



Direct Point Positioning System (DPPS)

BLM's NEW and Improved Survey
Method for State Land Conveyances
Or

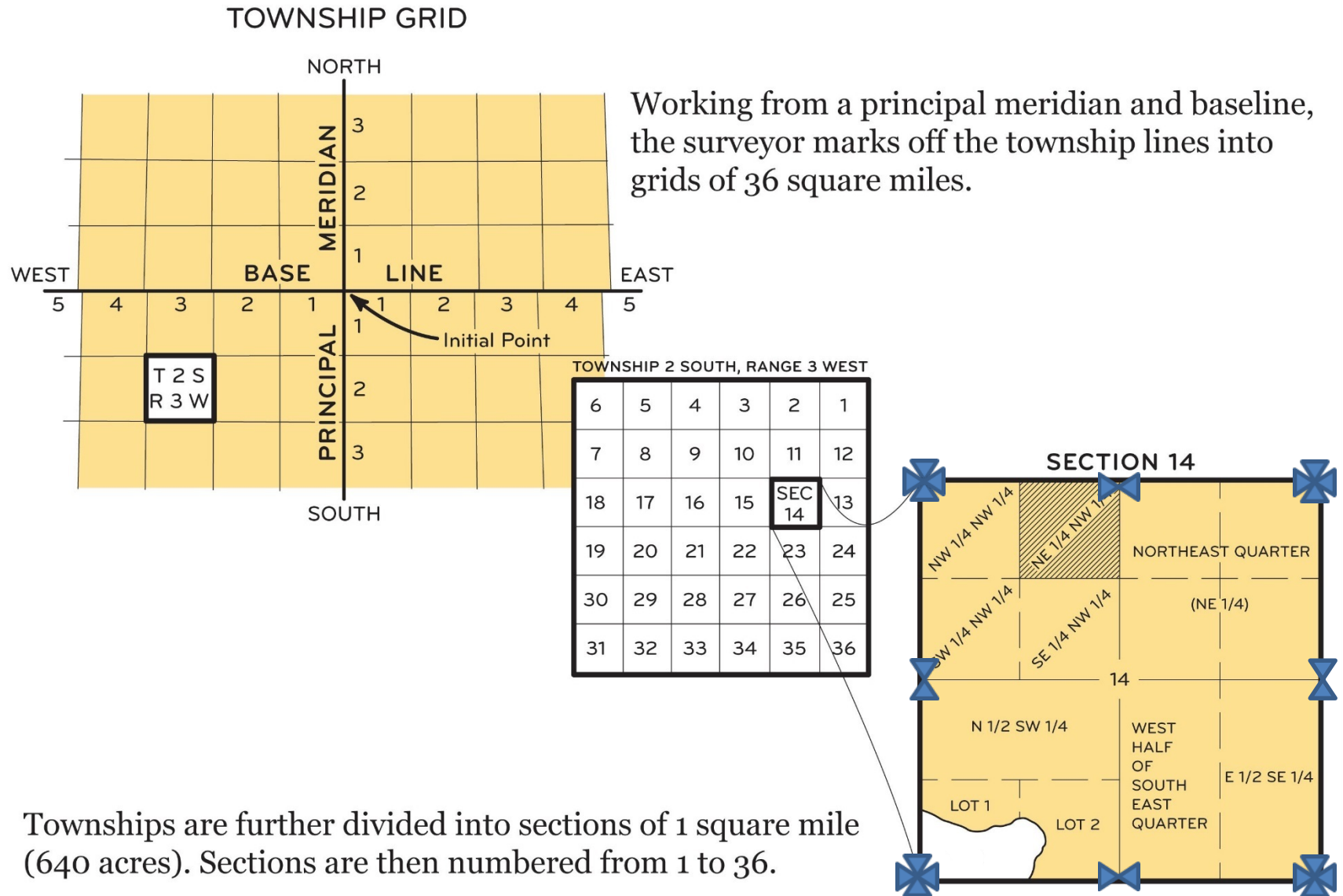
Moving the cost of Entitlement land
surveys from the Federal Government to
Alaska



