

September 15, 2015

ATTN: REGION 40 REGIONAL REVIEW COMMITTEE

The City of Arlington is requesting the approval for the modification of the city's existing license. The following information is submitted in compliance with the procedures outlined in the Public Safety Radio Communications Plan for Region 40 booklet.

EVALUATION PROCEDURES

Appropriate Coordination and Licensing Application Forms

A completed FCC Form 601, requesting modification of the City of Arlington's license to reflect the addition of one new RF site at Lake Arlington to the existing Arlington's two sites and the upgrades of the existing sites from old FDMA SmartNet system to TDMA dual dynamic mode P25 system that will provide a much needed interoperability and advanced P25 features to the city, is attached. The present 12-channel trunked system accommodates approximately 2000 mobiles and portables. The system serves the City of Arlington, the University of Texas at Arlington, and the city's EMS provider.

The changes to the City of Arlington system can be summarized as below:

1. All the existing FDMA phased out radio equipment will be replaced by new state of the art TDMA radio equipment maintaining the licensed power and ERPs.
2. Adding a new site at Lake Arlington to extend and improve the coverage in the city for additional public safety and public works users.
3. Swapping out ten year old BMR10-O (10 dBd gain) omni antennas with new PIP and PIM rated Sinclair SC412 (11.5dBd gain) Omni directional antennas with 2 degree down tilt at each of the three sites.
4. Antenna height is maintained or lowered at each of the sites at the licensed heights.
 - **Curry Site:** New ant ht- 411 ft; Old ant ht – 500 ft; Current FCC approved ant ht – 500 ft
 - **Cooper Site :** New ant ht- 371 ft; Old ant ht – 400 ft; Current FCC approved ant ht – 433 ft
5. TDMA emission designator (9K80D7W) will be added to the existing licenses to support the TDMA operation on the new equipment.

The new 12-channel trunked TDMA system (providing 22 voice paths) will accommodate approximately 2000 (versus 1300 on old system) mobiles and portables that belong to City of Arlington public safety and public work agencies to meet the growing needs of the City.

In addition, mutual aid and backup channels are programmed on the system for the following agencies:

City of Fort Worth
Tarrant County
City of Grand Prairie
City of Mansfield
City of Euless
City of Kennedale
DFW Airport

The city will also consider providing service for requesting cities in the vicinity where sufficient coverage can be provided.

Exhibits

The following Exhibits are provided in support of the request for proposed modifications:

- ❖ System Engineering Exhibit 1: Configuration of the City of Arlington transmitter sites
- ❖ System Engineering Exhibit 2: Adjacent Channel Interference Calculations
- ❖ System Engineering Exhibit 3: City of Arlington Service Area Definition
- ❖ System Engineering Exhibit 4: City of Arlington 41 dBu contour for each of the three sites in relation to the required service area
- ❖ System Engineering Exhibit 5: City of Arlington (41 dBu) Vs City of Plano (41 dBu) Contour Maps
- ❖ System Engineering Exhibit 6a: City of Arlington – Old/ Existing System (26 dBu) Vs City of Plano – Existing System (41 dBu) Contour Maps
- ❖ System Engineering Exhibit 6b: City of Arlington – New System (26 dBu) Vs City of Plano – Existing System (41 dBu) Contour Maps
- ❖ System Engineering Exhibit 7: City of Arlington – New system 26 dBu Interference Contour for each of the three sites in relation to the City of Arlington - Existing system 26 dBu Contours
- ❖ Exhibit 8: FCC frequency database for Texas indicating the modified frequencies

Funding Statement

The city will fund all equipment through the 2013-2014 budget process and purchase all the equipment needed to complete this project.

Implementation Schedule

System Installation	April 2015
License Modification	September 2015
Funding Approved	October 2013
System Purchase	October 2013
System Acceptance	November 2015

Coverage Limitation

We are requesting that the radio sites (Cooper St, Curry Road, Lake Arlington) be approved by Region 40 for the changes mentioned above including antenna model change at each site. The transmitter power will be maintained at the approved ERPs.

Definition of Service Area

We understand and are in compliance.

Calculation of Service Area

This calculation was conducted by Motorola, using the procedure outlined in Appendix 12 of the he Region 40 Public Safety Radio Communications Plan.

Responsibility for Calculations

We understand and are in compliance.

Proposed Service Area Exhibit

See enclosed 41 dBU Contour Map

Frequency Reuse

The City of Arlington believes that no previously licensed frequencies exist within a 50-mile area; therefore no interference problems should be encountered.

Adjacent Channel Design

All radio equipment related to the proposed system is manufactured by Motorola and will be designed to reduce adjacent channel interference. Engineering Exhibit 2 shows all adjacent channels to proposed system. As seen from the table, the City of Arlington and the City of Plano share a single adjacent channel. Engineering Exhibit 6 and 7 show the existing and new 26 dBU interference contours between the two cities. Shown in Exhibit 6a and 6b is the current and future configuration of the 26 dBU contours of Arlington and 41 dBU contours of Plano with respect to each other. As you can see, there isn't much change in the contours and they remain in the limits of the previous approval.

The City of Arlington believes that no interference problems should be encountered. The City of Arlington's current system has been in operation since 1989 and has never experienced or caused adjacent channel interference. All calculations for adjacent channels were followed as prescribed in Appendix 15 of the Region 40 Public Safety Radio Communications Plan.

Absolute Mileage Separation

All frequencies meet requirements.

Trunking Requirement

All channels will be trunked using a Motorola P25 TDMA Simulcast System.

System Loading and Implementation Requirements

Requirements concerning loading as stated in FCC Rule Section 90.633 have been met currently by the City of Arlington. When completed, this system will meet the loading requirements.

SYSTEM ENGINEERING REQUIREMENTS

System Engineering Exhibit

The City of Arlington is in compliance with this section.

SUMMARY

The City of Arlington believes the system as proposed meets the intent and criteria as set forth in the Region 40 plan. Currently, the City of Arlington requires an additional third site for their enhanced coverage requirement and upgrades of their two existing sites from old FDMA SmartNet system to TDMA dual dynamic mode P25 system. This will provide a much needed interoperability and advanced P25 features to the city to not only meet the growing requirements of the city but will also meet the requirements of the University of Texas at Arlington and mutual aid agencies.

We appreciate the Committee's consideration of our proposal and look forward to your response. We would appreciate the immediate consideration of our proposal. We will be happy to meet with you at any time to answer any questions you may have.

Sincerely,

A handwritten signature in blue ink, appearing to read 'R. Shipp', is written over the printed name.

