

Airport Way/Cushman Intersection

1.6.16:

- Chad sent up “ADSAS 64078 Airport Way Cushman ROW Mapping.dwg” and pointed me to filed book files. The drawing includes all of the recovered and set monuments.

Basis of Coordinates: Chad will be using a modified (local) ASP Zone 3 coordinate system in feet. All prior projects are on various local systems. The Thomas ROS, PDC ROS and COF S. Cushman projects are all on the Thomas system which started with a purported ASP coordinate on the section corner of 14/15/23/22 as shown on sheet 2 of the Mitchell Expwy East as-builts. The northing appears within reason but the easting is oddly truncated so these projects can be considered to be local systems without a direct relationship to ASP coordinates.

1.7.16:

- *Prior projects:* The following projects used the monument coordinates.
 - Thomas Engineering ROS 96-93 (August 6, 1996): Prepared for Project No. RS-M-0663(5)/63216 “South Cushman Street Improvements. The intent of this ROS as stated in Note No. 3 is “...to define the positions of SI monuments, DOT monuments, and lot corners affected by the proposed widening of Cushman Street between Van Horn Road and Gaffney Road.”
 - PDC, Inc. 2007 ROS (Unrecorded): Prepared for Project STP-RS-M-0663(5)/63216, “South Cushman Improvements” PDC developed a Scoping Report concluding that the Thomas ROS coordinates could be used for parcel calculations.

“South Cushman Scoping Report – May 2002” – Introduction: “*The Department proposes to construct improvements to South Cushman Street from Gaffney Road to 18th Avenue. The South Cushman project was developed to the preliminary PS&E level in 1996.*”

P.3 – “*A horizontal traverse survey was performed and oriented to ROS monumentation. Selected monuments were tied in order to compare record and field monument coordinate values.*”

P.14 – “*The control check traverse showed good agreement with the coordinates of twelve selected control monuments (SI’s and property corners) as listed in the ROS tables.*”

P.17 – “*Based on the field check performed for this project, the coordinates listed in the recorded Record of Survey can be entered and used for parcel calculations. Additional field checks to existing monumentation should be incorporated into the future survey work as required to meet DOT standards.*”

- City of Fairbanks Project FB-14-02/62532 (2014), “South Cushman Sidewalk and Drainage Improvements” – Survey Control Sheets 3.01-3.03
- Import PDC 2007 ROS
 - Opened L0000rsF01095.dwg
 - Used EATTEXT command to export both recovered and calculated monument coordinates
 - Exported to PENZD PDC 2007 ROS.csv

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- Opened CSV file in Excel and edited out all extraneous columns and rows
- Inserted PDC ROS points into our Cushman/Airport ROW working drawing on the V-RWAY-WORK layer and verified that the imported coordinates arrived intact. (Insert/Points from File – make sure point numbers are integers!)

1.8.16

- City of Fairbanks “Complete Streets” Project No. FB-15-07; 2015-2016 construction for Cushman Street North of Airport Way between Gaffney Street and 1st Avenue. At the time of our survey (December 2015), all of the centerline monuments along Cushman north of Airport Way had been removed by construction activities and are not to be reset until spring-summer 2016. The “Complete Streets” project plans includes survey control sheets 3.01 & 3.02 that provide coordinates for all of the centerline monuments located prior to construction. The control sheets state that the coordinate system is “local”. R&M located and tied 4 monuments that are off the Cushman Street centerline but common to the Cushman project coordinate system. We will look at whether this relationship can be used as the “best evidence” of the Cushman Street centerline monument location prior to construction.
- DOT&PF Project No. STP-000S(413)/61725 “Fairbanks Noble Street Upgrade” Unrecorded Record of Survey as Survey Control Drawing. This project was developed by PDC. R&M tied 11 monuments also recovered by PDC. While this project is on a different local coordinate system and basis of bearing than the previously referenced PDC South Cushman Improvements ROS, a comparison of common monument ties (Airport Road Centerline between Gillam/New Steese and Cushman between 15th /12th Avenue) will likely indicate that they are related. More review is necessary but this may provide the best basis for the project.

1.12.16

- The primary ROW control for the project is along Airport Way. The R&M survey tied 4 monuments on Airport way including the offset monuments Gillam, Cushman, Noble and Steese/Richardson. The PDC Noble Street project indicates either through the Survey Control Drawing/ROW Basemap or the AutoCad Files that they tied the monuments at Cushman, Noble and Steese/Richardson while the PDC Cushman ROS (unrecorded 2007) indicate that they tied the Gillam, Cushman and Noble monuments.
- A comparison between the current R&M survey and the unrecorded PDC record of survey for Cushman Widening suggests that there is a fairly good relationship between the two. Note that while the bearings are close, it is because both surveys are based on modified Alaska state plane coordinates and that

Airport Road Offset Monuments – (PDC Cushman Widening)						
Gillam			Cushman			Noble
PDC	S78°05'02"E	1300.68		S79°13'55"E	760.14	
R&M	S78°05'24"E	1300.61		S79°13'50"E	760.06	
R&M	S78°30'38"E			2060.58		
PDC	S78°30'27"E			2060.72		

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Noble Street Centerline Control – (PDC Noble Street)							
	Airport		Noble CL		12 th Ave		11 th Ave
R&M	#742 (AlCap)		#714 (BC)		#713 (BC)		#715 (BC)
		N2°13'38"W		N6°42'59"W		N6°43'01"W	
		505.83		335.64		221.26	
				556.90			
PDC	#535		#20158 (BC)		#448 (BC)		#449
		N3°46'48"W		N8°16'49"W		N8°16'15"W	
		505.89		335.80		221.13	
				556.93			

Based on this reasonably good relationship between the R&M and PDC surveys and the fact that most of the Cushman St. centerline monuments are currently missing or have been disturbed, I intend to import the monument points from the PDC Cushman and Noble Street projects to supplement the R&M survey.

- Record of Survey Survey Control Project No. STP-000S(413)/61725 “Fairbanks Noble Street Upgrade” These files were provided to me on 1.11.16 by Tim Sprout at DOT. Using xref file “LXREF-ROW_-11100FB.dwg” I exported all of the points to a CSV file with a PNEZD format. All points other than recovered monuments were removed from the file. The point numbering ranged from points under 100,000 and those over 100,000. I adjusted all points under 100,000 by adding 100,000 to them. All points imported from the Noble Street ROS can be identified by point numbers between 100432 and 120290.
- ROW Base Map for South Cushman Street Improvements – 18th Avenue to 12th Avenue. This is not a Civil3D drawing so the points were exported using the EATTEXT command to a CSV file. All columns except Point number, Northing, Easting, Z and description were deleted. All rows except recovered monuments were deleted. The exported coordinates were validated by comparing them to the recovered monument and control coordinate tables for the:
 - 2007 PDC unrecorded Base Map for S. Cushman Street Improvements
 - 1996 Thomas Engineering Amended ROS (96-93) for South Cushman Street
 - 2014 City of Fairbanks Survey Control Sheet coordinate tables for S. Cushman Sidewalk & Drainage Improvements

1.21.16

- The major axis for the survey is along Airport Road between Gillam and Noble. The minor axis is along Cushman Street.
 - The ROW plans for this portion of Airport Way are Project F-062-4(21) “In Fairbanks from Gillam Way E & S” approved December 30, 1968. They are poor quality, in part illegible and do not provide all of the dimensions required to reproduce the plans. There are several x-parcels where the remainder of a total lot acquisition was disposed at a later date. No monumentation for the centerline or adjoining lots are shown on the plans. I have not yet found recording information for these plans.

