PAVEMENT PRESERVATION ACTIVITIES OVERVIEW

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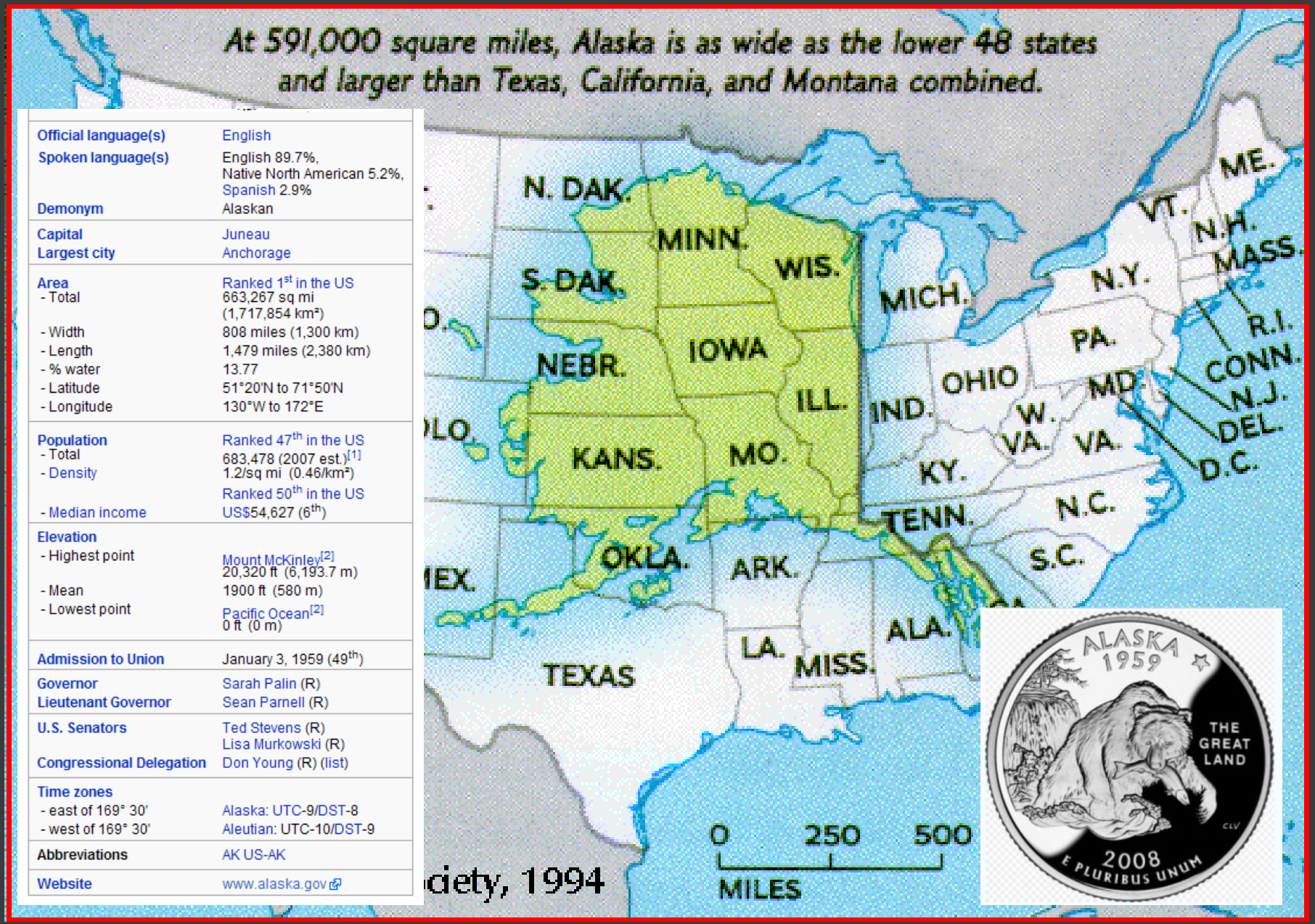
RMPPP Annual Meeting
Albuquerque, NM
Oct 28-30th 2008

