AIRPORT WAY/CUSHMAN STREET INTERSECTION RECONSTRUCTION
PROJECT 0002312/Z640780000
SUMMARY OF BOUNDARY PROBLEMS REPORT

MARCH 21, 2017

Introduction

For surveying and mapping purposes, the Airport Way/Cushman Street Intersection project extends along Airport Way from the Barnette/Gillam Street intersection on the west end to the Noble Street intersection on the east and along Cushman Street from 15th Avenue (East) on the south end to the Gaffney Road on the north. The Gaffney Road corridor from Cushman Street to Noble Street is included within the survey limits.

Project History

The current project is a subset of a larger Cushman Street effort that has been active since the mid-1980's. In 1989, URS/Thomas Engineering issued a Final Environmental Impact Statement for the Cushman Street corridor from Gaffney Road to Van Horn Road. As a result of that effort,

Thomas Engineering performed an extensive survey of the corridor between May of 1991 and July of 1994 in which many monuments relevant to the definition of boundaries were located and tied. According to the plat notes: "*The purpose of these plats 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.*" In 1996, the survey was filed as a record of survey (ROS) and information from the ROS was used to generate a set of draft right-of-way (ROW) plans. In 1996 the project was put on hold. Ties to common monuments in both the R&M and Thomas survey system will allow us to incorporate Thomas monument ties into our system.

In 2000 the project was approved to move ahead again and a design contract was issued to PDC, Inc. In May of 2002 PDC issued a Scoping Report in which they discussed how they would validate and incorporate the Thomas draft ROW plans and recorded ROS into their project. According to this review, PDC concluded the following: "*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*." In September of 2007, PDC issued a draft Environmental Assessment for South Cushman Street from 17th Avenue to Gaffney Road. Towards the end of 2007 the contract for the Cushman Street design was released and the project taken back by DOT&PF.

From 2014-2015 the City of Fairbanks improved South Cushman Street between 14th Avenue (200-feet south of Airport Way) and 28th Avenue. Project FB-14-02/62532 South Cushman Sidewalk and Drainage Improvements was designed using the monument ties and coordinate system developed by the 1996 Thomas ROS.

Between 2015 and 2016 the City constructed Project FB-15-07/77194 Cushman Roadway, Sidewalk, Drainage, Utilities, Signalization, Lighting, and Landscaping Improvements aka "Complete Streets". The project commenced at Gaffney at the northern edge of our project survey limits and continued to the Chena River. The survey for this project used a unique coordinate system and basis of bearings and the Cushman Street centerline monuments removed for construction of this project had not been replaced at the time of our survey. The survey control for the "Complete Streets" project was of limited value for the Airport Way/Cushman Street Intersection project.

DOT&PF Project No. STP-000S(413)/61725 Fairbanks Noble Street Upgrade is being developed by PDC, Inc. and is currently in the right-of-way acquisition stage. The south end of this project is located at the eastern end our project's survey limits. DOT&PF provided us with a draft set of ROW Basemaps, a draft Survey Control Record of Survey and draft Right-of-Way acquisition plans. The PDC survey uses a unique coordinate system and basis of bearings but ties to common monuments in both the R&M and PDC survey system will allow us to incorporate PDC monument ties into our survey.

On November 17, 2015, R&M Consultants, Inc. entered into a sub-contract with Kinney Engineering, LLC to provide survey and mapping services for the Airport Way/Cushman Street Intersection project.

