

(REFERENCE COPY - Not for submission)

FCC Form 399: Reimbursement Request

69360 Service: DTV Call **WUNL-TV** Channel: 33 (UHF) Facility Sign:

File 0000028060

Number:

ID:

FRN: 0001910066 Date 09/26

> Submitted: /2019

Applicant Information

Applicant Name, Type, and Contact Information

Applicant	Address	Phone	Email	Applicant Type
University of North Carolina Doing Business As: University of North Carolina	PO Box 14900 Research Triangle Park, NC 27709 United States	+1 (919) 549- 7000	fcc_notice@unctv. org	Government Entity

Reimbursement Contact Name and Information Reimbursement Contact Information

Applicant	Address	Phone	Email
[Confidential]			

Preparer Contact Information

Preparer Contact Name and Information

Applicant	Address	Phone	Email
Donald Smith Director of New Technologies Compliance & Planning University of North Carolina Center for Public Television	Donald Smith 10 UNC-TV Drive Research Triangle Park, NC 27709 United States	+1 (919) 549-7025	dsmith@unctv. org

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.	No
Briefly describe transition plan	The transition plan is to construct an interim facility at the existing site. The interim facility would be used when operation on the new channel begins. After that the necessary changes would be made to the primary transmission system.

Transmitters

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

Auxiliary Transmitter

Add Transmitter Information

Section	Question	Response
Existing Transmitter Description	Type of change	Purchase New
	Use	Auxiliary (Backup)
	Description of Use	Aux
	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	
Manufacturer and Type	Model	DHD30P1
	Year	2001
	Туре	Solid State
	Solid State Cooling	Air Cooled
	Solid State Power Capacity	7.25 kW

Auxiliary Transmitter

New Transmitter Costs

Section	Question	Response
New Transmitter	Use	Auxiliary (Backup)
	Change Type	Purchase New
	Is this a request for upgraded equipment?	No
	Manufacturer	
	Model	ULXTE-20
	Transmitter Type	Solid State
	Solid State Cooling	Liquid Cooled
	Solid State Power capacity	11.75 kW
	Justification for New Transmitter	The transmitter manufacturer has indicated that components necessary to modify the transmitter for operation on its new channel are no longer available and it will not be able to provide rechannelization services for the transmitter. See attached letter

Auxiliary Transmitter

Other Transmitter Costs

Section	Question	Response
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
	Туре	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?	No
	Size	N/A
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

Auxiliary

Other Transmitter Cost Not Listed

Transmitter Information not provided.

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	
Manufacturer and Type	Model	DCX-2
	Year	1994
	Туре	Inductive Output Tube
	IOT Power Type	Two
	Power Capacity	40 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?	Yes
	Manufacturer	
	Model	ULXTE-80
	Transmitter Type	Solid State
	Solid State Cooling	Liquid Cooled
	Solid State Power capacity	46.6 kW
	Justification for New Transmitter	The transmitter manufacturer has indicated that components necessary to modify the transmitter for operation on its new channel are no longer available and it will not be able to provide rechannelization services for the transmitter. See attached letter

Primary 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
	Туре	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?	No
	Size	N/A
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

Other Transmitter Cost Not Listed

Transmitter Information not provided.

Antennas

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

Add Antenna Information

Section	Question	Response
Existing Antenna Description	Type of change	Purchase New
	Antenna Use	Auxiliary (Backup)
	Description of Use	Aux
	Ownership	Owned
	Owner	N/A
	Site	N/A
	Is this antenna currently shared with any other stations?	No
	Is this antenna directional?	Yes
	Is antenna in operating condition?	Yes
	Is antenna located on or in close proximity to an antenna farm?	No
Existing Antenna Manufacturer and Type	Class	Full Power
	Mounting	Side Mount
	Antenna position in stack	Not in Stack
	Polarization	Horizontal
	Туре	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)	202.0 kW

Manufacturer	
Model	TLP-16M
Year	2001

New Antenna Costs

Section	Question	Response
New Antenna Description	Use	Auxiliary (Backup)
	Description of Use	Interim Facility and Eventual Auxiliary
	Change Type	Purchase New
	Is this a request for upgraded equipment?	Yes
	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?	No
New Antenna	Class	Full Power
Manufacturer and Types	Mounting	Side Mount
	Antenna position in stack	Not in Stack
	Polarization	Elliptical
	Туре	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)	500.0 kW

Manufacturer	
Model	SAA12- ATW_WC- G400-ES5R- 33
Year	2019
Justification for New Antenna	The antenna can only operate on channel 32. The replacement antenna will be initially used as part of the interim facility during the transition. Following the transition it will become a permanent auxiliary antenna.