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- The as-builts for the Airport Way project are titled F-062-4(27), F-037-1(27) “Gillam-Gaffney-Big Bend Grading, Drainage and Hot Bituminous Pavement”. The project was constructed between July 6, 1971 and July 9, 1973. Four cased control monuments were set along Airport Way at the Gillam, Cushman, Noble and Richardson Intersections. (See sheets 16-19 of 108) The monuments at Gillam/Cushman/Noble are set to the south of the Airport Way centerline along the bearing of the intersecting street centerlines. More intersection details can be found on sheets 31, 33 and 36.
- Computing the record centerline for Airport Way. In the Northern Region ROW Engineering files I found copies of the traverse sheets for calculating coordinates of the “L” line centerline PI’s and curves. I imported the PI coordinates into Civil3D and created an alignment with the record radii. I then calculated record positions for each of the control monuments. When a station/offset report is run of the centerline and monuments it can be seen that all of the monuments were intended to be set 7.75 feet to the left of centerline.
- The R&M survey tied all four offset monuments. The markings are barely visible but the Gillam monument (#744) was stamped “Highways” and was likely the original set in 1973. The Cushman monument (#743) had no legible markings. The Noble monument (#742) was stamped “Reset 2014”. The Richardson monument (#741) had no legible markings.
- As the east-west project axis include the Gillam/Cushman/Noble monuments I would like to hold the recovered positions for those and adjust the record PI’s before generating an adjusted alignment.
- The Airport/Cushman monument will be held for import and translation of any record data or prior surveys as it is centered on the project.

1.22.16

- Beginning with the monument drawing file Chad sent me on 1.4.16:
 - Import the PDC Recovered Monument file for the 2005 Cushman ROS
 - Align PDC points to Cushman (Translate) & Gillam (Rotate) recovered offset monument points.

Table 1				
R&M Pt. No.	PDC Pt. No.	N of R&M	E of R&M	Description
743	50011	0.00	0.00	Airport & Cushman offset mon
744	51024	0.01	-0.06	Airport & Gillam offset mon
742	51026	0.08	0.09	Airport & Noble offset mon
711	50013	-0.04	0.06	Cush & 15 th West
709	50014	-0.08	0.06	Cush & 15 th East
710	50015	-0.07	0.15	Cush & 15 th West
706	50431	-0.03	0.14	Lacey & 15 th East
725	61005	0.02	-0.05	93-204 Sex L5A
727	50492	0.02	0.02	94-130 12 th AVE
728	50739	0.00	0.00	Brass Plate Gaffney
704	50430	-0.06	0.06	IP Stacia & 16th
		.04	.06	Average of absolute values

- Import the PDC Recovered Monument file for the 2014 Noble Street ROS

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- Align PDC points to Cushman (Translate) & Noble (Rotate) recovered offset monument points.

Table 2				
R&M Pt. No.	PDC Pt. No.	N of R&M	E of R&M	Description
743	100536	0.00	0.00	Airport & Cushman offset mon
742	100535	-0.02	0.08	Airport & Noble offset mon
741	100533	-0.09	0.21	Airport & Richardson offset mon
739	100485	0.10	0.04	2011-46
715	100449	0.07	0.09	SI Noble & 11th
713	100448	0.20	0.06	SI Noble & 12th
712	100432	0.04	0.07	SI Lacey & 12th
714	120158	0.04	0.12	Noble Centerline
753	120286	0.06	0.09	NEx L1A Sutherland
752	100524	-0.03	0.09	1-½ "IP Kolde Homestead
731	100519	0.09	0.10	1" IP W Noble ROW Block 126
		0.07	0.09	Average of absolute values

- Import the City of Fairbanks Recovered Monument file for the 2015 Complete Streets Project
- Align common points between R&M survey and City of Fairbanks "Complete Streets" coordinates for recovered monuments (See COF Project #FB-15-07 Sheet 3.01) COF coordinate values were translated to the R&M Survey by common point #729 (R&M) & #13017 (COF), a reference monument on the north side of Gaffney and east of Cushman. The COF Coordinates were rotated from this point to #739 (R&M) & #27903 (COF), an 8th Avenue centerline monument east of Cushman. The distance between the two monuments in the R&M survey was **1087.25 vs. 1087.24** for the COF survey.

Table 3				
PDC Pt. No.	COF Pt. No.	N of PDC	E of PDC	Description
100484	21307	0.11	0.01	SI Cushman & 12 th
100482	17774	0.10	0.03	SI Cushman & 10 th
100481	21304	0.10	0.05	SI Cushman & 9 th
100480	21303	0.08	0.09	SI Cushman & 8 th
100478	17762	0.17	0.16	SI Cushman & 6 th
100477	21301	0.11	0.16	SI Cushman & 5 th
100487	10008	0.14	0.18	SI Cushman & 4 th

- **Summary of Prior Survey Importation**

- Several controlling monuments along Cushman Street both North and South of Airport Way have been recently disturbed by construction and reset (South Cushman Sidewalks & Drainage 2014) or disturbed and have yet to be reset. (Cushman North of Airport Way "Complete Streets" project 2015).
- The South Cushman corridor from Gaffney south to Van Horn was surveyed with the location of primary centerline control and property corners by a DOT consultant in 1996. A ROW was recorded. A second DOT consultant, PDC, Inc. reviewed and validated the 1996 survey with field ties and produced an unrecorded ROS in 2005. This survey is related to the R&M Survey by the offset Airport Way monuments at Cushman, Gillam and Noble. The recovered monument points from the PDC survey were

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imported into the R&M .dwg file by translating to the Cushman monument and rotating to the line between the Cushman and Gillam monuments. This reveals an excellent relationship between the 11 common monuments tied in both the PDC and R&M surveys such that all of the PDC imported monument points can be considered as “best evidence” to position monuments that have been destroyed. (See Table 1 above)

- The Noble Street Corridor was surveyed by PDC under contract to DOT (2015). The unrecorded ROS for the ROW Base mapping provides survey ties to many monuments between Noble Street and Cushman to the north of Airport Way. This survey is related to the R&M Survey by the offset Airport Way monuments at Cushman, Noble, and Richardson Highway. The recovered monument points from the PDC survey were imported into the R&M .dwg file by translating to the Cushman monument and rotating to the line between the Cushman and Gillam monuments. This also revealed an excellent relationship between the 11 common monuments tied in both the PDC and the R&M surveys such that all of the PDC imported monument points can be considered as “best evidence” to position monuments that have been destroyed. (See Table 2 above.)
- The “Complete Streets” project for Cushman to the North of Airport Way was surveyed by the City of Fairbanks. They tied many of the Cushman Street SI’s and a few adjoining property corners and published their coordinate values in an unrecorded set of design plans. There are only three common points between the City and the R&M survey. The City points were imported into the R&M .dwg file using a reference monument north of the Gaffney ROW and east of Cushman for translation due to the proximity to the Airport/Cushman intersection and then rotated between the reference monument and an 8th avenue centerline monument 1100 feet to the north. The distance between the City and R&M surveys for these monuments was within 0.01 feet. A comparison was done between 7 monuments tied in common from the City and the PDC Noble Street surveys. These showed a reasonable good relationship that degraded the further north along Cushman Street you go. I believe it validates the relationship between the City, R&M and PDC surveys. For consistency’s sake I will use the PDC positions for the Cushman SIs at 12th and 10th for development of our project’s Cushman Street Centerline.

1.24.16

- My intent was to compute or input coordinates from the 1973 as-builts, 1969 ROW plans and ROW Engineering coordinate sheets to create the record Airport Road ROW. The project and the R&M survey have four monuments in common. The offset monuments at Gillam, Cushman, Noble and Richardson. As the east-west extent of the project runs from Gillam to Noble, I decided to use two or three of those monuments to translate, rotate and scale the record information into the survey coordinate system.

Using the Civil3D Align command I held the Cushman monument as the basis of coordinates for translation and the Cushman to Gillam monument pair for the rotation. The first Align test was without scaling and the second test was with scaling.

The distance between Cushman and Gillam monuments is 1300.61' by the R&M survey and 1300.92 by the record as-builts. The distance between Cushman and Noble monuments is 760.06 by the R&M survey and 760.47 by the record as-builts. The record is .31 to .41 feet longer in the record dimensions. The Noble monument was an alcap stamped as "reset 2014". The Gillam monument was a brass cap stamped "Highways"

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and the Cushman was an illegible brass cap. As the align command will only allow me to use two points to translate, rotate and scale I selected the Gillam and Cushman monuments.