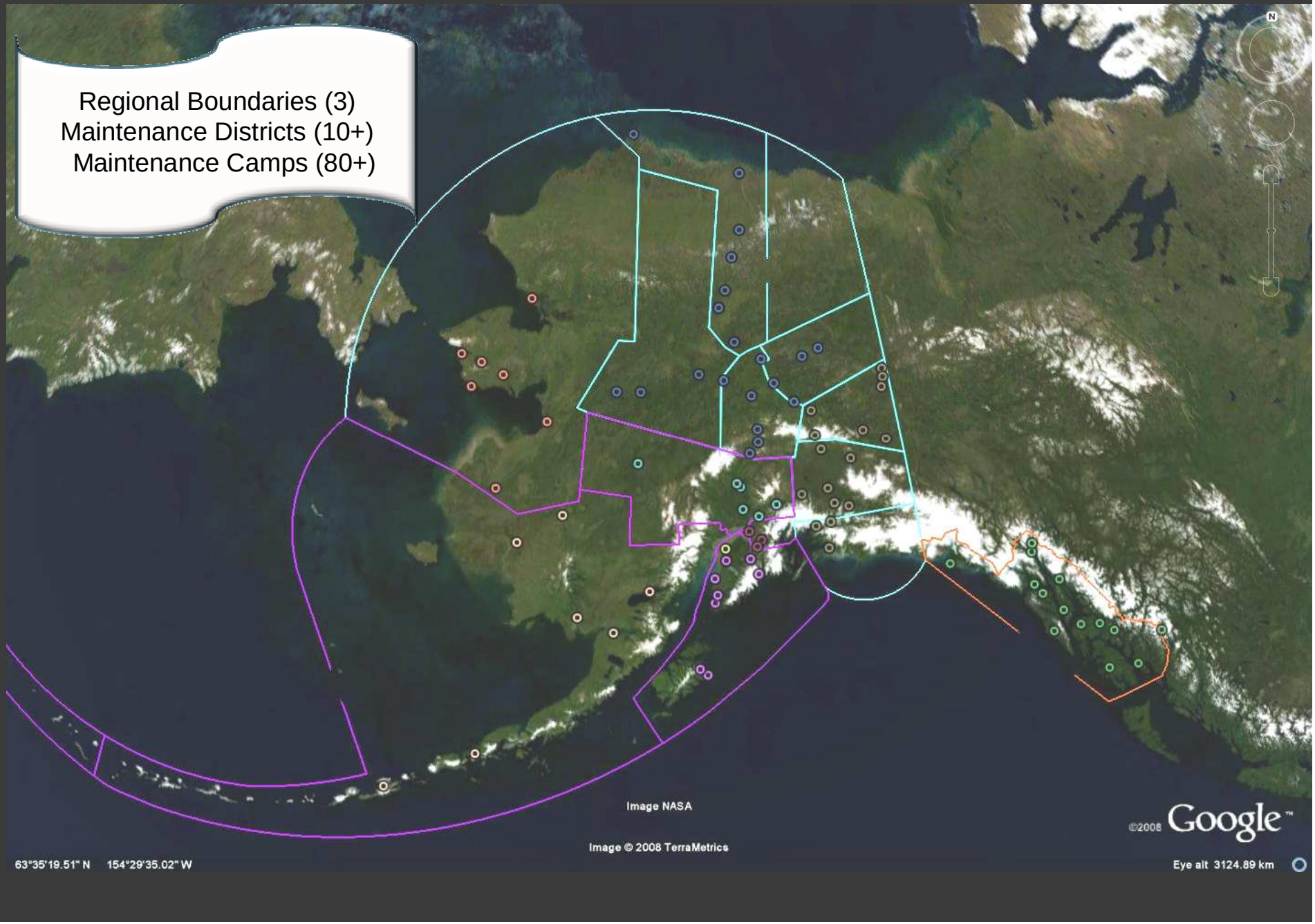
How the Nation Sees Alaska...

Location of the State of Alaska in the United States of America

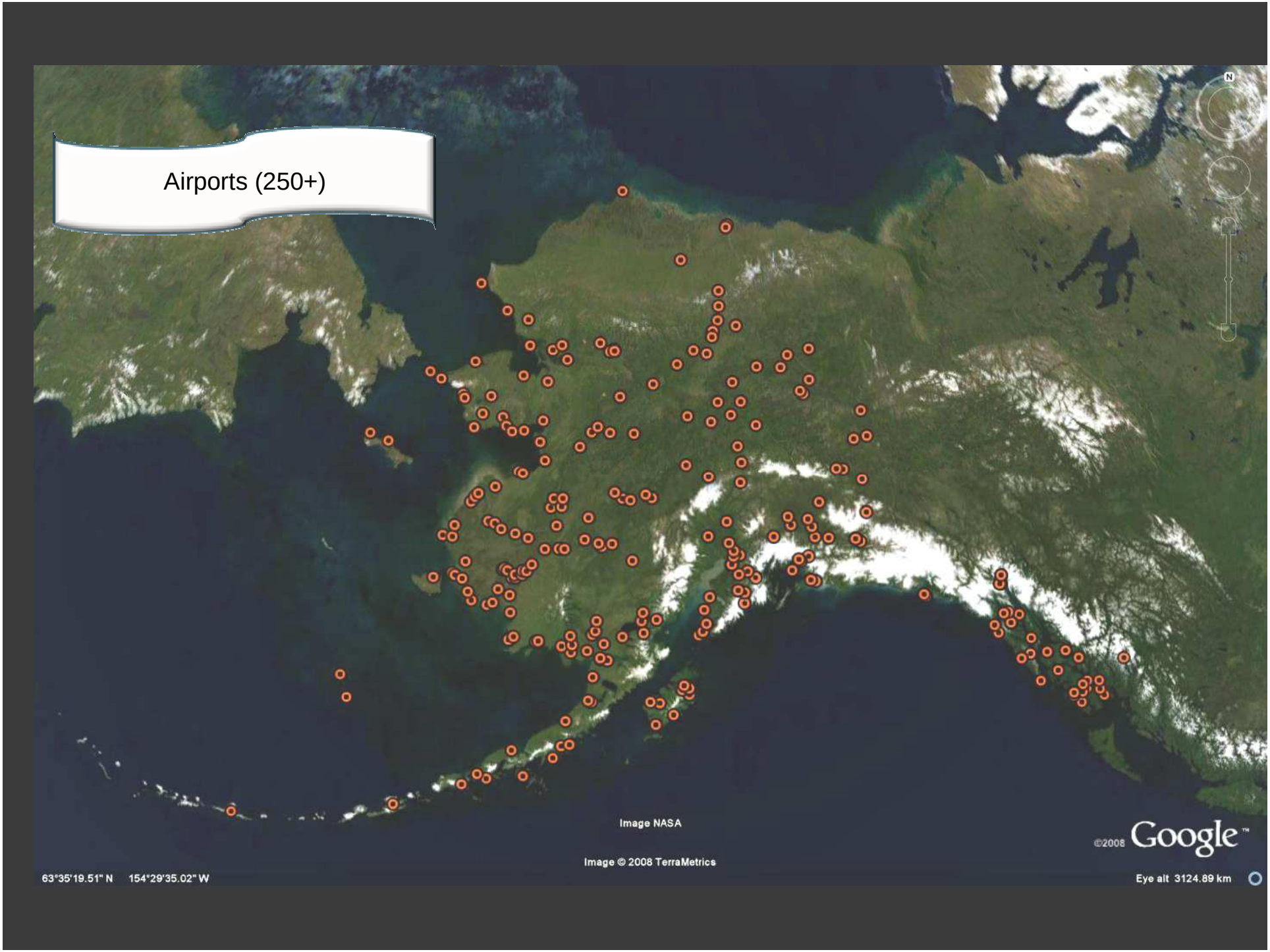
How Alaska Sees Alaska...