Other Antenna Costs

Section	Question	Response
Combiner for Shared Antenna	Do you need a Combiner for a Shared Antenna?	No
	Туре	
	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

		1
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?	Yes
Pattern Scatter Analysis	Do you require separate purchase of pattern scatter analysis for a side mount high or medium power antenna?	Yes
Sweep Test	Do you require the sweep testing of transmission line and antenna?	Yes

Other Antenna Cost Not Listed

Information not provided.

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?	No
Existing Antenna Manufacturer and Type	Class	Full Power
	Mounting	Top Mount
	Antenna position in stack	Not in Stack
	Polarization	Elliptical
	Туре	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)	575.0 kW

Manufacturer	
Model	ATW16HS4- ETC170- 32S
Year	2009

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?	Yes
	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?	No
New Antenna	Class	Full Power
Manufacturer and Types	Mounting	Top Mount
	Antenna position in stack	Not in Stack
	Polarization	Elliptical
	Туре	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	SAA28- ATW_WC- E400-ET6R- 33
Year	2019
Justification for New Antenna	The antenna is a single channel slotted pylon style antenna. It cannot operate on a channel other than what it was designed, channel 32. The only viable option is to replace the antenna.

Other Antenna Costs

Section	Question	Response
Combiner for Shared Antenna	Do you need a Combiner for a Shared Antenna?	No
	Туре	
	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?	No
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

Other Antenna Cost Not Listed

Information not provided.

Transmission ^{Seffien}	Question	Response
Transmission Line Related Expenses	Do you have transmission line related expenses?	Yes

Add Transmission Line

Auxiliary Transmission

n Line Section	Question	Response
Existing Transmission Line Description	Type of change	Purchase New
	Use	Auxiliary (Backup)
	Description of Use	Interim and Eventual Auxiliary
	Ownership	Owned
	Owner	N/A
	Site	N/A
	Is this transmission currently shared with any other stations?	No
	Is Transmission Line in operating condition?	Yes
Existing Transmission	Manufacturer	
Line Manufacturer and Type	Туре	Rigid
	Diameter	6 1/8 inches
	Other Diameter	N/A
	Segment Length	20 inches
	Other Segment Length	N/A
	Number of parallel runs	1
	Length	340 feet per run

New Transmission Line

Auxiliary Transmission

New Transmission Line		
on Line Section	Question	Response
New Transmission Line Costs	Use	Auxiliary (Backup)
	Description of Use	Interim and Eventual Auxiliary
	Change Type	Purchase New
	Is this a request for upgraded equipment?	No
	Туре	Rigid
	Diameter	6 1/8 inches
	Other Diameter	N/A
	Segment Length	19 1/2 inches
	Other Segment Length	N/A
	Number of parallel runs	1
	Length	380 feet per
	Justification for New Transmission Line	The existing transmission line has a stick length of 20 feet, a length that is inconsistent with operations on channel 33. The only option is to replace the transmission line.

Other Transmission Line Expenses Not Listed Auxiliary Other Transmission Transmission to inetion not provided.

Primary Transmission Line

Existing Transmission Line

on 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	Manufacturer	
Line Manufacturer and Type	Туре	Waveguide
	Diameter	N/A
	Other Diameter	N/A
	Segment Length	N/A
	Other Segment Length	N/A
	Number of parallel runs	1
	Length	355 feet per run

New Transmission Line

Primary Transmission Line

New Transmission Line
Costs

Question	Response
Use	Primary (Main)
Description of Use	N/A
Change Type	Purchase New
Is this a request for upgraded equipment?	No
Туре	Rigid
Diameter	6 1/8 inches
Other Diameter	N/A
Segment Length	19 1/2 inches
Other Segment Length	N/A
Number of parallel runs	1
Length	400 feet per run
Justification for New Transmission Line	The waveguide manufacturer has indicated that the best option to move to channel 33 is to acquire new transmission line. The existing line hasn't been made since 2004, and replacement (instead of retuning) is recommended. See narrative for details.
	Use Description of Use Change Type Is this a request for upgraded equipment? Type Diameter Other Diameter Segment Length Other Segment Length Number of parallel runs Length

Other Transmission Line Expenses Not Listed

Primary
Transmission of provided.