The Align without scaling would result in the R&M and Record position for the Cushman monument being the same. The Gillam record position would be .31 west of and .06 north of the R&M position. The Noble record position would be .37 east of and .23 south of the R&M position.

I then ran the Align holding the Cushman monument, rotating to Cushman-Gillam and scaling the record data to the Cushman/Gillam offset monuments. This results in the record Cushman and Gillam positions being the same as the R&M positions and the record position for the Noble monument being 0.20 east of and 0.19 south of the R&M position.

I expected the scaling to change the distances and stationing along the record centerline alignment but was concerned that the scaling could also make the curves non-tangential. This was not a problem either because it appears that Civil3D will protect the tangency of alignment curves unless told not to.

Running a station & offset report against the scaled alignment indicates that the Gillam and Cushman remained at a 7.75' offset and the Noble monument changed to a 7.60 offset (a difference of 0.15'). With no scaling the Cushman mon stayed at 7.75', Gillam to 7.71', Noble to 7.61 and Richardson to 7.81'

Table 4				
R&M Pt. No.	Record	N of R&M	E of R&M	Description
744	50	0.00	0.00	Airport & Gillam offset monument
743	46	0.00	0.00	Airport & Cushman offset monument
742	53	-0.20	0.19	Airport & Noble offset monument

- As an alternative adjustment I ran a 2D least squares coordinate transformation between the record coordinates for the Gillam/Cushman/Noble monuments and the R&M survey using "Copan Lite" COGO software. This will translate, rotate and scale the record coordinates using three common control points between the two coordinate systems.

Table 5				
R&M#	Record#	North	East	Size
744	50	-0.0308	0.0287	0.0421
743	46	0.0826	-0.0788	0.1141
742	53	-0.0517	0.0501	0.0720

This would provide the smallest overall adjustment between the two coordinate systems but because it is a best fit, none of the R&M positions for the offset monuments would be held for translation or rotation. More important, if applied to a tangential record alignment, the adjustment would likely result in non-tangential curves. Also, the adjustment would result in none of the offset monuments being 7.75 offset to the right of the new alignment. Gillam would be 7.72', Cushman 7.81' and Noble 7.71'. The computed scale factor for both northings and eastings was 0.9996631681. This would result in a shrinkage of about 0.03'/100' for the record

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dimensions. The scale factor applied to the Civil3D Align command (with scaling) using the line between the Cushman and Gillam monuments would be $1300.61/1300.92$ or 0.9997617071 which would result in a similar adjustment to a 100' dimension.

I intend to compute the Airport Way ROW based on record dimensions supplemented with acquisition descriptions and original coordinates from ROW Engineering because of the incomplete information on the ROW plans. If I compute offset lines for ROW and Access control based on record dimensions, the adjusted data will show offset lines a few hundredths short. So I plan to increase the record offset lines by the scale factor so when rescaled they will retain the record offset.

Once the Airport Way record data is realigned to the R&M survey I will adjust the Basis of stationing to be the "L" line station at the intersection of Airport Way and Cushman Street using the as-built record station of 161+54.74 POC. (Note the ROW plans indicate a station of 161+55.25 POC)

- In order to maintain the integrity of the record stationing along Airport Way and the record (COF/Thomas) stationing for South Cushman Street, after computing the SI for the Airport Way/Cushman Alignment, the **Basis of Stationing** at the Airport Way/Cushman SI will be **"A" 161+55.39 POC = "C" 236+45.11 POT**.
- Input record Airport Way Alignment and Offset monuments. Table 6 shows bearings and distances between record monuments.

Table 6				
O/S Mon	Intersection	Bearing	Distance	Size
17	Gillam			
		S 78°04'28" E	1300.92	
22	Cushman			
		S 79°12'11" E	760.47	
25	Noble			
		S 65°15'02" E	1079.28	
26	Richardson			
17	Gillam			
		S 78°29'27" E	2061.30	
25	Noble			

1.25.16:

- Extracting coordinates from 1968 IBM COGO printouts for Department of Highways positions of Rickert lot & block corners that was the basis for the ROW takes.

1.26.16:

- Input FRS frontage road alignment to define offset ROW line for Block 12 of Rickert. The computed ROW dimensions match the metes and bounds description geometry very well. Ran north ROW through Block 13, 20 and 3A.

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1.27.16:

- Corrected and completed N. ROW line for Blocks 20 and 3A
- Established S. ROW for Block 14
- Parcel 16A & 17 for Block 21 were a bit of a problem. I input the lot coordinates from the 1968 IBM printouts. I then found that Parcel 17 metes and bounds did not fit very well. I adjusted the block boundaries so they were 50 offset from Block 4 and Block 14 and 25 feet offset from the centerline of 14th. Parcel 17 then closed fairly well but the dimensions for Lot 22 and Lot 1 were quite a bit off from the Rickert plat. I may have to revisit this later.
- Established ROW for Block 4, Parcel 19.

1.28.16:

- Completed record Airport Way ROW for Block 3 & 3A for Rickert and started on Gateway.

1.29.16:

- Completed computing record ROW for Airport Way in Blocks 2, 6, 7 & 9 of Gateway Subdivision.
- Completed record ROW for NW quadrant Noble & Gaffney. Initially I laid in the as-built centerline for Gaffney south of parcel 38 but the RP for the centerline curve did not seem to fit very well with the Record IBM coordinates for the Texaco parcel (38). I then computed the compound curve off the coordinate system and fit it to the Texaco boundaries and that seemed to work well.
- Parcel 39 ROW in the NE quadrant of Noble & Gaffney does not look good. I didn't have the IBM coordinates for the original lot and there seems to be a minor discrepancy between the ACS centerline alignment and the ROW geometry. Also, the width of Noble (Rec. 50.00 feet) does not compare well against the Parcel 38 geometry to the west. (23.9 offset from the As-built Noble centerline and 54.05 offset from the east boundary of the Parcel 38 lot.) I will have to look at these again using the new PDC Noble ROW and our recovered monuments.
- Laid in the access control lines north and south. Need to finish the A/C details at Noble, Cushman & Gillam.

1.31.16:

- Access control, NW quadrant of Noble and Airport Way. This is a complex layout with non-tangential and compound curves in which the design parameters don't quite fit. The ROW plans suggest that the ROW wraps around Lot 1 of Block 1 Gateway Subdivision and that the A/C is 11 feet offset. This offset works along Airport Way to the west of the intersection where the ROW is 4' behind back of sidewalk, the sidewalk is 5' wide and the A/C fence is placed 2' within a 4' unpaved strip between the face of sidewalk and the face of curb. (See as-builts sheet 35) But as the shoulder transitions around the west side of Noble, the 4' strip drops out and the shoulder transitions from 10' to 8'. An 11' offset from the extended ROW would place the A/C line 2' into the shoulder. I reviewed the PDC Noble ROW plans to see how they handled it and they show their existing A/C line running a couple of feet into the shoulder area. The A/C fence ends as the sidewalk turns from Airport Way to Noble as does the 4' strip where the A/C fence could have been placed. Using the as-built sheet 35 intersection geometry and the sheet 36 radii notations, I laid in the edge of travelled way and then set the A/C line 8' offset to it so it would fall at the line between the face of sidewalk and the shoulder edge. The purpose of A/C is to prevent uncontrolled access to the travelled way and separate the pedestrian traffic from the vehicular traffic.

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The A/C curve locations and dimensions are validated within the sheet 35 geometry. There is a short (14.44') tangent between the pairs of curves that is not tangent to the curves and appears to be where the slop is intended to fall.