Primary Survey & Mapping References

- 1909 - U.S. Survey 849 Plat of Homestead Claim of Stacia Rickert.
- 1922 – Map of the Official Survey of Fairbanks Townsite reproduced by Karl Theile also known as U.S. Survey No. 438 approved on August 17, 1910.
- 1944 – Subdivision of Rickert Homestead filed as Plat 96.332 on November 4, 1944, FRD.
- 1946 – Plat of Gateway Subdivision, A Portion of the Kolde Homestead filed as Plat 102.797 on December 17, 1946, FRD.
- 1947 – Plat of Sutherland Subdivision filed as Plat 105.093 on July 28, 1947, FRD.
- 1955 – Precise Survey of the Fairbanks Townsite by R.W. Beck & Associates. Property Map Sheet G-13 obtained from the City of Fairbanks Engineering Department covering 11th and 12th Avenues between Turner and Noble Street. The sheet is dated January 1, 1955 but was not recorded.
- 1956 – Plat of Gerson Subdivision filed as Plat 166.636 on September 28, 1956, FRD.
- 1957 – Precise Survey of Rickert Homestead Subdivision obtained from the City of Fairbanks Engineering Department. The dimensions on this plat are edited to reflect the precise survey performed by the City between 1956 and 1957. City file No. B3.1058. This version of the Rickert Subdivision Plat was not recorded.
- 1962 – City of Fairbanks Noble Street – Project No. F-062-4(14) dated July 16, 1962. Filed as Plat 75-88 on July 31, 1975, Fairbanks Recording District.
- 1968 – Airport Way ROW Plans “In Fairbanks From Gillam Way E & S – Project No. F-062-4(21) approved December 30, 1968. Recorded plans were not located but are on file at DOT&PF ROW Archives as Drawings No. 219-230 and were the basis for the recorded acquisition documents.
- 1973 - Gillam-Gaffney-Big Bend – Project No. F-037-1(27) As-builts dated July 9, 1973.
- 1986 – Right-of-Way Summary of the Cushman Street & Gaffney Road Intersection – Research mapping for Cushman/Gaffney Signal Upgrade project by Design Alaska. Unrecorded but on file at DOT&PF ROW Archives as Drawing No. 2417.
- 1986 - Cushman/Gaffney Signal Upgrade ROW Plans – Project RS-HEA-M-0663(2) – Recorded as Plat 91-42 on May 30, 1991, Fairbanks Recording District.
- 1991 – Cushman St./Gaffney Rd. Signal Upgrade – Project RS-HES-M-0663(2)/60487 As-builts dated October 11, 1990.
- 1996 – South Cushman Street Record of Survey – Project RS-M-0663(5)/63216 – Thomas Engineering – filed as Plat 96-93 on August 6, 1996, Fairbanks Recording District.

- 2005 Unrecorded ROS by PDC, Inc. for DOT&F of South Cushman Street Improvements, 18th Avenue to 12th Avenue.
- 2009 – Gaffney Road Improvements – Project FB-09-15 – City of Fairbanks As-builts – Survey Control Sheet 3 of 16.
- 2014 - South Cushman Sidewalk and Drainage Improvements – Project FB-14-02/62532 – City of Fairbanks As-builts dated 3/5/15 – Survey Control Sheets 3.01 & 3.02.
- 2015 – Cushman ("Complete Streets" from Gaffney to 1st Avenue) – Project FB-15-07/77194 – City of Fairbanks Design Plans – Survey Control Sheets 3.01 & 3.02.
- 2015 – Fairbanks Noble Street Upgrade Survey Control Record of Survey – Project No. STP-000S(413)/61725. Submitted by PDC, Inc. to DOT&PF on 5/6/15. This ROS is currently unrecorded.
- 2016 – Fairbanks Noble Street Upgrade Right-of-Way Basemap – Project STP-000S(413)/61725 produced by PDC, Inc. and obtained from DOT&PF ROW on January 11, 2016. These plans are currently unrecorded.
- 2016 – Fairbanks Noble Street Upgrade Right-of-Way Map – Project No. STP 000S(413)/61725) – Last revision date January 28, 2016. Produced by PDC, Inc. and currently unrecorded.
- Multiple subdivisions and replats of above noted primary subdivision plats.

Field Survey

The field survey was performed by R&M Consultants, Inc. (R&M) between December 2, 2015 and January 26, 2016. Additional monument ties were made between May 22 and May 31, 2016. The survey was initiated at the early stages of the environmental document process and required survey limits that were sufficiently broad enough to capture all probable design configurations. The number of monuments tied during the initial survey was limited to allow for an appropriate level of preliminary base mapping while keeping costs within reason. The completion of the environmental document will allow for identification of properties from which right-of-way will be acquired. At that stage, a more focused search for monuments necessary to define the impacted properties may require an additional surveying effort.

Right-of-Way & Boundary Control

Prior DOT Survey Contracts: This was a unique base mapping project in that the monuments recovered by the R&M survey were supplemented with monuments recovered by the 1996 Thomas ROS for Cushman Street and the PDC survey for the current Noble Street project. There were several reasons for incorporating these other surveys:

- DOT&PF funded, issued and managed the contracts for each of the three surveys.
- The Thomas survey, the PDC update to the Thomas survey and the PDC Noble survey all coincide with or overlap the R&M survey limits.

