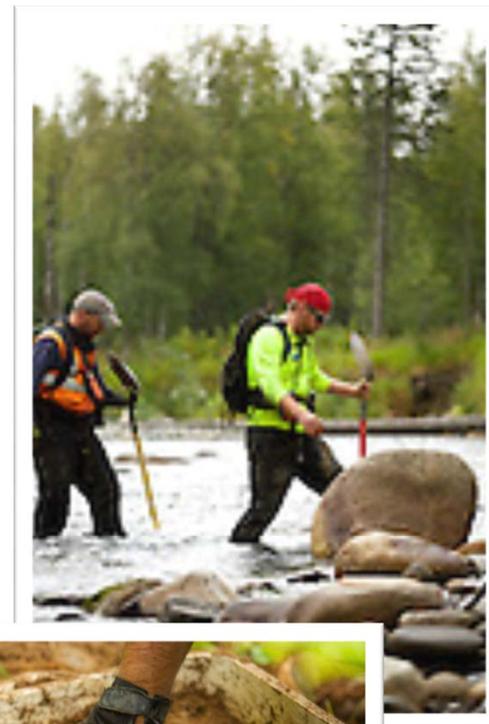


Photo: Brian Adams

# ASAP/Alaska LNG Coordination

## Efficiency Objectives

- Maximize existing historical data and work product
  - *Geotechnical, hydrological, environmental, cultural and routing information*
- Minimize duplication of work between the ASAP and Alaska LNG projects
- Work towards common routing and alignment
- Reduce cost, environmental impacts, and safety risks
- Save time and advance schedules

## Coordination Activities

- ✓ Identifying existing datasets and common work product
- ✓ Establishing data sharing protocols
- ✓ Coordinating 2015 field seasons and work activities
- ✓ Planning routing workshop to compare pipeline alignments
- ✓ Developing joint trenching equipment testing program

ASAP

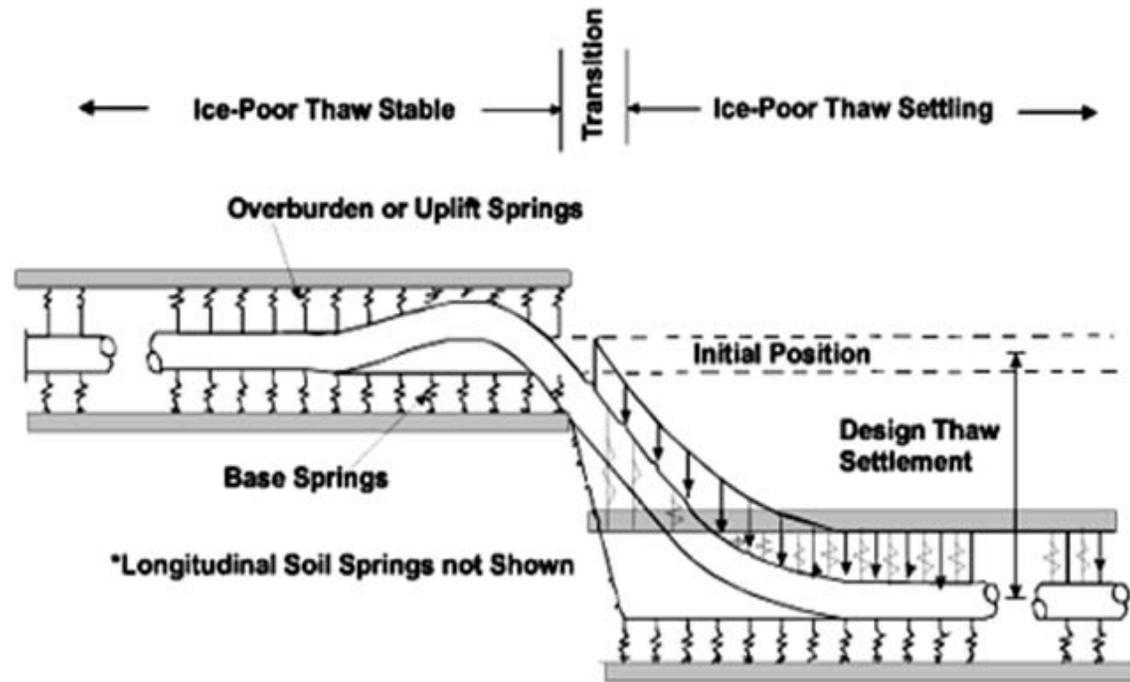
Alaska Gasline Development Corporation | 3201 C Street, Suite 200 | Anchorage, AK 99503  
P 907.330.6300 | F 907.330.6309 | Toll-Free 855.277.4491 | [www.agdc.us](http://www.agdc.us)

16



# Extensive Effort: *Arctic Geohazards*

- Thaw settlement and discontinuous permafrost
- Strain-based design and assessment approach
- Pipeline Hazardous Material and Safety Administration (PHMSA)
- Full scale tests of actual pipe segments to validate the project predictions



Classical model for soil-structure interaction analysis

# Extensive Effort: *Pipeline Material Testing*



- Sourced capable pipe mills
- Purchased Strain Based Design (SBD) pipe for testing
- Weld procedures approved this summer
- Small scale tests to fully identify material inputs to project predictive models
- Full scale tests to validate project predictions