2.1.16:

- Continue with the Cushman intersection A/C.
- Completed ROW Lot 11 & 12 Block 13 (Parcel 1)
- ACCESS CONTROL! 95% of the Access Control line location along Airport Road is not a problem. It is generally a 46' Lt offset and 50' Rt offset from the "L" centerline alignment from Gillam to Noble. From Noble east it is 50' each side of centerline. The ROW plans also note that along Airport Way, the A/C line is 11' inset from the ROW line. The typical sections call for 4' behind the back of sidewalk (This is also called out in a note on the ROW plans and As-builts), then a 5' wide sidewalk and a 4' wide unpaved strip. The A/C fence is located in the middle of the unpaved strip so it is $4' + 5' + 2' = 11'$. The first 150' or so of the south A/C line is offset 16' north of the "FRS" (Frontage Road South) centerline before it transitions through the point where it becomes both 50' offset to the south of the "L" line and 16' offset to the north of the "FRS" line which continues up to Stacia Street.

The problem area for the A/C line comes at the Gillam/Cushman/Noble intersections where the 4' unpaved strip disappears and the sidewalk on the east side of Cushman widens from 5 to 6 feet'. There are conflicts between the as-built intersection geometry for the back of sidewalk and the record ROW line that should be exactly 4' behind that. There are also as-built notations that shift the geometry at the Cushman intersection by a half foot to the west. This makes it impossible to use both the as-built geometry and the ROW line as the basis for locating the A/C line in these areas. The A/C line represents a legal boundary and so I am giving deference to the ROW to control its location. Also, a sidewalk must be on the outside of the A/C line. So to develop the A/C line on the part of Gillam North of Airport way and Cushman North and South, I have held the ROW line and inset the A/C line by 9 or 10 feet. 4 feet from the ROW line to back of sidewalk and then 5 or 6 feet for the width of the sidewalk. At the Noble northwest quadrant, I didn't have a ROW line to control the location of the A/C so I used the sidewalk geometry to fix the location. (See yesterday's notes). Neither the 1969 ROW plans nr as-builts provided sufficient information regarding the location of the A/C line at these intersections. To the extent possible, they should be located accurately as a part of the design process for the current project.

2.2.16:

- Aligned record Airport Way centerline, A/C and ROW to R&M coordinate system. Translated to Airport Way/Cushman 7.75' o/s monument and rotated between Cushman o/s and Gillam o/s monuments.
- Cushman Alignment:
 - Constructed Cushman centerline from SI's based on R&M survey or PDC unrecorded ROS according to following table.
 - PDC used a best fit alignment of the Cushman SI monuments. I prefer to hold the tied positions and create PI's at each SI. I then checked the offsets from a baseline between the BOP and EOP to verify that the alignment was within reason. (See following table).
 - I calculated the SI at Airport and Cushman from a line between the PDC recovered SI for Gaffney and the R&M recovered SI for 15th West. From this centerline I found the Airport Way 7.75' O/S monument to

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be 0.61' to the left of the Cushman alignment. PDC found the O/S monument to be 0.62' to the left of their best fit alignment.

- There are some differences between the PDC Cushman ROS and the COF As-builts for the South Cushman Project. Both projects use the same coordinate system based on the 1996 Thomas survey and the Airport/Cushman 7.75' offset monument and SI's along South Cushman have the same coordinate values in each plan set. The PDC alignment uses a best fit to obtain a single bearing for the centerline while COF runs their alignment from SI monument to SI monument in the same manner that I have constructed the current Cushman alignment. The COF As-builts apparently use the Thomas Stationing which is based on 149+00.00 at the SI for Van Horn & Cushman and results in a station of 236+37.16 at the Airport/Cushman Offset monument as reported on the COF plans. The Thomas survey continues north to the Gaffney/Cushman SI with a reported Station of 240+36.62. As the Airport/Cushman 7.75' offset monument is more than a half foot west of the 15th to Gaffney SI centerline, I did not believe it to be appropriate to control the Cushman Centerline.
- The **"Basis of Stationing"** for Cushman was adopted from the SI station **"C" 240+36.62** at the Gaffney/Cushman SI as noted on the 1996 Thomas Survey. This will provide a better relation between the current project and the COF South Cushman As-builts.
- The calculated SI for Airport and Cushman has an Airport Way "L" station of 161+55.39 POC.
- **Airport Way & Cushman SI: "A" 161+55.39 POC = "C" 236+45.11 POT**

Cushman Alignment			
"C" Station	Description	Pt. No.	O/S from BOP-EOP Line
"C" 115+98.77 EOP	SI 12th	PDC 50010	0.00
"C" 113+85.63 PI	SI Gaffney	PDC 50038	0.00
"C" 109+94.12 POT	SI Airport Way CL	Calc 768	0.04
"C" 104+16.39 PI	SI 15 th West	R&M 711	0.15
"C" 101+59.27 PI	SI 15 th East	R&M 709	0.03
"C" 98+29.53 PI	SI 16 th West	R&M 710	0.07
"C" 93+75.54 PI	SI 16 th East	PDC 50016	0.04
"C" 92+01.58 PI	SI 17 th West	PDC 50017	0.03
"C" 90+07.85 BOP	SI 18 th West	PDC 50018	0.00

2.3.16:

- Noble Street Alignment
 - The Noble Street centerline alignment was adopted from the unrecorded PDC ROS for the current Noble Street Upgrade project (STP-000S(413)/61725).
 - The first tangent from Airport Way was run on a radial line to the Airport Way centerline curve passing through the R&M position for the Noble Street 7.75' offset monument.
 - The first Noble Street centerline curve data was held and the tangent heading north from the curve was intersected with the R&M position for the Noble centerline monument at "N" 13+24.59 PI. The final line was between the R&M positions for the Noble centerline monument a "N" 13+24.59 PI and "N" 16+60.23 EOP.

Airport Way/Cushman Intersection

- Overall this was a pretty good fit with differences between the R&M and PDC Noble Street alignment positions being less than 0.10’.
- The Noble **Basis of Stationing** was held as **“N” 10+00.00** at the centerline PT according to PDC plans. Backed to the Airport & Noble SI the equation is **“A” 169+18.02 POC = “N” 8+20.90 BOP**.

2.4.16:

- Relabeled Airport “L” alignment as “A”.
- Gaffney Alignment
 - The Gaffney alignment was adopted from the City of Fairbanks As-builts for Gaffney Road Improvements “FB-09-15” Survey Control sheet 3 of 16 dated 5/11/09.
 - The alignment commenced from the Gaffney/Cushman SI (PDC) to the PI offset 0.85’ from the R&M tied BC #728. The alignment was then run with record COF curve data and stations to intersect with the Noble alignment.
 - The alignment was validated by checking the inverse distance between “G” Station 20+06.26 PC and the Airport Road/Noble SI O/S monument (R&M #742) and the Noble PI “N” 13+24.59 R&M (#714). The difference compared to COF inversed coordinates was less than 0.05’.
 - The Gaffney **Basis of Stationing** is **“G” 12+62.88** at the Gaffney/Cushman SI according to the As-builts for City of Fairbanks Project FB-09-15, Gaffney Road Improvements dated 5/11/09. The SI equation is **“G”12+62.88 = “C” 240+36.62 PI** at the intersection of Gaffney Road and Cushman Street.
- Alignment Summary from email sent to Chad today:

For Alignment Basis of Stationing:

“A” Airport Way: The Basis of Stationing for Airport Way is “A” 159+00.60 PC at the corresponding “L” Line PC according to the right-of-way plans for Project F-062-4(21), In Fairbanks from Gillam Way E & S, dated 12/30/1968 (Sheet 2 of 9). This Basis of Stationing is consistent with the As-builts for Projects F-062-4(27), F-037-1(27), Gillam–Gaffney–Big Bend, dated as completed 7/9/73.

“C” Cushman Street: The Basis of Stationing for Cushman Street is “C” 240+36.62 PI at the intersection of Gaffney Road and Cushman Street according to the Record of Survey of South Cushman Street filed as Plat 96-93 on August 6, 1996, Fairbanks Recording District (Sheet 2 of 30). This Basis of Stationing is consistent with the As-builts for Projects 0663(013)/62687, South Cushman Street Resurfacing and 62532, South Cushman Sidewalk and Drainage Improvements (Sheet 4 of 9), Dated 3/5/15.

