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:	**66185**	Service:	**DTV**	Call Sign:	**WOSU-TV**	Channel:	**16 (UHF)**
File Number:	**0000028867**						
FRN:	**0006031983**	Date Submitted:	**03/04/2021**				

Applicant Information

Applicant Name, Type, and Contact Information

Applicant	Address	Phone	Email	Applicant Type
THE OHIO STATE UNIVERSITY	WOSU Public Media 2400 OLENTANGY RIVER ROAD COLUMBUS, OH 43085 United States	+1 (614) 292-9678	carwile.1@osu.edu	Government Entity

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
The Preparer is same as the reimbursement contact.			

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	Purchase new transmitter, antenna and transmission line. Lease interim side-mount ch 38 antenna, use existing line to maintain service while top-mount is removed and new antenna, transmitter and line installed. See attached Transition Plan.

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	CD3200P2
	Year	2003
	Type	Inductive Output Tube
	IOT Power Type	Two
	Power Capacity	42 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	ULXTE-72
	Transmitter Type	Solid State
	Solid State Cooling	Liquid Cooled
	Solid State Power capacity	47.2 kW
	Justification for New Transmitter	Current Sigma CD not frequency agile. Gates advises with re-tuning components not available, major-frequency change should not be considered given age, age or cost, need for new mask filter and other RF equipment. Power comparable to existing transmitter.

Primary Transmitter

Other Transmitter Costs

Section	Question	Response
Electrical Service	Service Entrance (3 phases 800A 208V)	No
	Switchgear (industrial 800 amp)	No
	Transformer (480V)	Yes
	Power	300 kVA
	Rigid Conduit and Wiring	No
	Size	N/A
	Length	N/A
	Other Electrical Service	Yes
	Description	Reworking of existing electrical system to rewire main fused disconnect panel to protect new transmitter by on-site generator.
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	120.0 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
Replacement of Damaged Lighting Fixtures	Replacement and installation of lighting fixtures damaged during transmitter work
Liquid Cooling System Items	Not included in original transmitter estimate. Includes pump modules for PUs, outdoor heat exchanger and mask filters and coolant. Placed as additional cost because HVAC question was oriented to air-cooled systems.

Antennas

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

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?	No
	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	Horizontal
	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)	511.0 kW

Manufacturer	
Model	TFU-20GTH-RO4
Year	2003

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?	Yes
	Ownership	Owned
	Owner	N/A
	Is antenna shared?	No
	Is antenna directional?	No
	Will antenna be located on or in close proximity to an antenna farm?	No
New Antenna Manufacturer and Types	Class	Full Power
	Mounting	Top Mount
	Antenna position in stack	Not in Stack
	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)	675.0 kW
	Manufacturer	

	Model	ATW25H3-ETO-16H
	Year	2019
	Justification for New Antenna	Existing ch 38 antenna cannot be re-tuned to ch 16. This is a upgrade given we are purchasing an elliptically-polarized versus a horizontally-polarized antenna. Model changed due to FAA tower height restrictions.

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
Custom Top Plate	Interface for attachment of new antenna to non-standard tower. Existing antenna also required custom plate.

Interim Antenna

New Antenna Costs

Section	Question	Response
New Antenna Description	Use	Interim
	Description of Use	N/A
	Change Type	Rent Temporary
	Ownership	Leased
	Owner	ERI
	Is antenna shared?	No
	Is antenna directional?	Yes
	Will antenna be located on or in close proximity to an antenna farm?	No
New Antenna Manufacturer and Type	Class	Full Power
	Mounting	Side Mount
	Antenna position in stack	Not in Stack
	Polarization	Horizontal
	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)	25.0 kW
	Manufacturer	
	Model	ATW-275
	Year	2017

	Justification for New Antenna	Rental of temporary ch 38 antenna for up to three months to maintain service while existing top-mount antenna and top plate are removed, new top plate and ch 16 antenna installed.

Interim Antenna

Other Antenna Costs

Section	Question	Response
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 an 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?	No

Interim Antenna

Other Antenna Cost Not Listed

Information not provided.

