Approved by OMB (Office of Management and Budget) 3060-1178

Federal Communications Commission

(REFERENCE COPY - Not for submission)

FCC Form 399: Reimbursement Request

Facility ID: **22211** | Service: **DTV** | Call Sign: **WFLD** | Channel: **31 (UHF)**

File Number: **0000027829**

FRN: **0005795067** | Date Submitted: **08/27/2019**

Applicant Information

Applicant Name, Type, and Contact Information

Applicant	Address	Phone	Email	Applicant Type
FOX TELEVISION STATIONS, LLC	Joseph M. Di Scipio 400 N. CAPITOL STREET, NW SUITE 890 WASHINGTON, DC 20001 United States	+1 (202) 824-6522	JDISCIPIO@21CF.COM	Limited Liability Company

Reimbursement Contact Information

Reimbursement Contact Name and Information

Applicant	Address	Phone	Email
[Confidential]			

Preparer Contact Information

Preparer Contact Name and Information

Applicant	Address	Phone	Email
Dennis Wallace *Managing Partner* *Meintel, Sgrignoli & Wallace, LLC*	Dennis Wallace 1282 Smallwood Drive Suite 372 Waldorf, MD 20603 United States	+1 (202) 251-7589	Dennis.Wallace@mswdtv.com

Broadcaster Information and Transition Plan

Question	Response
Will the station be sharing equipment with another broadcast television station or stations (e.g., a shared antenna, co-location on a tower, use of the same transmitter room, multiple transmitters feeding a combiner, etc.)? If yes, enter the facility ID's of the other stations and click 'prefill' to download those stations' licensing information.	Yes
Briefly describe transition plan	Due to the complexity of this project and number of facilities involved, WFLD will install interim facilities at the John Hancock building, while existing antenna, transmission line, and transmitter are replaced at the main site on top of Willis Tower.

Transmitters

Section	Question	Response
Transmitter Related Expenses	Do you have transmitter related expenses?	Yes

Primary Transmitter

Existing Transmitter Information

Section	Question	Response
Existing Transmitter Description	Type of change	Purchase New
	Use	Primary (Main)
	Description of Use	N/A
	Ownership	Owned
	Owner	N/A
	Site	N/A
	Is this transmitter currently shared with another station?	No
	Is this transmitter currently in operating condition?	Yes
Existing Transmitter Manufacturer and Type	Manufacturer	
	Model	CD2200P3
	Year	1999
	Type	Inductive Output Tube
	IOT Power Type	Three
	Power Capacity	75 kW

Primary Transmitter

New Transmitter Costs

Section	Question	Response
New Transmitter	Use	Primary (Main)
	Change Type	Purchase New
	Is this a request for upgraded equipment?	No
	Manufacturer	
	Model	THU-40 Evo
	Transmitter Type	Solid State
	Solid State Cooling	Liquid Cooled
	Solid State Power capacity	61 kW
	Justification for New Transmitter	New transmitter required as existing unit is obsolete and no longer supported by manufacturer. Existing transmitter is rated 75KW. See quote 190725_Quotation 155506.1. WFLD.Main and narrative 190725_WFLD_NARRATIVE_REV3_FORM399

Primary Transmitter

Other Transmitter Costs

Section	Question	Response
Electrical Service	Service Entrance (3 phases 800A 208V)	No
	Switchgear (industrial 800 amp)	Yes
	Transformer (480V)	No
	Power	N/A
	Rigid Conduit and Wiring	Yes
	Size	3 inches
	Length	400.0 feet
	Other Electrical Service	Yes

	Description	Transmitter Electrical Installation Costs Willis Tower
HVAC Service	Does the replacement transmitter require HVAC Service?	Yes
	Type	Cooling Only
	Size	50 tons
	Other Size	N/A
Transmitter Building Addition/Modification or Leasehold Improvement	Does the Transmitter Building require an addition, modification, other leashold improvement?	Yes
	Size	1000.0 square feet
Channel 14 Costs	Is an RF Consulting Engineer needed?	N/A
	Is a channel 14 Mask Filer needed?	N/A
	Is additional field engineering time needed?	N/A
	Number of Days	N/A

Primary Transmitter

Other Transmitter Cost Not Listed

Name	Description
Installation	Installation of transmitter. See estimate 190823 Quote Land Communications
Water Glycol System	Building Chilled Water System Connection. (ZonaTherm)
Remove Existing Main Transmitter	Remove existing main transmitter from Willis Tower
Plumbing Demolition	Disconnect Piping for transmitter (Great Lakes)
ThermoFlo Leibert system	ThermoFlo Leibert Installation

Additional Transmitter RF Components	Plumbing, RF and switch components. See quote 190725_Quotation 230209.2 WFLD. Addtnl Install Parts
Remote Control Wiring	Wire up existing remote control to new transmitter
Site Survey and Drawings	Pre-installation survey of transmitter facility with drawings. See 190823 Quote Land Communications.

Interim Transmitter

New Transmitter Costs

Section	Question	Response
New Transmitter	Use	Interim
	Description of Use	N/A
	Change Type	Purchase
	Manufacturer	
	Model	THU9-24 EVO
	Transmitter Type	Solid State
	Solid State Cooling	Liquid Cooled
	Solid State Power capacity	37 kW
	Justification for New Transmitter	Interim transmitter will be required to operate interim facilities at Hancock building while changing out antennas and transmitter at main facility, Willis Tower.

