



State of Alaska Department of Natural Resources

HB397

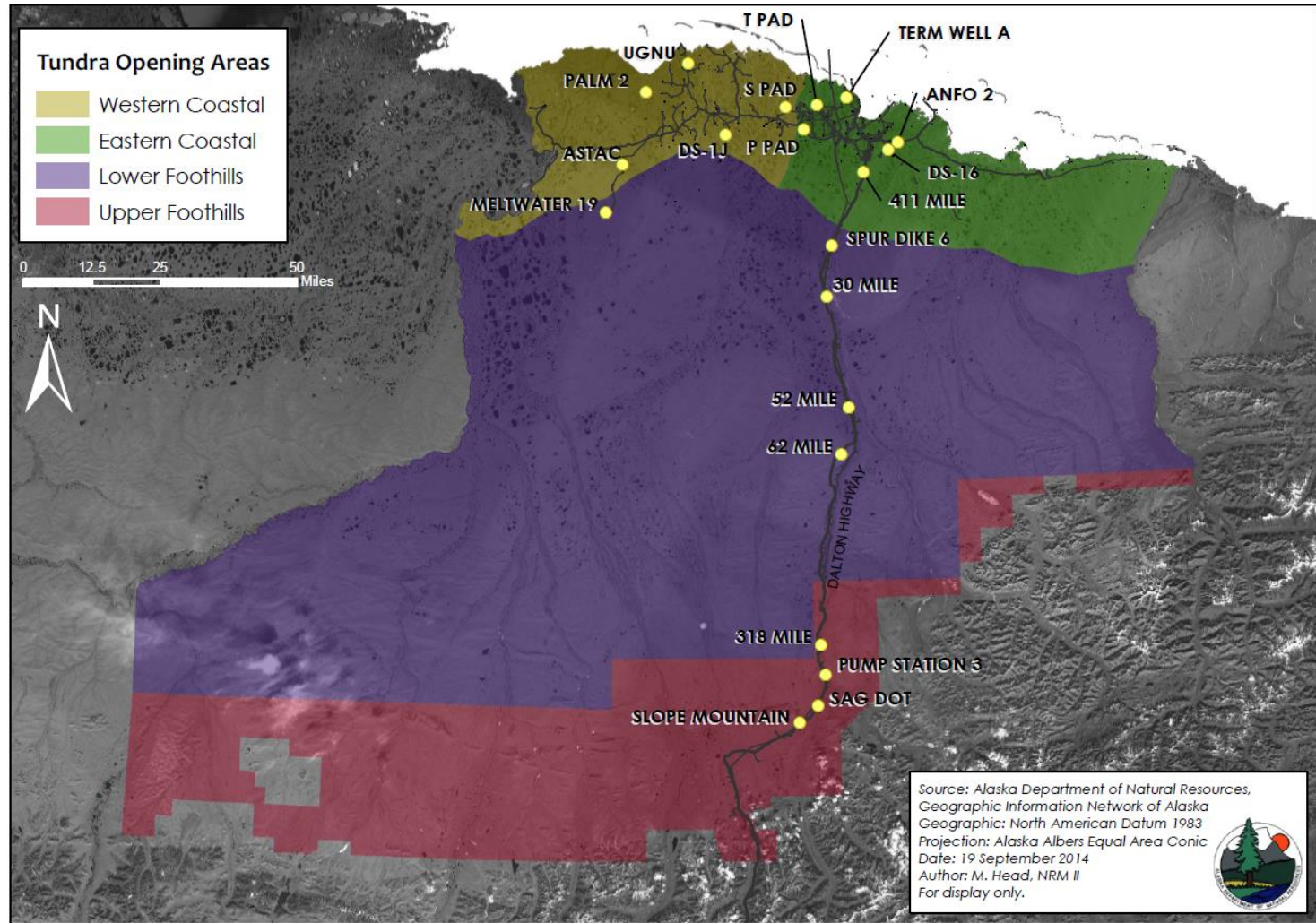
House Resources Committee

4/4/2018



Current North Slope Road Network & Off-Road Travel

State of Alaska North Slope Off-Road Travel Management Tundra Opening Areas and Soil Temperature and Snow Depth Monitoring Station Locations