Transmission Line

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

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	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	1190 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	6 1/8 inches
	Other Diameter	N/A
	Segment Length	19 3/4 inches
	Other Segment Length	N/A
	Number of parallel runs	1
	Length	1240 feet per run

	Justification for New Transmission Line	Existing line will be used for interim antenna to maintain service on ch38. Existing line dates to 2003, has been repaired and segments replaced. After interim antenna removed, line will be capped for use with a future backup ch16 ant. (not in proposal)

Primary Transmission Line

Other Transmission Line Expenses Not Listed

Name	Description
Transmission Line System Design	Initial system design, plus on-site tech visit for final deliverable
Ice Bridge	Replacement/additional 150' ice bridge to support and protect new transmission line. Existing bridge is overloaded, in questionable shape and not well-supported. See Site Survey attachment and ERI Transmission Bridge Quote
Line Dehydrator	Andrew Dryline low-pressure dehydrator for transmission line.
Sweep and Tune	System sweep, tune and test after installation.

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	Owned
	Is this tower consider Complex?	No
	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?	No
Existing Tower Structure Registration	Do you have a tower registration number?	Yes
	ASR Number	1054358
Coordinates (NAD83 (North American Datum of 1983))	Latitude (NAD83)	40° 09' 33.0" N-
	Longitude (NAD83)	082° 55' 23.0" W-
	Overall Structure Height	1106.94 feet
	Support Structure Height	1067.90 feet
	Ground Elevation Above Mean Sea Level (AMSL)	920.92 feet

Structure Type	TOWER - Free Standing or Guyed Structure
Tower Owner	OHIO STATE UNIVERSITY DBA = WOSU STATIONS
Date Constructed	01/01/1973

Primary Tower

Tower Modification Costs

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

Primary Tower

Tower Rigging Costs

Section	Question	Response
Tower Rigging Costs	Complex Tower	N/A
Helicopter Services Required	Are helicopter services required?	No

Primary Tower

Other Tower Expenses Not Listed

Name	Description

Landing Area for Tower Work	Swampy winter conditions required construction of gravel & timber landing area for winch and staging antennas and reinforcement material for placement on tower
Tower Mapping	Confirmation mapping to provide current status in preparation of rigorous tower analysis.

Outside Professional Services Costs

Section	Question	Response
Outside Project Management Services	Do you require outside project management services?	Yes
	Number of Hours	150
	Explanation	WOSU only maintains a three-person engineering staff to deal with three television transmitters and six radio stations, as well as all other technology issues in our aging building. We are very tight on staff time, especially for large projects,
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	No
	For Main Facility	Yes
	Prepare engineering section of Form FCC License to Cover Application	Yes
	For Auxiliary Facility	No
	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 Services	Prepare and file Form FCC Construction Permit Application	Yes
	For Auxiliary Facility	No
	For Main Facility	Yes
	Prepare and file Form FCC License to Cover Application	Yes
	For Auxiliary Facility	No
	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	No
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

Outside Professional Services Costs

Other Professional Services Expenses Not Listed

Name	Description
Quarterly Progress Reports	Prepare and file FCC-required Quarterly Progress Reports on Schedule 387 during station repack process.
Transmitter Site Site Survey	Comprehensive transmitter site survey and report by Gates Air specifying needs and providing recommendations (see as attachment)

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?	No
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)?	No
	Does this relocation require Equipment Delivery or Handling Charges not otherwise included in individual item costs?	Yes
	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
Equipment Off-Loading	Costs to rent forklift and obtain driver to off-load tower reinforcement materials at tower site, separate from delivery charges.
Medical Notification Mailing	Required notification of channel change to medical facilities in coverage area
Site Restoration	Cost to restore gravel roadway and grass areas at transmitter site due to damage caused by large vehicles delivering equipment and construction during winter months.
Top Tower Beacon Replacement Parts	Replacement parts for top mounted tower lighting beacon needed due to move to the repack antenna. Could not create in antenna section.