Rhonda Shipp, Communications Administrator
City of Arlington

Exhibit 1A – Curry Site Diagram

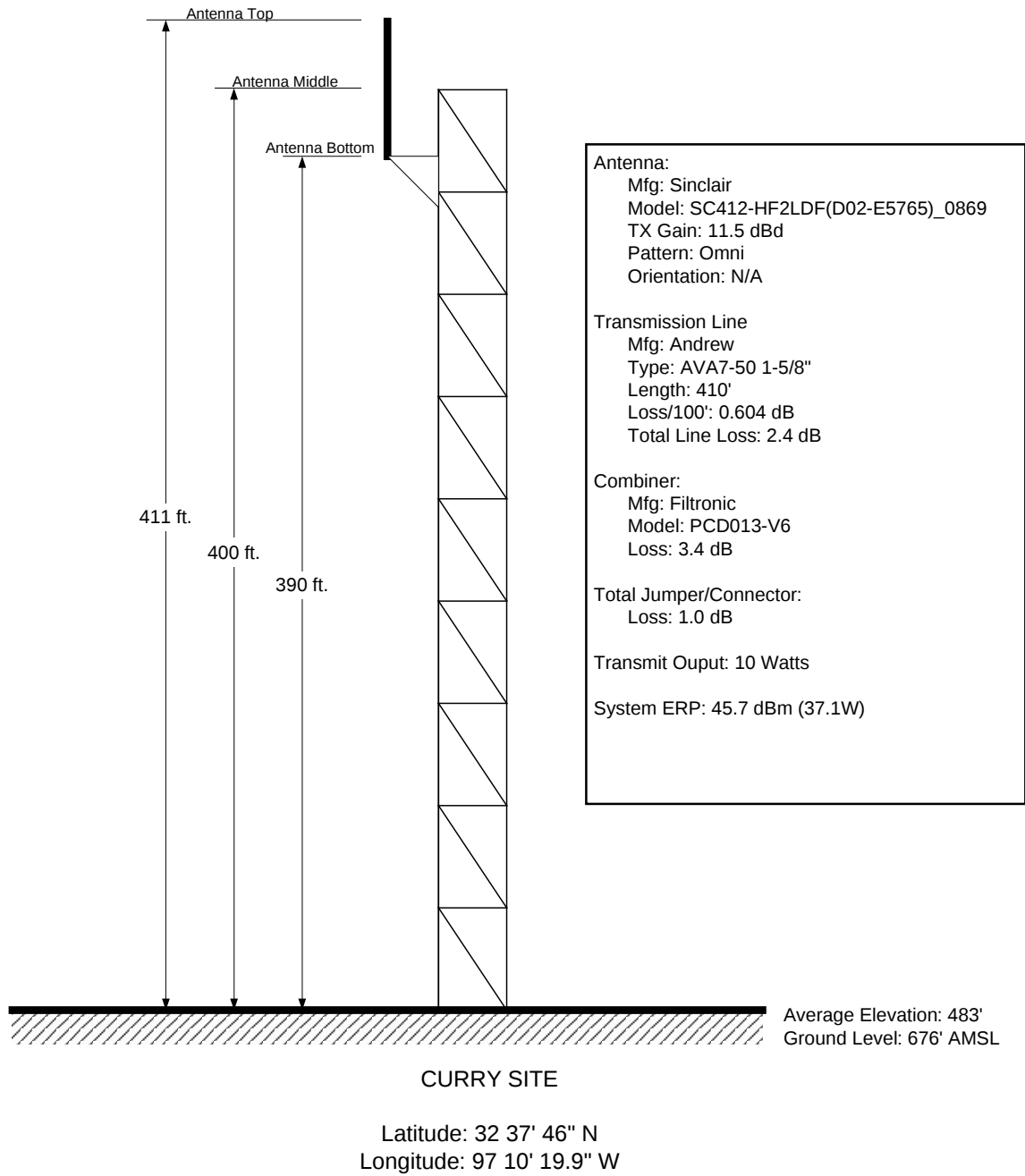
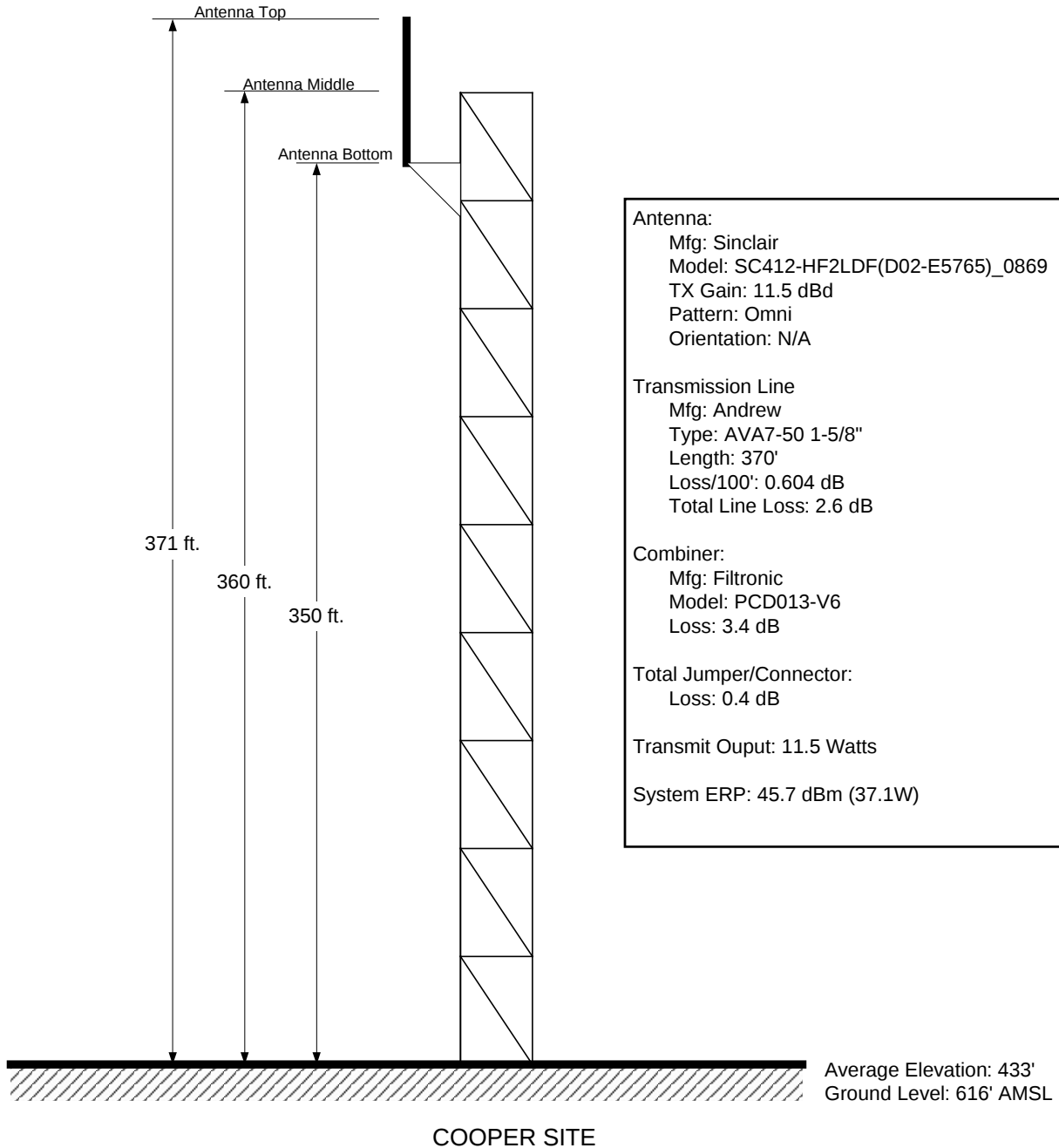
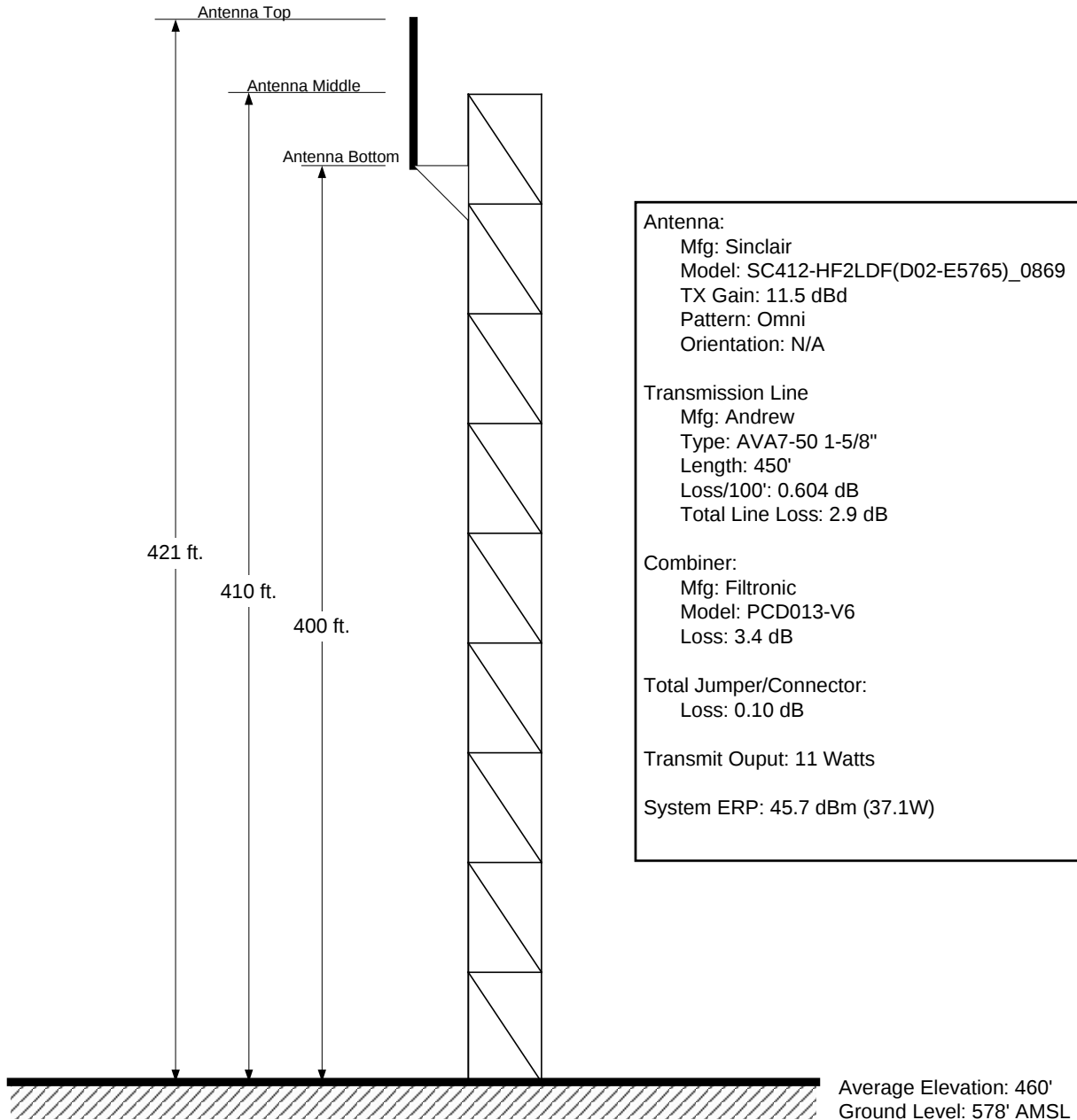


Exhibit 1B – Cooper Site Diagram



Latitude: 32 45' 29.5" N
Longitude: 97 06' 41.9" W

Exhibit 1B – Lake Arlington Site Diagram



LAKE ARLINGTON SITE

Latitude: 32 43' 7.00" N
Longitude: 97 13' 25.10" W

Exhibit 2 – Adjacent Channel Interference Calculations

The adjacent channel interference calculations are based on the following information obtained from the FCC database:

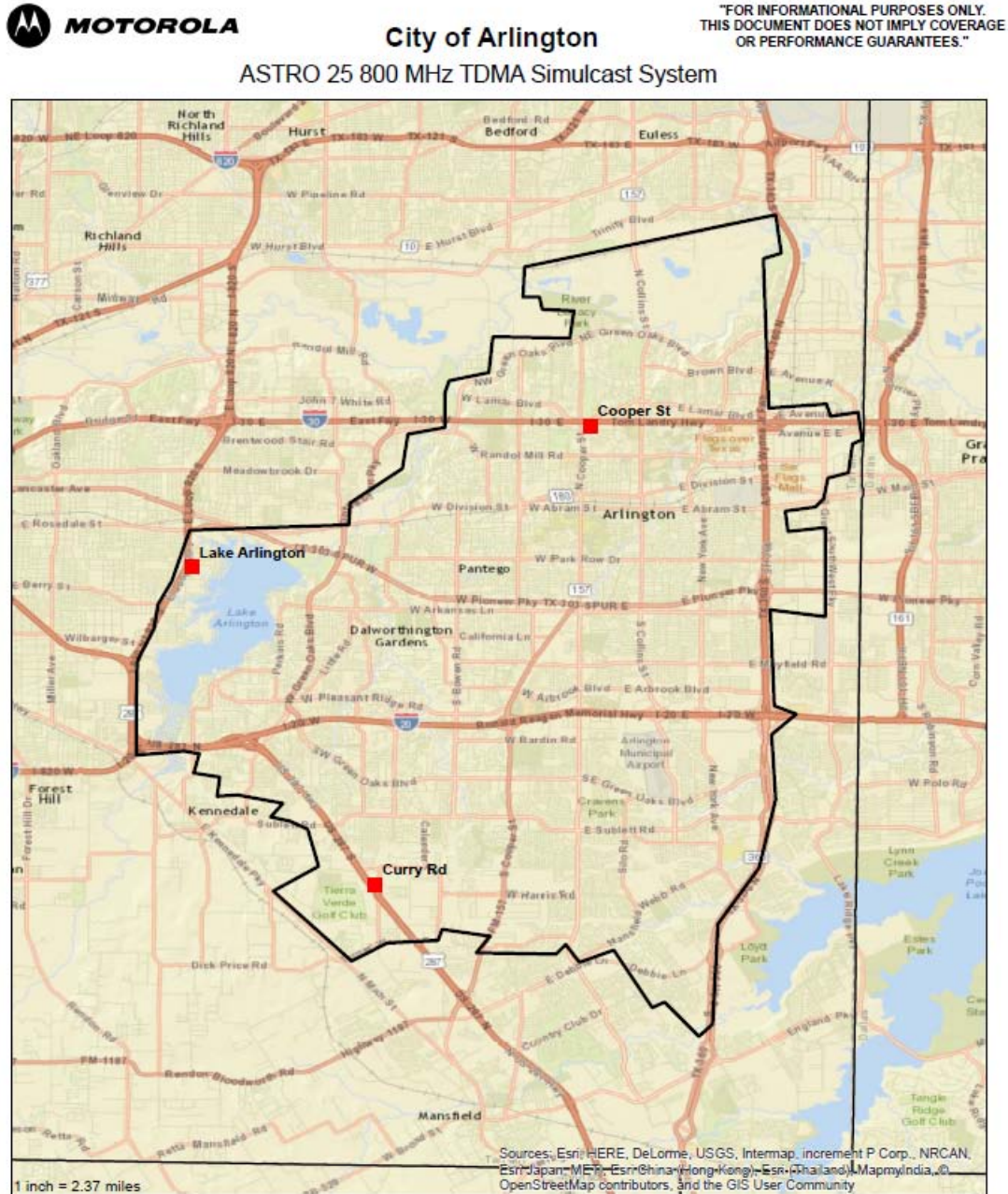
Desired Channel	Frequency	Adjacent Channel User	Adjacent Frequency	Co-channel User
118	852.5625	None	None	None
172	853.2625	City of Plano (3-sites)	853.2750	None

The following tables contain the adjacent channel interference results for the City of Arlington sites.

Site Name	Ch#	Int. State	CallSign	Freq (MHz)	Distance (mi)	Emission	ERP (watts)	Latitude (DMS)	Longitude (DMS)	Tip AGL (m)	Gain (dbi)	Entity	Loc#	Site Name	City	LicExp
Cooper St	172	Adjacent	WNWG614	853.275	24.72	8K70D1W	195.000	33°2'47.998"N	96°51'34.801"W	62.8	10	PLANO, CITY OF	6	DOGHOUSE	CARROLLTON	05/06/2021
Cooper St	172	Adjacent	WNWG614	853.275	26.27	8K70D1W	182.000	33°0'42.401"N	96°46'27.998"W	70.5	12	PLANO, CITY OF	1		PLANO	05/06/2021
Cooper St	172	Adjacent	WNWG614	853.275	27.03	8K70D1W	295.100	33°4'10.898"N	96°49'47.798"W	70.5	12	PLANO, CITY OF	7	COMM PKWY	PLANO	05/06/2021

Exhibit 3- Service Area Map

The following map is the designated service area for the City of Arlington TDMA Simulcast Operations.

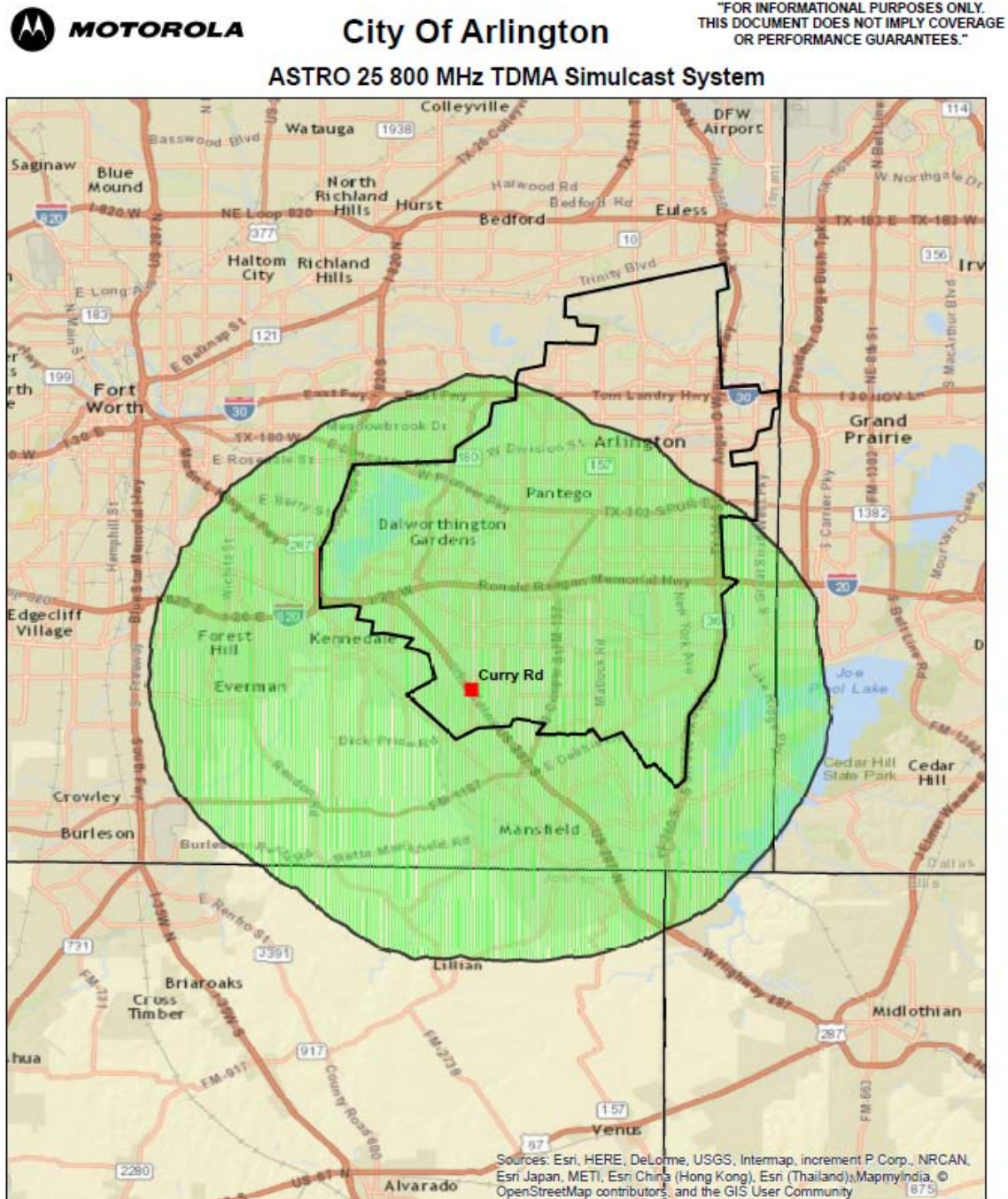


City of Arlington - Service Area Map

Run_0

Exhibit 4 - City of Arlington 41 dBU contour for each of the three sites in relation to the required service area

The following map shows the 41 dBU service area contours for individual sites.