Interim Transmitter

Other Transmitter Costs

Section	Question	Response
Electrical Service	Service Entrance (3 phases 800A 208V)	No
	Switchgear (industrial 800 amp)	No

	Transformer (480V)	No
	Power	N/A
	Rigid Conduit and Wiring	No
	Size	N/A
	Length	N/A
	Other Electrical Service	No
	Description	N/A
HVAC Service	Does the replacement transmitter require HVAC Service?	No
	Type	N/A
	Size	N/A
	Other Size	N/A
Transmitter Building Addition/Modification or Leasehold Improvement	Does the Transmitter Building require an addition, modification, other leashold improvement?	Yes
	Size	500.0 square feet
Channel 14 Costs	Is an RF Consulting Engineer needed?	N/A
	Is a channel 14 Mask Filer needed?	N/A
	Is additional field engineering time needed?	N/A
	Number of Days	N/A
Inside RF System	Is an additional interior RF system required to support this interim transmitter?	No

Interim Transmitter

Other Transmitter Cost Not Listed

Name	Description
Transmitter Site Survey	Survey by transmitter vendor to plan installation
Transmitter retuning	Retuning cost for transmitter from ch. 31 to ch. 24

Main and backup STL	Studio to Transmitter Link. Main link is fiber and backup is radio
Second Mask filer	Second mask filter to allow operation on channel 31 (pre-repack)
Combiner connection	Facilitation by antenna/combiner owner (ATC) to connect into their system.
Monitoring Equipment	Equipment needed to ensure signal and RF compliance with Rules.
RF Components	Additional transmitter components required to interconnect to combiner
Offloading	Offloading of transmitter and heat exchanger on ground and move to 97th floor.

Antennas

Section	Question	Response
Antenna Related Expenses	Do you have antenna related expenses?	Yes

Auxiliary Antenna

Existing Antenna Information

Section	Question	Response
Existing Antenna Description	Type of change	Purchase New
	Antenna Use	Auxiliary (Backup)
	Description of Use	Licensed Aux Antenna
	Ownership	Leased
	Owner	Willis Tower
	Site	N/A
	Is the existing antenna shared with another station or stations?	Yes
	Is the existing antenna directional?	Yes
	Is antenna in operating condition?	Yes
	Is antenna located on or in close proximity to an antenna farm?	Yes
Existing Antenna Manufacturer and Type	Class	Full Power
	Mounting	Top Mount
	Antenna position in stack	Bottom
	Polarization	Circular
	Type	Broadband Panel
	Number of Stations Supported	3
	Number of Panels	24
	Design power capacity in use	100.0 %
	Lower Limit	572.00 MHz
	Upper Limit	578.00 MHz
	Other Antenna Type	N/A
	ERP: (Effective Radiated Power)	475.0 kW

Manufacturer	
Model	PHP24C
Year	1999

Facility ID's and Call Signs of all stations with whom the antenna is shared.

Facility ID	Call Sign
32334	WJYS
22211	WFLD
47905	WMAQ-TV

Auxiliary Antenna

New Antenna Costs

Section	Question	Response
New Antenna Description	Use	Auxiliary (Backup)
	Description of Use	Aux Antenna
	Change Type	Purchase New
	Is this a request for upgraded equipment?	No
	Ownership	Leased
	Owner	Willis Tower
	Is antenna shared?	Yes
	Is antenna directional?	Yes
	Will antenna be located on or in close proximity to an antenna farm?	Yes
New Antenna Manufacturer and Types	Class	Full Power
	Mounting	Top Mount
	Antenna position in stack	Bottom
	Polarization	Elliptical
	Type	Broadband Panel
	Number of Stations Supported	3
	Number of Panels/Bays	24
	Lower Limit	470.00 MHz
	Upper Limit	600.00 MHz
	Design power capacity in use	100.0 %
	Other Antenna Type	N/A
	ERP: (Effective Radiated Power)	475.0 kW
	Manufacturer	
	Model	PHP-24C

	Year	2018
	Justification for New Antenna	Lessor moving WFLD to a different Aux Antenna on top of building. Quote reflects cost of provisioning combiner and removal of former aux antenna facilities. See 190725_Willis Tower Repack Engineering Statement R4 07112017 page 10

Auxiliary Antenna

Other Antenna Costs

Section	Question	Response
Combiner for Shared Antenna	Do you need a Combiner for a Shared Antenna?	Yes
	Type	New
	Number of channels supported	3
	Frequencies of channels supported	RF channel
	Frequency	N/A
	Do you need a combiner output splitter /switcher for dual feed lines?	No
Elbow Complex	Do you require the separate purchase of the Elbow Complex?	No
	Broadband or Single Channel?	N/A
	Feed Line Size	N/A

Side Mount Brackets	Do you require the separate purchase of side mount brackets for a high power antenna?	
Pattern Scatter Analysis	Do you require separate purchase of pattern scatter analysis for a side mount high or medium power antenna?	No
Sweep Test	Do you require the sweep testing of transmission line and antenna?	No

Enter a list of RF channel numbers.

RF Channel Number
21
24
29

Auxiliary Antenna

Other Antenna Cost Not Listed

Information not provided.

Primary Antenna

Existing Antenna Information

Section	Question	Response
Existing Antenna Description	Type of change	Purchase New
	Antenna Use	Primary (Main)
	Description of Use	N/A
	Ownership	Owned
	Owner	N/A
	Site	N/A
	Is the existing antenna shared with another station or stations?	No
	Is the existing antenna directional?	Yes
	Is antenna in operating condition?	Yes
	Is antenna located on or in close proximity to an antenna farm?	Yes
Existing Antenna Manufacturer and Type	Class	Full Power
	Mounting	Top Mount
	Antenna position in stack	Middle
	Polarization	Elliptical
	Type	Slotted Coaxial
	Number of Stations Supported	N/A
	Number of Panels	N/A
	Design power capacity in use	N/A
	Lower Limit	N/A
	Upper Limit	N/A
	Other Antenna Type	N/A
	ERP: (Effective Radiated Power)	1000.0 kW

Manufacturer	
Model	ATW14H3H-ETC2-31H
Year	1999

Primary Antenna

New Antenna Costs

Section	Question	Response
New Antenna Description	Use	Primary (Main)
	Description of Use	N/A
	Change Type	Purchase New
	Is this a request for upgraded equipment?	No
	Ownership	Owned
	Owner	N/A
	Is antenna shared?	No
	Is antenna directional?	Yes
	Will antenna be located on or in close proximity to an antenna farm?	Yes
New Antenna Manufacturer and Types	Class	Full Power
	Mounting	Top Mount
	Antenna position in stack	Top
	Polarization	Elliptical
	Type	Slotted Coaxial
	Number of Stations Supported	N/A
	Number of Panels/Bays	N/A
	Lower Limit	N/A
	Upper Limit	N/A
	Design power capacity in use	N/A
	Other Antenna Type	N/A
	ERP: (Effective Radiated Power)	1000.0 kW
	Manufacturer	
	Model	TFU-14ETT/VP-R C210
	Year	2019