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-72	**$2,527,471.63**	**$2,273,812.80**		**$1,344,868.80**	
Other Electrical Service: Reworking of existing electrical system to rewire main fused disconnect panel to protect new transmitter by on-site generator.	***$1,107.20***	$1,107.20	N/A	$1,107.20	N/A

Other Electrical Service: Reworking of existing electrical system to rewire main fused disconnect box to protect new transmitter by on-site generator. New distribution panel to feed power cooling transformer.	***$1,107.02***	$1,107.02	***System Notice: Estimate adjusted and locked because line has been superseded. ***Panel, parts and installations by electrical contractor. Additional anticipated work was performed as part of the transmitter installation and could not be separated out.	$0.00	N/A
UHF - Liquid Cooled Solid State Transmitter 35 - 50 kW	$1,473,000.00	$1,245,359.43	N/A	$1,245,359.43	N/A
Transformer 3 phase /480v - 300 KVA	$36,800.00	$10,781.74	480T0208-150KVA-480vv, three phase transformer Delta primary, parallel surge suppressor for Delta, various installation items	$10,781.74	N/A

Other -- Building Addition Size: 120.0	***$25,674.30***	$25,674.30	Approximately 120' sqft space outside building to protect heat exchangers /pumps for new cooling system. Project includes design, pad and ice-protective building overhang. Had estimated $100k, unable to obtain actual quote from university in 5 day window.	$25,674.30	Total is greater because of unanticipated need to reinforce existing structure and for repair of existing roof due to transmitter installation activities.
Liquid Cooling System Items	***$31,036.33***	$31,036.33	Items include pump modules, outdoor heat exchangers, plumbing and coolant. Does not include Mask Filter cooling items. Placed as a separate cost because HVAC questions was oriented to air-cooled systems.	$31,036.33	See invoice package for cooling costs items assigned to this line item Mask filter cooling assigned to transmitter line item with filter.

Replacement of Damaged Lighting Fixtures	***$1,009.80***	$1,009.80	Replacement and installation of lighting instruments damaged as a result of overhead work while replacing transmitter.	$1,009.80	N/A
UHF - Liquid Cooled Solid State Transmitter 31.7 kW	***$927,836.98***	$927,836.98	***System Notice: Estimate adjusted and locked because line has been superseded. ***Will include transmitter control, PA power blocks, mask filter system and hardware, plus proof. Does not include exciters.	$0.00	Cost for some items increased. Quote (and invoice) does not break ou costs in the same categories as in the initial quote, so some items and work (such as in original transformer line) appear here.

Exciters	***$29,900.00***	$29,900.00	***System Notice: Estimate adjusted and locked because line has been superseded. ***WOSU currently maintains a two-exciter system with automatic switchover. Current exciters will not work with new transmitter. This request is for a new primary and backup.	$29,900.00	N/A
Sub-total	$2,527,471.63	$2,273,812.80	N/A	$1,344,868.80	N/A
Total for all systems	$4,253,642.69	$3,731,825.30	N/A	$2,761,250.75	N/A

Components

Actual Information Description	File Name	
Other Electrical Service: Reworking of existing electrical system to rewire main fused disconnect panel to protect new transmitter by on-site generator.	**Component Description:** **Amount:**	Ohio Electric Invoice 15431 and supporting information is for initial work on the fused disconnect panel. It has been corrected to reflect the correct facility ID on the vendor invoice $1,107.20

Other Electrical Service: Reworking of existing electrical system to rewire main fused disconnect box to protect new transmitter by on-site generator. New distribution panel to feed power cooling transformer.	**Component Description:** **Amount:**	Electrical service work to replace lighting fixtures damaged during transmitter installation N/A
	Component Description: **Amount:**	Initial electrical panel work for installation of new WOSU transmitter. $1,107.20
UHF - Liquid Cooled Solid State Transmitter 35 - 50 kW	**Component Description:** **Amount:**	100% of the costs for the purchase of transmitter, mask filter and supporting items $1,245,359.43
Transformer 3 phase/480v - 300 KVA	**Component Description:** **Amount:**	100% of cost of transformer and surge suppressor $10,781.74

Other -- Building Addition Size: 120.0	**Component Description:**	Final Invoice for unexpected building reinforcement needed due to roof extension to protect new transmitter cooling equipment. Also contains quote and purchase order.
	Amount:	$1,500.00
	Component Description:	Final invoice related to roof repair (also measure for roof extension) needed due to transmitter installation activities. Also includes quote, purchase order and pictures.
	Amount:	$501.76
	Component Description:	Final invoice for cost of the 16' x 18' roof extension to protect new transmitter cooling equipment. Package includes original quote, purchase order and pictures. Ignore error in invoice number in header on cover page, correct in all other locations.
	Amount:	$23,672.54