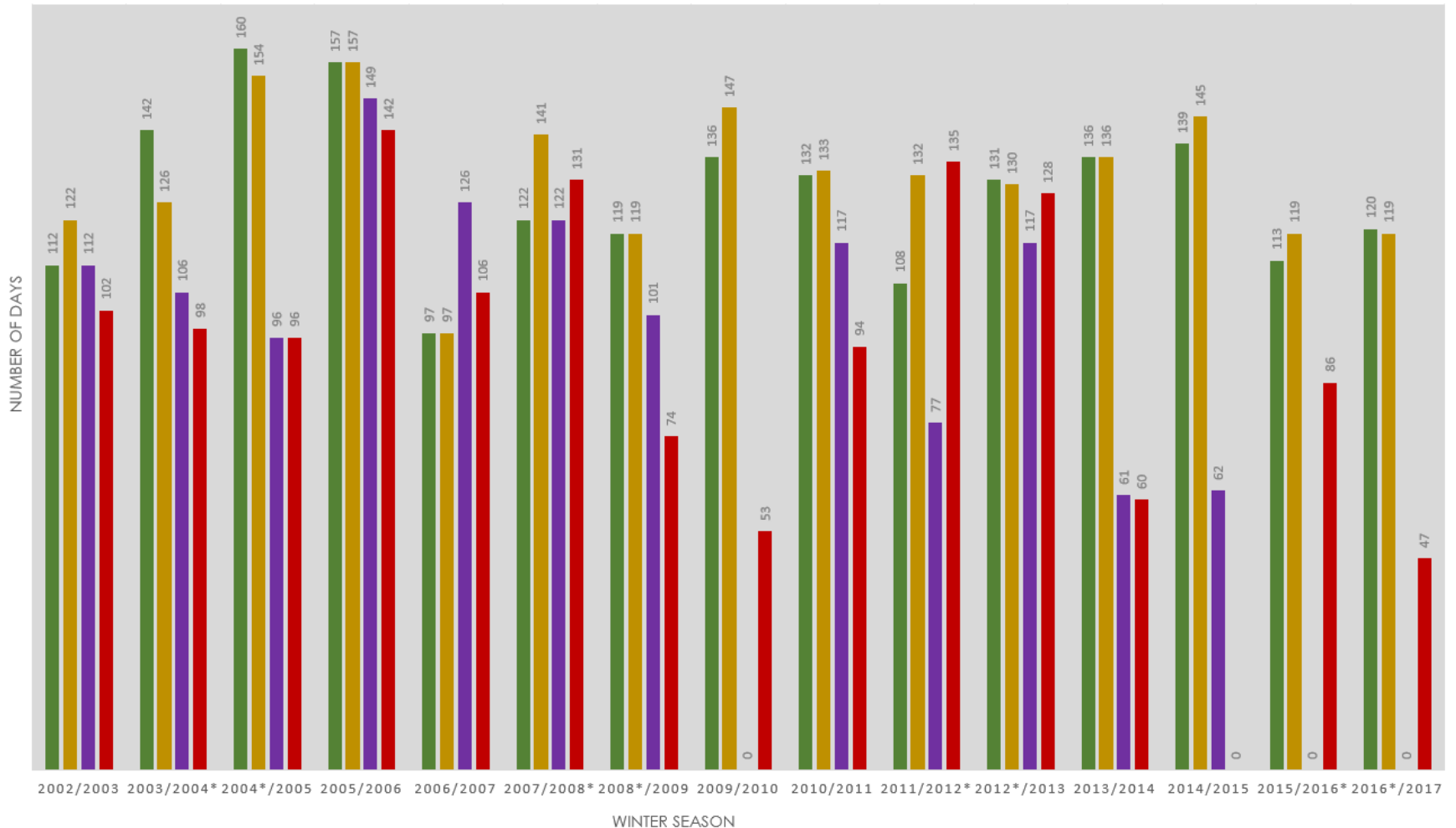


Off-Road Travel Season Lengths by Tundra Opening Area



OFF-ROAD TRAVEL SEASON LENGTHS BY TUNDRA OPENING AREA

■ Eastern Coastal ■ Western Coastal ■ Lower Foothills ■ Upper Foothills



North Slope Off-Road Travel and Ice Road Summary Report: 2016/2017 Winter Season

Winter Off-Road Travel

	Tundra Opening Date	Tundra Closing Date	Season Length (Days)
<i>Eastern Coastal</i>	1/9/2017	5/9/2017	120
<i>Western Coastal</i>	12/27/2016	5/9/2017	132
<i>Lower Foothills</i>	No opening		
<i>Upper Foothills</i>	3/15/2017	5/3/2017	47