City of Arlington - 41 dBU Contour for Curry Road Site

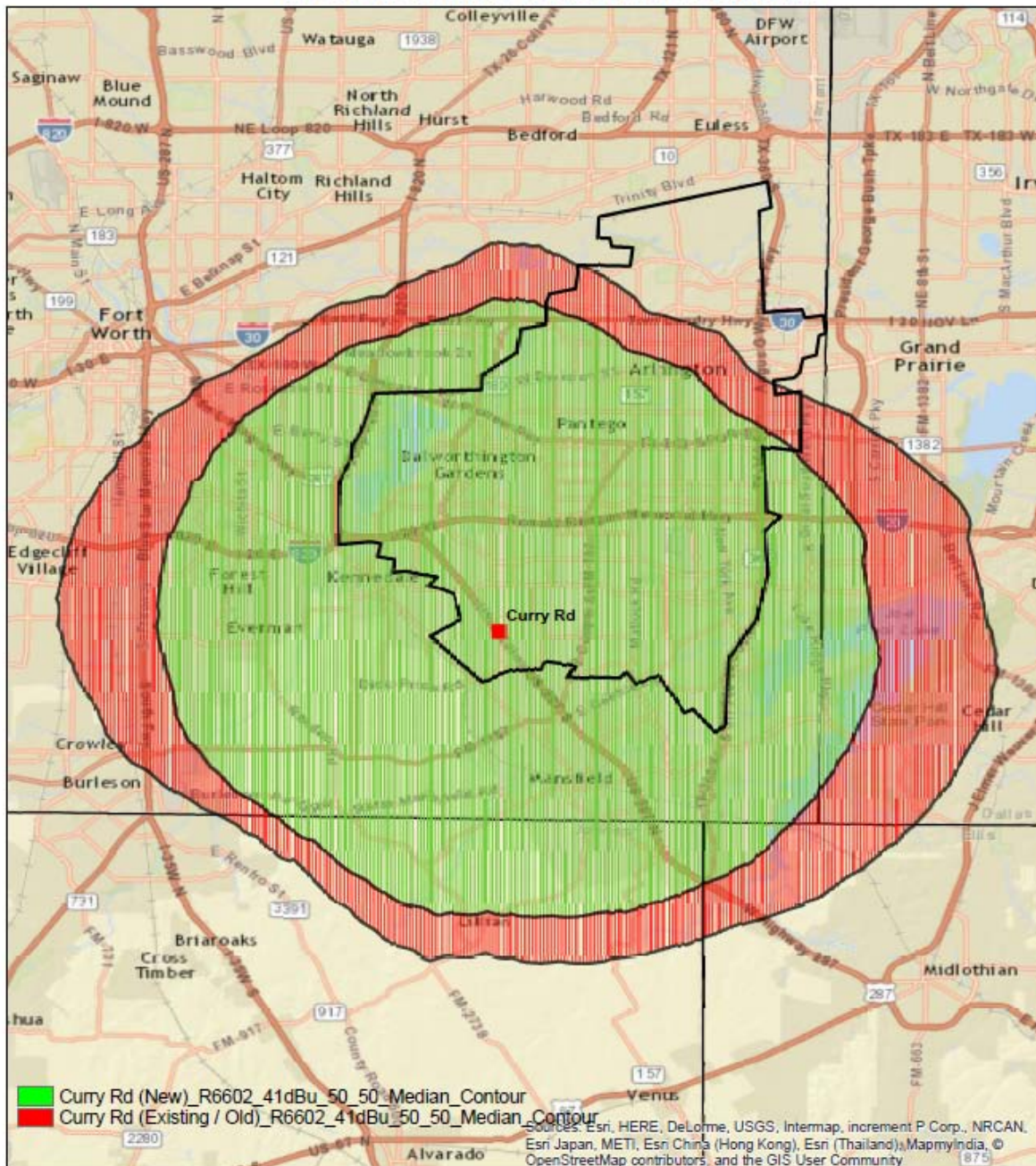
Run_12



City Of Arlington

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ASTRO 25 800 MHz TDMA Simulcast System



City of Arlington - 41 dBu Contour for Curry Road Site (New Vs Existing)

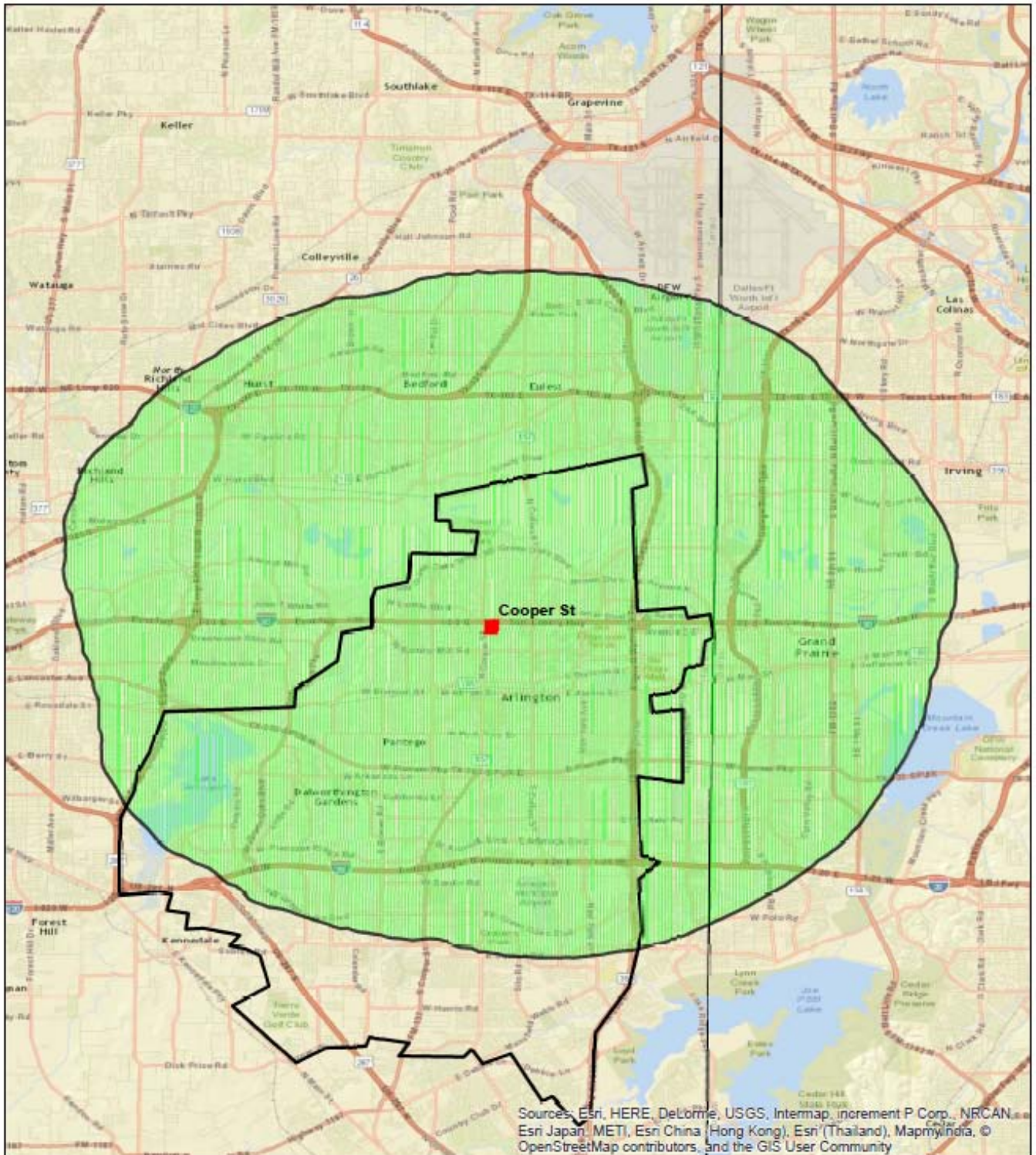
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ASTRO 25 800 MHz TDMA Simulcast System



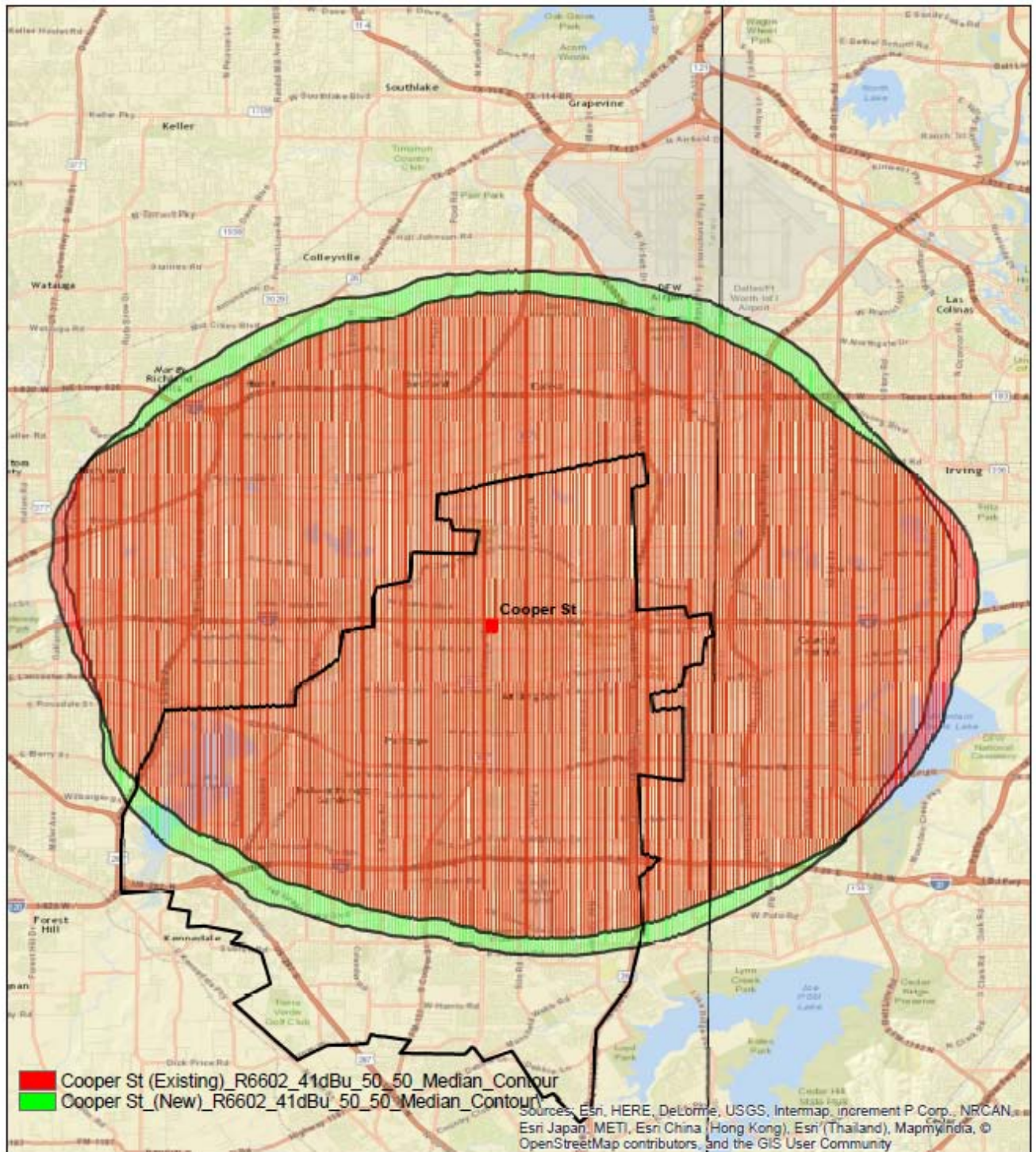
City of Arlington - 41 dBu Contour for Cooper Road Site