Liquid Cooling System Items	**Component Description:** **Amount:**	Final invoice containing 100% of the non-mask filter cooling system costs. $31,036.33
Replacement of Damaged Lighting Fixtures	**Component Description:** **Amount:**	Invoice for full cost of replacement and installation of light fixtures damaged during transmitter overhead transmission system work $1,009.80
UHF - Liquid Cooled Solid State Transmitter 31.7 kW	**Component Description:** **Amount:**	Final invoice to be applied to transmitters and related items line on 399 form. Also contains quotes and purchase orders relating to this invoice with an explanation what is reimbursable. $927,836.98
Exciters	**Component Description:** **Amount:**	100% of costs for two exciters to replace previous two. Total reflects one item originally embedded in vendor transmitter line quote. $29,900.00

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
Interim Antenna ATW-275	**$115,500.00**	**$93,230.00**		**$93,230.00**	
Interim antenna rental and installation - Cost will depend on antenna size and height and /or complexity of tower.	$115,500.00	$93,230.00	Lease of 25kW ATW275 side-mount antenna to maintain channel 38 service during installation of new ch 16 antenna and feed line. Cost includes portion of overall antenna installation and removal costs, including overnight connection	$93,230.00	
UHF - High Power, Side Mount, basic slot antenna, 25 kW input, directional,, horizontally polarized	***$0.00***	$0.00	This is a correct description, however costs reflected in lease numbers listed on this page.	$0.00	N/A

Primary Antenna ATW25H3-ETO-16H	**$328,530.00**	**$237,660.00**		**$237,660.00**	
Elbow complex, single channel, at antenna input, per 6 1/8. feedline (if needed)	$12,300.00	$10,049.00	N/A	$10,049.00	N/A
UHF - High Power Top Mount (200-1000 kW), One station antenna , elliptically or circularly polarized	$289,500.00	$201,211.00	N/A	$201,211.00	N/A
Custom Top Plate	***$20,000.00***	$20,000.00	Identified by vendor as Antenna Platform Assembly	$20,000.00	N/A
Sweep test of existing antenna	$6,730.00	$6,400.00	Sweep of the full RF system was included in Gates Air Site Survey (included in attachments). Has already been completed.	$6,400.00	N/A
Sub-total	$444,030.00	$330,890.00	N/A	$330,890.00	N/A
Total for all systems	$4,253,642.69	$3,731,825.30	N/A	$2,761,250.75	N/A

Components

Actual Information Description	File Name	
Interim antenna rental and installation - Cost will depend on antenna size and height and/or complexity of tower.	**Component Description:**	40% of lease and installation of temporary antenna
	Amount:	$37,292.00
	Component Description:	50% of rental and installation costs for temporary antenna
	Amount:	$46,615.00
	Component Description:	last 10% of lease and installation costs for temporary antenna
	Amount:	$9,323.00
UHF - High Power, Side Mount, basic slot antenna, 25 kW input, directional,, horizontally polarized	Information not provided.	
Elbow complex, single channel, at antenna input, per 6 1/8. feedline (if needed)	**Component Description:**	second 50% cost of miter elbow and elbow matcher
	Amount:	$5,024.50
	Component Description:	50% of cost of miter elbow and elbow matcher
	Amount:	$5,024.50

UHF - High Power Top Mount (200-1000 kW), One station antenna , elliptically or circularly polarized	**Component Description:** **Amount:**	Second 50% of final antenna cost $100,605.50
	Component Description: **Amount:**	50% of final antenna cost $100,605.50
Custom Top Plate	**Component Description:** **Amount:**	Final 50% payment for custom tower top plate (antenna platform assembly) $10,000.00
	Component Description: **Amount:**	50% downpayment for custom top plate (antennal platform assembly) $10,000.00
Sweep test of existing antenna	**Component Description:** **Amount:**	Existing line sweep included as part of site survey invoice without breakdown (site survey was 12,002.45) $6,400.00