Discussion Highlights

- Public Land Survey System refresher
- Very, very brief history of Alaska Statehood
- Describe what DPPS is
- Why DPPS may seem like a good idea, but isn't
- Alaska's response

Public Land Survey System (PLSS)

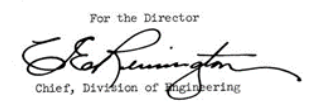


Very, Very Brief Alaska Statehood History

- Alaska Statehood Act 6(g) on July 7, 1958, describes the survey requirements for state entitlement:
 - *...each tract selected shall contain at least five thousand seven hundred and sixty acres...*
 - *...Where any lands desired by the State are unsurveyed at the time of their selection, the Secretary of the Interior shall survey the exterior boundaries of the area requested without any interior subdivision thereof...*
- Alaska becomes a State on January 3, 1959

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SIXTH STANDARD PARALLEL NORTH

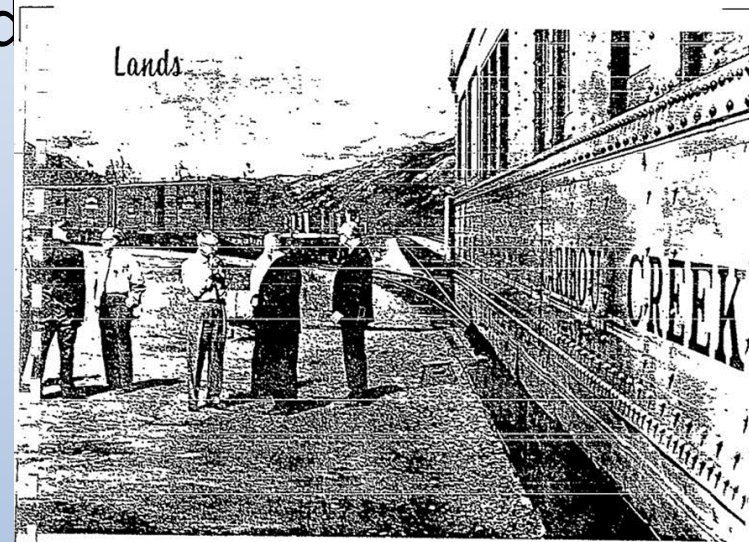


This plat is strictly conformable to the approved field notes, and the survey, having been correctly executed in accordance with the requirements of law and the regulations of this Bureau, is hereby accepted.

Very, Very Brief Alaska Statehood History

Caribou Creek Conference Compromise - 1963

- BLM and Alaska agree to reduced monumentation to every 2 miles on exterior boundaries of Townships and increased minimum selection size to full Townships.



CARIBOU CREEK CONFERENCE STARTS TITLE FLOW

The special Alaska Railroad car, "Caribou Creek," was the scene of an important conference held in the summer of 1963 between state and federal officials. Occasioned by the Alaskan visit of Assistant Secretary of the Interior John Carver, the conference included Carver, Commissioner Phil Holdsworth of the Department of Natural Resources, Director Roscoe E. Bell of the Division of Lands, Roger Robinson, state director of the Bureau of Land Management, and others. While the Caribou Creek car made a two-day tour of the railbelt area, from Fairbanks to Anchorage, the conference was able to progress without outside interruption, and major policy decisions were made which have cleared away the main obstructions to the passage of title to State-selected lands.

The slow influx of title from the federal government had been a major headache in the State's land program. By the end of 1962 the Division had selected more than 12.5 million acres, of which less than 750,000 acres had been patented. Tentative approval had been received on selections totaling only a little over 3 million acres.

