

MEMORANDUM

State of Alaska

Department of Transportation & Public Facilities

TO: Dave McCaleb, PE, PLS
Preconstruction Engineer
Northern Region

DATE: 6/27/95

FILE NO:

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FROM: John F. Bennett, PLS
Right of Way Engineer
Northern Region

SUBJECT: Project Monumentation

Over the past four decades the Department has modified its position regarding methods of project monumentation several times. This is understandable given that each method has its pros and cons. The purpose of this memo is to propose that we reverse course one more time and return to right of way monumentation in lieu of centerline monumentation.

The methods of monumentation that have been previously used on projects include:

1. Centerline monuments: This is the current standard. Although I believe it was essentially initiated in the early 1980's, the 1962 Badger road project was also an example of centerline monumentation.
2. Right of Way monuments: Generally this means the 8" x 8" yellow concrete monuments although I have also found mid-1950's brass cap monuments set by ARC on the Tok Cutoff. Although I have not researched the time frames, I believe use of the concrete monuments ranged from the 1960's to mid 1970's.
3. Shoulder reference monumentation: This refers to uncapped rebar set on a parallel reference line on the shoulder on certain unpaved roads in the mid-1970's.
4. No monumentation: Project monumentation was deleted for several projects in the late 1970's. An example would be the Parks highway Ester Siding project.
5. Random control monumentation: This type of monumentation is being used on some rural highways where there are few private parcels and little ROW acquisition is anticipated. Random control monuments will be set at protected, stable locations and will be related to centerline or right of way by coordinates. This provides suitable control while minimizing the level of monumentation required. This was performed on certain segments of the Denali highway in 1994 and will be used on the 1995 Elliott highway contract.

There are several reasons why I believe that we should go back to right of way monumentation.

1. Private sector and property owners prefer to have ROW line marked as opposed to reference or centerline. At statehood the majority of our rights of way were uniform in width and centerline based which made it easy to pull a distance from centerline to locate the ROW. Now, rights of way are either considered corridors in which the physical road meanders or a very non-uniform ROW is acquired because of high land values or concerns about necessity. This trend is making it more difficult for

property owners as well as our own maintenance forces to locate the limits of the ROW. Also, as we head toward a hard metric conversion for 3R projects, the metric centerline curve parameters will, by definition, not be the same as the original english unit centerline that was used as the basis for right of way. Monumenting a construction centerline that is not directly related to the centerline of right of way will only create confusion.

2. Modern flanged pipe or driven rod monuments are more stable than old concrete monuments.
3. Safety - ROW monumentation will reduce surveyors exposure to traffic.
4. In some situations, unstable road foundations have resulted in cased centerline monuments being paved over by M&O. While this makes the monument difficult to recover, a new consideration involves the increased use of rotomills on repaving projects. My understanding is that a monument casing will cause serious damage to a rotomill when they come into contact.
5. Local government involvement - Projects within the North Star Borough require that secondary monumentation be established on the new ROW line as a replacement for existing monuments. It is a relatively small step to include primary control monuments on the right of way as well.
6. I have always considered the establishment of centerline monuments by the construction contractor as being the weak link in the "Locations survey - ROW mapping - final monumentation" process. We certify as to our retracement of boundaries and we certify as to the location, shape and size of the parcels acquired, but we have limited control or knowledge as to the procedures used to establish the final monumentation. By shifting to ROW monumentation, we can in most cases, remove that responsibility from construction. This will also eliminate most of the cased monument item from the project, although certain existing monuments such as section corners will still have to be referenced, replaced and cased.

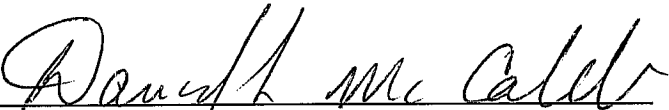
There is also a downside to ROW monumentation:

1. It will increase the monumentation density by at least a factor of 2. Specific ROW angle points and jogs will also be monumented. Lines must be brushed from the road to the ROW in order to establish the monuments, therefore increasing the cost of survey. This additional cost will be partially offset by the elimination of the casing requirement.
2. They will be more difficult to locate and use once the brush grows up. They are not impervious to jacking in swampy areas. They are more susceptible to damage by utility construction, brushing crews and excavation in close proximity to the right of way line.

We are proposing to initiate our use of ROW monumentation by using our in-house crews to monument the previously unmonumented portions of the Parks Highway MP 351-356 Rehab project and by amending R&M's contract for Chena Hot Springs MP 0-7. Other projects

could be evaluated early in the design phase or at PS&E review. Given that we now lose our phase 2 funding at advertising, monumentation for 3R projects would have to be done at the design survey stage or could be extended into phase 3 if we have a ROW acquisition project.

Although I have not found the centerline method of monumentation to be based in written policy or specification, I believe that it is appropriate for you to state your concurrence if you agree with my proposal.


Concur : Dave McCaleb, Preconstruction Engineer

8-10-95
Date

cc: Jim Ellief, PE, Construction Chief
John Miller, Chief Right of Way Agent