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	**$371,353.00**	**$369,507.44**		**$369,507.44**	
Transmission Line System Design	***$16,604.00***	$16,604.00	includes preliminary system layout and documents, plus tower climb site visit for definitive line layout	$16,604.00	N/A
Line Dehydrator	***$9,431.00***	$9,431.00	Line protection alternative to nitrogen pressure system.	$9,431.00	
Sweep and Tune	***$6,632.00***	$6,632.00	Sweep, tune and test, two days mobilization, use of test equipment.	$6,632.00	N/A

Ice Bridge	***$88,206.00***	$88,206.00	Materials and installation costs for 150-foot ice /t bridge from transmitter building to tower. Current bridge will not support both new and existing lines. Cost higher than original quotes because of increased labor costs and work in	$88,206.00	N/A
Rigid Transmission Line - copper, 6 1/8"	$250,480.00	$248,634.44	Includes copper 6-1 /8" transmission line items, transmitter to antenna, and mounting hardware	$248,634.44	N/A
Sub-total	$371,353.00	$369,507.44	N/A	$369,507.44	N/A
Total for all systems	$4,253,642.69	$3,731,825.30	N/A	$2,761,250.75	N/A

Components

Actual Information Description	File Name

Transmission Line System Design	**Component Description:**	Final 10% of preliminary layout and site visit finalization design
	Amount:	$1,660.40
	Component Description:	50% of preliminary layout and site visit finalization design
	Amount:	$8,302.00
	Component Description:	Second 40% of preliminary layout and site visit finalization design
	Amount:	$6,641.60
Line Dehydrator	**Component Description:**	50% of cost of line dehydrator (air dryer)
	Amount:	$4,715.50
	Component Description:	Final 50% of cost of line dehydrator (air dryer)
	Amount:	$4,715.50

Sweep and Tune	**Component Description:**	Final 10% of cost of sweep and tune of new transmission line
	Amount:	$663.20
	Component Description:	50% of cost of sweep and tune of new transmission line
	Amount:	$3,316.00
	Component Description:	40% of cost of sweep and tune of new transmission line
	Amount:	$2,652.80

Ice Bridge	**Component Description:**	Final 10% of installation cost for new transmission line bridge from building to tower
	Amount:	$4,604.00
	Component Description:	50% of cost of materials and installation for new transmission line bridge from building to tower
	Amount:	$44,103.00
	Component Description:	Remaining 50% of materials plus40% of installation cost for new transmission line bridge bridge from building to tower
	Amount:	$39,499.00

Rigid Transmission Line - copper, 6 1/8"	**Component Description:**	100% of cost of additional transmission line segments
	Amount:	$5,249.50
	Component Description:	Transmission line items appearing on transmitter vendor invoice
	Amount:	$36,136.77
	Component Description:	50% of cost of transmission line segments and associated hardware
	Amount:	$102,167.50
	Component Description:	100% of cost of additional transmission line sections
	Amount:	$2,913.17
	Component Description:	Second 50% of cost of transmission line segments and associated hardware
	Amount:	$102,167.50

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	**$776,300.00**	**$636,277.00**		**$636,277.00**	
Landing Area for Tower Work	***$128,450.00***	$128,450.00	Unanticipated cost to create gravel and wood landing area for antenna staging and winch placement in swampy area	$128,450.00	N/A
Tower Mapping	***$3,750.00***	$3,750.00	Tower mapping to confirm status in preparation for structural study. Was completed by George Fitz Antenna Service.	$3,750.00	For purpose reimburseme total only included on invoice component, r with quote o purchase orc

Tall Tower (greater than 500')	$210,500.00	$210,500.00	Mobilization, rigging, removal of current antenna, installation of new antenna and transmission line. Does not include costs for installation and removal of interim antenna.	$210,500.00	N/A
Major tower reinforcement /modifications	$421,000.00	$275,577.00	Tower structural analysis indicates that reinforcement will be required in at least 12 bays, plus tower base must be reinforced with additional concrete to meet G standards. Does not create additional capacity beyond line and antenna needs for project.	$275,577.00	N/A