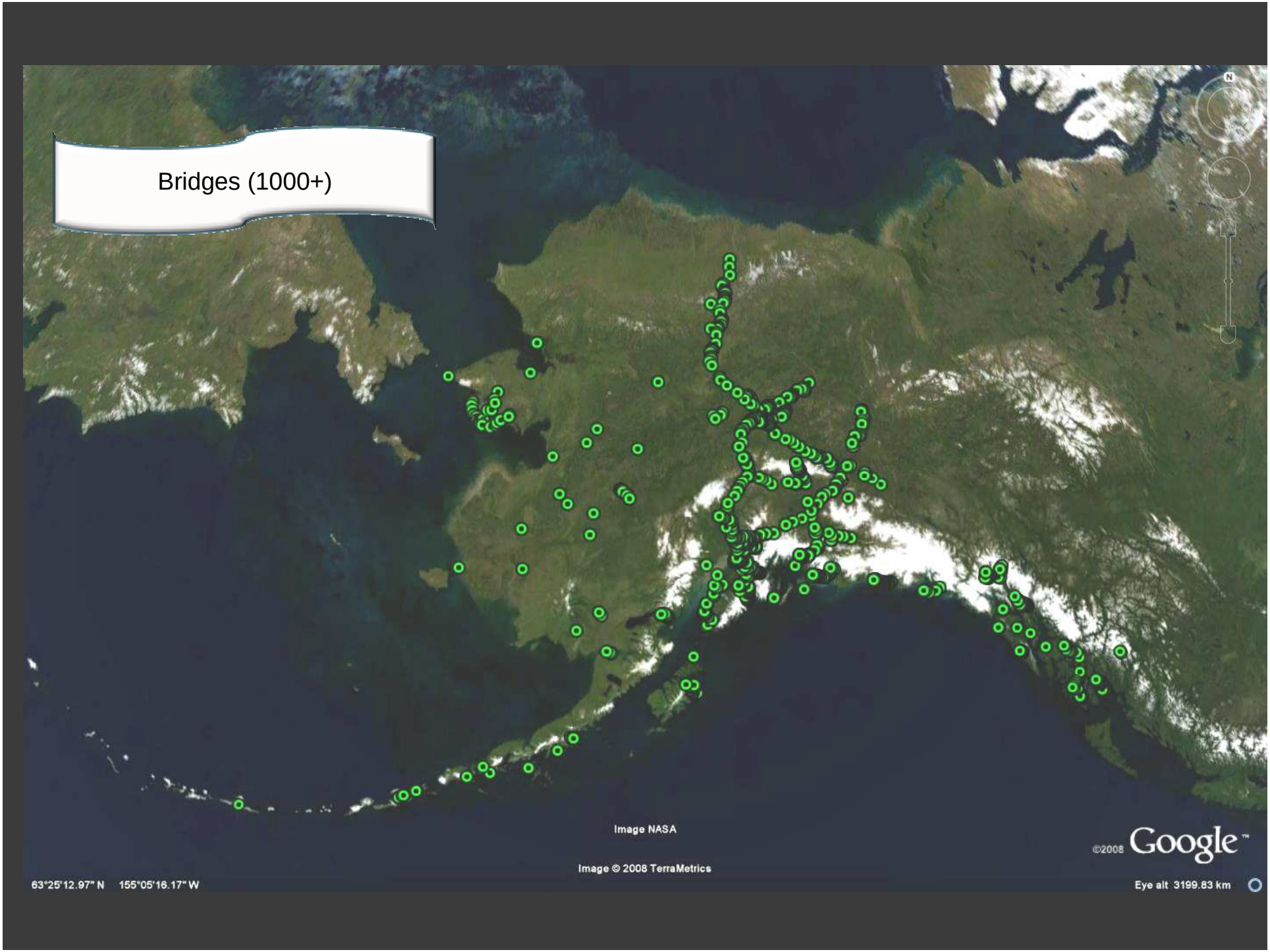


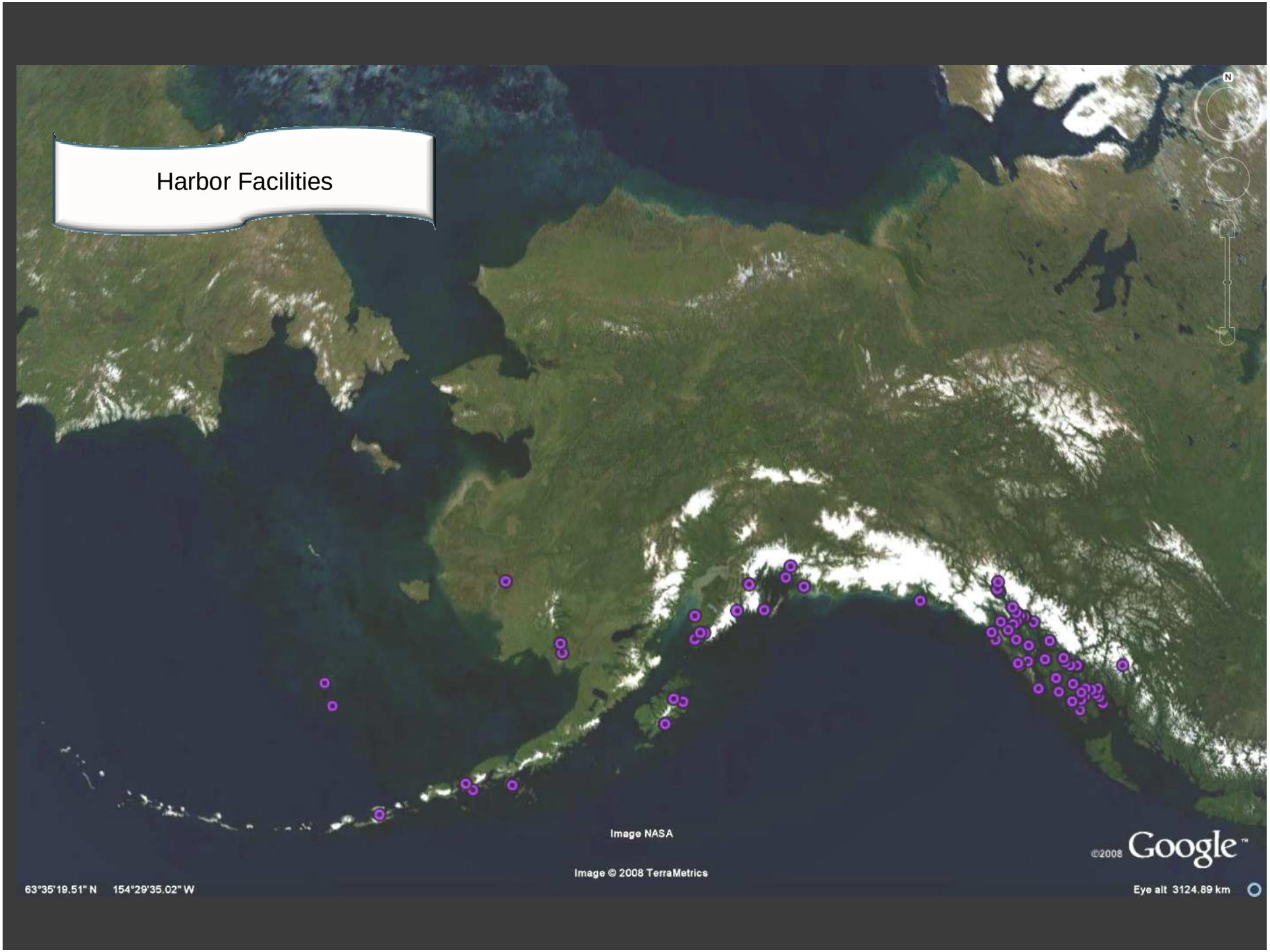
Official language(s)	English
Spoken language(s)	English 89.7%, Native North American 5.2%, Spanish 2.9%
Demonym	Alaskan
Capital	Juneau
Largest city	Anchorage
Area	Ranked 1st in the US
- Total	663,267 sq mi (1,717,854 km²)
- Width	808 miles (1,300 km)
- Length	1,479 miles (2,380 km)
- % water	13.77
- Latitude	51°20'N to 71°50'N
- Longitude	130°W to 172°E
Population	Ranked 47th in the US
- Total	683,478 (2007 est.)[1]
- Density	1.2/sq mi (0.46/km²)
	Ranked 50th in the US
- Median income	US$54,627 (6th)
Elevation	
- Highest point	Mount McKinley[2] 20,320 ft (6,193.7 m)
- Mean	1900 ft (580 m)
- Lowest point	Pacific Ocean[2] 0 ft (0 m)
Admission to Union	January 3, 1959 (49th)
Governor	Sarah Palin (R)
Lieutenant Governor	Sean Parnell (R)
U.S. Senators	Ted Stevens (R)
	Lisa Murkowski (R)
Congressional Delegation	Don Young (R) (list)
Time zones	
- east of 169° 30'	Alaska: UTC-9/DST-8
- west of 169° 30'	Aleutian: UTC-10/DST-9
Abbreviations	AK US-AK
Website	www.alaska.gov