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City of Arlington - 41 dBu Contour for Cooper Road Site (New Vs Existing)

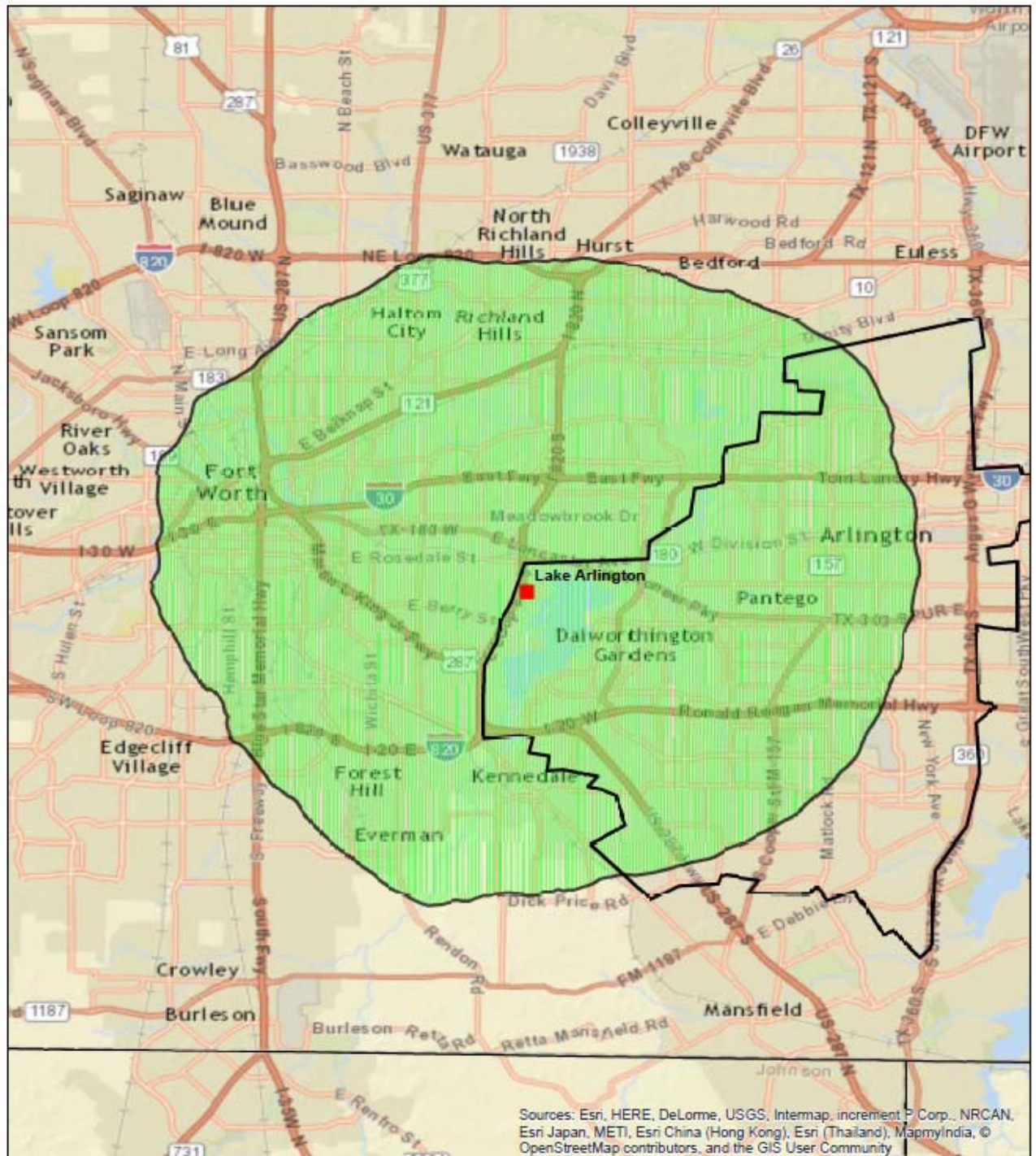
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City of Arlington - 41 dBU Contour for Lake Arlington Site

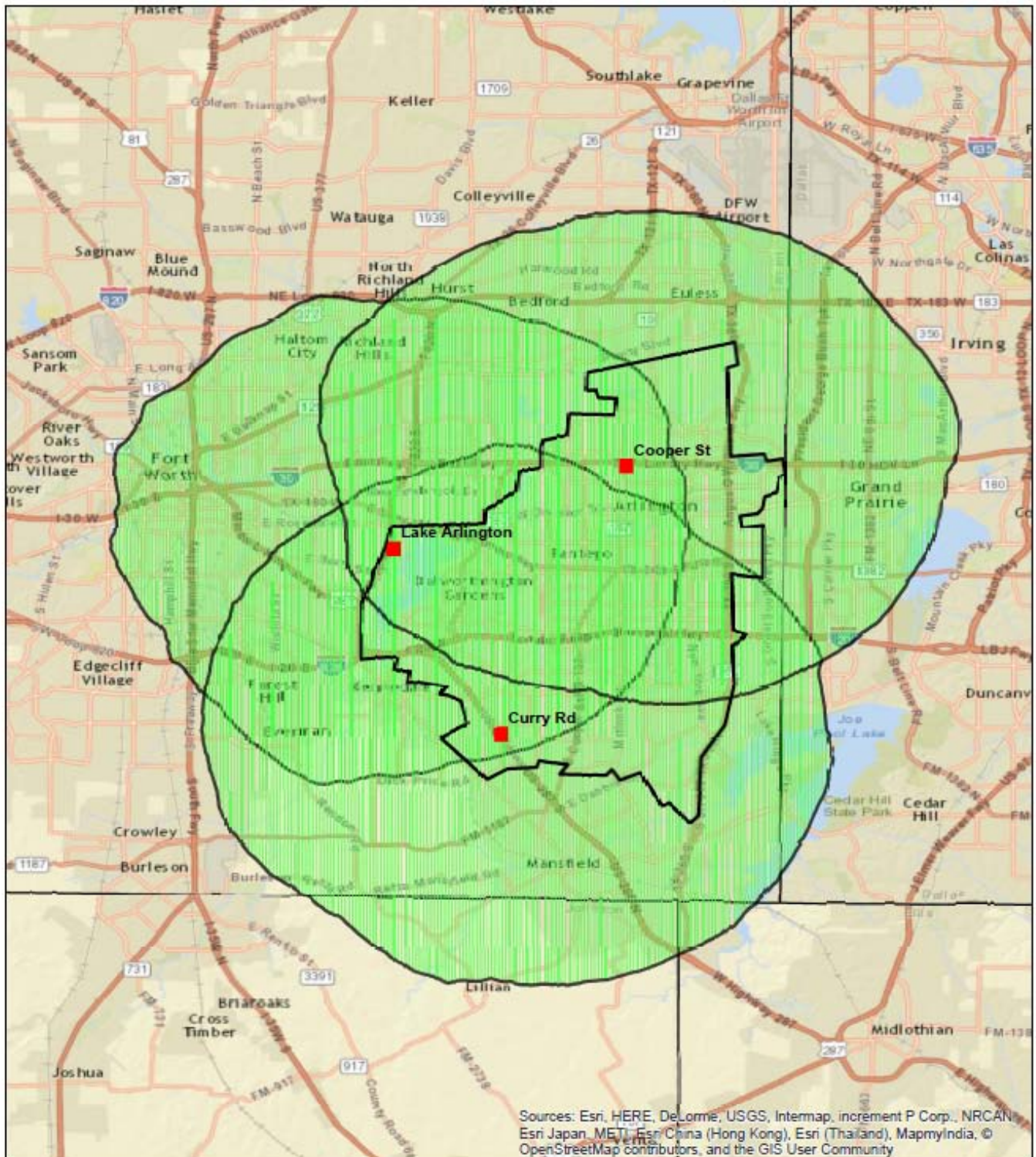
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ASTRO 25 800 MHz TDMA Simulcast System



City of Arlington - 41 dBu Contour (All Sites)

Exhibit 5 – City of Arlington – New System (41 dBu) Vs City of Plano – Existing System (41 dBu) Contour Maps