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	Move Equipment
	Tower Use	Primary (Main)
	Description of Use	N/A
	Ownership	Owned
	Is this tower consider Complex?	Terrain Constrained
	Is this tower currently shared with any other stations?	No
	One or more FM, AM or TV radio broadcaster(s)	N/A
	Others Types of Users	N/A
	Is tower documented for structural analysis?	No
	Is tower compliant with Rev G?	Unknown
Existing Tower Structure	Do you have a tower registration number?	Yes
Registration	ASR Number	1014577
Coordinates (NAD83 (North American Datum of 1983))	Latitude (NAD83)	36° 22' 31.7" N-
	Longitude (NAD83)	080° 22' 17.5" W-
	Overall Structure Height	351.05 feet
	Support Structure Height	301.83 feet

Ground Elevation Above Mean Sea Level (AMSL)	2358.90 feet
Structure Type	TOWER - Free Standing or Guyed Structure
Tower Owner	UNIVERSITY OF NORTH CAROLINA
Date Constructed	08/12/2009

Primary Tower

Tower Rigging Costs

Section	Question	Response
Tower Rigging Costs	Complex Tower	Terrain constrained
Helicopter Services Required	Are helicopter services required?	No

Primary Tower

Other Tower Expenses Not Listed

Information not provided.

Outside Professional

Section	Question	Response
Services Costs Outside Project Management Services	Do you require outside project management services?	Yes
	Number of Hours	120
	Explanation	Because the transmission site is owned by the State of North Carolina, it is subject to various state construction project rules. One rule is the hiring of a designer to create submittals for project review and approval by the state.
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	1

	Do you have Distributed Transmission System engineering services?	N/A
	Critical Facility	N/A
	Terrain-Shielded Facility	N/A
Attorney and Other Outside Consulting	Prepare and file Form FCC Construction Permit Application	Yes
Services	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	1
	NEPA Section 106 environmental review	No
	Environmental Assessment	No
	ASR Modification	Yes
	FAA Consultation (including preparation of FAA Form 7460)	Yes
	Negotiation of Lease and other Matter for Shared Locations	No
	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	No
	RF exposure measurements	No
	Additional Field Engineering Service	No
	Number of Days	N/A

Justification	N/A
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Outside Professional

Other Professional Services Expenses Not Listed

I Services Costs	Description
Additional Legal Expenses	Legal expenses for non-catalog advice and review, including transition status reports and other miscellaneous legal needs.
Tower Structural Analysis	Required by State Building Code

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	No
	Non-zoning permits	No
	BLM or NFS Coordination	No
	FCC Construction Permit Minor Change	No
	FCC License to Cover Application	No
	FCC Special Temporary Authority Application	No
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?	No
	Does this relocation require Equipment Storage?	No
	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
Electrical Construction	Construction and modifications to the electrical infrastructure of the existing building as required to support the new transmitters
General Construction	General construction and administrative costs necessary for the installation of transmitters in an existing building.
Mechanical Construction	Construction and modifications to the HVAC infrastructure of the existing building as required to support the new transmitters.
Network Switch	Cisco 52-port Gigabit Switch connects devices together on computer network by using packet switching to receive, process, and forward data to destination device

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 Cost Justification
Primary Transmitter ULXTE-80	\$1,498,550.00	\$849,543.90		\$769,931.91	
UHF - Liquid Cooled Solid State Transmitter 35 - 50 kW	\$1,473,000.00	\$846,631.49	The estimated cost is for the approved GatesAir ULXTE-60 transmitter. The transmitter purchase has been upgraded to a ULXTE-80. It is understood that the station is responsible for the upgrade portion of the purchase price.	\$767,019.50	Test
Transformer 3 phase /480v - 150 KVA	\$25,550.00	\$2,912.41	***System Notice: Estimate adjusted and locked because line has been superseded. ***Remaining expenses moved to Other Expenses	\$2,912.41	N/A

Auxiliary Transmitter ULXTE-20	\$520,050.00	\$283,383.37		\$140,712.39	
UHF - Liquid Cooled Solid State Transmitter 8.2 - 13 kW	\$494,500.00	\$281,424.77	See attached Transmitter Pricing Narrative	\$138,753.79	N/A
Transformer 3 phase /480v - 150 KVA	\$25,550.00	\$1,958.60	***System Notice: Estimate adjusted and locked because line has been superseded. ***Remaining expenses moved to Other Expenses	\$1,958.60	N/A
Sub-total	\$2,018,600.00	\$1,132,927.27	N/A	\$910,644.30	N/A
Total for all systems	\$3,815,192.03	\$2,714,523.88	N/A	\$1,499,552.14	N/A