Regional Boundaries (3)
Maintenance Districts (10+)
Maintenance Camps (80+)
Image NASA
Image © 2008 TerraMetrics
©2008 Google
63°35'19.51" N 154°29'35.02" W
Eye alt 3124.89 km


Connected Road System
Image NASA
Image © 2008 TerraMetrics
©2008 Google™
63°34'07.85" N 154°34'04.34" W
Eye alt 3161.73 km

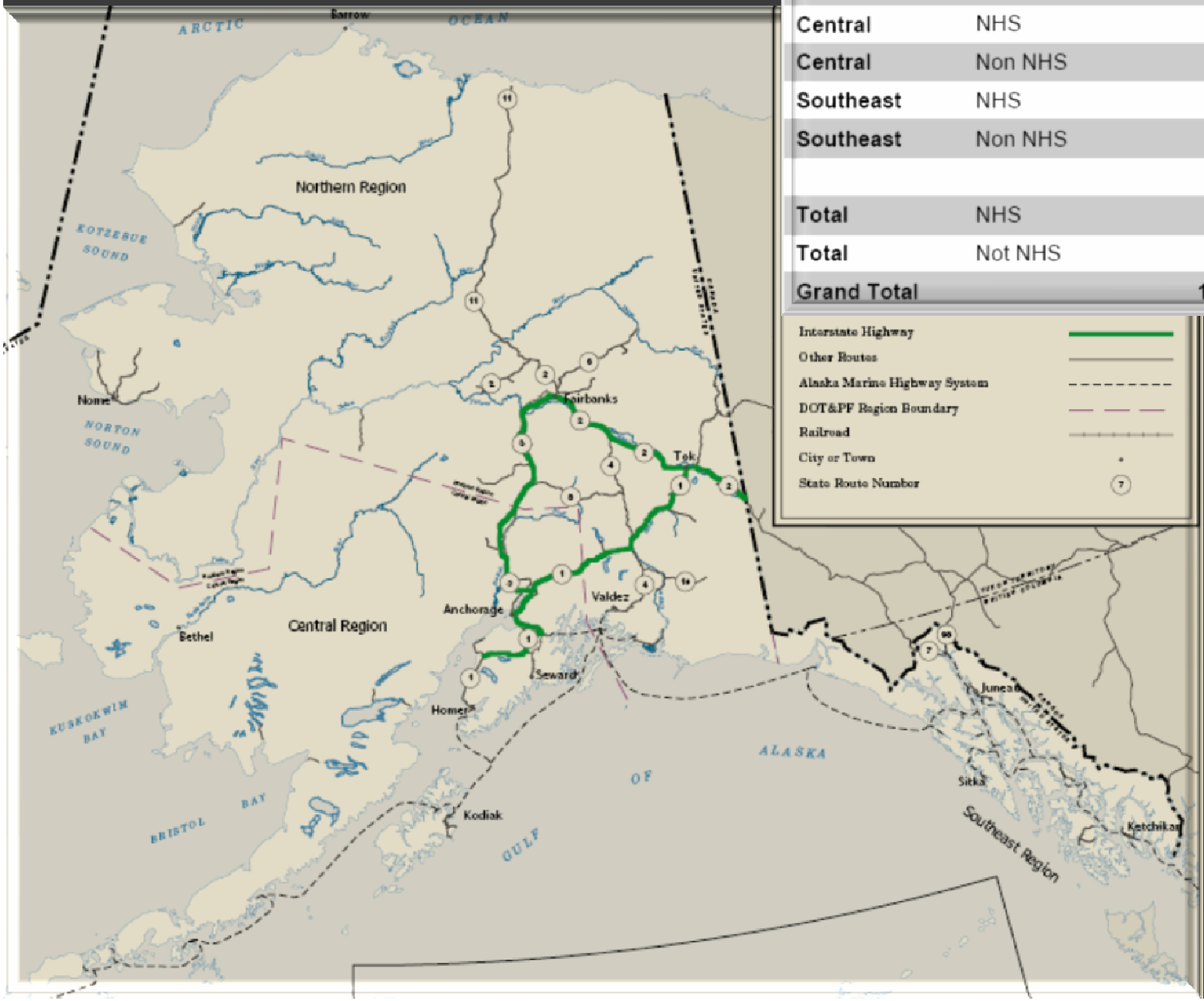

Airports (250+)
Image NASA
Image © 2008 TerraMetrics
©2008 Google™
63°35'19.51" N 154°29'35.02" W
Eye alt 3124.89 km