Structural engineering tower load study for well documented tower	$12,600.00	$18,000.00	The higher cost was the result of an evaluation run early in the process, a 2nd evaluation after an antenna was selected, and a 3rd after the FAA denied use of the first choice antenna. Each changed tower reinforcement needs.	$18,000.00	Exceeds Predetermine Estimate because tota includes initi evaluation fo 399 submission reinforcemer plan that anticipated p repack work l tower client revised plans materials aft client failed t complete wo and with substitute antenna
Sub-total	$776,300.00	$636,277.00	N/A	$636,277.00	N/A
Total for all systems	$4,253,642.69	$3,731,825.30	N/A	$2,761,250.75	N/A

Components

Actual Information Description	File Name	
Landing Area for Tower Work	**Component Description:**	Invoice is 100% of cost to rework work landing area for placement of winch and staging of antennas and reinforcement materials
	Amount:	$128,450.00

Tower Mapping	**Component Description:**	Full cost of initial tower mapping
	Amount:	$3,750.00
	Component Description:	Original quote from Antenna Service Company for tower mapping-PO and invoice on file. Total for reimbursement on invoice.
	Amount:	N/A
	Component Description:	Purchase order for tower mapping. Invoice already on file. Only entering dollar total with invoice so total not duplicated.
	Amount:	N/A
Tall Tower (greater than 500')	**Component Description:**	40% of tower mobilization
	Amount:	$84,200.00
	Component Description:	50% of mobilization costs
	Amount:	$105,250.00
	Component Description:	Final 10% of tower mobilization
	Amount:	$21,050.00
Major tower reinforcement /modifications		

Component Description:	Invoice represents 40% of installation costs for second set of tower reinforcement materials
Amount:	$12,051.60

Component Description:	50% downpayment for initial tower reinforcement package, less $10,000 for custom top tower plate
Amount:	$59,616.50

Component Description:	Invoice for final 10% of installation costs for second set of tower modifications
Amount:	$3,012.90

Component Description:	50% downpayment for second tower reinforcement materials package
Amount:	$20,456.00

Component Description:	Payment through proposal requirement for 50% of cost of installation of second set of tower reinforcement materials
Amount:	$15,064.50

	Component Description:	Final 50% payment for second tower reinforcement materials package
	Amount:	$20,456.00
	Component Description:	Second 50% payment toward initial tower reinforcement materials package, less $10,000 toward custom top plate
	Amount:	$59,616.50
	Component Description:	Payment through proposal requirements is for 50% deposit on cost of installation of initial package of reinforcement materials
	Amount:	$42,651.50
	Component Description:	Represents 40% of costs of installation of first tower modification package
	Amount:	$34,121.20
	Component Description:	Invoice for final 10% of installation cost for initial set of tower modification materials
	Amount:	$8,530.30
Structural engineering tower load study for well documented tower		

Component Description:	Final tower re-evaluation conducted to revise reinforcement and materials plan after client failed to complete anticipated portion of reinforcements and with substituted antenna (FAA height restriction)
Amount:	$5,000.00

Component Description:	Tower evaluation for reinforcement plan and materials specification following antenna selection.
Amount:	$8,500.00

Component Description:	Initial downpayment for WOSU-TV tower analysis
Amount:	$2,250.00

Component Description:	Second half of payment for Structural Analysis
Amount:	$2,250.00

	Component Description:	Package included initial proposal, purchase order and revised invoice (and explanation of name discrepancy). No dollar amount included here to prevent duplication in total.
	Amount:	N/A

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 Cost Justification
Outside Professional Services	**$72,993.00**	**$59,843.00**		**$27,462.45**	
ASR modification (prepare FCC Form 854)	$2,105.00	$2,105.00	N/A	$2,105.00	
Attorney Fees - Prepare and File request for Special Temporary Authorization	$3,680.00	$0.00	N/A	N/A	N/A
Attorney Fees - Prepare and File FCC Form 2100 (main), License to Cover Application	$2,365.00	$0.00	N/A	N/A	N/A
Attorney Fees - Prepare and File FCC Form 2100 (main), Construction Permit Application	$5,260.00	$0.00	N/A	N/A	N/A
Prepare request for Special Temporary Authorization	$2,050.00	$2,050.00	N/A	$2,050.00	N/A

