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: **25456** | Service: **DTV** | Call Sign: **WBZ-TV** | Channel: **20 (UHF)**

File Number: **0000027825**

FRN: **0021079769** | Date Submitted: **08/14/2018**

Applicant Information

Applicant Name, Type, and Contact Information

Applicant	Address	Phone	Email	Applicant Type
CBS TELEVISION LICENSES LLC Doing Business As: CBS TELEVISION LICENSES LLC	Daniel G. Ryson 1725 DeSales St. NW Suite 501 Washington, DC 20036 United States	+1 (202) 457-4505	dryson@cbs.com	Limited Liability Company

Reimbursement Contact Information

Reimbursement Contact Name and Information

Applicant	Address	Phone	Email
[Confidential]			

Preparer Contact Information

Preparer Contact Name and Information

Applicant	Address	Phone	Email
Daniel G. Ryson *CBS*	Daniel G. Ryson 1725 DeSales Street NW Suite 501 Washington, DC 20036 United States	+1 (202) 457-4074	dryson@cbs.com

Broadcaster Information and Transition Plan

Question	Response
Will the station be sharing equipment with another broadcast television station or stations (e.g., a shared antenna, co-location on a tower, use of the same transmitter room, multiple transmitters feeding a combiner, etc.)? If yes, enter the facility ID's of the other stations and click 'prefill' to download those stations' licensing information.	Yes
Briefly describe transition plan	American Tower will build an interim site in Needham, MA, including a broadband antenna and transmitter building to be used while building the permanent site in Needham Heights, MA

Transmitters

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	When Main TX Unavailable
	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	Diamond
	Year	2008
	Type	Solid State
	Solid State Cooling	Air Cooled
	Solid State Power Capacity	14 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	UAXTE-24
	Transmitter Type	Solid State
	Solid State Cooling	Air Cooled
	Solid State Power capacity	14.4 kW
	Justification for New Transmitter	Manufacturer Cannot Re-tune Existing Transmitter (see Exhibit 1).

Auxiliary 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	150 kVA
	Rigid Conduit and Wiring	No
	Size	N/A
	Length	N/A
	Other Electrical Service	No
	Description	N/A

HVAC Service	Does the replacement transmitter require HVAC Service?	No
	Type	N/A
	Size	N/A
	Other Size	N/A
Transmitter Building Addition/Modification or Leasehold Improvement	Does the Transmitter Building require an addition, modification, other leashold improvement?	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 Transmitter

Other Transmitter Cost Not Listed

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 and Type	Manufacturer	
	Model	Sigma
	Year	1999
	Type	Inductive Output Tube
	IOT Power Type	Two
	Power Capacity	46 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-72
	Transmitter Type	Solid State
	Solid State Cooling	Liquid Cooled
	Solid State Power capacity	47.2 kW
	Justification for New Transmitter	GatesAir won't retune (see Exhibit 1). Non-upgraded IOT transmitter is more expensive (see Exhibit 2). Proposed transmitter is less expensive (See Exhibit 3).

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	Yes
	Description	Transformer and surge suppressor. See Exhibit 3 Item C.
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?	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 Transmitter

Other Transmitter Cost Not Listed

Information not provided.

Interim Transmitter

New Transmitter Costs

Section	Question	Response
New Transmitter	Use	Interim
	Description of Use	N/A
	Change Type	Purchase
	Manufacturer	
	Model	ULXTE-72
	Transmitter Type	Solid State
	Solid State Cooling	Liquid Cooled
	Solid State Power capacity	47.2 kW
	Justification for New Transmitter	Required to maintain WBZ-TV operations from Interim site while main antenna is rebuilt. See also Exhibit 4.

