

If the existing R/W report is not available in a timely manner, the existing R/W maps and plans will be used to calculate a preliminary alignment and existing right of way. After the existing right of way report is received, the documentation will be reviewed and compared to the preliminary alignment and any necessary revisions will be made and relayed to the R/W Plans Section.

A discussion is needed concerning existing right of way monumentation. It is the position of the ADOT Right of Way Plans Section that in general, existing highway right of way monuments, especially if they were set pre-2000, are not considered to be “errorless” or “original” monuments, and most of the time their position should not, or cannot, be literally “held”. Many of these monuments were set using inaccurate field methods, and/or were set by non-surveyors who did not have the knowledge or place the value on the monument location, that a surveyor would. Nor is it possible to hold the intended record highway right of way width (give it its due – no more or no less) when a pair of monuments at a control station do not match the record width. Depending on when they were set, the right of way angle irons may or may not be “the” monument. If it can be reasonably established that the angle iron was set pre-1959, then it may be considered as the R/W monument. If the angle iron was set post-1959 it will then be considered as a reference marker or witness post. Customarily, the angle irons that are reference markers were set on the right of way line, but were usually set plus or minus 2 foot up or down station from the right of way monument.

The first thing that needs to be established is the existing right of way centerline. The centerline will typically not represent a “simple” or quick solution such as splitting pairs of found monuments and connecting the dots, or holding one pair of monuments and then holding the record geometry for the rest of the alignment. The centerline is usually solved piece by piece, by a trial and error method, until the entire project is solved. For projects that have no curved sections, and for tangent sections of highway, a linear regression can normally be performed on the found monumentation. This will result in a best-fit alignment for the corridor and/or tangent sections.

For projects that have curved sections, the alignment of tangent sections are usually solved first, then the PI’s of the curves are solved, then the PC’s, PT’s, SC’s, etc. are solved. It should also be noted that preliminary calculations of centerline – section line intersections and comparing them to record ties can also have an influence on the position of the alignment.

General rules for solving the centerline alignment are:

- a) Hold the record degree of curvature and let the arc length (and delta) float to generally fit the monumentation and/or the best-fit alignment. If the radius distances are large (greater than 10,000’) the radius can be adjusted, if necessary to solve the centerline.
- b) All points of curvature should be tangent. If absolutely necessary, non-tangent curves can be used if all “tangent options” have been exhausted, and upon approval by the R/W Plans Section.
- c) Straight tangent segments should remain straight and not have minor deflections or angle points introduced in the alignment, when none have never been recorded or intended. An exception may be made if : 1. the tangent is located within private property, 2. there is a preponderance of evidence to create an angle point, and, 3. approval is given by the R/W Plans Section.
- d) Spiral lengths are normally held at their record lengths.
- e) Basis of Stationing – the basis of stationing should be at the location of a centerline control point (PC, PT, TS, etc.) where a pair of R/W monuments have been found at that location and their measured relationship to each other is good compared to the record. Whenever possible, the station value for the basis of stationing will be a record station from an existing R/W map or