BLM Plan of Survey of Group 948, Alatna

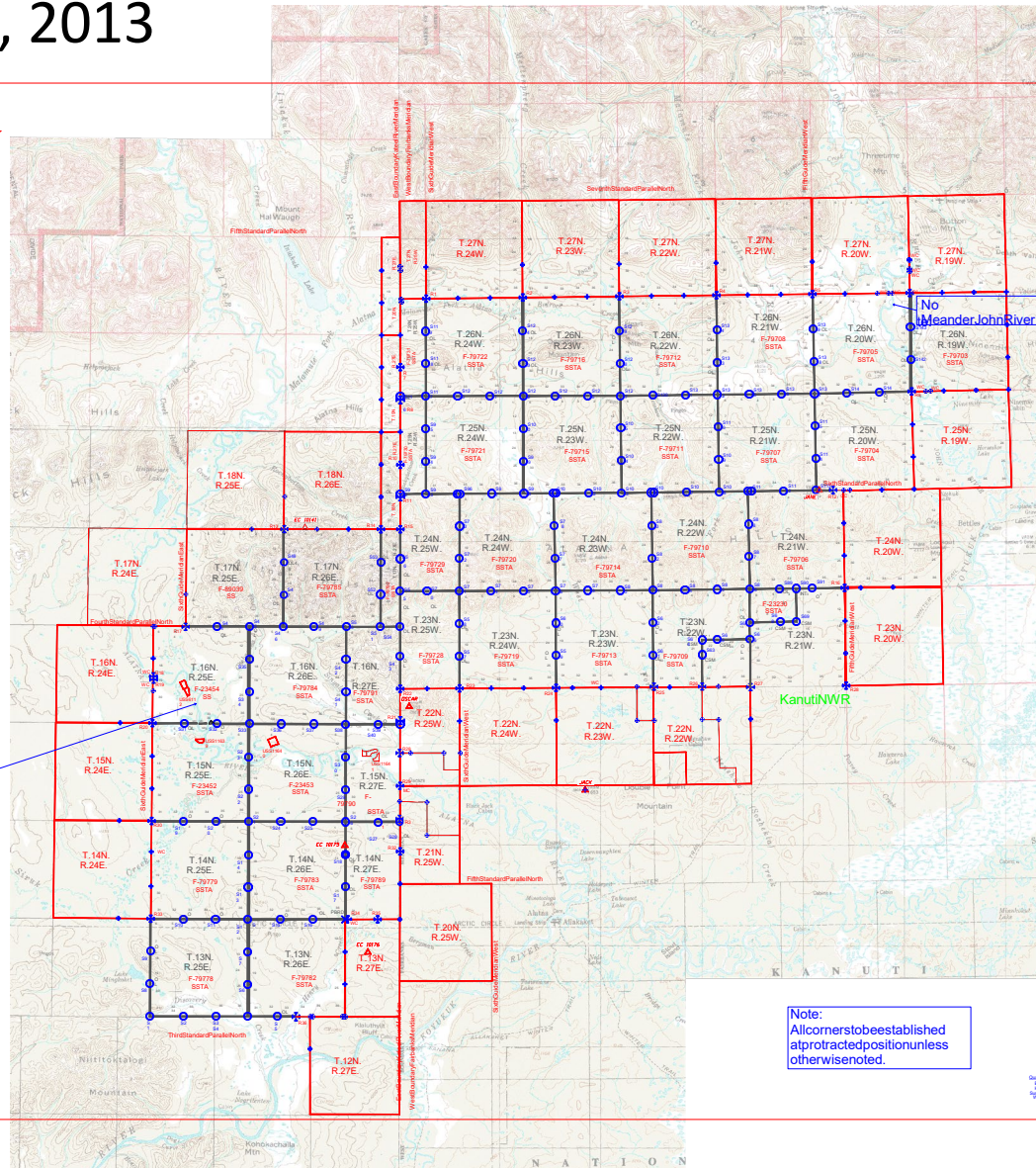
February 14, 2013

Plan Of Survey
Group No. 948
State Selection
Alatna Area



Note:
Meander the Alatna River and
recover the appropriate corners
of U.S. Survey Nos. 6112,
11639, 11640 and 11641. It
is estimated that there will be
10 corner recoveries.