“N” Noble Street: The Basis of Stationing for Noble Street is “N” 10+00.00 PT near the intersection of Noble Street and Gaffney Road according to the unrecorded Survey Control Record of Survey for Project No. STP-000S(413)/61725, Fairbanks Noble Street Upgrade.

“G” Gaffney Road: The Basis of Stationing for Gaffney Road is “G” 12+62.88 at the intersection of Gaffney Road and Cushman Street according to the As-builts for City of Fairbanks Project FB-09-15, Gaffney Road Improvements (Sheet 3 of 16) dated 5/11/09.

Airport Way/Cushman Intersection

Alignment Equations:

Airport Way "A" 161+55.39 POC = Cushman Street "C" 236+45.11 POT

Airport Way "A" 169+18.02 POC = Noble Street "N" 8+20.90 SI

Cushman Street "C" 240+36.62 = Gaffney Road "G" 12+62.88 SI

Noble Street "N" 10+10.43 POT = Gaffney Road "G" 21+75.05 SI

2.5.16:

- PDC Noble St. ROW Plans: Building Townsite block lines
 - The PDC ROW plans will generally be deferred to as providing an accurate representation of the existing ROW along Noble, Lacey, 11th & 12th Avenues.
 - PDC used a best fit alignment for a common bearing along Noble and Lacey. I will generally use an alignment based on SI to SI where I have monuments to fix those points. Otherwise I will use ROW monuments/property corners to establish a centerline alignment along the streets and the offsets to ROW as provided by the Thiel Townsite maps, Sutherland & Gateway Subdivision.
 - I will also hold my Airport Road existing ROW & A/C over what PDC shows on their plans.
 - I am not creating Noble proposed ROW until I know it has been acquired.
- Intersecting record Airport Way ROW with Noble 25' offset line
 - Airport Way parcel 39, Record intersect @ 3.95', calculated intersect @3.03.
 - Pcl 28 to the West of Noble was the most difficult record parcel. The ROW plans indicate that a 22.00' radius curve was to intersect the west Noble ROW non-tangentially. PDC fit a 22.00' tangential curve from the west ROW then continued west with a 213.73' radius compound curve. Temporarily, I extended a tangent from the 22.00' curve to intersect the west Noble 25.00' offset line. This is a pretty significant difference by adding a 7.96' leg onto the record ROW. It was pretty clear from the 1969 DOH COGO that they had a difficult time determining the boundary of what was referred to as the "Texaco" parcel.

2.8.16:

- Gateway
 - Ran centerline from SI 15th East & Lacey (R&M # 706) through point offset 25.00' from NEx L18 B2 (705-S Thomas #464, PDC #50464), Result: NEx L15 B2 (Thomas #463, PDC #50463) O/S 24.90 from CL and +- 0.10 from record Airport Way ROW intersects.
 - Ran centerline from SI 15th East & Noble on a line parallel with Lacey. Result: Record Airport Way ROW intersect left – 24.81'; right – 25.19'.
 - Fit 12' alley N-S in Blk 6 parallel with Lacey/Noble centerline.
 - Calculate SI 15th East & Eilson by projecting line through SI 15th East & Lacey & Noble at record distance 290.00'. Run centerline Eilson north parallel with Lacey & Noble. Result: Record Airport Way ROW intersect left - 24.81'; right – 25.91'.
 - Fit 12' alley N-S in Blk 7 parallel with Lacey/Noble centerline.
 - Set N & S midpoint of Blk 5 & 8 and fit 12' alley.

Airport Way/Cushman Intersection

- Projected centerline of 15th & 16th East record distance of 145.00 from Eilson centerline to locate east boundary. Ran centerline from Eilson and 15th East on a line parallel with centerline of Eilson to Record Airport Way ROW with east boundary falling 0.19 west of record ROW intersect.
- Held 16th East centerline as line between SI at Cushman and SI at Noble. Continued 16th East centerline to east parallel with Thomas recovered monuments for NWx Lot 2 Plat 79-187 (#409) and NEx Lot 2 (#408). Set South ROW for 16th East at 25.00 offset.
- Rickert
 - Ran 25' offset line to left of Cushman Alignment. Offset line feel 0.73 to the right of the Airport Way record ROW intersect of Parcel 37. This is not unreasonable as our project uses a Cushman Alignment between the SI at Gaffney and SI at 15th Ave West and does not pass through the DOT 7.75' offset monument at Cushman & Airport Way. Both PDC and our calculations indicate that the offset monument is 0.62' to the left of the Cushman alignment.

2.9.16:

- Gateway
 - Inverse west boundary from Nx L10 Blk1 (Thomas ¾" IP #786 to R&M # 747 Iron Pipe @ SWx L7 B2). Record distance – 881.20' Inverse – 880.98'.
 - Establish SI 14th & Noble at record distance from SI 15th & Noble – 786.72'. Establish SI 14th & Lacey record distance from SI 15th & Lacey – 715.4. Project 14th centerline to West boundary. Record distance SI Lacey & 14th – 240.19, Inverse distance – 240.09'.
 - Record distance from Int West boundary to Nx L10 Blk1 – 428.15', Inverse dist – 427.73.
 - Offset 14th between West boundary and Lacey at 25' Lt & Rt. The offset to the record Airport Way ROW intersects both to the north and south of 14th are off by 1.07 feet with the 14th centerline based on Gateway Subd and recovered monuments being to the south of the Airport Way record data. I held the Gateway record and recovered monuments because they all seem to fit best with differences less than 0.2'.
 - Set West boundary of Gateway on 16th East centerline on line between SI Cushman and SI Lacey at record (66.5') from SI Lacey.
 - Set West boundary of Gateway on 15th East centerline on line between SI Cushman and SI Lacey at record (213.4 from SI Lacey). Result: Line between points passes within 0.03' of recovered monument R&M #749 IP (SWx L3 Blk 3). Distance from IP to West Bdy Intersect with 15th record 147.64', inverse – 147.67'.
 - Set west boundary angle point by intersecting lines through 15th & 16th W Bdy points and line projected through Nx L10 Blk1 (Thomas ¾" IP #786 to R&M # 747 Iron Pipe @ SWx L7 B2). Result: Record distance from #747 – 97.5', inverse – 99.21' or 1.71' longer. This is because it is such a flat intersection and is not a significant difference.
- Rickert
 - Stacia centerline north of 15th West. As I have monuments that define the centerlines for Mary Ann and Cushman north of 15th, I averaged the bearings for those lines (N 9-18-51 W for Mary Ann and N 9-19-54 W for Cushman) for a Stacia bearing of N 9-19-22 W. As a check, the 705-S R/C (PDC #472) at the SWx L3 B4 is offset 25.02' from the Stacia centerline and the 705-S R/C at the SWx L10 B4 (PDC #791)) is offset 25.07 from the Stacia centerline.

Airport Way/Cushman Intersection

- Projecting Stacia centerline north to the south Airport Road ROW and establishing the 25' offset lines for Stacia ROW, we find the most significant difference so far with the record Airport Way ROW intersects. The computed Stacia centerline appears to be 0.78' to the east of where the Dept. of Highways calculations believed it was. (See parcels 17 & 19)

2.10.16:

- Cushman-Gaffney Intersection

- Construct centerline for Gaffney between Cushman & Turner.
 - PK @ Turner & Gaffney (Recv'd PDC 2006 #61006) – Note: this PK is referenced as recovered on Plat 93-204 and used as control for SI Gaffney/Turner. Validated with tie to NEx L 1-A (PDC #61007) Record – 156.62, Inverse – 156.75'; and SWx L 1-A (R&M #725). Record -206.02', Inverse – 205.97'. Gaffney SI to Turner Pk: - Record 465.67' (Rickert), Inverse – 465.11', also COF Complete Streets Project FB-15-07 Survey Control Drawing shows a distance of 465.26
- Construct Turner North of Gaffney.
 - Offset PDC #61007 record 22.5' and run between that point and PDC SI at Gaffney & Turner.
 - Offset R&M #725 record 25.00' and run between that point and PDC SI at Gaffney & Turner.
- West ROW line between Airport Way and Gaffney: Parcel 2 & 3 was acquired under Project RS-HES-M-0663(2), Cushman / Gaffney Signal Upgrade. Most of the ROW is defined as a line 36.00' offset from the Cushman centerline defined between the SI at Cushman & 15th West and the SI at Cushman Gaffney. This project specifically notes that the 7.75' Airport/Cushman offset monument is not on this centerline but is 0.61' to the left.
- NW Quadrant Airport Way & Cushman: See Plat 2011-46. Established south line of L5 Blk 3-A Rickert by recovered monuments (R&M 719 & 718). DOH had totally acquired Lot 6 to the south so this line becomes the North ROW of Airport Way. Heading west I hold the record Airport Way ROW offset at 57' Lt. to the west line of Block 3-A defined by monumented (R&M 722, 738, 737) At the west line of Block 3-A I find the record ROW about 0.7 south of what Plat 2011-46 indicates. Heading west across the vacated portion of Stacia Street ROW indicates a conflict. The 57' offset to the Airport Way record ROW then widens to a 60' offset across Block 20. The ROW documents do not clearly indicate whether the record Airport Way ROW was to continue across the Stacia ROW at 57' or 60'. Initially I calculated it at 57' but plat 2011-46 uses 60'. I recalculate the Record ROW to a 60' offset along Block 20 and Stacia. I then adjust the 57-60' jog location at the west boundary of Lot 3A, Blk 20 to match the line for recovered monuments (R&M 750, 720)
- Set SI 14th & Stacia by proportion between SI 13th & Turner (PDC 61001 PK) and SI Cushman/Gaffney (50038). Set point on Stacia CL south of 13th, split recovered monuments (R&M 722, 723). Check offset to recovered monument (R&M 724), Inverse, 25.07'. Plat 2011-46 calls for a Stacia ROW left of 25.22 but I believe this is an error as 25.22 should be the half ROW width along the S. ROW of 13th. The ROW width should be 25.00. In either event, the record matches the recovered monuments well.
- Ran Turner CL south from 13th (PDC 61001 PK) on line parallel with recovered monuments (R&M 750,720) from Plat 2011-46. Recovered monuments are both offset 25.26' from CL. Projected east ROW for Turner north from 720-750 line to intersect with N. ROW for Block 20.
-

Airport Way/Cushman Intersection

2.11.16:

- Rickert/Gateway Boundary:
 - Ran line between east corner of Lot 4-A that according to Plat 83-52 is on the Rickert/Townsite boundary and east boundary of Rickert Subdivision. Start at PDC #50487 (Thomas 498), a 705-S R/C and run line to PDC 50165 (Thomas 165), a brass cap in concrete that the unrecorded PDC ROS notes is the Sex USS 849. 705-S R/C (#498) represents the NEx USS 849 & Corner No. 1 of Rickert Subd. (See Plat 84-768 & Plat 83-52). The inverse between #498 & #165 is S 1-54-22 W, 2640.86. The record according to USS 849 is 40.00 ch or 2640.00.
 - This shows the divergence between the Rickert East boundary and the Gateway West boundary that is referenced in Note 2 of the unrecorded PDC ROS for South Cushman Street and the recorded Thomas ROS Plat 96-93.
 - As mentioned in the 9.9.16 notes, the West boundary of Gateway was run from recovered R&M #747 and the Thomas #786 monument (Nx L10 B1 Rickert). Inversing between the Nx L10 and the NEx USS 849 the distance is 250.59'. The record according to Gateway Subd (102.797) is 250'.
- S. Boundary Gaffney East of Cushman/North Boundary of Gateway:
 - Set centerline Eilson & S ROW Gaffney by projecting the Eilson centerline from 15th the record distance of 660.86. The SI for 15th & Eilson was set by projecting the record distance of 290.00 along a line through the recovered SIs for 15th & Lacey/Noble. The Eilson centerline was then projected north on a line parallel with the Lacey/Noble centerlines.
 - Using the R&M monument #747 (SWx L7 B2) and the line to the Nx L1 B1 (#786), the corners along the west boundary of B1 & B2 were prorated in.
 - The inverse between the set point and the monument at Nx L10 B1 (Thomas #786) is 916.99' vs. a record of 917.22'. With this and the west boundary proration I calculated the Block 1 lot lines. Given the vintage of the plat, the dimensions are coming together well with mostly less than 0.2' differences.

2.12.16:

- Townsite Block 125 (South of 12th)
 - Run line from found IP (R&M #731 on West Noble ROW) west to 705-S R/C (Plat 83-52 PDC #50498)
 - Run in lines for both Plat 83-52 and 94-130 using recovered (or PDC/Thomas) centerline monuments for primary control of ROW and other recovered monuments for control of interior lot lines. Both plats check within reason but Plat 94-130 has a drafting error in that the line shown as West 4.41 should be located on the same line shown as West 28.34 on Plat 83-52. Plat 94-130 would have a significant (7') mis-closure along the north Gaffney ROW without this correction. With the correction it mis-closes by only 0.22'.
 - Using the position computed for the Townsite south boundary on Plat 83-52, I project the townsite line to the west from the calculated west corner of Lot 3-A and the NEx USS 847 as monumented by #50487). Projecting this line to the centerline of Cushman (SI Gaffney #50038) & (SI 12th #50010) the inverse from the intersection to the 12th SI is 78.57' which compares to the record Thiel Townsite dimension of 78.82'.
 - Note that the record ROW width east of Cushman at 12th is 24' that narrows to 22' at the Townsite boundary.

Airport Way/Cushman Intersection

- NE Quadrant Rickert – Gaffney (Richardson) & Cushman:
 - There are several interpretations as to the ROW width east of Cushman centerline between the Townsite line and Gaffney. The unrecorded ROS for South Cushman (PDC) uses 24.00'. The COF "Complete Streets" Survey Control sheet uses 22.00'. The DOT ROW plans for the Cushman Gaffney Signals uses 24.00', but then calls out an existing 25.00' ROW east of Cushman from Gaffney south. This appears to be incorrect. The record Rickert plat labels the ROW as 24.00 within the Townsite and does not provide a label south of the Townsite boundary. The unrecorded PDC ROS compares the record to computed Lot lines between L1, 2, 3 & 4, 9-10 & 10-11A and they all fall within 0.2' using the 24.00' ROW offset so that is what appears to have been intended.
 - Ran 24' offset line from Gaffney south to 15th and intersected record Airport Way ROW.

2.22-23.16:

- Plat 84-130 North between Cushman & Noble/ 12th Ave. & Gaffney
 - Computed record plat – closes well
 - Align to recv'd monument east corner Tract A on Noble ROW & recv'd monument SWx Lot 5 Blk 125.
 - Adjust lines to fit recovered lot monuments for line and offsets to centerline for ROW.
- Obtained hi-res scan of precise survey of Rickert Subdivision from COF. (City file B3-1.058) This is a copy of Rickert Homestead Subdivision Filed as plat 96.332 on 11/4/44, FRD that has been marked up to reflect a precise centerline survey between SI's similar to the R.W. Beck survey of the Fairbanks Townsite performed in the '50's. Obtaining this plat was necessary because the recorded copy was only marginally legible and the lack of monument ties on the west side of Rickert made the verification of lot line intersections with the DOT Airport Way ROW takes impossible. The precise survey was referenced in two recorded plats within Rickert, 83-170 and 85-100. The city couldn't readily find its copy and I was able to get a paper copy of it from Richard Heieren. Once I could show the paper copy to the City they found their mylar and scanned it. The precise survey map contains the following note: "Bearing & Distance in brackets are the reduced results of precise surveys supervised by Amos Swarner in 1956 & 57. Basis of Bearing is R.W. Beck. They are a good representation of what is in the field." Dave McNary 1/76 (McNary was the City Surveyor for several decades). I entered the precise survey centerline bearings and distances and they all closed very well. I computed the lots for Blocks 12, 13 & 14. Note that the precise survey plat also has notations as to the appropriate ROW width to block corners, although not for every block. The lot lines were prorated in and were all within reason. I computed the survey down to the south boundary so I could check the east boundary line between C-2 of USS 849 (South boundary) and the east corner of Lot 1 B3 (South ROW of Gaffney road or "Richardson Highway") Block 3 is a challenge to locate because it is not clearly dimensioned N-S. I and others presumed that the north line of Lot 1 was a 30.00' offset line from the Gaffney (Richardson) centerline and that seems to fit reasonably well.