Bridges (1000+)
Image NASA
Image © 2008 TerraMetrics
©2008 Google™
63°25'12.97" N 155°05'16.17" W
Eye alt 3199.83 km


Harbor Facilities
Image NASA
Image © 2008 TerraMetrics
©2008 Google™
63°35'19.51" N 154°29'35.02" W
Eye alt 3124.89 km

Paved Road Summary

Region	System Class	Paved Lane Miles	Unpaved Lane Miles
Northern	NHS	3,825	423
Northern	Non NHS	1,403	2,714
Central	NHS	2,491	0
Central	Non NHS	1,711	760
Southeast	NHS	287	0
Southeast	Non NHS	1,041	166
Total	NHS	6,603	423
Total	Not NHS	4,155	3,640
Grand Total		10,758	4,063



No PCC Pavements

4 States with fewer lane miles than Alaska? Rhode Island, Hawaii, DC, Delaware

Why so few roads?
High construction costs
Extreme weather
Rugged terrain
Low population density
Scattered islands

Budget for Pavement Preservation Activities

- Statewide M&O Engineer (manages a capital program of $50 million/year allocated to Regions for pavement preservation and other preventative maintenance.

- Regional Allocation:
  - $24M Northern:
    - $10M crack sealing, chip seals, high floats
    - $13M mill/overlay
  - $24M Central:
    - $17M repairs: mill/overlay, pre-level/overlay, patching
    - $3M preventative but only about $1M crack sealing.
    - No chip seals
  - $2M Southeast:
    - $1M chip seals (no crack sealing)

Exhibit 17: Life Cycle Management Treatment Cycles

			Crack Sealing	Patching	Chip Seal	Patching	Overlay	Crack Sealing	Patching	Chip Seal	Patching	Rehab
Northern	Timing (Years)	NHS	5	7			10	15	17			20
		Non-NHS	5	7			10	15	17			20
	Cost ($/Ln-mi)		$4,752	$750	$53,856	$750	$150,000	$4,752	$750	$53,856	$750	$500,000
Central	Timing (Years)	NHS	3	4			7	10	11			14
		Non-NHS	3	5		8	10	13	15		18	20
	Cost ($/Ln-mi)		$2,600	$800		$2,600	$250,000	$2,600	$800		$2,600	$500,000
Southeast	Timing (Years)	NHS	3	5	7	10	15	18	20	22	25	30
		Non-NHS	3	5	5	10	15	18	20	20	25	30
	Cost $/Ln-mi)		$900	$750	$65,000	$750	$225,000	$900	$750	$65,000	$750	$500,000

Challenges for Preservation Program

- Due to reliance on Federal funding, are we generally past the point of preservation?
  - Poor conditions with backlog of reconstruction needed
  - cost escalations
  - lack of flexibility
  - needs outpace funding

Exhibit 11: Road Condition and Remaining Service Life (RSL)

Region	System Class	Lane Width <12	Lane Width >12	High IRI %	High Rutting %	IRI and Rutting %	Avg. RSL
Northern	NHS	45	1820	20%	1%	0%	8
Northern	Non NHS	158	1472	8%	1%	1%	10
Central	NHS	19	750	4%	23%	1%	4
Central	Non NHS	91	845	4%	26%	3%	5
Southeast	NHS	3	134	13%	8%	6%	6
Southeast	Non NHS	31	292	13%	5%	1%	9
Total	NHS	67	2703	13%	10%	1%	6
Total	Not NHS	280	2608	8%	12%	2%	8
Grand Total		**347**	**5312**	**11%**	**11%**	**1%**	**7**

Exhibit 12 below shows the average RSL by region and system type. It indicates that Central region NHS roads have the least average RSL, while Northern region non-NHS roads have the highest average RSL.

Exhibit 12: Remaining Service Life (RSL) - Years

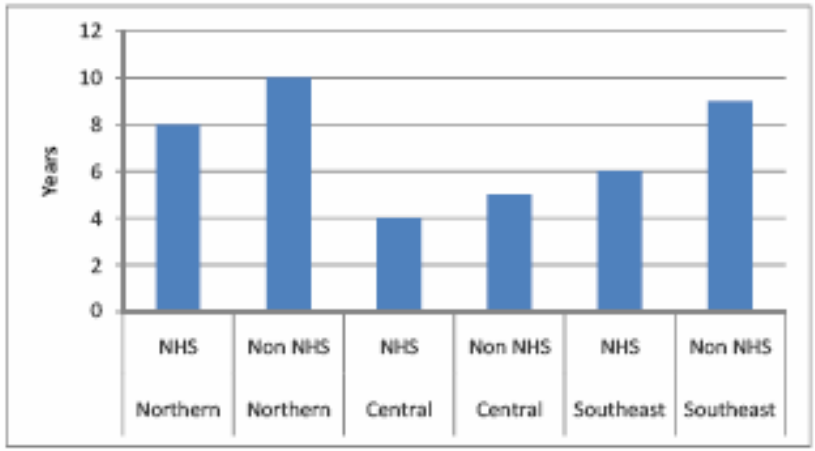


Exhibit 19: Summary of Life Cycle Needs ($Millions)