Legend
Crown: Complete Survey
S: Section
R: Range
T: Township
F: Fractional
B: Boundary
M: Meander
N: Natural
W: Water
C: Contour
D: Ditch
E: Easement
L: Line
P: Point
S: Station
B: Benchmark
C: Corner
M: Monument
N: Natural
W: Water
C: Contour
D: Ditch
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M: Monument



Note:
All corners to be established
at a protracted position unless
otherwise noted.

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BLM
948-0000

Resurveys of Direct Point Positioning Surveys (DPPS): Monumentation of Unmarked Corners



DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

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Washington, D.C. 20240

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IN REPLY REFER TO:
9601 (350)P

Memorandum

From: Chief Cadastral Surveyor (WO-350)
To: Alaska Chief Cadastral Surveyor (AK-942)
Subject: Resurveys of Direct Point Positioning Surveys (DPPS): Monumentation of Unmarked Corners

Purpose: This memorandum provides guidance and instructions to the Alaska State Office pertaining to: (1) (re)survey and monumentation of unmarked corners of an initial survey of State of Alaska (SOA) selected lands performed and approved using the DPPS method; and (2) reporting the resurvey and monumentation of unmarked corners in the official survey records.

Policy/Action: This office authorized Alaska Cadastral Survey use of DPPS under prior policy memorandum¹. Such surveys officially fix corners by geographic coordinates referenced to the National Spatial Reference System (NSRS) geodetic datum. This memorandum provides guidance for future (re)surveys and monumenting of corners fixed but not marked in the original DPPS and the associated reporting.

Overview: The prior policy for authorization of the use of the DPPS method included guidance of:

- If a corner is not marked with a physical monument, the geographic coordinate reported on the official survey record as fixing the corner location will be accepted as the best available evidence of the position of the original corner.

¹ The prior policy for authorizing use of DPPS is presently in draft form. This draft policy memorandum for resurvey will be finalized after issuance of the DPPS authorizing policy.

- For corners marked with a physical monument, the geographic coordinates reported on the official survey record will be accepted as collateral evidence of the position of the original corner; the actual monumented location will remain the best available evidence of the position of the original corner.
- For original DPPS, all angle points along the exterior boundary of the selection area will be marked on the ground with a physical monument and shown on the official plat by reported coordinate and reference relationship to the NSRS datum and existing control stations.
- When deemed appropriate or directed in the special instructions, other corner positions along, or internal to, the exterior boundary of the selection area can be reported and fixed by measure using reported coordinate and reference relationship to the NSRS datum and existing control stations and other marked corners of the survey with reported coordinates on the official survey plat.

For DPPS there is a change in the relationship of: (1) corners fixed by coordinate and not marked; (2) corners fixed by monumentation in a prior survey with an associated DPPS coordinate and; (3) corners monumented in a prior survey with the survey record measure of bearings and distances. For DPPS the reference to the survey evidence is the NSRS geodetic datum and the measure returned is the geographic position to a specified NSRS datum stated in the official survey record. The same basic principles apply for marking of unmarked corners fixed by coordinate in DPPS: (1) Verify the controlling evidence of the original survey ("follow in the footsteps of the original surveyor") by recovering corners and points marked by monuments; (2) use the evidence on the official survey record to control the location and marking of unmarked corners. For those portions of DPPS that adjoin legacy cadastral surveys, those senior lines will be re-established using traditional dependent resurvey methods. Where DPPS provide controlling direction indicated by bearings to non-fixed, unmarked corners, the lines will be controlled from the internal DPPS section corner fixed by geographic coordinate, to intersection with the senior line.