- Incorporating the Thomas and PDC surveys strengthened the R&M mapping and should result in fewer boundary adjustments once the ROW and design limits are determined.
- R&M has validated the Thomas and PDC surveys through ties to common monuments in each system.
- Many Cushman Street centerline monuments initially tied by Thomas and validated by PDC have been disturbed by construction activities and those North of Airport Way have not yet been replaced.
- Monuments tied by the Thomas and PDC surveys that are currently missing or unavailable may represent the "best evidence" for boundary location.

Cushman Street Data: The monument positions recovered by the 1996 Thomas ROS (Plat 96-93), validated and supplemented in the unrecorded PDC ROS in 2005 were imported into the current project. The imported points were oriented to the project by translation to the common recovered 7.75' offset monument for the Airport Way/Cushman SI. (R&M #743) and rotated to the line between the Airport Way/Cushman offset monument to the Airport Way/Gillam offset monument (R&M #744). After translation and rotation, the average difference in northings for the 11 common monuments in the R&M and Thomas/PDC systems was 0.04 feet. The average difference in eastings was 0.06 feet. These differences indicated a very good fit between the two systems and validate the value of incorporating the prior survey data into the current project.

Noble Street Data: The monument positions recovered by the 2014 unrecorded PDC surveys for Noble Street were imported into the current project. The imported points were oriented to the project by translation to the common recovered 7.75' offset monument for the Airport Way/Cushman SI. (R&M #743) and rotated to the line between the Airport Way/Cushman offset monument to the Airport Way/Noble offset monument (R&M #742). After translation and rotation, the average difference in northings for the 11 common monuments in the R&M and Thomas/PDC systems was 0.07 feet. The average difference in eastings was 0.09 feet. Although the differences were slightly larger than the imported Cushman data, it still represents a good fit and a valuable addition to the survey data for the current project.

Department of Highways Airport Way ROW: The Airport Way existing ROW from Gillam Way East is based on the 1968 ROW plans for Project F-062-4(21) In Fairbanks From Gillam Way E&S. Unfortunately, it is impossible to reproduce and locate the ROW line from these plans due to poor quality graphics and lack of necessary dimensions. This problem was identified during the preparation of the 2005 PDC unrecorded ROS for Cushman Street. In a note, PDC commented that "*The as-built design plans for Alaska Project F-037-1(27) were used to determine sidewalk locations where the dimension shown on the Alaska Project F-062-4(21) Right-of-Way maps are unreadable. As indicate on the Right-of-Way maps, the right-of-way is 4 feet behind the sidewalk."*

While the ROW may have been designed according to the proposed location of the sidewalk,

my concern is that construction staking and sidewalk form setting is a bit removed from the legal acquisition of ROW process and should only be considered as a last resort. To obtain a ROW location more in keeping with the ROW acquired I obtained copies of the recorded acquisition deeds. In some cases these were helpful because they provided metes & bounds descriptions of the taking that included details unavailable from the ROW plans. In other cases, the deed simply described the parent parcel by lot & block because the remainder was sufficiently small as to warrant a total taking. And while the metes & bounds descriptions provided more detail, they were tied only to the lot & block from which the taking was made and not to the project centerline control. Without understanding where the original ROW mappers believed the lots were located, it would be difficult to reconstruct an accurate and uniform existing ROW.

I was able to locate the original 1968 COGO printouts for the Airport Way ROW mapping effort. At the time, computer technology was not readily available. The Department of Highways staff would “hard code” the COGO problems on forms and mail them to Juneau for processing on a State owned IBM computer. The COGO solutions were then mailed back to the Region and used to construct the ROW maps and acquisition legal descriptions. These COGO runs were sufficient to reproduce the subdivision lot & block definitions used in 1968 as well as the centerline, ROW line and access control line geometry.

The result was a reconstructed ROW and access control line that was directly related to the recovered centerline offset monument control. This process should provide as accurate a retracement of the existing ROW as can be accomplished given the limited control. The ROW lines were developed as segments that terminate where subdivision street ROW intersect from the North and South. After reconstructing the block lines for Rickert and Gateway subdivisions the Airport Way ROW lines were adjusted to fit the intersecting street ROW lines. In most cases the intersections were within a couple of tenths of the record dimension.