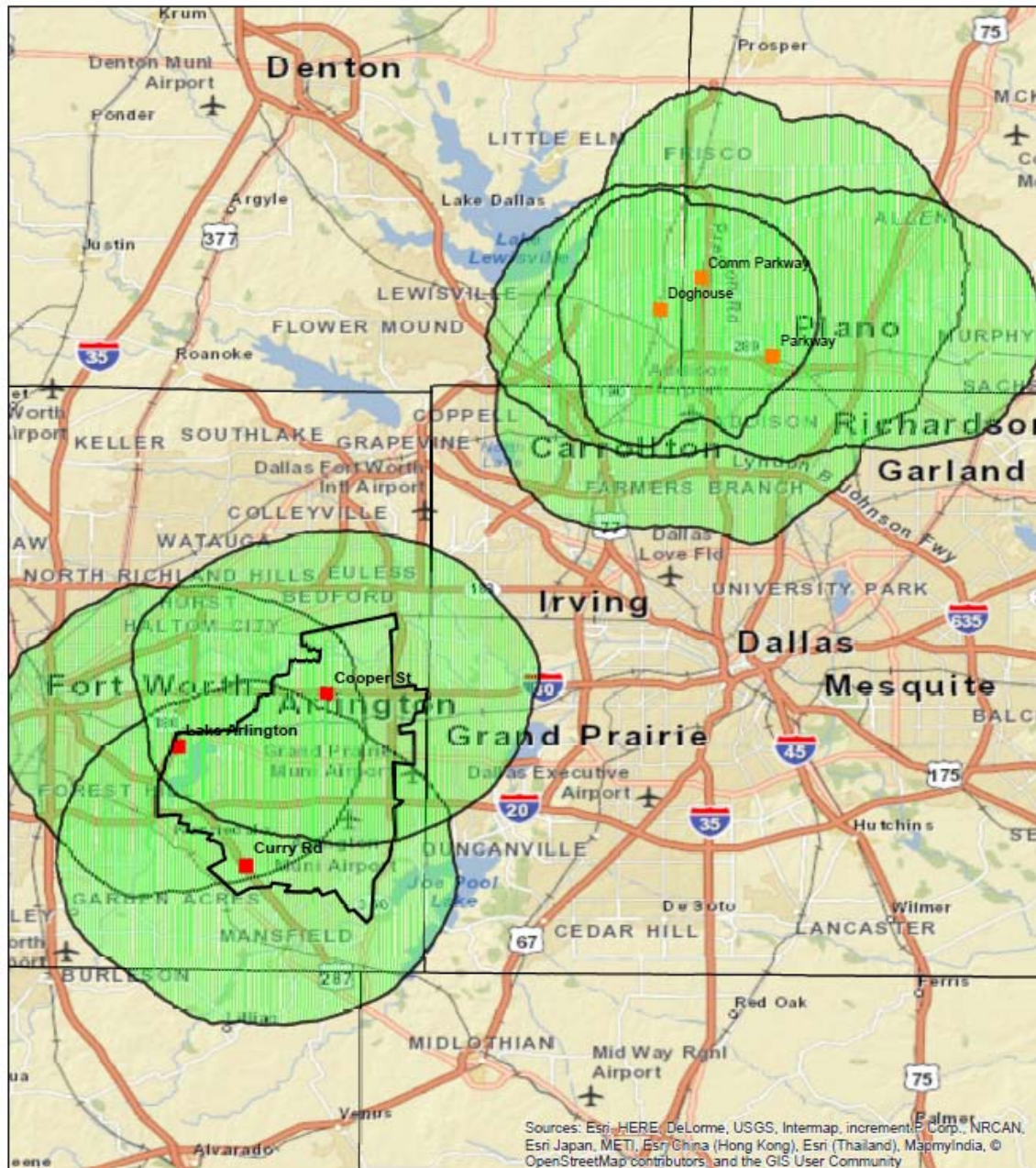
The following map shows the 41 dBu service area contours for City of Arlington – New system and City of Plano sites – Existing System.



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City Of Arlington (New P25 System) Vs City of Plano (Existing System)



City of Arlington - 41 dBu Contour Vs City of Plano - 41 dBu Contours

Run_5_12

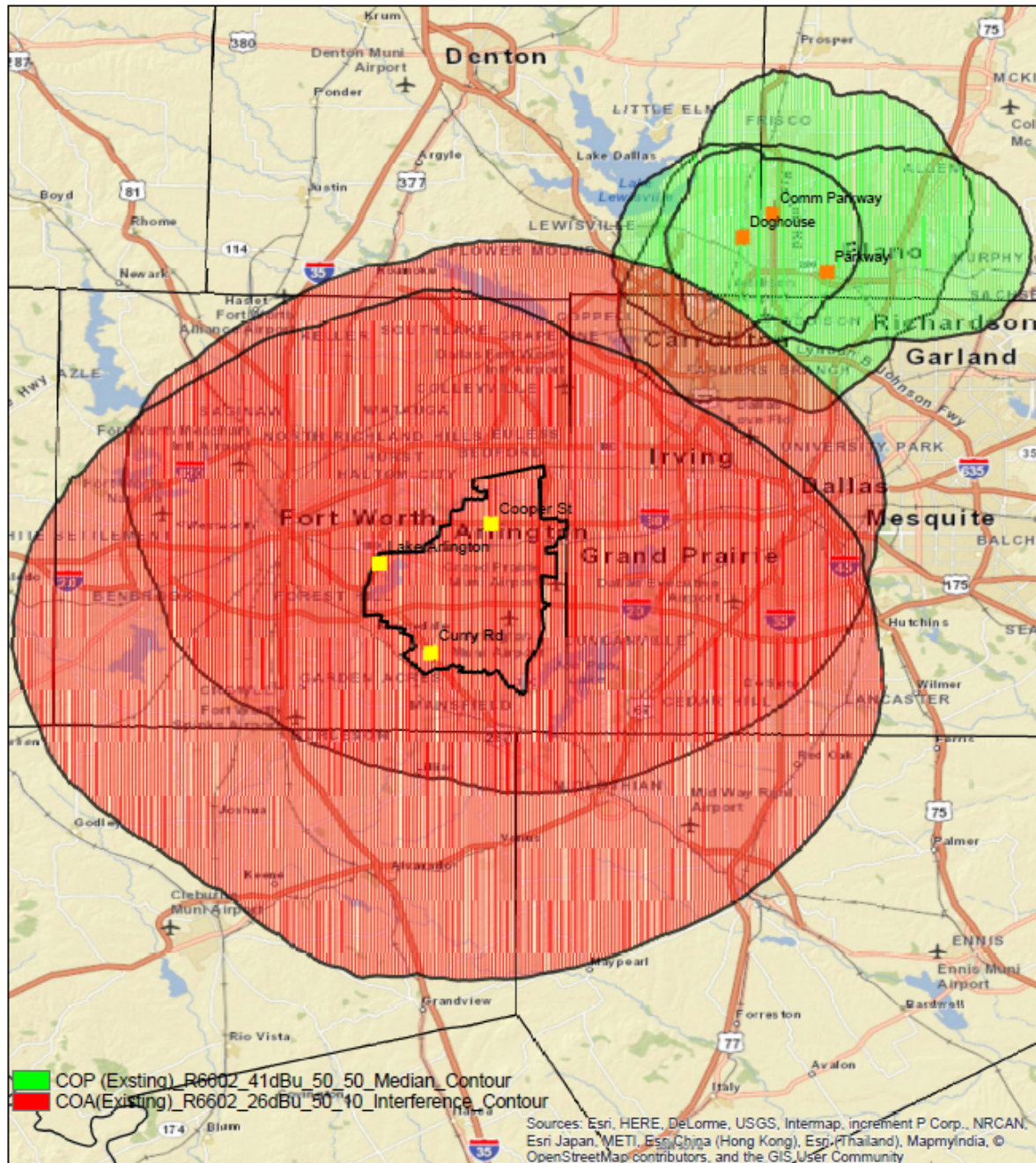
Exhibit 6a: City of Arlington – Old/ Existing System (26 dBu) Vs City of Plano – Existing System (41 dBu) Contour Maps



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City Of Arlington (Existing/Old System) Vs City of Plano (Existing System)



City of Arlington (Existing)- 26 dBu Contour Vs City of Plano - 41 dBu Contours Run_5_12

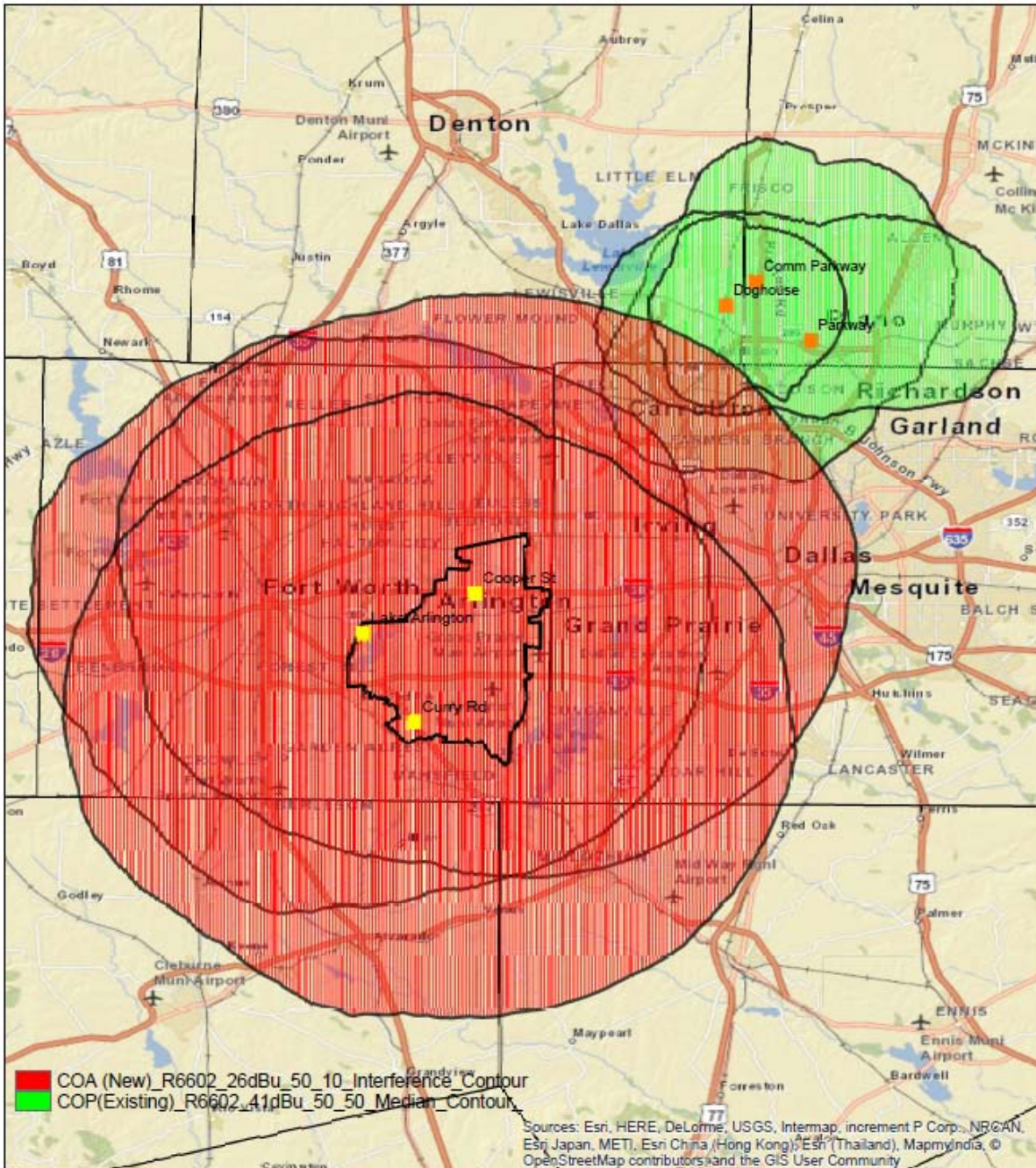
Exhibit 6b: City of Arlington – New System (26 dBU) Vs City of Plano – Existing System (41 dBU) Contour Maps