	Justification for New Antenna	New antenna required for new channel. Slot antenna. See quotes 190725_700427CMZ-1 WFLD FOX and 190725_900032CMZ WFLD FOX

Primary Antenna

Other Antenna Costs

Section	Question	Response
Combiner for Shared Antenna	Do you need a Combiner for a Shared Antenna?	
	Type	
	Number of channels supported	N/A
	Frequencies of channels supported	N/A
	Frequency	N/A
	Do you need a combiner output splitter /switcher for dual feed lines?	N/A
Elbow Complex	Do you require the separate purchase of the Elbow Complex?	Yes
	Broadband or Single Channel?	Single Channel
	Feed Line Size	6 1/8 inches inches
Side Mount Brackets	Do you require the separate purchase of side mount brackets for a high power antenna?	
Pattern Scatter Analysis	Do you require separate purchase of pattern scatter analysis for a side mount high or medium power antenna?	No
Sweep Test	Do you require the sweep testing of transmission line and antenna?	Yes

Primary Antenna

Other Antenna Cost Not Listed

Name	Description
Southwest Pole Decommissioning	Willis Tower Decommissioning of SW Pole. per Willis Tower. See 190725_Willis Tower Repack Engineering Statement R4 07112017Spreadsheet. page 13
West Tower Stack Project	Willis Tower West Tower Stack Project per Willis Spreadsheet. See 190725_Willis Tower Repack Engineering Statement R4 07112017 page 12

Transmission Line

Section	Question	Response
Transmission Line Related Expenses	Do you have transmission line related expenses?	Yes

Auxiliary Transmission Line

Existing Transmission Line

Section	Question	Response
Existing Transmission Line Description	Type of change	Purchase New
	Use	Auxiliary (Backup)
	Description of Use	Licensed Aux
	Ownership	Leased
	Owner	Willis Tower
	Site	N/A
	Is the existing transmission line shared with another station or stations?	Yes
	Is Transmission Line in operating condition?	Yes
Existing Transmission Line Manufacturer and Type	Manufacturer	
	Type	Rigid
	Diameter	6 1/8 inches
	Other Diameter	N/A
	Segment Length	20 inches
	Other Segment Length	N/A
	Number of parallel runs	2
	Length	400 feet per run

Facility ID's and Call Signs of all stations with whom the transmission line is shared.

Facility ID	Call Sign
32334	WJYS
47905	WMAQ-TV

Auxiliary Transmission Line

New Transmission Line

Section	Question	Response
New Transmission Line Costs	Use	Auxiliary (Backup)
	Description of Use	Licensed Aux
	Change Type	Purchase New
	Is this a request for upgraded equipment?	No
	Type	Rigid
	Diameter	6 1/8 inches
	Other Diameter	N/A
	Segment Length	19 3/4 inches
	Other Segment Length	N/A
	Number of parallel runs	2
	Length	400 feet per run
	Justification for New Transmission Line	Replacement of Aux Antenna Transmission Line. The new Aux Combiner will be in a new location within the building and will require new transmission line.

Auxiliary Transmission Line

Other Transmission Line Expenses Not Listed

Name	Description

Transmission Line Layout	Develop Transmission line layout and installation drawings for Aux Antenna.

Primary Transmission Line

Existing Transmission Line

Section	Question	Response
Existing Transmission Line Description	Type of change	Purchase New
	Use	Primary (Main)
	Description of Use	N/A
	Ownership	Owned
	Owner	N/A
	Site	N/A
	Is the existing transmission line shared with another station or stations?	No
	Is Transmission Line in operating condition?	Yes
Existing Transmission Line Manufacturer and Type	Manufacturer	
	Type	Rigid
	Diameter	8 3/16 inches
	Other Diameter	N/A
	Segment Length	20 inches
	Other Segment Length	N/A
	Number of parallel runs	1
	Length	400 feet per run

Primary Transmission Line

New Transmission Line

Section	Question	Response
New Transmission Line Costs	Use	Primary (Main)
	Description of Use	N/A
	Change Type	Purchase New
	Is this a request for upgraded equipment?	No
	Type	Rigid
	Diameter	7 3/16 inches
	Other Diameter	N/A
	Segment Length	19 3/4 inches
	Other Segment Length	N/A
	Number of parallel runs	1
	Length	300 feet per run

	Justification for New Transmission Line	Current Transmission line does not extend to the top of the west tower and it routed to the top of the SW Pole Outrigger. The New Antenna location requires new transmission line. However, applicant will re-use as much as possible of the existing line.

Primary Transmission Line

Other Transmission Line Expenses Not Listed

Name	Description
Transmission Line Layout Installation Drawings	Develop and play transmission line layout and installation drawings. See attached Quote.

Tower Equipment And Rigging Costs

Section	Question	Response
Tower Equipment or Rigging Costs Changes	Do you have tower equipment or rigging costs changes?	Yes

Primary Tower

Existing Tower

Section	Question	Response
Existing Tower Description	Type of change	Modify Existing
	Tower Use	Primary (Main)
	Description of Use	N/A
	Ownership	Leased
	Is this tower consider Complex?	Located on Building
	Is this tower currently shared with any other stations?	Yes
	One or more FM, AM or TV radio broadcaster(s)	Yes
	Others Types of Users	Yes
	Is tower documented for structural analysis?	Yes
	Is tower compliant with Rev G?	No
Existing Tower Structure Registration	Do you have a tower registration number?	Yes
	ASR Number	1032959
Coordinates (NAD83 (North American Datum of 1983))	Latitude (NAD83)	41° 52' 44.1" N-
	Longitude (NAD83)	087° 38' 10.2" W-
	Overall Structure Height	1729.97 feet
	Support Structure Height	1435.35 feet
	Ground Elevation Above Mean Sea Level (AMSL)	595.14 feet

Structure Type	BTWR - Building with Tower
Tower Owner	233 Broadcast, LLC
Date Constructed	01/01/2002

FM, AM or TV radio broadcasters. Facility ID's, Call Signs and Services of other broadcast stations with whom the tower is shared