Access control (A/C) is a line that defines a legal interest that controls where adjoiners may enter onto the highway. Airport Way is an access-controlled facility and most of the geometry for the access control line is based on a fixed offset to the Airport Way centerline. The problem arises where the access control line wraps North or South at the intersections for Gillam, Cushman and Noble. In these areas the ROW plans and acquisition documents offer poor definition. A better definition can be determined from the as-builts, particularly the intersection details. Unfortunately, even using these details to locate the A/C creates conflicts with the sidewalks and with the ROW definition. 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. In order 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 had no ROW line to control the location of the A/C so I used the sidewalk geometry to fix the location. Neither the 1969 ROW plans nor 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 and documented as a part of the design process for the current project.

Rickert Subdivision Precise Survey: The bulk of the project survey limits fall with the Subdivision of Rickert Homestead. Most of Rickert is west of Cushman Street and I was initially concerned about the accuracy of a 1944 plat, the limited monuments we have to control the plat and the poor legibility of some of the centerline dimensions.

I found references in Plat 83-170, a replat at the west end of the survey limits adjoining Gillam Way, that a "*City Engineer's precise survey of original monumentation in Rickert according to data on file in the City Engineer's Office."* In 1955 a precise survey of the Fairbanks Townsite had been performed by Seattle engineering company R.W. Beck & Associates as a prelude to the expansion of city water and sewer systems. Anecdotally, I had heard that this survey tied all Townsite street intersection monuments using a T-2 theodolite for angles and an invar chain and chaining bucks for distance measurement. These maps are available at the City Engineer's office and have been used as "best evidence" to locate street intersections (SIs) that have been destroyed by construction activities without prior referencing.

I contacted the City Engineer's office to obtain a copy of the Rickert precise survey and initially they could not find it. When another surveyor was able to provide me with a file number, the City located and scanned a copy for our files. The map includes the following note dated January, 1976 from Dave McNary who had been the City Surveyor for many years: "*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."* In addition to the bearings and distances between SI's, the map also provides some notation regarding offsets from centerline to block boundaries presumably based on evidence recovered at the time of survey.

The centerlines and block lines for Rickert were computed from the precise survey which closed well and were internally consistent. I then aligned the precise survey data with the recovered SIs at Mary Ann & Turner and 15th West & Turner with the following comparisons to other R&M recovered monuments:

Pt No.	Description	Delta N	Delta E
701	SI 15th & Laurene	-0.013	0.060
707	SI 15th & Stacia	0.084	0.202
711	SI 15th & Cushman	0.114	0.405
50038	SI Gaffney & Cushman	-0.075	0.015
705	SI 15th & Mary Ann	0.045	0.070
702	SI 15th 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 and not the centerline monuments on Cushman. Of all of the comparisons between recovered monuments and the precise survey positions, the only one not tied by R&M (because it was removed for the 2015 City "Complete Streets" project) is the SI at Gaffney and Cushman. For that SI, I used the coordinates derived from the Thomas/PDC ROS and was pleased to find the relationship with the precise survey to be within a few hundredths.

Existing Centerlines/Alignments

Four existing centerline alignments were defined to reference the survey data and historic plans within the project area:

Airport Way From Gillam Way East: The R&M survey tied 4 monuments on Airport Way including the offset monuments Gillam, Cushman, Noble and Steese/Richardson. These monuments are not noted on the Airport Way ROW plans but are noted in the project as-builts and are related to the Airport Way centerline by station and offset. In order to facilitate computation of the Airport Way ROW I wanted to fit the record centerline geometry to the recovered offset control monuments at Gillam, Cushman and Noble.

Between the Gillam (R&M #744) and Cushman (R&M #743) offset monuments, the R&M distance was 1300.61' as opposed to 1300.92 feet from the project as-builts. The R&M distance compared favorably with the PDC (2005) distance of 1300.68 noted on the unrecorded PDC ROS for the South Cushman project. Between the Cushman and Noble (R&M #742) monuments, the R&M distance was 760.06 as opposed to the record as-built distance of 760.47' and the PDC (2005) distance of 760.14. Note that the Noble monument was stamped as "Reset 2014".