Prepare engineering section of FCC Form 2100 (main), License to Cover Application	$1,580.00	$1,580.00	N/A	$1,580.00	N/A
Perform engineering study for new channel assignment and antenna development	$7,360.00	$7,000.00	N/A	$4,620.00	N/A
Prepare engineering section of FCC Form 2100 (main), Construction Permit Application	$3,155.00	$3,000.00	N/A	$3,000.00	N/A
FAA consultant, including cost of preparing FAA Form 7460 (Notice of Proposed Construction), if needed for height increase	$2,105.00	$2,105.00	N/A	$2,105.00	N/A

Transmitter Site Site Survey	***$12,003.00***	$12,003.00	Survey was conducted by Gates Air to inform planning. Total survey cost was $18,403, however $6400 RF sweep was broken out for inclusion in antenna section.	$12,002.45	N/A
Quarterly Progress Reports	***$5,000.00***	$5,000.00	Prepare and file FCC-required Quarterly Progress Reports on Schedule 387 during station repack process.	N/A	N/A
Prepare and or review reimbursement form	$2,630.00	$2,500.00	N/A	N/A	N/A
Project management of the transition	$23,700.00	$22,500.00	Estimating 150 hours at $150 per hour	N/A	N/A
Sub-total	$72,993.00	$59,843.00	N/A	$27,462.45	N/A
Total for all systems	$4,253,642.69	$3,731,825.30	N/A	$2,761,250.75	N/A

Components

Actual Information Description	File Name	
ASR modification (prepare FCC Form 854)	**Component Description:** **Amount:**	100% of engineering costs and filing of ASR revisions $2,105.00
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 - Prepare and File FCC Form 2100 (main), Construction Permit Application	Information not provided.	
Prepare request for Special Temporary Authorization	**Component Description:** **Amount:**	Invoice includes 100% of engineering costs for preparation of STA for antenna switch $2,050.00
Prepare engineering section of FCC Form 2100 (main), License to Cover Application	**Component Description:** **Amount:**	Invoice includes 100% of engineering cost involved with License to Cover $1,580.00

Perform engineering study for new channel assignment and antenna development	**Component Description:**	Invoice includes additional engineering costs related to evaluation and work involving substitute antenna
	Amount:	$2,535.00
	Component Description:	Initial engineering study for new channel assignment: (3) Principal Engineering Hrs @ $285/hr (4.25) Sr. Engineering Hrs @ $240/hr (1) Engineering Hours @ $210/hr
	Amount:	$2,085.00

Prepare engineering section of FCC Form 2100 (main), Construction Permit Application	**Component Description:** **Amount:**	Preparation of initial engineering section of FCC Form 2100: (3) Principal Engineering Hours @ $285/hr (3) Sr. Engineering Hours @ $240/hr $1,575.00
	Component Description: **Amount:**	100% of additional engineering costs for filing modification of CP related to selection of substitute antenna due to FAA height restrictions $1,425.00
FAA consultant, including cost of preparing FAA Form 7460 (Notice of Proposed Construction), if needed for height increase	**Component Description:** **Amount:**	100% of cost for preparation and filing of forms with FAA for elevation evaluation $2,105.00
Transmitter Site Site Survey	**Component Description:** **Amount:**	Additional $6400 in invoice, PO and estimate totals is for existing line sweep $12,002.45
Quarterly Progress Reports	Information not provided.	
Prepare and or review reimbursement form	Information not provided.	

Project management of the transition	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	Actual Cost Justificatio
Other Expenses	**$61,495.06**	**$61,495.06**		**$52,245.06**	
Site Restoration	***$26,972.00***	$26,972.00	This was not an anticipate cost when planning the repack work at the WOSU-TV tower site. The repack phase assignment required the work to occur during wet winter months. Both the ground and roadway at the site were severely damaged, requiring restoration.	$26,972.00	N/A
Medical Notification Mailing	***$3,750.00***	$3,750.00	Per RF Notifications	$3,750.00	N/A