		Backlog ($ Millions)	Life Cycle Needs 2008 – 2030 ($ Millions)	Total ($ Millions)
Northern	NHS	$219	$2,564	$2,783
	Non-NHS	$51	$1,061	$1,112
Central	NHS	$230	$1,691	$1,921
	Non-NHS	$209	$1,277	$1,486
Southeast	NHS	$11	$187	$198
	Non-NHS	$30	$648	$678
Total	**NHS**	**$460**	**$4,442**	**$4,902**
	Non-NHS	**$290**	**$2,986**	**$3,275**
	Total	**$750**	**$7,428**	**$8,178**

not necessarily be treated first.[8] Implementation will be constrained by the size of the current backlog. However, if roads are impassible or close to failure, "worst first" is unavoidable.

Highways and Bridges: Routine Maintenance

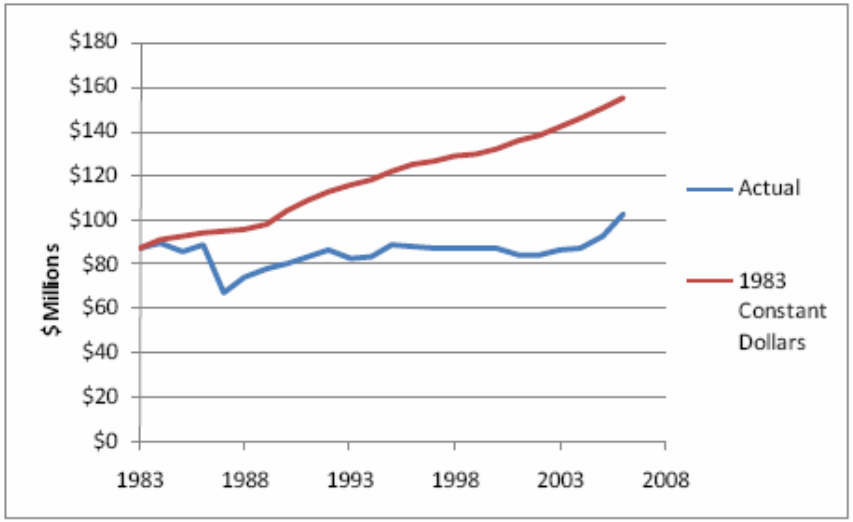
Routine maintenance is an important part of life cycle management and ensuring the serviceability of existing infrastructure. For example: Painting steel bridges, especially in a maritime environment; keeping culverts and ditches clear so that water does not infiltrate to the base of the road; and other maintenance activities are important elements of life cycle management.

Needs

Maintenance needs are most effectively measured in terms of what it costs to provide a particular maintenance level of service. ADOT&PF does not currently have the data to compute this.

Let's Get Moving 2030 uses ADOT&PF expert opinion to make the conservative assumption that in 1983 maintenance was funded at a level that results in an acceptable level of service. Annual maintenance needs are then defined as the 1983 funding level held constant (adjusted for inflation). The gap between funds allocated to maintenance and funds required to pursue desirable life cycle management is shown in Exhibit 20. The gap is a conservative estimate because the number of lane miles to maintain, material costs, and environmental compliance costs, among other factors, has increased over the years.

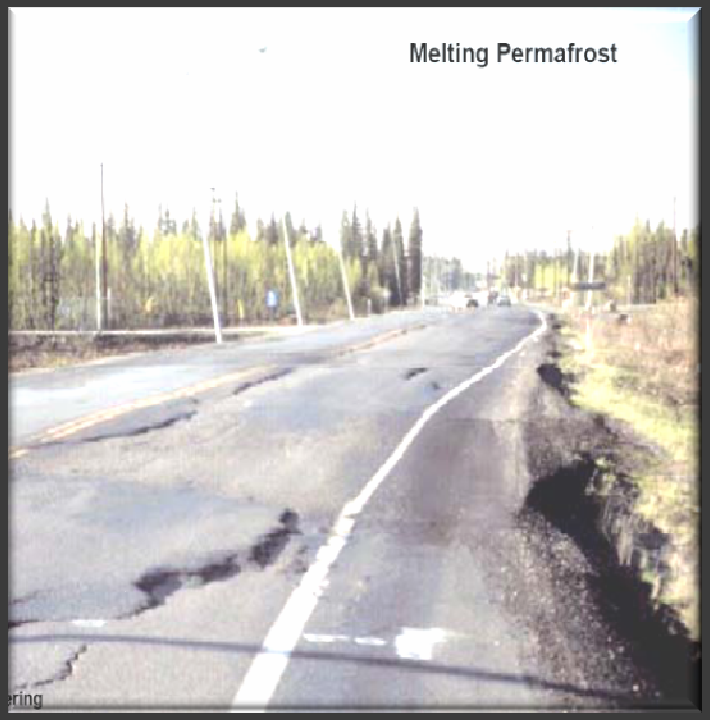
Exhibit 20: Growing Maintenance Funding Gap



[8] Any policy choice to not treat the worst roads first, must also consider public safety, and which option would achieve the highest overall safety profile. The plan is not recommending that by not treating the worst roads first, public safety would be disregarded.