As our project is centered on the Airport Way/Cushman Intersection, I translated the record Airport Way offset monuments and centerline geometry to match the R&M recovered position for the Airport & Cushman offset monument and rotated the record data to match the line between the Cushman and Gillam offset monuments.

Once the record Airport Way data was translated and rotated into the current project system, the basis of stationing was set at the record street intersection (SI) "L" 161+54.74 POC according to the Airport Way as-builts. Once the control for the Cushman Street alignment established the "recovered" SI for Airport Way/Cushman, the basis of stationing was established as "A" 161+55.39 POC.

Cushman Street: The Cushman Street centerline was established using the recovered positions for the SI monuments at 15th Avenue East (R&M #709), 15th Avenue West (R&M #711), Gaffney (Thomas #38) and 12th Avenue (Thomas #10).

The unrecorded PDC update of the Thomas ROS used a best fit line of recovered Cushman SI's between 18th Avenue West and 12th Avenue. I decided that the better solution was to use the point to point lines between each monument in part because the Airport Way/Cushman 7.75' offset monument was shown to be 0.62' west of the true centerline between the SI at 12th and 15th West and because it would avoid confusion during construction. Also, the Cushman project that eventually went to construction and was completed in 2015, used the original Thomas ROS coordinate values for the SI monuments and ran the alignment between physical monuments as opposed to a best fit line.

The basis of stationing for the Cushman alignment was established as the record station at the Cushman/Gaffney SI according to the Thomas ROS. The station at this SI is "C" 240+36.62 PI.

Gaffney Road: The centerline alignment for Gaffney road between Cushman and Noble was based on the City of Fairbanks project FB-09-15 survey control sheet dated 5/11/09. The existing ROW along this alignment is unrelated to the centerline alignment but this alignment was selected as it was the basis for the Gaffney project design.

The alignment commenced at the Cushman/Gaffney SI (Thomas #38) to the PI offset 0.85' from a referenced brass cap monument (R&M #728). The alignment was then run with record City of Fairbanks (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.

Noble Street: The Noble Street centerline alignment was adopted from the unrecorded PDC ROS for Survey Control 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 (R&M #742). The centerline data for the first curve on Noble 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 (R&M #714). 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 (R&M #713). 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.

Alignment Equation Summary:

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

Existing Right-of-Way: General

Airport Way: The existing record ROW and for Airport Way was generated from the original 1960's coordinate geometry files and verified by inversing through the metes and bounds descriptions that were recorded for many of the acquired parcels. Once validated, the existing ROW was translated and rotated to the R&M control system.

Rickert Subdivision: The lots and blocks for Rickert were computed using the previously referenced late 1950's precise survey data. Once the precise survey data had been validated for internal consistency, it was translated and rotated to the R&M control system. For streets where R&M had tied or incorporated Thomas/PDC monuments, the subdivision ROW lines were computed using offset lines as stated on the Rickert Precise Survey plat. Where centerline survey ties were not available, the subdivision ROW lines were computed using offsets from the Rickert Precise Survey plat dimensions.

Gateway Subdivision: The lots and blocks for Gateway subdivision were computed using the record subdivision plat dimensions oriented to monuments tied by R&M or incorporated from the Thomas/PDC surveys. The south end of the computations were anchored with three recovered monuments along 15th Avenue East at Cushman, Lacey and Noble. The North-South centerlines were oriented using record offsets from recovered lot corners. The ROW lines were then established using the record 25.00 foot offsets from centerline. The intersections with the record Airport Way ROW lines were generally within 0.2 feet and accepted as reasonable.

Cushman Street: Within our project area, most of Cushman Street lies within Rickert Subdivision. As previously mentioned, I elected to fix the Cushman centerline on a point-to-point line between recovered monuments. From Airport Way south to the intersection of Rickert & Gateway subdivisions between 15th Avenue East & West, the ROW line was established at the record 25.00 foot offset to the west and 24.00 offset to the east.

Continuing south, the 25.00 foot offset to the west ROW line was maintained and the offsets to the east Cushman ROW along Gateway subdivision varied according to the record lot & block line locations.