Equipment Off-Loading	***$1,045.75***	$1,045.75	While other vendors provided for the off-loading from delivery trucks, FDS Infrastructure Services required WOSU to lease a large forklift and provide a driver to remove tower reinforcement materials from the enclosed semi-trailer.	$1,045.75	N/A
MVPD Notification of Channel Change	***$2,500.00***	$2,500.00	N/A	$1,250.00	N/A
Develop and air announcement of upcoming channel change	***$8,000.00***	$8,000.00	Including production and broadcast	N/A	N/A
Equipment Delivery and Handling Charges	***$17,754.31***	$17,754.31	Shipping, handling and placement of major equipment and items, not including off-loading costs for tower reinforcement materials incurred by WOSU-TV	$17,754.31	N/A

Top Tower Beacon Replacement Parts	***$1,473.00***	$1,473.00	Unanticipated cost of replacement parts required for top tower beacon being re-installed on new repack antenna.	$1,473.00	N/A
Sub-total	$61,495.06	$61,495.06	N/A	$52,245.06	N/A
Total for all systems	$4,253,642.69	$3,731,825.30	N/A	$2,761,250.75	N/A

Components

Actual Information Description	File Name

Site Restoration	**Component Description:**	(Revised) Grass Groomers Invoice 50657, including quote and purchase order, for restoration of grassy areas damaged during repack activities. This package has been corrected to show the correct amount of the invoice on the cover page.
	Amount:	$12,162.00
	Component Description:	(Revised) Grass Groomers Invoice 50657, including quote and purchase order, for restoration of grassy areas damaged during repack activities.
	Amount:	$12,162.00
	Component Description:	Grass Groomers Invoice 49523, including quote and purchase order, for restoration of transmitter site road damage caused by repack activities.
	Amount:	$14,810.00

Medical Notification Mailing	**Component Description:** **Amount:**	Invoice 1384 Package, including quote and purchase authorization, for Medical Notification Mailings. $3,750.00
Equipment Off-Loading	**Component Description:** **Amount:**	100% of the labor cost for a university driver to operate a large forklift to unload tower reinforcement materials $152.25
	Component Description: **Amount:**	100% of cost of leasing large forklift to unload reinforcement materials from semi-trailer truck. $893.50
MVPD Notification of Channel Change	**Component Description:** **Amount:**	RF Notifications Invoice 1385, including quote and purchase authorization, for MVPD Notification Mailings. $1,250.00
Develop and air announcement of upcoming channel change	Information not provided.	

Equipment Delivery and Handling Charges	**Component Description:**	Actual delivery cost for Transmitter and GatesAir Components per invoice
	Amount:	$10,480.31
	Component Description:	50% of delivery costs for antenna and other items included in initial ERI bid project proposal
	Amount:	$3,637.00
	Component Description:	Final 50% of delivery costs for antenna and other items included in initial ERI bid project proposal
	Amount:	$3,637.00
Top Tower Beacon Replacement Parts	**Component Description:**	Strobe Tech Final Invoice 15783, including quote and purchase order, for replacement beacon parts.
	Amount:	$1,473.00

Cost Information

Grand Total

	Predetermined Cost Estimate	Estimated Cost	Actual Cost
Total for all systems	$4,253,642.69	$3,731,825.30	$2,761,250.75

Reimbursement Status

Question	Response
The facility has ceased operating on its pre-auction channel.	Yes
Construction of final facilities or all necessary modifications are complete.	Yes
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.	**Michael Papadakis** *Senior Vice President and CFO Business and Finance* 03/04/2021

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.	**Michael Papadakis** *Senior Vice President and CFO Business and Finance* 03/04/2021

Certification

Section	Question	Response
Submission of Final Allocation or Accounting Information 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 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 acknowledges that all certifications and attached documentation are considered material representations. 2. The above-named entity acknowledges the submission of the information herein creates no obligation on the part of the government to pay any amount.	

	3. The above-named entity certifies that all costs identified as "actual costs" herein accurately represent the costs actually paid by the above-named entity, including any discounts, refunds, or rebates. 4. 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. 5. The above-named entity acknowledges that overpayments or payments in error must be promptly refunded to the Commission. 6. 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.	**Michael Papadakis** *Senior Vice President and CFO Business and Finance* 03/04/2021

Attachments