Facility ID	Call Sign	Service
73226	WLS-TV	DTV
9617	WBBM-TV	DTV
32334	WJYS	DTV
9613	WBBM-FM	FM
74178	WKSC-FM	FM
70042	WLIT-FM	FM
48772	WPWR-TV	DTV
22211	WFLD	DTV
47905	WMAQ-TV	DTV
10801	WFMT	FM
10802	WTTW	DTV
72115	WGN-TV	DTV
60539	WXFT-DT	DTV
10981	WCPX-TV	DTV
53971	WEBG	FM
73228	WLS-FM	FM
51165	WGCI-FM	FM

71283	WCFS-FM	FM
12498	WGBO-DT	DTV
28621	WJMK	FM
71425	WWME-CD	DTV
6377	WTMX	FM

Other Types of Users

Users
Willis Tower
Microwave
Two Way

Primary Tower

Tower Modification Costs

Section	Question	Response
Engineering Study	Please what type of engineering study is required, if any:	Study needed for tower with candelabra
Tower Reinforcements	Please select whether tower reinforcements are needed:	Serious Reinforcements needed

Primary Tower

Tower Rigging Costs

Section	Question	Response
Tower Rigging Costs	Complex Tower	Located on Building
Helicopter Services Required	Are helicopter services required?	Yes

Primary Tower

Other Tower Expenses Not Listed

Information not provided.

Interim Tower

Tower Construction Costs

Section	Question	Response
Construct New Tower	Use	Interim
	Description of Use	N/A
	Height	425.20 feet
	Justification for New Tower	This is an existing structure (John Hancock building) that will be used to support the interim antenna.

Interim Tower

Tower Rigging Costs

Section	Question	Response
Tower Rigging Costs	Complex Tower	Located on Building
Helicopter Services Required	Are helicopter services required?	No

Interim Tower

Other Tower Expenses Not Listed

Name	Description
Structural modifications	Material and labor to modify existing structure to accommodate interim antenna. See 190823 Quote American Tower.
Tower mapping and structural study	Analyze and design modifications to existing structure to accommodate interim antenna. See 190823 Quote American Tower.

Outside Professional Services Costs

Section	Question	Response
Outside Project Management Services	Do you require outside project management services?	Yes
	Number of Hours	1500
	Explanation	Outside Project Management to coordinate with Willis Tower, Antenna, Helicopter, Rigging, and Transmitter Replacements.
Outside RF consulting Engineering Services	Perform engineering study for new channel assignment and antenna development	Yes
	Prepare engineering section of Form FCC Construction Permit Application	Yes
	For Auxiliary Facility	Yes
	For Main Facility	Yes
	Prepare engineering section of Form FCC License to Cover Application	Yes
	For Auxiliary Facility	Yes
	For Main Facility	Yes
	Prepare request for Special Temporary Authority	Yes
	Quantity	2
	Do you have Distributed Transmission System engineering services?	N/A
	Critical Facility	N/A
	Terrain-Shielded Facility	N/A
Attorney and Other Outside Consulting Services	Prepare and file Form FCC Construction Permit Application	Yes
	For Auxiliary Facility	Yes

	For Main Facility	Yes
	Prepare and file Form FCC License to Cover Application	Yes
	For Auxiliary Facility	Yes
	For Main Facility	Yes
	Prepare request for Special Temporary Authority	Yes
	Quantity	2
	NEPA Section 106 environmental review	No
	Environmental Assessment	No
	ASR Modification	No
	FAA Consultation (including preparation of FAA Form 7460)	No
	Negotiation of Lease and other Matter for Shared Locations	Yes
	Prepare or Review FCC Form 399 for Reimbursement	Yes
	Address transition timing and coordination issues w/ other stations and wireless providers	Yes
RF Field Engineering Services	Comprehensive coverage verification via field study	Yes
	RF exposure measurements	Yes
	Additional Field Engineering Service	Yes
	Number of Days	45
	Justification	On Site RF Engineering to supervise equipment installation, performance measurements, and compliance with project requirements.

Outside Professional Services Costs

Other Professional Services Expenses Not Listed

Name	Description
Prepare and File FCC Progress Reports	Prepare and File FCC Progress Reports

Other Expenses

Section	Question	Response
AM Pattern Disturbance	Is an Impact Study needed?	No
	Is Remediation needed?	No
Facility Expenses	Name	N/A
	Other Distributed Transmission System Expenses Not listed	N/A
	Name	N/A
	Is Notification of a Medical Facility required as a result of DTV broadcasting?	Yes
Permit and Filing Costs	Local Zoning	Yes
	Non-zoning permits	Yes
	BLM or NFS Coordination	No
	FCC Construction Permit Minor Change	Yes
	FCC License to Cover Application	Yes
	FCC Special Temporary Authority Application	Yes
Other Miscellaneous Expenses	Does this relocation require paying Disposal Costs (for equipment and other waste, net of any salvage value)?	Yes
	Does this relocation require Equipment Delivery or Handling Charges not otherwise included in individual item costs?	Yes
	Does this relocation require Equipment Storage?	Yes
	Does this relocation require the Development and Airing of an Announcement regarding an upcoming channel change?	Yes
	Does this relocation require MVPD Notification of a Channel Change?	Yes

Other Expenses

Other Expenses Not Listed

Name	Description

Illinois and Chicago Sales Tax	Estimated Sales tax on equipment.

Cost Information

Transmitters

Where no predetermined cost estimate is available, any estimate provided will also become the predetermined cost (displayed in italics).