The portion of Cushman Street between Airport Way and Gaffney has a complex and variable ROW as a result of the 1980's Cushman/Gaffney Signalization project. Note that the existing ROW of 25.00 feet offset to the east as shown on the ROW plans for the Signalization project is incorrect. The east ROW should have been shown at 24.00 foot offset according to the record Rickert Subdivision plat and is shown correctly at 24.00 feet on other mapping. The ROW west of the Cushman centerline is offset 36.00 feet due to Signalization project acquisitions. Once the block lines in the four quadrants of Cushman & Gaffney were constructed from recovered monuments and record data, the complex Signalization project acquisitions fit reasonably well.

Noble Street: In a manner similar to their handling of the Cushman Street centerline, PDC elected to develop centerlines using a best-fit line through monuments that had been in a straight line according to the record plats. I did not follow this method on Cushman but it did not present a conflict on Noble because their best-fit alignment heads north from 12th Avenue where our project alignment terminates. As the DOT&PF ROW acquisition effort is currently in progress, the R&M base map only shows the pre-acquisition record ROW for Noble. For Noble Street north of Gaffney, the ROW was established as 25.00 feet left and right of the Noble street centerline.

Right-of-Way and Boundary Conflicts/Issues: Specific

Gaffney Road from Cushman to Noble: 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 plan set includes extensive notes relating to the Gaffney ROW.
- Gaffney Road Improvements Survey Control – City of Fairbanks 5/11/09 – This plan set provides a ROW definition 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 plan set only shows the north ROW for Gaffney within Rickert Subdivision.
- Gateway Subdivision: Plat No. 102.797 – The plat defines the southerly ROW of Gaffney as the north boundary of the subdivision. No width for the Gaffney road ROW is provided. Gaffney is not within the boundaries of the subdivision according to the written legal description and so it is unlikely that AS 40.15.050, which legalized dedications on plats prior to March 30, 1953 would have any effect.
- Plat 94-130 establishes more than a third of the northerly 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 plats provide evidence supporting a public 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 Cushman/Gaffney Signalization project. For the middle section, I accept the definition of the ROW according to Plat 94-130 on the basis that where ambiguity could result in multiple definitions, the platted line provides a reasonable solution that results in some finality.

NE Quadrant of Cushman/Gaffney Intersection: Lots 1 & 2 Block 125 Townsite; TL-9, TL-2, TL-11, TL-39. Townsite Lots 1 & 2 were prorated in from recovered centerline monuments. The remaining Tax Lots were established by document 2007-016682-0, recorded 7/23/07 and document 2004-014013-0, recorded 6/28/04. Note that the second document makes a controlling call for the North line of TL-11 that is 5 feet offset from an existing the building line. Should an acquisition be required from this lot, the existing structure will have to be accurately located.

NW Quadrant of Gaffney/Noble Intersection: 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 Street plan note No. 9 states that the ROW for this parcel was based on the Airport Way acquisition deed recorded in B247/P257. (aka "Texaco" parcel) The Noble Street plans lay in the compound curve (Radius 22.00' and 213.73' record as per Airport Way Parcel No. 38) and extends those curves along the north ROW of Gaffney. The 213.73' radius curve was extended by 27.32' to the west boundary and the 22.00' curve was 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.

The origins of the conflict can be seen on the plat of Sutherland Subdivision 105.093 that is on the east side of Noble opposite the "Texaco parcel". This plat indicates an approximate 1-degree angle point in the Noble centerline that is not reflected in the deed for the Texaco parcel. The deed projects the west Noble ROW as it is shown on the Fairbanks Townsite plat. 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 Noble ROW plans show the existing Noble Street ROW as 25' each side of centerline.

My solution was to first reconstruct the boundaries of Lot 7 of Kolde Homestead and then fit the record Airport Way ROW within it. Using the latest deed for Lot 7 Kolde, document 2004-012514 recorded on 6/10/2004, I started at recovered point No. 731, adjusted for a 25' offset from the Noble centerline. According to Plat 94-130 this point would be the southeast corner of Block 126 of the Fairbanks Townsite and the intersection of the south Townsite line and the west ROW for Noble Street. 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 southeast corner to the R&M recovered monument #752 which Plat 94-130 represents as the southwest corner 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.