Implementation Direction: When preparing survey instructions for performing official resurveys and for the monumentation of previously fixed but unmarked corners of DPPS the following guidance is provided:

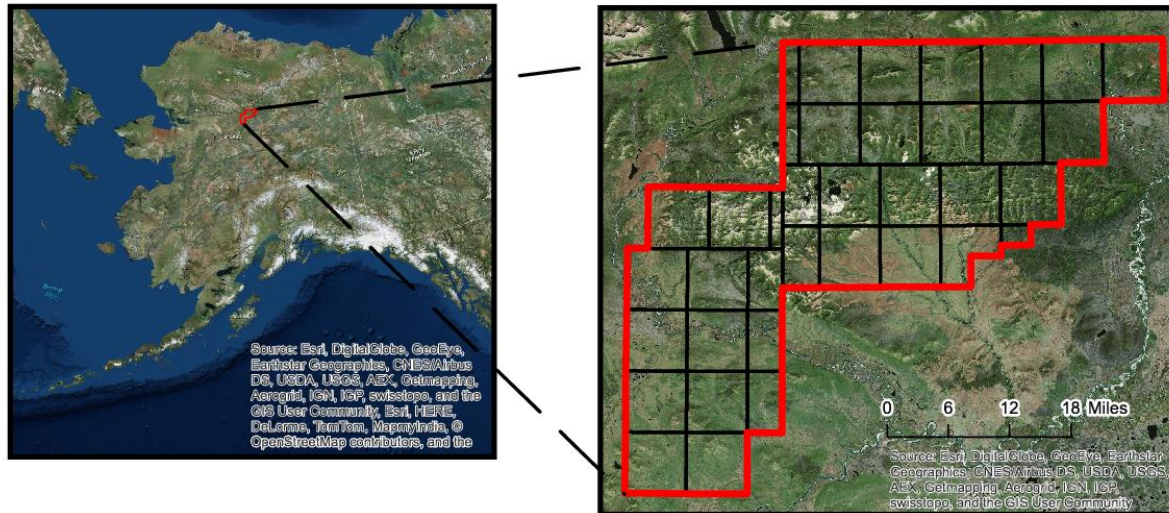
Establishing the geodetic datum of the original DPPS and preparation of the official survey record:

1. The surveyor should be cognizant of the relationship of the NSRS datum on the date of the original survey and the current NSRS datum. The original survey record will state the NSRS datum specifics (e.g., NAD⁸³ (2011) (Epoch 2010.0000), and the date(s) of survey (e.g., August 20, 2014)).
2. If the (re)surveyor will be using a newer realization of the NSRS NAD⁸³ datum, or future NSRS beyond NAD⁸³, than that stated on the official plat, it is recommended that prior to field activities the resurveyor access the National Geodetic Survey (NGS) transformation tools and time-dependent coordinate estimate tools (like NGS's current

² North American Datum.

Chief Cadastral Surveyor for Alaska

How Large is Group 948? A Comparison to Washington D.C.



If monumented at angle points only:

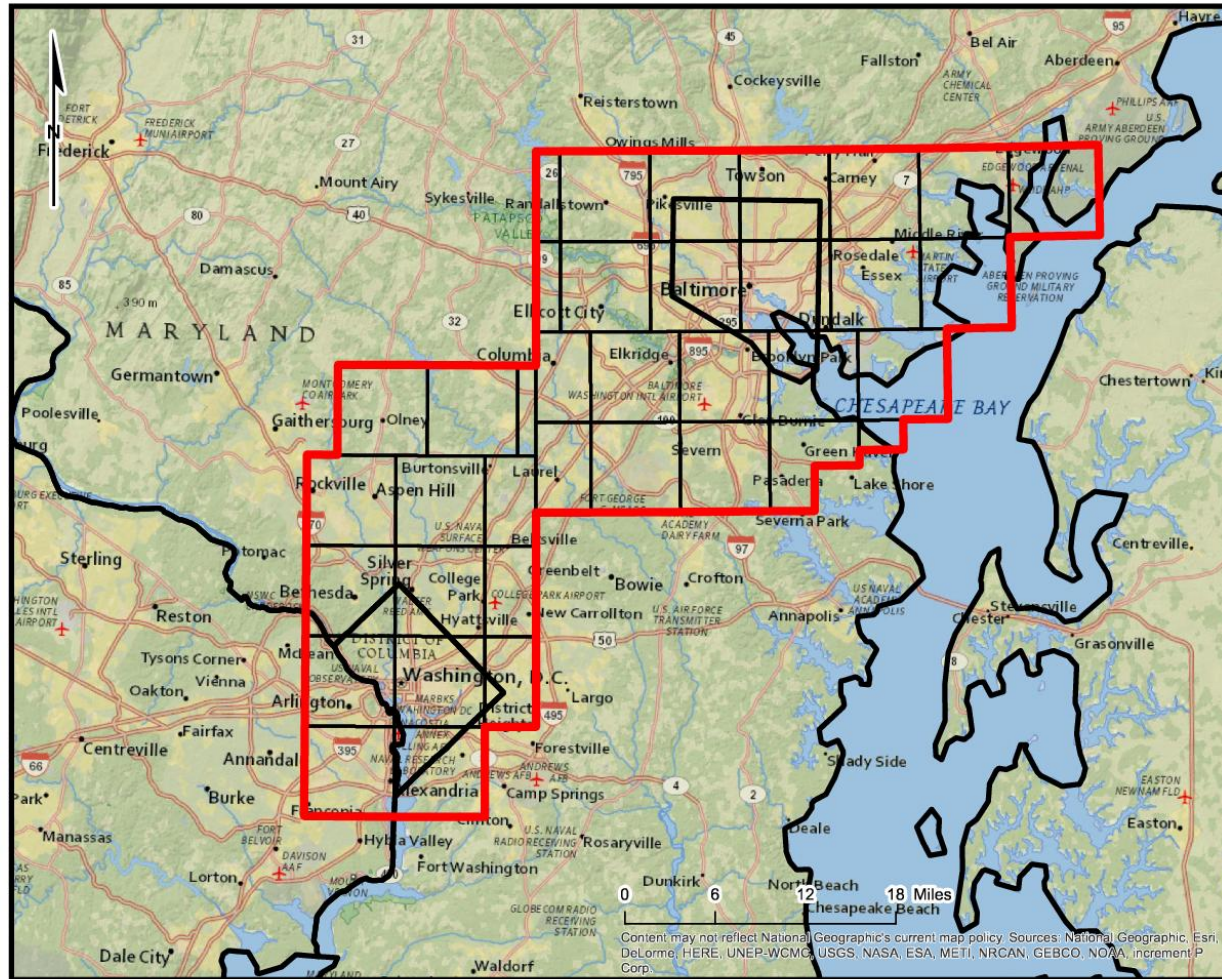
**22 Monuments for an area that would cover
all of D.C., Baltimore and everything inbetween.**

...an area about the size of Rhode Island.

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Is DPPS Viable?

- Economically
 - Cost to survey – after conveyance
 - Great distances to control
 - Just postpones the survey down the chain of title
 - Legal conflicts – occupy without survey
- Technically
 - Legal issues - monuments control - priority of calls
 - Great distances to control
 - Repeatability of corner locations
 - Coordinates drifting
 - Ground drifting

Expert Assistance & Advice

- State Societies of Professional Surveyors



American Surveyor Magazine

Is This the Death of the PLSS?

By Jason Foose

February 22, 2017

“We call this a paper subdivision in the lower 48, and two centuries of American retracement has demonstrated that it doesn't work out so well.”



Expert Assistance & Advice



“Using DPPS to establish a land corner by coordinate value is not in the best interest of protecting the public and private citizens most valuable asset, land ownership, by dismissing the requirement that exists in all state laws for the surveying profession to place physical monuments at those corners, thus identifying and preserving the readily available and visible landmarks that delineate that valuable asset.”

“...DPPS method fails to protect the rights of the citizens of the state of Alaska through the lands managed by the Department of Natural Resources. It also fails in the fundamental surveying principle across ...”