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City Of Arlington (New P25 System) Vs City of Plano (Existing System)

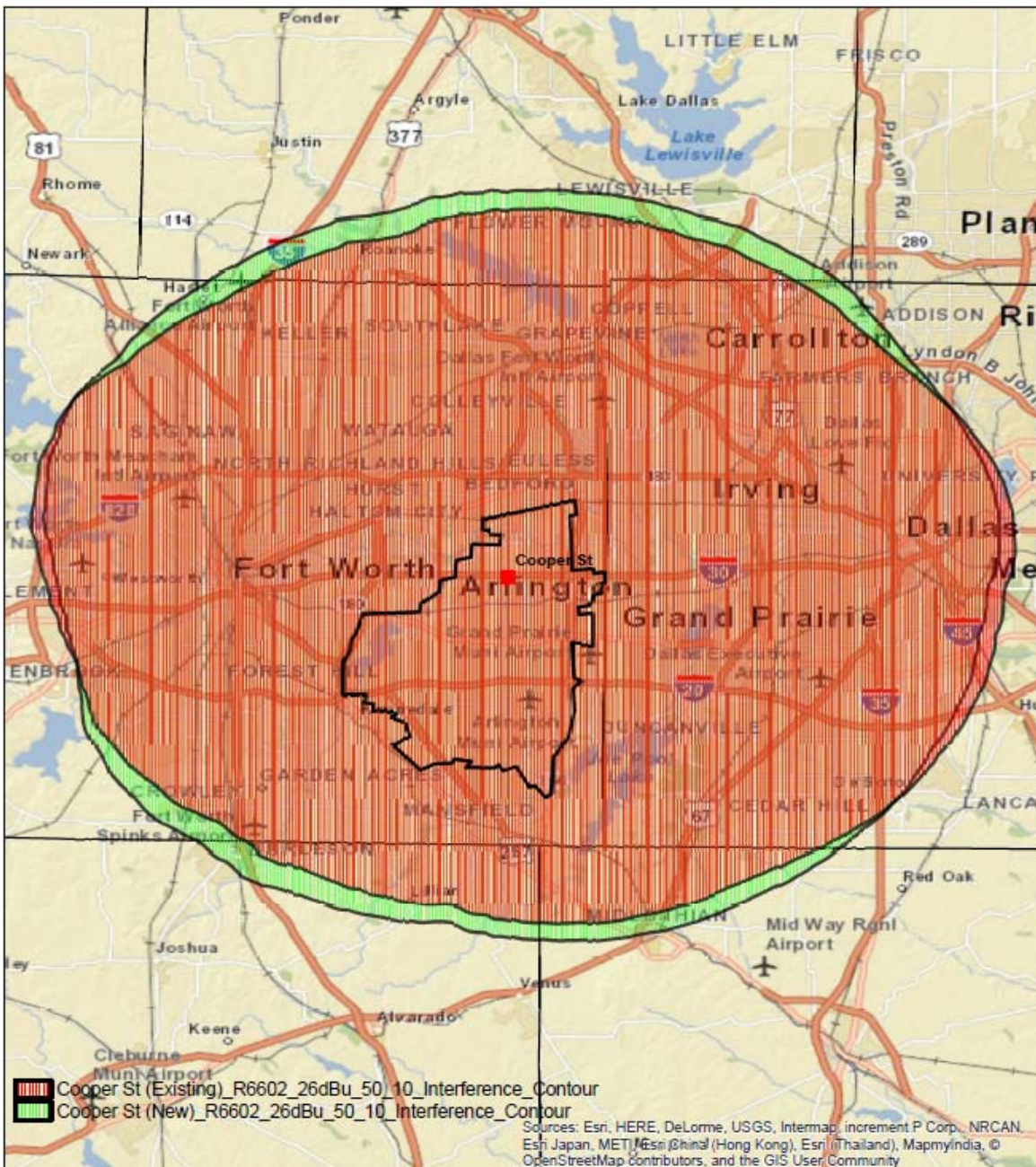


City of Arlington - 26 dBU Contour (New) Vs City of Plano - 41 dBU Contours

Run 5 12


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City Of Arlington

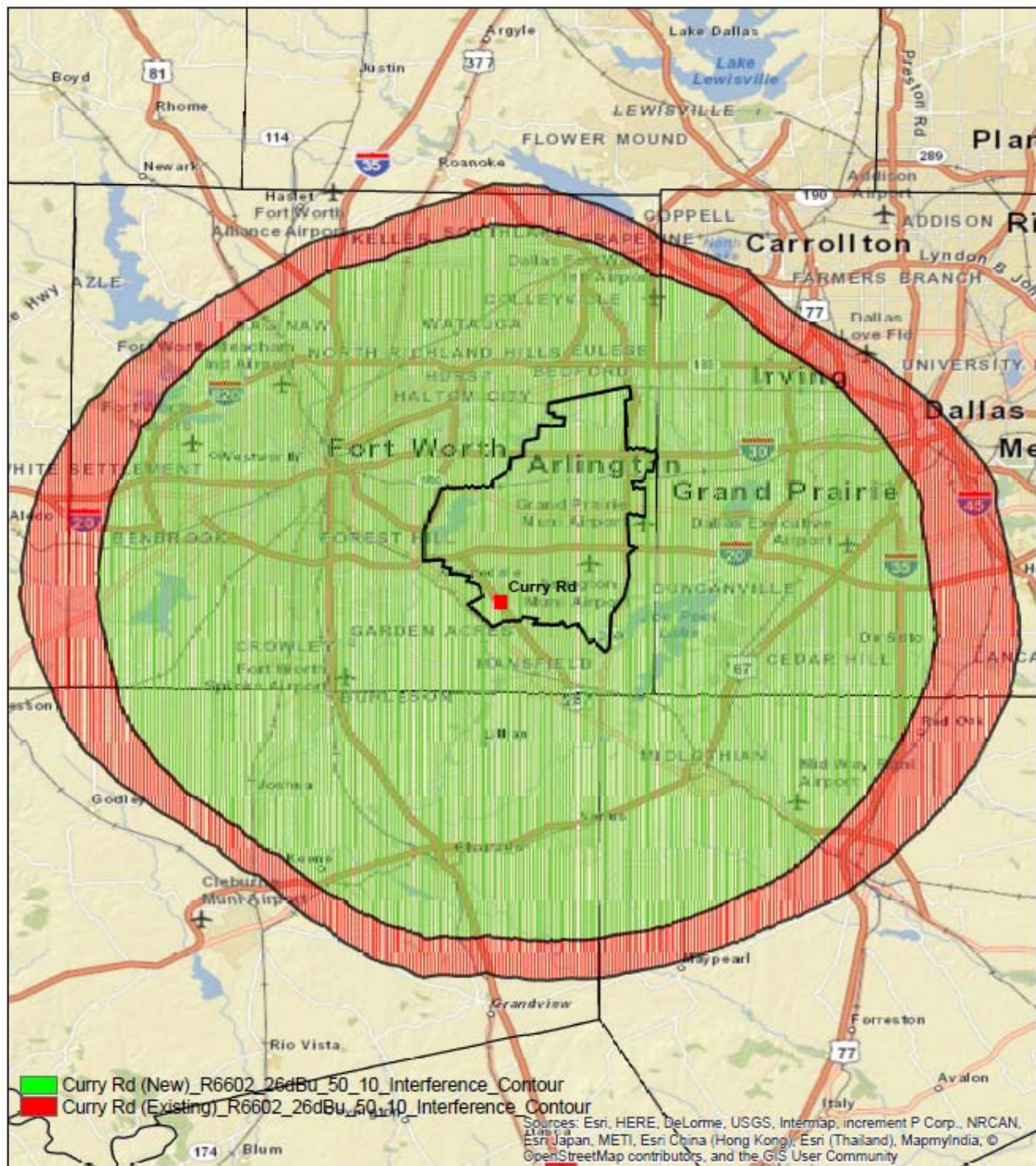


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City Of Arlington



City of Arlington (New)- 26 dBu Contour
Vs City of Arlington (Existing) - 26 dBu Contours