Challenges:

- Unstable embankment – permafrost

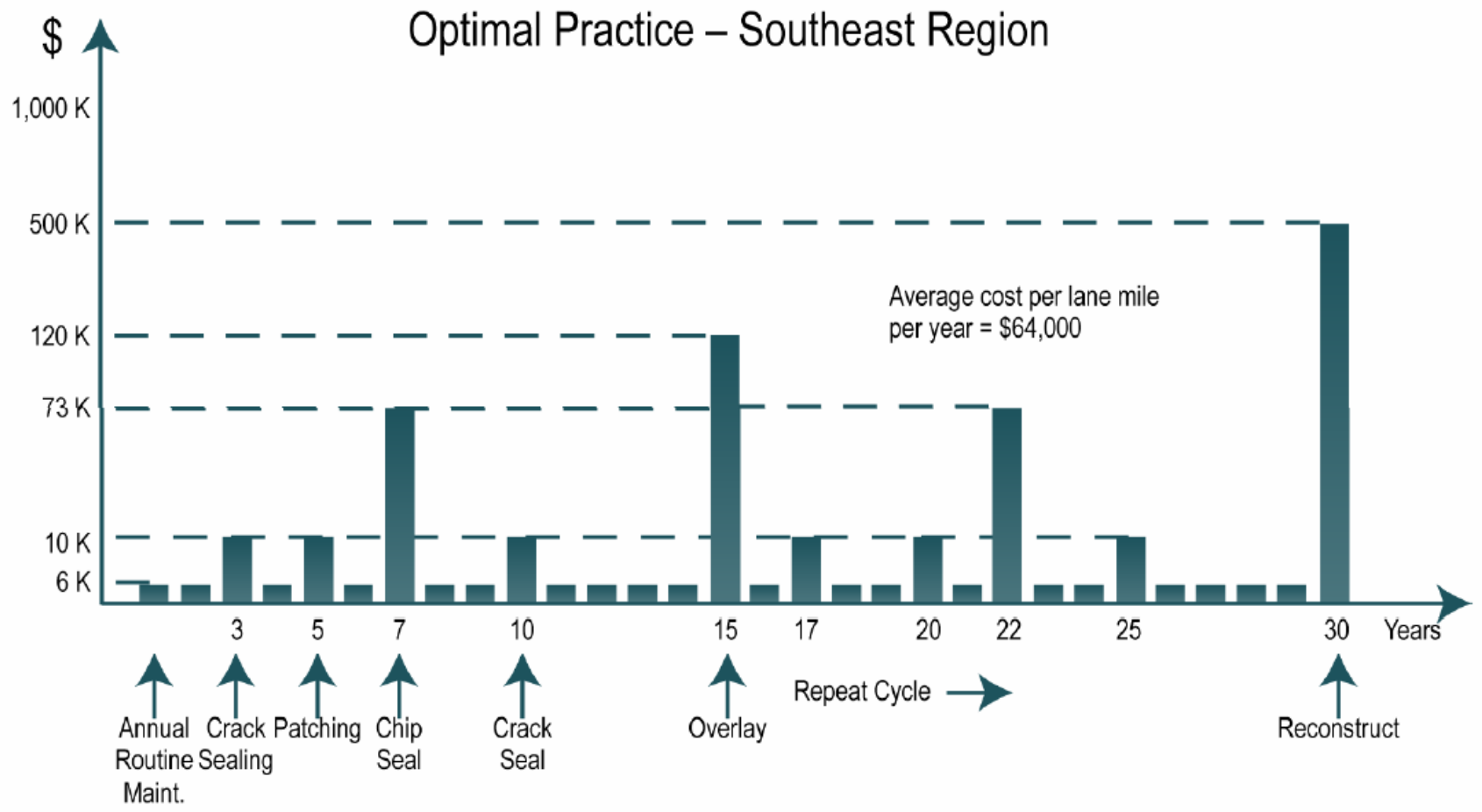


Central Region – Surface Wear Rutting

Preservation treatment with greatest success

- Southeast Region Chip Seals?
  - Less extreme temperatures and weather conditions
  - Stable embankments
  - Less studded tire wear and traffic congestion
  - Longer construction window
  - May be best candidate area for fog seals

Exhibit 5: Life Cycle Management Optimal Practice Expenditures (Southeast region)



Particularly Interested in:

- Developing a system for identifying/prioritizing good candidates, documenting and monitoring pavement preservation activities and results – map and web based?
- Supporting in-house communication and collaboration
- PR for pavement preservation – moving away from “worst-first”
- Collaborating with University of Alaska for pavement preservation research – tips for successful partnership?
- Warranties?

Thank You!

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