WESTERN FEDERATION OF PROFESSIONAL SURVEYORS

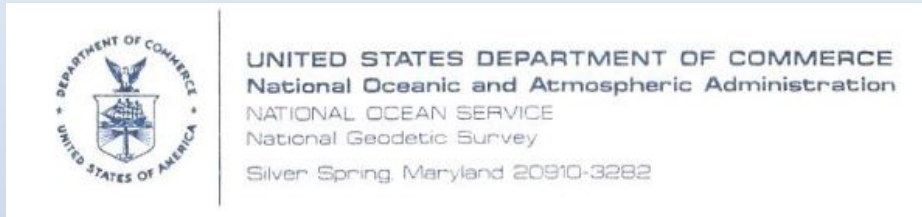
RESOLUTION 2017-01

Direct Point Position Survey

RESOLVED, that WFPS opposes the use of Direct Point Positioning Surveys as a substitute for physical monuments.

Expert Assistance & Advice

- NOAA, National Geodetic Survey (NGS)



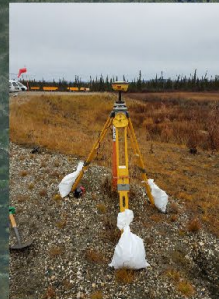
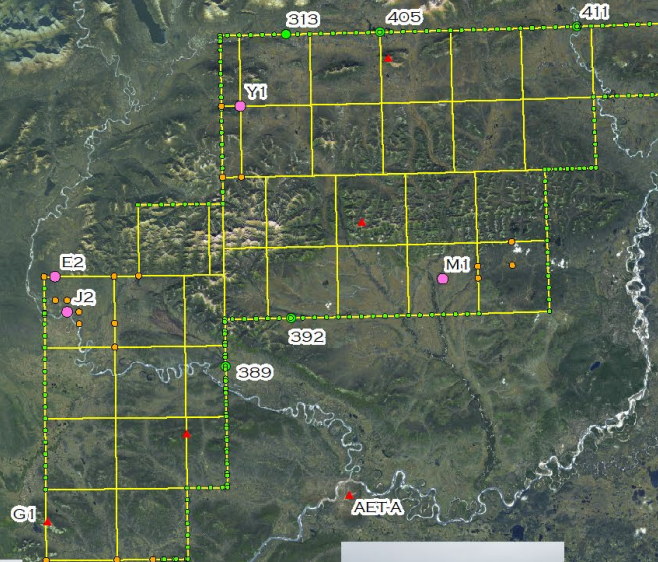
For adoption of the proposed DPPS methodology, NGS recommends an acknowledgement that GNSS survey techniques that do not employ passive survey control monuments have accuracy limitations at the decimeters to meter level. Consequently, for GNSS to be used reliably as a tool to identify a unique point on the dynamic crust of the Earth, adequate local marks must be established to allow dependent surveys that follow to align with the original intent. This

“Coordinates have a shelf life” – Dr. Dru Smith

- Dr. Nicole Kinsman, NGS Alaska Regional Geodetic Advisor
- NGS: “over time, the coordinate value and the physical point on the earth will drift away from one another”
- BLM: “accuracy of the coordinate is only at the time of survey”
 - “to insure that the location on the earth is repeatable is the State’s obligation”

DPPS Field Retracement

DNR FIELD RECOVERY OF
BLM GROUP 948 MONUMENTS
SEPTEMBER 19-22, 2016



Good for BLM, Bad for Alaska

- After 3 ½ years DNR concerns – more clarified
- DPPS could be implemented – but we are wary of the costs and loss of value to Alaska
 - Loss of infrastructure
 - Develop and implement new statutes, regulations and procedures;
 - training for surveyors and other land professionals;
 - Increased costs for setting of monuments after bona fide rights have been conveyed;
 - higher costs to survey parcels which are tens of miles away from controlling points.
 - every DPPS parcel survey will effectively require a helicopter
 - Pandora's Box of legal issues that may ensue.

- Any Questions?



Thank You