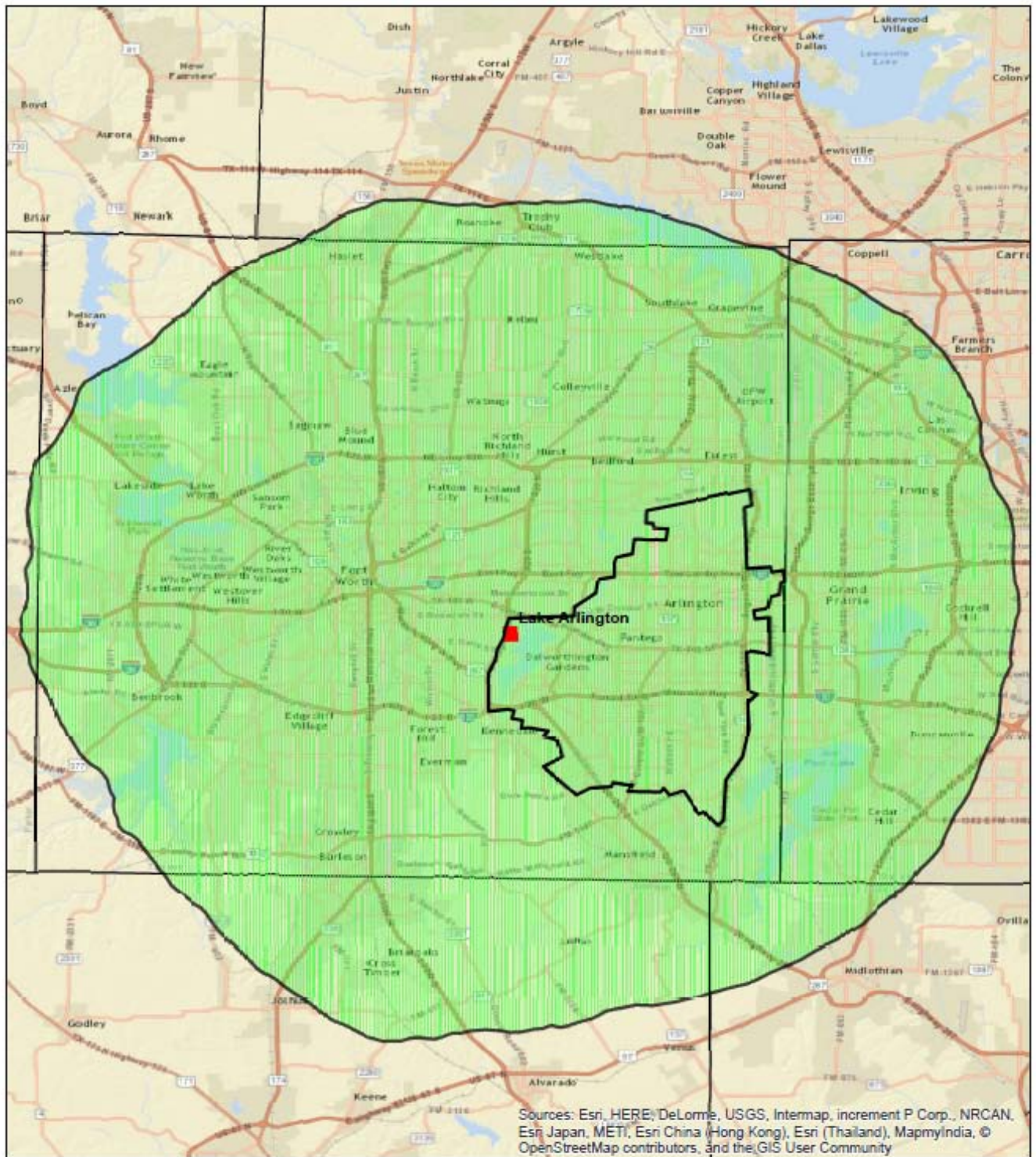
Run_9_12

1 inch = 7.78 miles



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City Of Arlington



Lake Arlington 26 dBu Interference Contour

Exhibit 8 – FCC Frequency Database for Texas

The frequencies that the city would like to modify the licenses for are highlighted in green in the following table:

Region 40 Frequency Allotment Table, April 2009						
FCC Channel	Base Frequency Pre-Configuration	Mobile Frequency FCC Channel	Base Frequency Post-Configuration	Mobile Frequency	LICENSEE	
710	867.4375	822.4375	110	852.4375	807.4375	DALLAS
711	867.45	822.45	111	852.45	807.45	EAST TEXAS MEDICAL CENTER EMS
712	867.4625	822.4625	112	852.4625	807.4625	DFW AIRPORT
713	867.475	822.475	113	852.475	807.475	EAST TEXAS MEDICAL CENTER EMS
714	867.4875	822.4875	114	852.4875	807.4875	EAST TEXAS MEDICAL CENTER EMS, PARKER COUNTY
716	867.5375	822.5375	116	852.5375	807.5375	BEDFORD
717	867.55	822.55	117	852.55	807.55	EAST TEXAS MEDICAL CENTER EMS
718	867.5625	822.5625	118	852.5625	807.5625	ARLINGTON
719	867.575	822.575	119	852.575	807.575	
720	867.5875	822.5875	120	852.5875	807.5875	DFW AIRPORT
721	867.6	822.6	121	852.6	807.6	
722	867.6125	822.6125	122	852.6125	807.6125	UNIVERSITY PARK
723	867.625	822.625	123	852.625	807.625	
724	867.6375	822.6375	124	852.6375	807.6375	DALLAS COUNTY
725	867.65	822.65	125	852.65	807.65	PLANO
726	867.6625	822.6625	126	852.6625	807.6625	FORT WORTH
727	867.675	822.675	127	852.675	807.675	PLANO
728	867.6875	822.6875	128	852.6875	807.6875	FORT WORTH
729	867.7	822.7	129	852.7	807.7	GARLAND
730	867.7125	822.7125	130	852.7125	807.7125	FORT WORTH
731	867.725	822.725	131	852.725	807.725	COLLIN COUNTY
732	867.7375	822.7375	132	852.7375	807.7375	FORT WORTH
733	867.75	822.75	133	852.75	807.75	GARLAND
734	867.7625	822.7625	134	852.7625	807.7625	FORT WORTH
735	867.775	822.775	135	852.775	807.775	
736	867.7875	822.7875	136	852.7875	807.7875	FORT WORTH
737	867.8	822.8	137	852.8	807.8	GARLAND
738	867.8125	822.8125	138	852.8125	807.8125	FORT WORTH
739	867.825	822.825	139	852.825	807.825	EAST TEXAS MEDICAL CENTER EMS
740	867.8375	822.8375	140	852.8375	807.8375	ARKANSAS STATE POLICE, FORT WORTH
741	867.85	822.85	141	852.85	807.85	GARLAND
742	867.8625	822.8625	142	852.8625	807.8625	FORT WORTH

743	867.875	822.875	143	852.875	807.875	GARLAND
744	867.8875	822.8875	144	852.8875	807.8875	FORT WORTH
745	867.9	822.9	145	852.9	807.9	
746	867.9125	822.9125	146	852.9125	807.9125	DALLAS
747	867.925	822.925	147	852.925	807.925	
748	867.9375	822.9375	148	852.9375	807.9375	DALLAS
749	867.95	822.95	149	852.95	807.95	
750	867.9625	822.9625	150	852.9625	807.9625	PLANO
751	867.975	822.975	151	852.975	807.975	
752	867.9875	822.9875	152	852.9875	807.9875	EAST TEXAS MEDICAL CENTER EMS, PARKER COUNTY
754	868.0375	823.0375	154	853.0375	808.0375	EAST TEXAS MEDICAL CENTER EMS
755	868.05	823.05	155	853.05	808.05	EAST TEXAS MEDICAL CENTER EMS
756	868.0625	823.0625	156	853.0625	808.0625	PLANO
757	868.075	823.075	157	853.075	808.075	EAST TEXAS MEDICAL CENTER EMS
758	868.0875	823.0875	158	853.0875	808.0875	IRVING
759	868.1	823.1	159	853.1	808.1	EAST TEXAS MEDICAL CENTER EMS
760	868.1125	823.1125	160	853.1125	808.1125	
761	868.125	823.125	161	853.125	808.125	COLLIN COUNTY
762	868.1375	823.1375	162	853.1375	808.1375	
763	868.15	823.15	163	853.15	808.15	
764	868.1625	823.1625	164	853.1625	808.1625	DALLAS
765	868.175	823.175	165	853.175	808.175	
766	868.1875	823.1875	166	853.1875	808.1875	DALLAS
767	868.2	823.2	167	853.2	808.2	
768	868.2125	823.2125	168	853.2125	808.2125	EAST TEXAS MEDICAL CENTER EMS
769	868.225	823.225	169	853.225	808.225	GARLAND
770	868.2375	823.2375	170	853.2375	808.2375	GRAND PRAIRIE
771	868.25	823.25	171	853.25	808.25	EAST TEXAS MEDICAL CENTER EMS
772	868.2625	823.2625	172	853.2625	808.2625	ARLINGTON
773	868.275	823.275	173	853.275	808.275	PLANO
774	868.2875	823.2875	174	853.2875	808.2875	MANSFIELD
775	868.3	823.3	175	853.3	808.3	PLANO
776	868.3125	823.3125	176	853.3125	808.3125	MANSFIELD
777	868.325	823.325	177	853.325	808.325	EAST TEXAS MEDICAL CENTER EMS
778	868.3375	823.3375	178	853.3375	808.3375	MANSFIELD
779	868.35	823.35	179	853.35	808.35	
780	868.3625	823.3625	180	853.3625	808.3625	MANSFIELD
781	868.375	823.375	181	853.375	808.375	
782	868.3875	823.3875	182	853.3875	808.3875	MANSFIELD
783	868.4	823.4	183	853.4	808.4	

784	868.4125	823.4125	184	853.4125	808.4125	
785	868.425	823.425	185	853.425	808.425	LEWISVILLE
786	868.4375	823.4375	186	853.4375	808.4375	
787	868.45	823.45	187	853.45	808.45	GARLAND
788	868.4625	823.4625	188	853.4625	808.4625	DFW AIRPORT
789	868.475	823.475	189	853.475	808.475	
790	868.4875	823.4875	190	853.4875	808.4875	EAST TEXAS MEDICAL CENTER EMS
791	868.5	823.5	191	853.5	808.5	GARLAND
792	868.5125	823.5125	192	853.5125	808.5125	GRAND PRAIRIE
793	868.525	823.525	193	853.525	808.525	
794	868.5375	823.5375	194	853.5375	808.5375	IRVING
795	868.55	823.55	195	853.55	808.55	
796	868.5625	823.5625	196	853.5625	808.5625	DFW AIRPORT