Ice/Snow Road Construction

Major project ice/snow roads only

	Prepack/ Construction Start Date	Season Length (Days)
<i>Armstrong Horseshoe Ice Road</i>	12/1/2016	158
<i>Caelus Oooguruk Sea Ice Road</i>	12/19/2016	141
<i>CPAI Alpine Resupply Ice Road</i>	11/17/2016	172
<i>EMAP Resupply Snow Road</i>	1/18/2017	111
<i>Eni Nikaitchuq Sea Ice Road</i>	12/19/2016	141
<i>HAK Northstar Sea Ice Road</i>	12/16/2016	144
<i>HAK Moose Pad Development Ice Road</i>	12/27/2016	132

Company Specific Information

Company	Ice Road Miles	Ice Pad Acres
<i>Armstrong</i>	18.7	6.8
<i>BPXA</i>	4.9	0
<i>Caelus</i>	7.5	0
<i>CPAI</i>	24.5	52.9
<i>EMAP</i>	55.2	0
<i>Eni</i>	4.3	6
<i>HAK</i>	20.1	5.6
<i>Quintillion</i>	0.8	0.2

Overall Season Summary

Ice roads approved and constructed

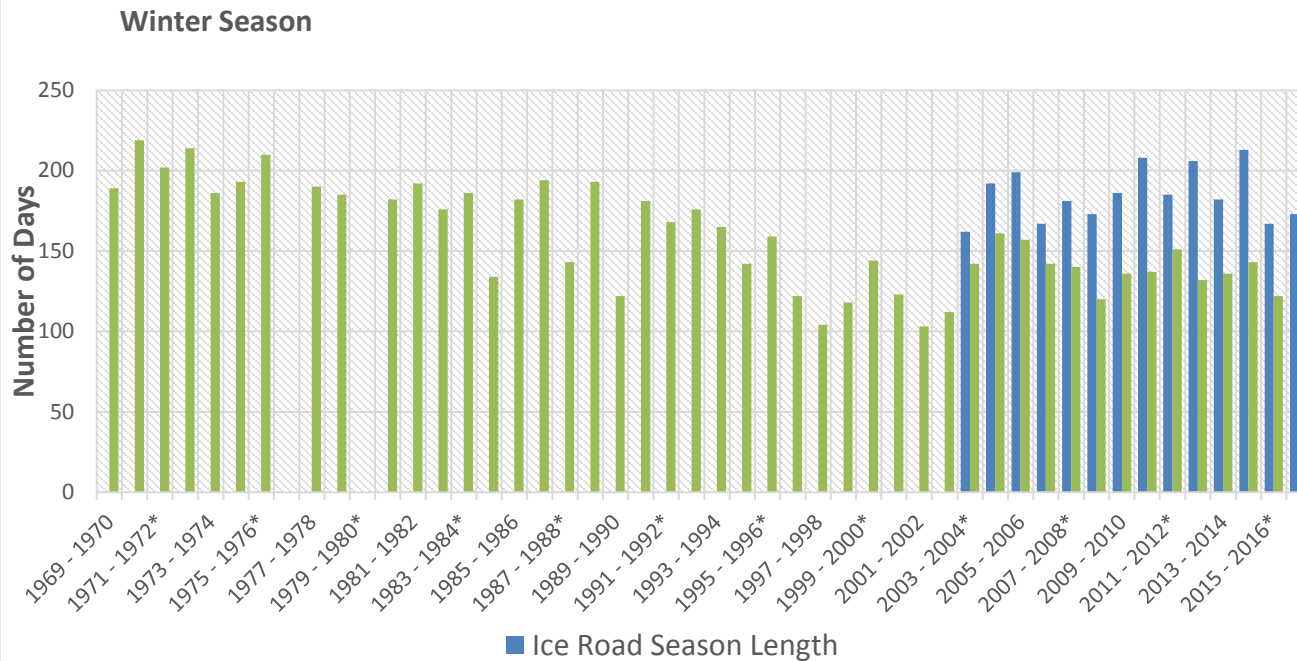
- 32 ice road approvals for 13 different projects
- **Total miles = 135.5**
- The season saw many small ice roads constructed for infield maintenance projects.