Components

Actual Information	
Description	File Name

UHF - Liquid Cooled Solid		
State Transmitter 35 - 50 kW	Component Description:	FCC Portion Main
		Transmitter, Due
		Date revised to
		vendor terms net
		60. See
		attachment pg. 2
		for invoice details.
		Please note
		funding column.
		PO for multiple
		sites.
	Amount:	\$346,616.16
	On any and December 1	FOO(Main
	Component Description:	50% Main
		Transmitter &
		Installation,
		Installation
		included w
		/Transmitter on
		Form 399, Transformer
		separate line on
		Form 399. Purchase Order is
	Amount:	for all 11 sites.
	Amount:	\$420,403.34
Transformer 3 phase/480v -		
150 KVA	Component Description:	50% Transformer

Component Description: 50% Transformer

75579), line 16 (Quote 75582). Purchase Order is for all 11 sites.

on line 18 (Quote

Amount: \$2,912.41

State Transmitter 8.2 - 13	Commonant Deposinties	FOO/ Aux
⟨W	Component Description:	50% Aux
		Transmitter &
		Installation,
		Installation
		included w
		/Transmitter on
		Form 399.
		Transformer
		separate line item
		on Form 399.
		Purchase Order
		for all 11 sites.
	Amount:	\$138,753.79
Transformer 3 phase/480v -		
150 KVA	Component Description:	50% Transformer
		on line 17 of
		quote, separate
		line item on Form
		399. Purchase
		order is for all 11
		sites.
	Amount:	\$1,958.60
	7	ψ1,000.00

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	Actual Cost Justification
Primary Antenna SAA28- ATW_WC- E400-ET6R- 33	\$308,530.00	\$184,100.50		\$83,000.24	
Elbow complex, single channel, at antenna input, per 6 1/8. feedline (if needed)	\$12,300.00	\$11,700.00	N/A	N/A	N/A
UHF - High Power Top Mount (200- 1000 kW), One station antenna, elliptically or circularly polarized	\$289,500.00	\$166,000.50	See attached RFS Antenna Change Narrative with Pricing Information	\$83,000.24	N/A
Sweep test of existing antenna	\$6,730.00	\$6,400.00	N/A	N/A	N/A
Auxiliary Antenna SAA12- ATW_WC- G400-ES5R- 33	\$158,792.50	\$156,752.50		\$55,676.25	

UHF - High Power, Side Mount, basic slot antenna, 500 kW input, directional,, elliptically or circularly polarized	\$111,352.50	\$111,352.50	See RFS Antenna Change Narrative with Pricing Information	\$55,676.25	N/A
Sweep test of existing antenna	\$6,730.00	\$6,400.00	N/A	N/A	N/A
Elbow complex, single channel, at antenna input, per 6 1/8. feedline (if needed)	\$12,300.00	\$12,000.00	N/A	N/A	N/A
Side mount brackets for high power antennas (if not included in antenna base cost)	\$23,150.00	\$22,000.00	N/A	N/A	N/A
Pattern scatter analysis for side mount high/med power antennas (if not included in antenna base cost)	\$5,260.00	\$5,000.00	N/A	N/A	N/A
Sub-total	\$467,322.50	\$340,853.00	N/A		

Total for all	\$3,815,192.03	\$2,714,523.88	N/A	\$1,499,552.14	N/A
systems					

Actual Information Description	File Name	
Elbow complex, single channel, at antenna input, per 6 1/8. feedline (if needed)	Information not provided.	
UHF - High Power Top Mount (200-1000 kW), One station antenna , elliptically or circularly polarized	Component Description: Amount:	50% Primary Antenna (See Bid Page 57 Attachment A Pricing Form, Item # 52/53) included in Inv & PO Line 16. Invoice & Purchase Order are for 10 sites. 50% Portion paid by WUNL is displayed on Inv & PO Line 17. See revised attachment. \$83,000.24
Sweep test of existing antenna	Information not provided.	