Using this lot configuration I compute the intersections 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 as it is a fairly flat intersection with the south boundary, this is not unreasonable. 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 used the wrong bearing to define the east boundary. PDC also accepted the 25' offset line as the lot line but the R&M solution for the Gaffney ROW may be more consistent with the original lot lines and the DOT Airport Way ROW acquisition. The larger problem might be that the R&M ROW definition may indicate that the existing sidewalk is 1-2 feet outside the existing ROW. I believe that PDC established their ROW to fit the back of sidewalk possibly on the basis that DOT can now assert a prescriptive easement for the sidewalk area. This may be true but I believe that the current plans should locate the existing ROW as accurately as possible as well as indicate areas that may be asserted by long public use as subject to potential public prescriptive easements.

Airport Road ROW East of Noble: Kolde Homestead to the east of Noble and south of Sutherland/Gerson subdivisions.

The portion of the Airport Way ROW acquired from lots 8 & 9 of Sutherland subdivision is defined according to the acquisition document for Airport Way Parcel 39 (B240/P110) and oriented to the Airport Way control using the 1968 COGO files.

The Airport Way ROW and lots east of Parcel 39 were based on the descriptions in record document 2006-021797-0 and the following constraints:

- The north lot line was defined to match the south boundary of Gerson Subdivision.
- The west lot line was defined to match the east line and projection of the east line of Sutherland subdivision.

- The east lot line was defined as a southerly projection of the east boundary of Gerson subdivision.
- The south line was defined by a line between 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 Airport Way COGO. This line was projected to the SE to intersect with the section line based on the east boundary of Gerson subdivision.

Note that the southerly boundary of these lots along the northerly ROW for Airport Road indicates ROW parcels (E-31 & E-31) are to be acquired as a part of 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.

Gap between Rickert & Gateway Subdivisions: The two primary subdivisions affected by this project are the Subdivision of Rickert Homestead, Plat 96.332 filed on 11/4/44 and Gateway Subdivision, Plat 102.797 filed on 12/17/46. The east boundary of Rickert and the west boundary of Gateway appear as if they were intended to coincide, however, interpretations of the plats over the years has resulted in the perception of a gap between the two subdivisions. This triangular gap extends from the south ROW for Gaffney Road southerly to a point on the easterly ROW for Cushman Street a short distance north of its intersection with 15th Avenue East. This may only become an issue for the current project if it is necessary to acquire new ROW from Block 3 of Rickert Subdivision.

A note on sheet 2 of the Thomas ROS (Plat 96-93) describes the problem as follows: "*Gateway/Rickert Line. This line is from Corner #1 (found this survey) to corner #2 (missing), US Survey 849 (1909), where it is called out as South. It is used as the Eastern boundary of Rickert Subdivision (1938-1944) and the Western boundary of Gateway Subdivision (1946). Both Subdivisions begin this line at Corner #1 but disagree as to the bearing with Rickert calling S0°22'00"W and Gateway calling South. Existing monumentation for each subdivision was placed using different bearings from Corner #1 with a resultant gap between the subdivisions in the form of a long narrow triangle as shown on the plats.*"

The common boundary between Rickert and Gateway subdivisions was intended to be the east boundary of U.S. Survey No. 849, the homestead of Stacia Rickert that was approved on November 20, 1913. The east line (1-2) of U.S.S. 849 was monumented with 3" iron pipes. The plat and field notes identify the bearing of the line as "South" with a distance of 40.00 chains (2,640.00 feet). A dependent resurvey of Section 15, T.1S, R.1W., F.M. approved on November 24, 1952 recovered the 3" iron pipes for Corner No. 1 & 2 and identified the bearing

and distance between the corners as N 0°21' E, 39.985 chains (2,639.01 feet). The resurvey also recovered Corner No. 3 of U.S.S. 849 and measured the line between Corners 1 & 2 as N 89°57' E, 80.028 chains (5,281.85 feet). This suggests that the difference in the Line 1-2 bearings between the original survey of U.S.S. 849 and the Dependent Resurvey of Section 15 was not due to a rotation error in the Dependent Resurvey. A more reasonable view is that the original bearing of "South" for the east line of U.S.S. 849 was in error or that Corner No. 1 had been moved after the original survey. A note on the plat of Rickert Subdivision (Plat 96.332) states that "*Corner No. 1 was reported as having been disturbed in 1938."* The Rickert Plat (96.332) filed in November of 1944 and an earlier preliminary plat of Rickert (88.681) filed in May of 1941 both report the east line of the subdivision between Corners 1 & 2 of U.S.S. 849 as being N 0°22' E, 2635.75 feet. The Rickert plat and the Dependent Resurvey of Section 15 report the bearing for the east line of U.S.S. 849 within 1 minute of each other.