Ice pads approved and constructed

- Ice pads supported 6 different projects
- **Total acres = 65**

Winter off-road travel and ice road construction was approved and conducted under **9 separate permits**.

Winter Travel Season Lengths



- *Leap Year
- Off-road travel is determined when ground temperatures reach -5°C at 30cm below the tundra surface and sufficient snow depth (6 inches in the Coastal Areas, 9 inches in the Foothills Areas).

- Data is collected at 20 separate monitoring stations, weekly, established throughout State land on the North Slope.
- All monitoring stations within a Tundra Opening Area must meet soil temperature and snow depth criteria to open the area to winter off-road travel.

Ice Roads vs Gravel Roads

ICE ROADS

Cost Considerations

- Construction must occur yearly when accessing the same area
- Snow and ice chip collection (specialized vehicles needed)
- Construction costs
- Maintenance costs, if any
- Tundra rehabilitation costs, if any
- To begin construction prior to the opening of winter tundra travel each year, specialized, low-impact equipment is required (vehicles are approved by the DMLW)

Advantages

Ice roads leave minimal impact on the land and when dry holes and unproductive wells are found, the exploration impact is negligible. Permitting requirements for ice roads are also minimal and can be completed by the DMLW in less than 1 month.

Disadvantages

Ice roads are seasonal and require exploration activities to only be conducted during the winter causing oil and gas companies to plan their drilling operations accordingly. Rebuilding these roads every year is expensive. Ice road season length is approximately 135 days long (figure based on a 5-year average).

Ice Roads vs Gravel Roads

Gravel Roads

Cost Considerations

1. Gravel sourcing and mining

- Geotechnical investigations require permitting for geotech work (in some cases) and/or off-road travel.
- Mine site permitting (DMLW material sale authorization)
- Mine site construction, operations and maintenance
- Gravel cost: currently state-owned gravel sources are \$3/cubic yard. This amount substantially increases if purchasing gravel from third parties

2. More rigorous permitting required (some or all of these agencies and permits may be involved)

- USACE (Section 404 permit for filling wetlands)
- DNR (off-road travel permit for surveying the route, lease operations approval if on lease or within unit, DMLW easements authorization for any off unit/lease road or portions of roads, DMLW temporary water use permit, SHPO clearance, DMLW material sale, etc.)
- ADEC (storm water runoff)
- USFWS (Endangered Species Act requirements, wildlife interactions, etc.)
- North Slope Borough (permits include subsistence interactions, wildlife interactions, general land use permit, potential zoning requirements, etc.)
- EPA (air quality- dust impacts)
- May require an EIS

3. Requires additional oversight by state personnel to ensure proper siting and drainage

4. Construction costs

5. Maintenance costs

6. Removal of road/pad and rehabilitation of tundra

Gravel Roads (cont'd)

• Impacts

- “Permanent” structure on the land
- Changes natural drainage patterns that affect other structures and natural features
- Dust impacts (decrease in primary production of vegetation downwind of the road, human health impacts)
- Rehabilitation may take anywhere from 20 (with gravel removed) to 100+ (no gravel removed) years
- Increase in human/wildlife interactions (caribou, fox, birds, etc.)

Advantages

- Gravel roads may be used year round increasing the likelihood of securing a drilling rig contract.

Disadvantages

- Permitting for gravel roads is a long process that, depending on the number of agencies that may be involved due to the permanent nature of the structures, could take over a year to authorize. Additionally, developed gravel sources on the North Slope are scarce; new material sourcing is required for any new gravel roads and would incur additional time and costs (as well as the additional environmental impacts).

CONCLUSION

Thank you, any questions?