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actual Justifi
Interim Transmitter THU9-24 EVO	**$3,424,693.39**	**$2,761,764.70**		**$1,382,191.39**	
Offloading	***$26,000.00***	$26,000.00	Offload transmitter and heat exchanger on ground and move to 97th. floor.	$13,000.00	N/
RF Components	***$35,517.00***	$35,517.00	Additional Transmitter parts required to connect transmitter. See quote 190725_R&S Quote Interim Transmission line for Hancock	N/A	N/
Monitoring Equipment	***$90,476.74***	$90,476.74	To monitor and confirm FCC Rule compliance. See Quotes in 190725_Transmitter RF and AV Monitoring	N/A	N/
Combiner connection	***$1,026,550.00***	$1,026,550.00	Charge to connect transmitter into combiner and antenna system owned by others. See cost breakout in quote 190725_Transmitter to Antenna Integration	$769,912.50	N/

Second Mask filer	***$63,465.00***	$63,465.00	Second mask filter to provide operation on ch. 31 pre-repack channel during construction at Willis Tower. See quote 190725_Quotation 162173.2.WFLD (FOX).Second Filter	N/A	N/
Transmitter retuning	***$12,500.00***	$12,500.00	Retuning of transmitter from ch 31 pre-repack to ch 24 post-repack See quote 190725_WFLD THU Rechannel 19028R	N/A	N/
Transmitter Site Survey	***$20,125.00***	$20,125.00	Transmitter Site Survey and drawings for installation. See quote 190725_Quotation 112453.0.WFLD (FOX).Aux. SiteSurvpdf	$10,062.50	N/
Other -- Building Addition Size: 500.0	***$629,495.33***	$629,495.33	Comprehensive room provisioning includes electrical, demolition, transformer, general construction, permits, design and HVAC, See quote 190725_Transmitter Room Construction	$170,796.50	N/
UHF - Liquid Cooled Solid State Transmitter 35 - 50 kW	$1,473,000.00	$810,071.31	See attached quote 190725_Quotation 110499.1.WFLD (FOX).Interim Main	$410,098.15	N/

Main and backup STL	***$47,564.32***	$47,564.32	To get Audio and Video from Studio to the transmitter. Main is fiber, backup is radio. See Quote 190725_Studio Transmitter Redundant	$8,321.74	N/
Primary Transmitter THU-40 Evo	**$3,281,543.20**	**$2,721,444.20**		**$663,400.50**	
Installation	***$58,000.00***	$58,000.00	Installation of transmitter. See quote 190823 Quote Land Communications for detail	$29,000.00	N/
Site Survey and Drawings	***$26,000.00***	$26,000.00	Pre-installation site survey with drawings. See 190823 Quote Land Communications for detail.	$13,000.00	N/
Remote Control Wiring	***$3,600.00***	$3,600.00	Wire up existing remote control to new transmitter. See attached vendor quote.	N/A	N/
Additional Transmitter RF Components	***$94,648.20***	$94,648.20	Plumbing, RF and switching components. See quote 190725_Quotation 230209.2 WFLD. Addtnl Install Parts	N/A	N/
ThermoFlo Leibert system	***$360,000.00***	$360,000.00	ThermoFlo Quote Attached. Leibert Units Installation at Willis Tower	N/A	N/
Plumbing Demolition	***$13,220.00***	$13,220.00	Plumbing Demolition. Pipefitter Scope. Quote Attached.	N/A	N/

Remove Existing Main Transmitter	***$180,025.00***	$180,025.00	Quote to remove existing equipment. Beam Supplies, HE Glycol, Etc. Down Elevator. Rigging, Labor Overtime on Weekends/Nights. See attached quote 190725_Willis Tower Phase II. Does not include disposal.	N/A	N/
Water Glycol System	***$75,750.00***	$75,750.00	ZonaTherm Quote attached. Water /Glycol System	N/A	N/
UHF - Liquid Cooled Solid State Transmitter 52 - 61 kW	$1,788,000.00	$1,239,501.00	See quote 190725_Quotation 155506.1.WFLD. Main	$619,750.50	N/
Switchgear - industrial 800 amp	$38,200.00	$36,300.00	Catalog	N/A	N/
3" Rigid Conduit and Wiring (Cost per foot)	$20,800.00	$19,600.00	Catalog	N/A	N/
Other Electrical Service: Transmitter Electrical Installation Costs Willis Tower	***$200,800.00***	$200,800.00	Estimate based on verbal discussions. Quote is forthcoming and will be entered when received.	N/A	N/
50 Ton system	$172,500.00	$164,000.00	Modifications to HVAC/Mechanical Systems Willis Tower Building	N/A	N/

Other -- Building Addition Size: 1000.0	***$250,000.00***	$250,000.00	Modifications to building space for new transmitter. Willis Tower Building. See quote 190725_20190108 WFLD-Osborn Fee Proposal for design services. Job is out for bid and we are expecting the contractors services to use the balance.	$1,650.00	N/
Sub-total	$6,706,236.59	$5,483,208.90	N/A	$2,045,591.89	N/
Total for all systems	$13,320,772.59	$10,758,056.57	N/A	$2,364,575.09	N/

Components

Actual Information Description	**File Name**
Offloading	**Component Description:** Partial payment for off loading transmitter to 97th. floor Willis bldg. **Amount:** $13,000.00
RF Components	Information not provided.
Monitoring Equipment	Information not provided.

Combiner connection	**Component Description:** Interconnect into RF plant including antenna. Milestone payment 2. **Amount:** $513,275.00 **Component Description:** Interconnect into RF plant including antenna. Milestone payment 1. **Amount:** $256,637.50
Second Mask filer	Information not provided.
Transmitter retuning	Information not provided.
Transmitter Site Survey	**Component Description:** Partial invoice for interim transmitter pre-install survey **Amount:** $10,062.50
Other -- Building Addition Size: 500.0	**Component Description:** Architectural Design Services for Hancock Building **Amount:** $4,354.40 **Component Description:** Architectural Design Services for Hancock Building **Amount:** $8,734.44 **Component Description:** Architectural Design Services for Hancock Building **Amount:** $9,647.50

	Component Description:	Architectural Design Services for Hancock Building
	Amount:	$10,243.50
	Component Description:	Architectural Design Services for Hancock Building
	Amount:	$9,801.66
	Component Description:	Architectural Design Services for Hancock Building
	Amount:	$1,275.00
	Component Description:	Partial payment general construction services at Hancock Bldg.
	Amount:	$103,051.20
	Component Description:	Architectural Design Services for Hancock Building
	Amount:	$23,688.80
UHF - Liquid Cooled Solid State Transmitter 35 - 50 kW	**Component Description:**	Partial payment for interim transmitter
	Amount:	$410,098.15