Another source used to identify the conflict is the Resubdivision Plat of Lot 11, Block 3, Rickert filed as Plat 63-5570 on August 23, 1963. A plat note states "*The Plats of Rickert and Gateway Subdivisions do not agree upon the bearing of the common line between the subdivisions. The solution shown hereon for Lot 11, BL 3, Rickert Subdivision is based on the bearing and length of that line as shown on the Gateway Plat…"*

As a part of the unrecorded ROS prepared by PDC in 2005 for the South Cushman project, plat notes were drafted. In relation to the Rickert/Gateway boundary conflict, PDC stated the following: "*The plats of Rickert Homestead Subdivision and Gateway subdivision show a common bearing for Cushman street, South 10°52' East. But a different bearing for the common line between them.*

The Gateway Subdivision plat shows this common line to be with the east line of U.S. Survey 849 (1909). The original plat of U.S. Survey 849 states this bearing as "south". The Gateway plat reiterates this bearing. The monumentation along the streets in the subdivision supports this bearing.

The Rickert Homestead plat shows this line to be North 0°22' East. A Dependent Resurvey and subdivision of a portion of section 15 (1952) shows the east line of U.S. Survey as North 0°21' East. The monumentation along the streets in the subdivision supports this bearing.

The monumentation found along the streets in each subdivision tends to support the fact that the bearing difference does exist in the field. Monumentation was found along the west line of Gateway subdivision. No monumentation was found along the east line of Rickert Homestead. The monumented west line of Gateway Subdivision was used for the east line of the Rickert Homestead Subdivision."

Although the draft PDC notes state that they resolved the conflict in favor of the Gateway Subdivision west boundary, their final drawing files indicate that a separate boundary line was held for each subdivision and the gap was shown as existing. It doesn't appear on the Gateway

Subdivision plat that the surveyor retraced the line between Corners 1 & 2 of U.S. Survey No. 849 to establish the west subdivision boundary. At its widest point near Lot 9, Block 2 of Gateway, the gap is about 7.5 feet in width. The aerial photos of the area do not indicate much in the way of improvements within the gap that would support an argument of adverse possession by either residents of Rickert or Gateway. The surveyor for Plat 63-5570 resolved the conflict in favor of his clients and extended the Rickert lots to match the Gateway boundary. Given all of the information revealed in this project, I would have resolved the gap in the opposite manner by adjusting the Gateway Lots to meet the east boundary of U.S.S. 849 as defined by corners 1 & 2.

For the current project we were able to establish the east line of U.S.S. 849 through a tie to a monument incorporated from the Thomas/Cushman project. C-2 of U.S.S. 849 (#50165) is a brass cap set in concrete recovered by the Thomas ROS (Sheet 19 of 30). The northeast corner of U.S.S. 849 is represented by an R&M tied to #759 (#487 on the Thomas ROS Table Sheet 30 of 30, Al Cap 705-S). This corner is noted as set by Stutzmann on Plat 83-52. The inverse distance for this project is S 1°54'27" W (ASP Zone 3 Grid bearing), a distance of 2640.79 feet. I applied the convergence angle at the midpoint of this line to the grid bearing and the result was a true bearing of N 0°21'12" E which is within 12 seconds of the bearing reported by the 1952 Dependent Resurvey of Section 15. This suggests that the two monuments we have used to define the east boundary of U.S.S. 849 were appropriate.

The gap between the subdivisions has been apparent in the record for several decades. As a result, a simple call by the current surveyor to eliminate one interpretation of the boundary in favor of another may be an oversimplification that should be left to a quiet title action. Unless resolution of the gap becomes critical to the acquisition of this project's ROW, it should be represented as existing and left unresolved.

Base Mapping – The Next Phase:

Due to the broad scope of the preliminary base mapping effort, the work to this point has been accomplished without the benefit of formal title reports. As the design process continues, the project limits will be refined and reduced and specific parcels requiring acquisition will be identified. At that point, title reports will be ordered and the base maps will be updated with the following:

- Utility and access easements.
- ROW acquired as a part of the ongoing Noble Street project will be added.
- Owner's names.

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