Mount, basic slot antenna, 500 kW input, directional,, elliptically or circularly polarized	Component Description: Amount:	50% Auxilliary Antenna (See Bid Page 57 Attachment A Pricing Form Item 49) included in Inv & PO Line 16. Invoice & Purchase Order are for 10 sites. See revised attachment. \$55,676.25
Sweep test of existing antenna	Information not provided.	
Elbow complex, single channel, at antenna input, per 6 1/8. feedline (if needed)	Information not provided.	
Side mount brackets for high power antennas (if not included in antenna base cost)	Information not provided.	
Pattern scatter analysis for side mount high/med power antennas (if not included in antenna base cost)	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 Justification
Primary Transmission Line	\$80,800.00	\$62,143.21		\$31,071.61	
Rigid Transmission Line - copper, 6 1/8"	\$80,800.00	\$62,143.21	See RFS Antenna Change Narrative with Pricing Information	\$31,071.61	N/A
Auxiliary Transmission Line	\$76,760.00	\$58,227.81		\$29,113.91	
Rigid Transmission Line - copper, 6 1/8"	\$76,760.00	\$58,227.81	See RFS Antenna Change Narrative with Pricing Information	\$29,113.91	N/A
Sub-total	\$157,560.00	\$120,371.02	N/A	\$60,185.52	N/A
Total for all systems	\$3,815,192.03	\$2,714,523.88	N/A	\$1,499,552.14	N/A

Actual Information	
Description	File Name

Rigid Transmission Line - copper, 6 1/8"		
copper, o 1/o	Component Description:	50% Primary
		Transmission Line
		See Bid Page 57
		Attachment A
		Pricing Form Item
		54) included in Inv
		& PO Line 16.
		Invoice &
		Purchase Order
		are for 10 sites.
		See revised
		attachment.
	Amount:	\$31,071.61
Rigid Transmission Line -		
copper, 6 1/8"	Component Description:	50% Auxilliary
		Transmission Line
		(See Bid Page 57
		Attachment A
		Pricing Form Item
		50) included in Inv
		& PO Line 16.
		Invoice &
		Purchase Order
		are for 10 sites.
		See revised
		attachment.
	Amount:	\$29,113.91

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 Justification
Primary Tower TOWER	\$421,000.00	\$272,812.06		\$136,406.03	
Complex Tower (includes, for example, those with candelabras and/or stacked antennas)	\$421,000.00	\$272,812.06	See RFS Antenna Change Narrative with Pricing Information	\$136,406.03	N/A
Sub-total	\$421,000.00	\$272,812.06	N/A	\$136,406.03	N/A
Total for all systems	\$3,815,192.03	\$2,714,523.88	N/A	\$1,499,552.14	N/A

Actual Information	
Description	File Name

Complex Tower (includes, for example, those with candelabras and/or stacked antennas)

Component Description: 50% Primary

/Complex Tower
Installation (See
Bid Page 57
Attachment A
Pricing Form Item
55) for Primary
Antenna included
in Inv & PO Line
18. Invoice &
Purchase Order
are for 10 sites.
See revised
attachment.

Amount: \$96,964.83

Component Description: 50% Primary

/Complex Tower
Installation (See
Bid Page 57
Attachment A
Pricing Form Item
51) for Auxilliary
Antenna included
in Inv & PO Line
18. Invoice &
Purchase Order
are for 10 sites.
See revised
attachment.

Amount: \$39,441.20

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 Outside Professional Services	Predetermined Cost Estimate \$93,275.00	Estimated Cost \$195,676.00	Estimated Cost Justification	Actual Cost \$134,196.74	Actual Cos Justificatio
Tower Structural Analysis	\$7,000.00	\$7,000.00	N/A	\$5,000.00	N/A
Additional Legal Expenses	\$24,500.00	\$24,500.00	Estimate for legal expenses for non-catalog advice and review including transition status reports and other miscellaneous legal needs.	\$4,210.04	N/A
FAA consultant, including cost of preparing FAA Form 7460 (Notice of Proposed Construction), if needed for height increase	\$2,105.00	\$2,000.00	N/A	N/A	N/A
ASR modification (prepare FCC Form 854)	\$2,105.00	\$2,000.00	N/A	N/A	N/A