Main and backup STL	**Component Description:** **Amount:**	STL failover switch $3,896.74
	Component Description: **Amount:**	Partial payment for STL and GPS antenna install $4,425.00
Installation	**Component Description:** **Amount:**	50 percent down payment for transmitter installation $29,000.00
Site Survey and Drawings	**Component Description:** **Amount:**	50 percent down payment for transmitter site survey and drawing package $13,000.00
Remote Control Wiring	Information not provided.	
Additional Transmitter RF Components	Information not provided.	
ThermoFlo Leibert system	Information not provided.	
Plumbing Demolition	Information not provided.	
Remove Existing Main Transmitter	Information not provided.	
Water Glycol System	Information not provided.	
UHF - Liquid Cooled Solid State Transmitter 52 - 61 kW	**Component Description:** **Amount:**	Down payment for main transmitter $619,750.50

Switchgear - industrial 800 amp	Information not provided.	
3" Rigid Conduit and Wiring (Cost per foot)	Information not provided.	
Other Electrical Service: Transmitter Electrical Installation Costs Willis Tower	Information not provided.	
50 Ton system	Information not provided.	
Other -- Building Addition Size: 1000.0	**Component Description:** **Amount:**	Architectural Design Services for Willis Tower Building $1,650.00

Cost Information

Antennas

Where no predetermined cost estimate is available, any estimate provided will also become the predetermined cost (displayed in italics).

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost
Primary Antenna TFU-14ETT/VP-R C210	**$2,843,280.00**	**$2,873,875.00**		**$271,483.20**
Elbow complex, single channel, at antenna input, per 6 1/8. feedline (if needed)	$12,300.00	$10,984.00	Within quote 190725_700427CMZ-1 WFLD FOX	$9,885.60
UHF - High Power Top Mount (200-1000 kW), One station antenna , elliptically or circularly polarized	$289,500.00	$321,741.00	Custom Three Station Stack Antenna designed for Willis Tower Building West Pylon. This antenna will require special structural design. See quotes 190725_700427CMZ-1 WFLD FOX and 190725_900032CMZ WFLD FOX	$255,837.60
West Tower Stack Project	***$1,424,250.00***	$1,424,250.00	Willis Tower Triple Destack and Double Stack per attached spreadsheet from Willis Tower and attached Willis Tower Engineering Statement. See 190725_Willis Tower Repack Engineering Statement R4 07112017 page 12	N/A

Southwest Pole Decommissioning	***$1,110,500.00***	$1,110,500.00	Willis Tower Spreadsheet. WFLD Allocated costs of project per Willis Tower Engineering Statement attached. See See 190725_Willis Tower Repack Engineering Statement R4 07112017Spreadsheet. page 13	N/A
Sweep test of existing antenna	$6,730.00	$6,400.00	Within quote 190725_700427CMZ-1 WFLD FOX	$5,760.00
Auxiliary Antenna PHP-24C	**$84,200.00**	**$464,166.67**		**$0.00**
UHF - High Power Top Mount Three Station broadband panel antenna elliptically or circularly polarized	***$0.00***	$0.00	N/A	N/A
New combiner, cost per channel (without antenna)	$84,200.00	$464,166.67	Willis Tower Aux Combiner / East Tower per Willis Tower Spreadsheet. See 190725_Willis Tower Repack Engineering Statement R4 07112017 page 10.	N/A
Sub-total	$2,927,480.00	$3,338,041.67	N/A	$271,483.20
Total for all systems	$13,320,772.59	$10,758,056.57	N/A	$2,364,575.09

Components

Actual Information Description	File Name

Elbow complex, single channel, at antenna input, per 6 1/8. feedline (if needed)	**Component Description:** **Amount:** **Component Description:** **Amount:**	Partial payment for elbow complex $4,942.80 Partial payment for Elbows $4,942.80
UHF - High Power Top Mount (200-1000 kW), One station antenna , elliptically or circularly polarized	**Component Description:** **Amount:** **Component Description:** **Amount:**	2nd. Partial payment for antenna and parts. Includes change order which has been uploaded. $144,783.45 Partial payment for antenna and associated parts $111,054.15
West Tower Stack Project	Information not provided.	
Southwest Pole Decommissioning	Information not provided.	
Sweep test of existing antenna	**Component Description:** **Amount:** **Component Description:** **Amount:**	2nd Partial payment for antenna sweep $2,880.00 Partial payment for antenna sweep $2,880.00
UHF - High Power Top Mount Three Station broadband panel antenna elliptically or circularly polarized	Information not provided.	

New combiner, cost per channel (without antenna)	Information not provided.

Cost Information

Transmission Line

Where no predetermined cost estimate is available, any estimate provided will also become the predetermined cost (displayed in italics).

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actual Cost Justificatio
Primary Transmission Line	**$122,000.00**	**$250,000.00**		**$0.00**	
Transmission Line Layout Installation Drawings	***$35,000.00***	$35,000.00	Develop transmission line layout and installation drawings. See attached vendor quote.	N/A	N/A
Rigid Transmission Line - copper, 7 3 /16"	$87,000.00	$215,000.00	Custom Transmission line fabrication required. Each section will need to be a custom made section length in order to fit within the existing hallways and vertical shafts within Willis Tower. Standard Line section costs is not applicable.	N/A	N/A
Auxiliary Transmission Line	**$186,600.00**	**$200,000.00**		**$0.00**	

Transmission Line Layout	***$25,000.00***	$25,000.00	Develop transmission line layout and installation drawings. See attached vendor quote.	N/A	N/A
Rigid Transmission Line - copper, 6 1/8"	$161,600.00	$175,000.00	Custom transmission line fabrication required. Each line section will need to be custom made based upon CAD drawings in order to fit within the existing hallway and vertical shafts within the Willis Tower Building. Standard line sections will not fit.	N/A	N/A
Sub-total	$308,600.00	$450,000.00	N/A	$0.00	N/A
Total for all systems	$13,320,772.59	$10,758,056.57	N/A	$2,364,575.09	N/A

Components

Information not provided.

Cost Information

Tower Equipment and Rigging Costs

Where no predetermined cost estimate is available, any estimate provided will also become the predetermined cost (displayed in italics).