2.24.16:

- Aligned Rickert Precise Survey block using the SI at Mary Ann and Turner for the common point (#708 R&M) and the line between that and the SI at 15th West & Turner (#702 R&M) for the rotation angle. The R&M measured distance between these points is 540.29 vs. the Precise Survey distance of 540.32.

Pt No.	Description	Delta N	Delta E
701	SI 15 th & Laurene	-0.013	0.060

Airport Way/Cushman Intersection

707	SI 15 th & Stacia	0.084	0.202
711	SI 15 th & Cushman	0.114	0.405
50038	SI Gaffney & Cushman	-0.075	0.015
705	SI 15 th & Mary Ann	0.045	0.070
702	SI 15 th West & Turner	0.024	0.008
708	SI Turner & Mary Ann	0.000	0.000

The greatest difference in both northings and eastings was at the SI for 15th & Cushman. This will not have much of an effect as I am using the Precise survey block to validate the DOH ROW to the west of Cushman. Of all of the comparisons between recovered monuments and the Precise Survey dimensions the only one not tied by R&M (because it was removed for the Complete Streets project) is the SI at Gaffney and Cushman. For this I am using the coordinates derived from the Thomas/PDC ROS and was surprised to find the relationship with the Precise survey to be within a few hundredths.

2.25.16:

- Record Airport ROW matches Rickert Precise Survey position on Block 12 by less than 0.02'.
- Record Airport ROW intersect from West side of Lot 1, B14 (Laurene St.) is off by 0.76'. This is likely due to the varying street ROW widths annotated on the Rickert Precise survey. In this case I am holding the Precise Survey and adjusting the ROW intersect.
- Record Airport ROW intersect from East side of L28, Block 14 (Turner St. is also off by 0.76' but because I have two R&M recovered monuments (15th West & Turner and Mary Anne & Turner) I am holding the projected centerline and 25' ROW offset. This changes the intersect error to 0.17' but changes the lot length dimensions.
- Record Airport ROW intersect from North side of L11 B13 (13th Ave) is off by 1.18'. I have adjusted the intersect to the S. ROW of 13th based on the Rickert Precise survey.
- I had previously computed the centerline for Stacia from the recovered monuments in the vicinity of Block 21 and Block 4. The difference between the Rickert Precise survey at the SI for 14th & Stacia and the centerline computed from recovered monuments is 0.10 so I am keeping the centerline based on the recovered monuments.

3.15.16:

- Lot 1 Block 21 Rickert. Record Airport Road ROW for Parcel 16A was generated from 1960's cogo files. I now note that it was deleted so that ROW has been removed from Lot 1 Block 21.
- Lot 22 Block 21 Rickert. The precise survey location for the N boundary of Block 21 is almost a foot north of the Airport Road record ROW cogo. I have terminated the west record Cogo ROW line perpendicular to the north Block boundary.
- Block 21. The East line of Block 21 record 557.9 compares well with the 557.21 based on a combination of the Precise Survey and recovered monuments. The east boundary lots were prorated, the N-S lot lines run parallel to the southerly boundary from the east line and the alley bearing run as an average of the east and west block lines. This was done because the west boundary is not completely dimensioned to allow proration for lots and the NW corner of the block (Lots 1-3) have record dimensions that are completely out of whack. This should

Airport Way/Cushman Intersection

provide the best layout of lots according to the intent of having 50' wide lots running parallel with the south boundary.

- Block 19. E. Bdy record 294.9 measured 293.87. Prorated along east bdy, then ran lot lines parallel with south boundary.
- Block 3. This block is difficult to lay out original lots due to incomplete dimensioning on the original plat. The north boundary of the block was set by running the centerline of Gaffney from the SI at Gaffney/Cushman on the record angle from Cushman centerline to Gaffney centerline then offsetting 30.00 feet to the south. It appears that the unrecorded PDC ROS prorated the west lot lines along Cushman slightly based on the Record/Measured distance from the SI at Cushman/Gaffney to the SI at 15th/Cushman. This only results in a variance from the record length of 50.00 feet to 50.02 and there does not seem to be a real basis for it so I will run the record lot distances down the east Cushman ROW from Lot 1 through Lot 10 and then run the N-S boundaries as perpendicular to the Cushman Centerline as per the original plat.

3.15.16:

- The east boundary of Block 3 was fixed by the east line of USS 849. C-2 (#50165) is a Brass Cap set in concrete recovered by the Thomas ROS (Sheet 19 of 30) and also noted on the unrecorded PDC ROS for South Cushman (Sheet 3 of 4). The NE corner of USS 849 is represented by #50487 (#487 on the Thomas ROS Table Sheet 30 of 30 AI Cap 705-S) This corner is noted as set by Stutzmann on Plat 83-52. The inverse distance is 2640.86, the Record is 40ch (2640.00). The plat for Rickert Subdivision indicates a distance of 2635.75.
- Calc Cushman Gaffney ROW for Project RS-HES M 0663(2) in NE & SE quadrants of intersection.
- Prorate lots in for Block 2 Gateway Subdivision. Note: See entry 2/9/16 – West boundary of Gateway was run from the North corner of Lot 10, Blk 1 Gateway (#786 from the PDC Noble Survey) and #747 R&M, NWx Lot 8 Block 2 (Inverse 880.98, S 1-33-11 W – 881.20 Record)

3.16.16:

- Autocad audit found many errors in cogo points and repaired them, but also removed them from display. Presumed corrupted data file somewhere along the way. 151 missing COGO points were exported and reimported and all is well.

3.17.16:

- Upon reviewing South Cushman alignment and offsets to the west of Cushman to define block lines I realized that a couple of the alignment PI's were not through the R&M recovered centerline monuments but through other very close points, likely the Thomas/PDC South Cushman recovered monument points. This showed up on Chads Survey Control Drawing with the R&M Centerline monuments having offsets of 0.05' and 0.13' when they should have been zero. It also placed a slight PI at the intersection of Cushman and Airport Way. The centerline should have been a straight line between the monument recovered at Cushman and 15th and the Thomas/PDC recovered monument at Cushman/Gaffney. I made the corrections and informed Chad. The SCD has yet to be completed so there should be no problem.
- The existing ROW between Cushman & Gaffney has been subject to multiple interpretations. These include:
 - Project STP-000S(143)/61725 Noble Street Draft ROW Plans (This includes about a half sheet of notes relating to the Gaffney ROW.

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- Gaffney Road Improvements Survey Control – City of Fairbanks 5/11/09 – This provides a ROW north and south of Gaffney between Cushman and Noble.
- City of Fairbanks Complete Streets Project FB-15-07 Sheet 3.01 – 3/31/15 – This only shows the north ROW for Gaffney within Rickert Subdivision.
- Gateway Subdivision: 102.797 – This defines the southerly ROW of Gaffney as the north boundary of the subdivision. No width for Gaffney is provided. Gaffney is not within the boundaries of the subdivision according to the written legal description. So it is unlikely that AS 40.15.050 which legalized dedications on plats prior to March 30, 1953. Plat 94-130 establishes more than a third of the North ROW between Cushman and Gaffney.

The southerly ROW line is fixed to my satisfaction by the Rickert and Gateway Plats. The Draft Noble ROW plans note that there are no documents dedicating the ROW for Gaffney east of the Rickert plat, but I would assert that these documents provide evidence supporting an easement by prescription at least to the limits of the southerly ROW line.

For the northerly ROW I accept the limits dedicated by the Rickert Plat as modified by the 1987 DOT acquisitions. For the middle section I accept the definition of the ROW according to Plat 94-130.