Attorney Fees - Prepare and File request for Special Temporary Authorization	\$3,680.00	\$3,500.00	N/A	N/A	N/A
Attorney Fees - Prepare and File FCC Form 2100 (main), License to Cover Application	\$2,365.00	\$2,250.00	N/A	N/A	N/A
Attorney Fees - Aux Antenna, prepare and File Form 2100 Construction Permit or License Application	\$4,210.00	\$4,000.00	N/A	\$109.50	N/A
Project management of the transition	\$18,960.00	\$128,926.00	See attachment "WUNL Program Designer - Manager Narrative" for details on estimated cost	\$120,686.30	N/A
Prepare and or review reimbursement form	\$2,630.00	\$2,500.00	N/A	N/A	N/A
Address transition timing and coordination issues w/ other stations and wireless	\$2,630.00	\$2,500.00	N/A	N/A	N/A

Perform engineering study for new channel assignment and antenna development	\$7,360.00	\$2,000.00	N/A	\$675.00	N/A
Prepare engineering section of FCC Form 2100 (main), Construction Permit Application	\$3,155.00	\$3,000.00	N/A	\$1,812.50	N/A
RF Consulting Engineer Fees- Aux Antenna: Prepare engineering section of FCC Form 2100, Construction Permit Application	\$2,105.00	\$2,000.00	N/A	\$1,050.00	N/A
Prepare engineering section of FCC Form 2100 (main), License to Cover Application	\$1,580.00	\$1,500.00	N/A	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	N/A	N/A	N/A

Prepare request for Special Temporary Authorization	\$2,050.00	\$1,500.00	N/A	N/A	N/A
Attorney Fees - Prepare and File FCC Form 2100 (main), Construction Permit Application	\$5,260.00	\$5,000.00	N/A	\$653.40	N/A
Sub-total	\$93,275.00	\$195,676.00	N/A	\$134,196.74	N/A
Total for all systems	\$3,815,192.03	\$2,714,523.88	N/A	\$1,499,552.14	N/A

Actual Information Description	File Name	
Tower Structural Analysis	Component Description:	Outside Professional Services Tower Structural Analysis See attachment page 7 for schedule of
	Amount:	services. \$2,500.00
	Component Description: Amount:	Outside Professional Services Structural Analysis See attachment pg. 7 for schedule of services. \$2,500.00
Additional Legal Expenses		

Professional Services

Additional Legal

Expenses

Amount: \$574.30

Component Description: Outside

Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 959.50/11 equal 87.23 as outlined on page 1 of invoice.

Amount: \$87.23

Component Description: Outside

Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 368.00/11 equal 33.46 as outlined on page 1 of invoice.

Amount: \$33.46

Professional Services

Additional Legal

Expenses

Amount: \$35.00

Component Description: Outside

Professional Services

Additional Legal

Expenses

Amount: \$35.00

Component Description: Outside

Professional Services

Additional Legal

Expenses

Amount: \$73.00

Component Description: Outside

Professional Services

Additional Legal

Expenses

Amount: \$182.50

Component Description: Outside

Professional Services

Additional Legal

Expenses

Amount: \$67.40

Component Description: Outside

Professional Services

Additional Legal

Expenses

Amount: \$70.00

Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 2594.40/11 equal 235.85 as outlined on page 1 of invoice.

Amount: \$235.85

Component Description: Outside

Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across 10 of 11 Call Signs/Facility IDs, 3378.88/10 equal 337.89 as

outlined on page 1

of invoice

Amount: \$337.89

Component Description: Outside Prof. Svcs

Additional Legal

Expenses

Amount: \$73.00

Component Description: Outside Prof. Svcs

Additional Legal

Expenses

Amount: \$109.50

Professional Services

Additional Legal Expenses 6/06/ thru 6/25 1.30 times 365.00

Amount: \$474.50

Component Description: Outside

Professional Services

Additional Legal
Expenses Invoice
applies to all 11
repack stations,
amount requested
reflects portion
payable per
Station: \$245.00
/11 as indicated on
page 1 of Invoice

Amount: \$22.27

Component Description: Outside

Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 67.40/11 equal 6.13 as outlined on page 1 of invoice.

Amount: \$6.13

Professional Services

Additional Legal

Expenses

Amount: \$105.00

Component Description: Outside

Professional Services

Additional Legal

Expenses

Amount: \$67.40

Component Description: Outside

Professional Services

Additional Legal

Expenses

Amount: \$70.00

Component Description: Outside

Professional Services

Additional Legal

Expenses

Amount: \$33.70

Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 175.00/11 equal 15.91 as outlined on page 1 of invoice.

Amount: \$15.91

Component Description: Outside

Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs,

572.90/11 equal

52.08 as outlined on page 1 of invoice.