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actual Cost Justificatio
Primary Tower BTWR	**$1,493,000.00**	**$0.00**		**$0.00**	
Complex Tower (includes, for example, those with candelabras and/or stacked antennas)	$421,000.00	$0.00	See attached Willis Tower Spreadsheet and Engineering Statement.	N/A	N/A
Tower Helicopter Lift	***$0.00***	$0.00	See attached Willis Tower Engineering Statement and Spreadsheet.	N/A	N/A
Serious tower reinforcement /modifications	$1,052,000.00	$0.00	See attached Willis Tower spreadsheet and engineering statement.	N/A	N/A
Structural engineering tower load study for a documented tower with candelabra	$20,000.00	$0.00	See attached Willis Tower Engineering Statement.	N/A	N/A
Interim Tower	**$461,300.00**	**$40,300.00**		**$40,300.00**	
New tower	***$0.00***	$0.00	N/A	N/A	N/A

Tower mapping and structural study	***$10,300.00***	$10,300.00	Interim structure mapping and structural analysis. See quote 190823 Quote American Tower.	$10,300.00	N/A
Structural modifications	***$30,000.00***	$30,000.00	Structural modifications to structure. See attached quote 190823 Quote American Tower.	$30,000.00	N/A
Complex Tower (includes, for example, those with candelabras and/or stacked antennas)	$421,000.00	$0.00	N/A	N/A	N/A
Sub-total	$1,954,300.00	$40,300.00	N/A	$40,300.00	N/A
Total for all systems	$13,320,772.59	$10,758,056.57	N/A	$2,364,575.09	N/A

Components

Actual Information Description	File Name
Complex Tower (includes, for example, those with candelabras and/or stacked antennas)	Information not provided.
Tower Helicopter Lift	Information not provided.
Serious tower reinforcement /modifications	Information not provided.

Structural engineering tower load study for a documented tower with candelabra	Information not provided.	
New tower	Information not provided.	
Tower mapping and structural study	**Component Description:** **Amount:**	Interim tower analysis and mapping $10,300.00
Structural modifications	**Component Description:** **Amount:**	Interim tower structural work $30,000.00
Complex Tower (includes, for example, those with candelabras and/or stacked antennas)	Information not provided.	

Cost Information

Outside Professional Services

Where no predetermined cost estimate is available, any estimate provided will also become the predetermined cost (displayed in italics).

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actual C Justifica
Outside Professional Services	**$521,175.00**	**$544,130.00**		**$0.00**	
Prepare and File FCC Progress Reports	***$34,980.00***	$34,980.00	Prepare and File FCC Progress Reports. See attached vendor quote.	N/A	N/A
Additional Field Engineering Service, 45 Days	***$95,400.00***	$95,400.00	See attached vendor quote. On Site RF Engineering for complex project. Supervision of installation and commissioning of new systems.	N/A	N/A
RF Exposure Measurements	$21,050.00	$20,000.00	Catalog	N/A	N/A
Comprehensive coverage verification via field study, if needed	$84,200.00	$80,000.00	Catalog	N/A	N/A
Attorney Fees - Prepare and File request for Special Temporary Authorization	$7,360.00	$7,000.00	Catalog	N/A	N/A

Prepare engineering section of FCC Form 2100 (main), Construction Permit Application	$3,155.00	$3,000.00	Catalog	N/A	N/A
RF Consulting Engineer Fees-Aux Antenna: Prepare engineering section of FCC Form 2100, Construction Permit Application	$2,105.00	$2,000.00	Catalog	N/A	N/A
Prepare engineering section of FCC Form 2100 (main), License to Cover Application	$1,580.00	$1,500.00	Catalog	N/A	N/A
RF Consulting Engineer Fees-Aux Antenna: Prepare engineering section of FCC Form 2100, License to Cover Application	$1,580.00	$1,500.00	Catalog	N/A	N/A
Prepare request for Special Temporary Authorization	$4,100.00	$3,000.00	Catalog	N/A	N/A

Attorney Fees - Prepare and File FCC Form 2100 (main), Construction Permit Application	$5,260.00	$5,000.00	Catalog	N/A	N/A
Attorney Fees - Aux Antenna, prepare and File Form 2100 Construction Permit or License Application	$4,210.00	$4,000.00	Catalog	N/A	N/A
Attorney Fees - Prepare and File FCC Form 2100 (main), License to Cover Application	$2,365.00	$2,250.00	Catalog	N/A	N/A
Attorney Fees - Negotiation of lease and other matters for shared locations	$4,210.00	$35,000.00	Willis Tower Building Lease Modifications	N/A	N/A
Project management of the transition	$237,000.00	$225,000.00	Very large scope project management.	N/A	N/A
Address transition timing and coordination issues w/ other stations and wireless	$2,630.00	$15,000.00	Coordination for Chicago Market and Willis Tower Building Testing and Transition End Dates	N/A	N/A

Perform engineering study for new channel assignment and antenna development	$7,360.00	$7,000.00	Catalog	N/A	N/A
Prepare and or review reimbursement form	$2,630.00	$2,500.00	Catalog	N/A	N/A
Sub-total	$521,175.00	$544,130.00	N/A	$0.00	N/A
Total for all systems	$13,320,772.59	$10,758,056.57	N/A	$2,364,575.09	N/A

Components

Information not provided.

Cost Information

Other Expenses

Where no predetermined cost estimate is available, any estimate provided will also become the predetermined cost (displayed in italics).

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actua Justi
Other Expenses	**$902,981.00**	**$902,376.00**		**$7,200.00**	
Illinois and Chicago Sales Tax	***$512,500.00***	$512,500.00	Estimated Chicago and Illinois Sales Tax on Equipment. The sales tax rate in the City of Chicago is 10.25%. Total Estimated Sales Tax on equipment at the 10.25% rate.	N/A	N
MVPD Notification of Channel Change	***$5,000.00***	$5,000.00	N/A	N/A	N
Develop and air announcement of upcoming channel change	***$1,500.00***	$1,500.00	N/A	N/A	N
Equipment Storage	***$56,791.00***	$56,791.00	Transmitter Storage off site until needed on site. See quotes 190725_Quotation 170275.3.WFLD. Main. Consolidation for main and 190725_Quotation 170264.3.WFLD (FOX).Int. Consolidation for interim	N/A	N