- The NW quadrant of the Gaffney/Noble intersection is one of the most difficult areas to resolve. As the Draft Noble ROW plans are the most recent DOT representation, normally I would accept them rather than create conflict as a result of continuing reinterpretations of the ROW. The Noble note No. 9 says that the ROW for this parcel was based on the Airport Way acquisition deed B247/P257. The plans lay in the compound curve (Radius 22.00' and 213.73') and extends those curves along the north ROW of Gaffney. The 213.73' radius curve is extended by 27.32' to the west boundary and the 22.00' curve is extended by 15.77' to the west ROW for Noble. The result is inconsistent with the graphics for the Airport Way ROW plans (the curves do not extend to the property lines but intersect the existing ROW lines), but it is possible that PDC pulled the ROW line to the north to accommodate the physical location of the sidewalk constructed for the Airport Way project. I located the Airport Way ROW curves and the lot lines using the 1960's DOH COGO printouts. More than other Airport way parcels, this parcel appeared to have the most problems. The lot according to DOH was about 10 feet shorter on the north end and the definition for existing ROW of Noble appears to be skewed.

My initial solution is to hold the DOH definition of the two ROW curves according to the acquisition deed and the DOH COGO location for the lot. Then I carried a tangent from the 22' curve to the northeast to intersect with the Noble ROW and then running a straight line from the west end of the 213.73' curve to the Noble found monument #100524 (Noble #524) a 1 ½" A/C, 4974-S according to Plat 94-130.)

3.18.16:

- NW Quadrant Gaffney/Noble: (Texaco Parcel): The plat of Sutherland Subdivision 105.093 that is on the east side of Noble opposite the Texaco parcel indicates an approximate 1 degree angle point in the Noble centerline that is not reflected in the deed to the Texaco parcel which projects the west ROW of Noble from the plat of the Fairbanks Townsite. The 1962 Noble ROW plans also show the 1 degree bend but do not show the ROW line opposite the Texaco parcel. The current draft ROW plans show the existing ROW as 25' each side of centerline.

Airport Way/Cushman Intersection

- My solution: Using the latest deed for Lot 7 Kolde, document 2004-012514 recorded 6/10/2004 and running from recovered point No. 731 adjusted for a 25' offset to the Noble centerline (according to Plat 94-130 this point would be the southeast corner of Block 126 of the Fairbanks Townsite, the intersection of the south Townsite line and the west ROW for Noble.) Then I ran southeast on a projection of the west Noble ROW line along Block 126, a distance of 250.00 to the POB for the parcel. Then continuing the same projected line a distance of 230.00 feet to the SE corner of TL7 Kolde Homestead. (Note: this line diverges to the west of the 25' offset line for the Noble St. centerline. Then I used a line from the SEx to the R&M recovered monument #752 which Plat 94-130 represents as the SWx of Lot 7 Kolde. (The PDC draft Noble ROW plans also use this monument (PDC 524) to fix this line.) The west boundary then runs from #752 to R&M #735. (These two monuments are badly scarred R/C. Plat 94-130 notes that they are 4974-S monuments but I can't find a surveyor with that number., might be Ringstads (?))

Using this lot configuration I compute the intersects along the south and east lot lines for the 1960's Airport Way ROW line which is based on a compound curve. I fix the record curve data to the east boundary intersect and align with the south boundary intersect. This results in the westerly curve (R=213.73) being 2.06' longer than record, but it is a fairly flat intersection with the south boundary. As the ROW curve intersects with the record lot boundary and not the west Noble ROW, I extend the tangent from the (R=22.00) curve to the 25.00' offset Noble ROW.

As Gaffney does not have a well-defined northerly ROW, I feel comfortable using the recovered monuments and those noted on Plat 94-130. The solution honors the existing monuments, the DOT record ROW line and the Noble 25' offset ROW. Along the east boundary of the lot it gives the appearance that the lot width has expanded, but I think a more correct view is that the record document defining the lot use the wrong bearing to define the east boundary. PDC also accepted the 25' offset line as the lot line but my solution for the Gaffney ROW is more consistent with the original lot lines and the DOT ROW acquisition. **!!! The larger problem might be that my ROW line may indicate that the existing sidewalk is 1-2 feet outside the ROW!!! I believe that PDC fit their ROW to fit the back of sidewalk.**

- My solution for the north Gaffney ROW along Lot 1 Kolde was fairly straightforward. I held R&M #752 and honored the location of the SW corner of Lot 1 Kolde as represented on Plat 94-130. While this results in a more uniform ROW line along north Gaffney, it is inconsistent with the draft PDC Noble St. ROW plans which indicates a N-S jog between Lot 1 and Lot 7 of 7.22'. The controlling call for the south boundary of Lot 1 (B168/P310) calls out the north edge of Gaffney Road. As evidence for this controlling call is slim, I would prefer to honor Plat 94-130 and not disrupt the monumented lines for that survey.
- SW Quadrant of Gaffney/Cushman: Lots 1A, 1B, 2A, 2B. Prorated boundary between Lots 1 & 2 of Block 3A Rickert Subd. Then established E-W subdivision from document 2004-019679-0 recorded 9/1/04.
NW Quadrant of Gaffney/Cushman: Lots 1 & 2 Blk 125 Townsite; TL-9, TL-2, TL-11, TL-39. Prorated in Townsite Lots 1 & 2. Remaining Tls by Document 2007-016682-0 recorded 7/23/07 and document 2004-014013-0 recorded 6/28/04. **!!! Note, second document makes a controlling call for the North line of TL-11 that is 5 feet offset from the building line!!!**
- NW Quadrant Gaffney/Cushman: Block 2 Rickert/Block 124 Townsite – Prorated lots in from centerline offsets to ROW based on Rickert Precise plat.
- Lots 1 & 2 Block 20 Rickert prorated in from Plat 182.913.

Airport Way/Cushman Intersection

3.21.16:

- Lots 1 & 2 Block 13 Rickert (See B1059/P168 – 4/10/98) for South 40' of Lots 1 & 2 and North ½ of Lot 23. To compute the North ½ I split the lot by equal area on a bearing that was the mean of the bearings for the north and south boundaries.
- Lots 1&2 Block 14 Rickert. The FNSB GIS suggests that Lots 1&2 are split into 1A/1B, 2A/2B, but not deed in the title documents listed appears to indicate a lot split so I left it alone.
- Lot 3A & 21A & 4 established using Plat 96-139.
- Lot 1-A, Lot 5-A Blk 1 Rickert established by Plat 93-204 and recovered monuments & Rickert precise survey.
- The lots for Gerson Subdivision (166.636) to the east of Noble and Sutherland (105.093) along the east ROW of Noble were located using a cluster of monuments recovered by PDC for the Noble Street ROW plans. The Noble Street ROW was held at a 25.00' offset. Sutherland lot lines were modified by Lot 1 replat 83-215 and Lot 5-7 replat 2014-4. The calculated/measured vs. record dimensions for these lots were within reason. (A few hundredths to a few tenths.)

3.21.16:

- Kolde Homestead east of Noble and south of Sutherland/Gerson subdivisions. For these parcels I used the descriptions in document 2006-021797-0 constraining the north line to match the south boundary of Gerson; the west line to match the east line and project of the east line of Sutherland; the east line a projection south of the east boundary of Gerson; and the south line being a line drawing from a PDC recovered monument for the SE corner of Kolde Lot 6 and the termination of the DOH Airport Road ROW line for Parcel 39 according to the 1960's COGO. This line was projected to the SE to intersect with the section line based on the east boundary of Gerson.
- **!!!**Note that the southerly boundary of these lots along the northerly ROW for Airport Road indicates ROW parcels (E-31 & E-31) to be acquired under the ongoing Noble Street project. Also, easements are to be acquired at the south boundary of Gerson (E-34 to E-38). Once these have been acquired we will need to modify our drawings.
- Also note that because I have constructed the boundaries in this area from monuments and my interpretation of deeds and plats, the existing lot lines vary from those determined by PDC. To avoid confusion and if our project does not affect this area, we should either leave the lot lines unlabeled or adjust the lot lines to fit the PDC determinations.