Amount: \$52.08

Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 315.00/11 equal 28.64 as outlined on page 1 of invoice.

Amount: \$28.64

Component Description: Outside

Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 3472.00/11 equal 315.63 as outlined

on page 1 of invoice. \$315.63

Amount:

Component Description: Outside

Professional Services

Additional Legal

Expenses

Amount: \$35.00

Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 402.00/11 equal 36.55 as outlined on page 1 of invoice.

Amount: \$36.55

Component Description: Outside

Professional Services

Additional Legal Expenses Invoice applies to all 11 repack stations, amount requested reflects portion payable per

Station: \$70.00/11 as indicated on page 1 of Invoice

Amount: \$6.37

> Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 1617.10/11 equal 147.01 as outlined on page 1 of

invoice

\$147.01 Amount:

Component Description: Outside

> Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 2059.90/11 equal 187.27 as outlined

on page 1 of invoice

Amount: \$187.27

Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 168.50/11 equal 15.32 as outlined on page 1 of invoice.

Amount: \$15.32

Component Description: Outside

Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 323.00/11 equal 29.36 as outlined on page 1 of

invoice.

Amount: \$29.36

Professional Services

Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 765.00/11 equal 69.55 as outlined on page 1 of

Amount: \$69.55

Component Description: Outside

Professional Services

invoice.

Additional Legal

Expenses

Amount: \$70.00

Component Description: Outside

Professional Services

Additional Legal

Expenses

Amount: \$476.40

	Component Description: Amount:	Outside Professional Services Additional Legal Expenses Legal services benefit entire FCC Repack project across all 11 Call Signs/Facility IDs, 350.00/11 equal 31.82 as outlined on page 1 of invoice. \$31.82
FAA consultant, including cost of preparing FAA Form 7460 (Notice of Proposed Construction), if needed for height increase	Information not provided.	
ASR modification (prepare FCC Form 854)	Information not provided.	
Attorney Fees - Prepare and File request for Special Temporary Authorization	Information not provided.	
Attorney Fees -Prepare and File FCC Form 2100 (main), License to Cover Application	Information not provided.	
Attorney Fees - Aux Antenna, prepare and File Form 2100 Construction Permit or License Application	Component Description: Amount:	Outside Professional Services Attorney Fees CP Aux Antenna 6/28 .30 times 365.00 \$109.50
Project management of the transition		

Professional
Services Project
Management See
attachment pg. 3 &

4 for Project Summary \$6,703,50

Amount: \$6,703.50

Component Description: Outside

Professional
Services Project
Management of
Transition See
attachment pg 3-5

for Contract

/Invoice Summary.

Amount: \$13,735.60

Component Description: Outside

Professional Services Project Management of Transition See attachment pg 3-5

for Contract

/Invoice Summary.

Amount: \$58,147.80

Component Description: Outside

Professional
Services Project
Management of
Transition See
attachment pg 3-6

for Contract

/Invoice Summary. PO/Contract for all eleven transmitter

sites.

Amount: \$11,842.56

Professional
Services Project
Management of
Transition See
attachment pg. 3-6

for Contract

/Invoice Summary. PO/Contract for all eleven transmitter

sites.

Amount: \$4,406.04

Component Description: Outside

Professional
Services Project
Management of
Transition See
attachment pg 3-5

for Contract

/Invoice Summary. PO/Contract for all eleven transmitter

sites.

Amount: \$5,921.28

Component Description: Outside

Professional Services Project Management of Transition See attachment pg 3-5 for Contract

ioi Contract

/Invoice Summary.

Amount: \$5,921.28

Component Description:	Outside
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Professional Services Project Management of Transition See attachment pg 3-5 for Contract

/Invoice Summary.

Amount: \$4,985.74

Component Description: Outside

Professional Services Project Management

Amount: \$9,022.50

Component Description: Outside

Professional
Services Project
Management See
attachment pg. 3 &
4 for Project

Summary

Amount: \$9,022.50

Prepare and or review reimbursement form

Information not provided.

Address transition timing and coordination issues w/ other stations and wireless

Information not provided.