Equipment Delivery and Handling Charges	***$250,000.00***	$250,000.00	Delivery and Logistics for Equipment to Willis Tower Building. Elevator and Freight Dock Considerations. Special elevator lifts. See attached rate sheet from Willis Tower Building Management.	$7,200.00	N
Disposal Costs (for equipment and other waste, net of any salvage value)	***$45,000.00***	$45,000.00	Disposal of Glycol, Transformer Oil, Old Antenna, etc. from Willis Tower Building.	N/A	N
Non-zoning permits	***$19,000.00***	$19,000.00	Building Permits, Electrical, and Mechanicals. Willis Tower Building City of Chicago	N/A	N
Local Zoning	***$0.00***	$0.00	N/A	N/A	N
FCC Filing Fees - Special Temporary Authorization request	$195.00	$190.00	Catalog	N/A	N
FCC Filing Fees - Form 2100 license to cover application	$335.00	$325.00	N/A	N/A	N
FCC Filing Fees - Form 2100 minor change CP application	$1,110.00	$1,070.00	Catalog	N/A	N
DTV Medical Facility Notification	$11,550.00	$11,000.00	Catalog	N/A	N

Sub-total	$902,981.00	$902,376.00	N/A	$7,200.00	N
Total for all systems	$13,320,772.59	$10,758,056.57	N/A	$2,364,575.09	N

Components

Actual Information Description	File Name
Illinois and Chicago Sales Tax	Information not provided.
MVPD Notification of Channel Change	Information not provided.
Develop and air announcement of upcoming channel change	Information not provided.
Equipment Storage	Information not provided.
Equipment Delivery and Handling Charges	**Component Description:** 2nd partial payment for antenna shipping. **Amount:** $3,600.00 **Component Description:** Partial payment for antenna shipping **Amount:** $3,600.00
Disposal Costs (for equipment and other waste, net of any salvage value)	Information not provided.
Non-zoning permits	Information not provided.
Local Zoning	Information not provided.
FCC Filing Fees - Special Temporary Authorization request	Information not provided.
FCC Filing Fees - Form 2100 license to cover application	Information not provided.

FCC Filing Fees - Form 2100 minor change CP application	Information not provided.
DTV Medical Facility Notification	Information not provided.

Cost Information

Grand Total

	Predetermined Cost Estimate	Estimated Cost	Actual Cost
Total for all systems	$13,320,772.59	$10,758,056.57	$2,364,575.09

Reimbursement Status

Question	Response
The facility has ceased operating on its pre-auction channel.	No
Construction of final facilities or all necessary modifications are complete.	No
All receipts for reimbursement have been submitted no further costs are expected to be incurred. Note this will lock the Form 399 from further editing and begin close-out procedures with the Fund Administrator.	No

Certification

Section	Question	Response
Submission of Estimated Expenses Statements	WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND /OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1), AND /OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503), AND ANY FALSE STATEMENTS COULD SUBJECT THIS ENTITY TO LIABILITY UNDER THE FALSE CLAIMS ACT.	
	1. The Authorized Person signing below certifies that he/she is authorized to submit this TV Broadcaster Relocation Fund Reimbursement Form on behalf of the above-named entity. 2. The above-named entity acknowledges that all certifications and attached documentation are considered material representations. 3. The above-named entity acknowledges the submission of the information herein creates no obligation on the part of the government to pay any amount.	

4. The above-named entity certifies that the equipment and services paid for with money from the TV Broadcaster Relocation Fund are necessary to change channels (broadcasters) or to continue to carry the signal of a broadcaster that changes channels (MVPD).
5. The above-named entity certifies that all payments from the TV Broadcaster Relocation Fund (Fund) received by the entity listed on this form will be used only for expenses that are eligible for reimbursement from the Fund.
6. The above-named entity certifies that it will maintain and provide to the Commission detailed records, including receipts, of all costs eligible for reimbursement actually incurred.
7. The above-named entity acknowledges that overpayments or payments in error must be promptly refunded to the Commission.

	8. The above-named entity certifies that it is in full compliance with all statutes, rules, regulations and governmental requirements for which compliance is a pre-requisite for obtaining the payments herein requested.	
	I declare, under penalty of perjury, that I am an authorized representative of the above-named applicant for the Authorization(s) specified above.	**Angelo Servedio** *Vice President Controller* 08/27/2019

Certification

Section	Question	Response
Submission of Actual Cost Documentation Statements	WILLFUL FALSE, FRAUDULENT, OR FICTITIOUS STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND /OR IMPRISIONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1), AND /OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503), AND ANY FALSE AND/OR FRAUDULENT STATEMENTS COULD SUBJECT THIS ENTITY TO LIABILITY UNDER THE FALSE CLAIMS ACT (U.S. CODE, TITLE 31, SECTIONS 3729-3733).	
	1. The Authorized Person signing below certifies and represents that he /she is authorized to submit this TV Broadcaster Relocation Fund Reimbursement Form on behalf of the above-named entity. 2. The above-named entity certifies that the statements in this form and attached documentation are true, complete, and correct. 3. The above-named entity acknowledges that all certifications and attached documentation are considered material representations. 4. The above-named entity acknowledges the submission of the information herein creates no obligation on the part of the government to pay any amount.	

5. The above-named entity certifies that the equipment and services paid for with money from the TV Broadcaster Relocation Fund are necessary to change channels (full power and Class A stations) and/or otherwise modify a television station’s facility as a result of the spectrum repack (LPTV/TV Translator stations); or to minimize service disruption resulting from a repacked television station (FM stations); or to continue to carry the signal of a broadcaster that changes channels (MVPD) .
6. The above-named entity certifies that all payments from the TV Broadcaster Relocation Fund (Fund) received by the entity listed on this form will be used only for expenses that are eligible for reimbursement from the Fund.
7. The above-named entity certifies that the cost information /documents submitted reflect costs actually incurred.
8. The above-named entity acknowledges that overpayments or payments in error must be promptly refunded to the Commission.

	9. The above-named entity certifies that it is in full compliance with all statutes, rules, regulations and governmental requirements for which compliance is a prerequisite for obtaining the payments herein requested.	
	I declare, under penalty of perjury, that I am an authorized representative of the above-named applicant for the Authorization(s) specified above.	**Angelo Servedio** *Vice President Controller* 08/27/2019

Attachments