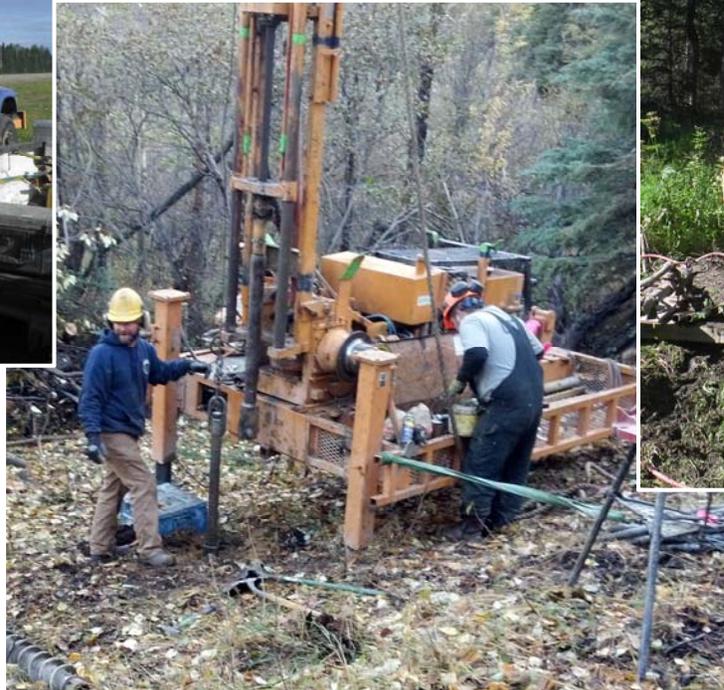
# Extensive Effort: *Geotechnical Surveys*

Rigs moved by truck, track, or helicopter to drill sites



Truck Mounted

Helicopter  
Transportable



Track Mounted

# Extensive Effort: *Material Source Exploration*

- 20 million cubic yards of source material (sand & gravel) required along route
- Approximately 75 sites needed - located every 6-7 miles
- 128 potential sites identified – 65 drilled this year
- Borehole drilling used to identify type and quantity of material for use during construction
- Boreholes 8” diameter drilled to 25 feet depth
- Core samples taken at various intervals to determine material quality

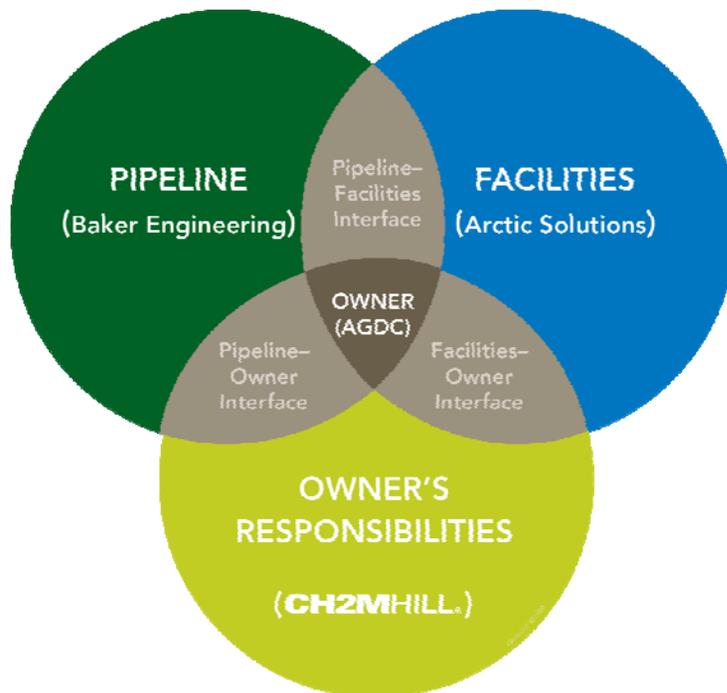
# Project Cost Refinement

## Existing Cost Estimate:

~\$7.7 billion (+/- 30% in 2012 \$)

## Public Investment To Date:

~\$400 million (~5% of total)



- Major initiative underway to update and refine original 2012 cost estimate:
  - ✓ *Capital Costs*
  - ✓ *O&M Costs (30-year life)*
  - ✓ *Dismantle, Remove, Restore (DR&R)*
- Each major ASAP contractor is preparing a core functional estimate:
  - ✓ *Arctic Solutions*
  - ✓ *Baker*
  - ✓ *CH2MHill*
- Joint teams of management and contractors are consolidating, reviewing and refining all estimates, and ensuring:
  - ✓ *No gaps*
  - ✓ *No overlap*
  - ✓ *Comprehensive estimate and basis*
  - ✓ *Common format and assumptions*
  - ✓ *Best practices*

Complete Class 3 estimate due mid **December 2014**

ASAP

# Questions?

## **Frank Richards**

VP, Engineering & Program Management

(907) 330-6352

[frichards@agdc.us](mailto:frichards@agdc.us)

## **Miles Baker**

VP, External Affairs & Government Relations

(907) 330-6360

[mbaker@agdc.us](mailto:mbaker@agdc.us)

## **ASAP Project Office**

Alaska Gasline Development Corporation (AGDC)

3201 C Street, Suite 200

Anchorage, Alaska 99503

(907) 330-6300

[www.agdc.us](http://www.agdc.us)

**ASAP**

Alaska Gasline Development Corporation | 3201 C Street, Suite 200 | Anchorage, AK 99503  
P 907.330.6300 | F 907.330.6309 | Toll-Free 855.277.4491 | [www.agdc.us](http://www.agdc.us)