Perform engineering study for new channel assignment and antenna development

Component Description: Outside

Professional Services

Engineering Study New Channel Assignment Antenna Development \$675.00

Amount: \$6

Prepare engineering section of FCC Form 2100 (main),		
Construction Permit	Component Description:	Outside
Application		Professional
		Services
		Engineering
		Section FCC Form
		2100 Construction
		Permit Application
		Main/Primary
	Amount:	\$1,812.50
RF Consulting Engineer Fees- Aux Antenna:		
Prepare engineering section	Component Description:	Outside Prof Svcs Consult Engineer
of FCC Form 2100,		CP for Aux
Construction Permit	Amount:	\$1,050.00
Application		
Prepare engineering section	Information not provided.	
of FCC Form 2100 (main),		
License to Cover Application		
RF Consulting Engineer	Information not provided.	
Fees- Aux Antenna:	or provided	
Prepare engineering section		
of FCC Form 2100, License		
to Cover Application		
Prepare request for Special	Information not provided.	
Temporary Authorization		
Attorney Fees - Prepare		
and File FCC Form 2100	Component Description:	Outside
(main), Construction Permit		Professional
Application		Services Attorney
		Fees Construction
		Permit Application
		Main/Primary
	Amount	•
	Amount:	\$653.40

Cost Information

Other Expenses

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

Description Other	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification		Actual Cost Justification
Expenses	\$657,434.53	\$651,884.53		\$119,443.06	
Network Switch	\$1,048.00	\$1,048.00	N/A	\$1,047.97	N/A
DTV Medical Facility Notification	\$11,550.00	\$6,000.00	Preliminary estimate for services	\$3,750.00	N/A
Disposal Costs (for equipment and other waste, net of any salvage value)	\$66,274.00	\$66,274.00	See attached Main & Aux Transmitter Disposal Quotes	\$33,661.35	N/A
Develop and air announcement of upcoming channel change	\$2,000.00	\$2,000.00	Preliminary estimate	N/A	N/A
MVPD Notification of Channel Change	\$5,500.00	\$5,500.00	Preliminary estimate for service	\$463.64	N/A
Mechanical Construction	\$266,454.00	\$266,454.00	See attached document WUNL GC Budget	\$9,120.00	N/A
Electrical Construction	\$196,012.94	\$196,012.94	See attached document WUNL GC Budget	\$39,195.10	N/A

General Construction	\$108,595.59	\$108,595.59	See attached document WUNL GC Budget	\$32,205.00	N/A
Sub-total	\$657,434.53	\$651,884.53	N/A	\$119,443.06	N/A
Total for all systems	\$3,815,192.03	\$2,714,523.88	N/A	\$1,499,552.14	N/A

Actual Information Description	File Name	
Network Switch		
	Component Description:	Other Expenses Network Switch 11 Switches for total of 11,527.67 equals 1,047.97 per transmitter site
	Amount:	\$1,047.97
DTV Medical Facility		
Notification	Component Description:	Medical
		Notification, PO
		/Quote for
		multiple call
		/locations.
	Amount:	\$3,750.00

equipment and other waste, net of any salvage value)	Component Description:	50% Aux Transmitter Disposal Costs. Purchase Order is
	Amount:	for all 11 sites. \$13,782.60
	Component Description:	50% Main Transmitter Disposal Costs. Purchase Order is for all 11 sites.
	Amount:	\$19,878.75
Develop and air announcement of upcoming channel change	Information not provided.	
MVPD Notification of Channel Change	Component Description:	MVPD Notify See attach pg. 12-13 \$5,100 for 11 sites equal 463.64
	Amount:	each \$463.64
Mechanical Construction		
	Component Description:	Mechanical/HVAC contract PO for multiple sites.
	Amount:	\$9,120.00
Electrical Construction		
	Component Description:	Electrical Contract PO for multiple sites
	Amount:	\$39,195.10

General Construction		
	Component Description:	General Contract
		PO for multiple sites.
	Amount:	\$1,425.00
	Component Description:	General Contract
		PO for multiple sites
	Amount:	\$30,780.00

Cost Information

Grand Total

	Predetermined Cost Estimate	Estimated Cost	Actual Cost
Total for all systems	\$3,815,192.03	\$2,714,523.88	\$1,499,552.14

Reimbursem	enrestiatus	Response
	The facility has ceased operating on its pre- auction channel.	Yes
	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

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 abovenamed applicant for the Authorization(s) specified above. Donald
Smith
Director of
Compliance
and New
Technologies

09/26/2019

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.
- The above-named entity certifies that the statements in this form and attached documentation are true, complete, and correct.
- 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 abovenamed applicant for the Authorization(s) specified above. Robert
Levin
Director of
Finance and
Administration

09/26/2019

Attachments