Interim Transmitter

Other Transmitter Costs

Section	Question	Response
Electrical Service	Service Entrance (3 phases 800A 208V)	Yes
	Switchgear (industrial 800 amp)	Yes
	Transformer (480V)	Yes
	Power	500 kVA
	Rigid Conduit and Wiring	Yes
	Size	2 inches
	Length	200.0 feet

	Other Electrical Service	Yes
	Description	Various Electrical Service from attached GatesAir Estimate (see Exhibit 3).
HVAC Service	Does the replacement transmitter require HVAC Service?	Yes
	Type	Cooling Only
	Size	20 tons
	Other Size	N/A
Transmitter Building Addition/Modification or Leasehold Improvement	Does the Transmitter Building require an addition, modification, other leashold improvement?	Yes
	Size	1500.0 square feet
Channel 14 Costs	Is an RF Consulting Engineer needed?	N/A
	Is a channel 14 Mask Filer needed?	N/A
	Is additional field engineering time needed?	N/A
	Number of Days	N/A
Inside RF System	Is an additional interior RF system required to support this interim transmitter?	No

Interim Transmitter

Other Transmitter Cost Not Listed

Name	Description
100 Feet 4-Inch Conduit	100 Feet 4-Inch Conduit
New Sub Panels	Four (4) new sub panels at approximately 200 amps each.
Ice Shield	For HVAC Equipment

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	Lease New
	Antenna Use	Primary (Main)
	Description of Use	N/A
	Ownership	Leased
	Owner	American Tower Corporation
	Site	N/A
	Is the existing antenna shared with another station or stations?	Yes
	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	Top
	Polarization	Horizontal
	Type	Broadband Panel
	Number of Stations Supported	4
	Number of Panels	99
	Design power capacity in use	87.0 %
	Lower Limit	470.00 MHz
	Upper Limit	698.00 MHz
	Other Antenna Type	N/A
	ERP: (Effective Radiated Power)	825.0 kW

Manufacturer	
Model	TAD-24UDA-5/60-MR
Year	1999

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

Facility ID	Call Sign
65684	WCVB-TV
72098	WGBX-TV
73982	WSBK-TV

Primary Antenna

New Antenna Costs

Section	Question	Response
New Antenna Description	Use	Primary (Main)
	Description of Use	N/A
	Change Type	Lease New
	Is this a request for upgraded equipment?	Yes
	Ownership	Leased
	Owner	American Tower Corporation
	Is antenna shared?	Yes
	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	Broadband Panel
	Number of Stations Supported	4
	Number of Panels/Bays	56
	Lower Limit	470.00 MHz
	Upper Limit	608.00 MHz
	Design power capacity in use	99.0 %
	Other Antenna Type	N/A
	ERP: (Effective Radiated Power)	740.0 kW
	Manufacturer	

Model	TUM-AP-O4-14/56H-2-T
Year	2019
Justification for New Antenna	Top Mount 14 bay Broadband antenna required to accommodate the new repack frequencies. This antenna will be a four-sided assembly mast. In use power capacity is unknown. Pre-transition antenna has 120 panels. See Exhibit 5.

Primary Antenna

Other Antenna Costs

Section	Question	Response
Combiner for Shared Antenna	Do you need a Combiner for a Shared Antenna?	Yes
	Type	New
	Number of channels supported	4
	Frequencies of channels supported	Upper and lower frequency
	Frequency	470.0 MHz - 608.0 MHz
	Do you need a combiner output splitter /switcher for dual feed lines?	No
Elbow Complex	Do you require the separate purchase of the Elbow Complex?	Yes

	Broadband or Single Channel?	Broadband
	Feed Line Size	8 3/16 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

Primary Antenna

Other Antenna Cost Not Listed

Name	Description
Install Combiner	Installation of combiner; Single chain of 5 high power constant impedance waveguide modules, and/or dual chains of 5 directional filter modules per Dielectric layout. required for broadband antenna system. See Exhibit 5.

Interim Antenna

New Antenna Costs

Section	Question	Response
New Antenna Description	Use	Interim
	Description of Use	N/A
	Change Type	Lease New
	Ownership	Leased
	Owner	American Tower Corporation
	Is antenna shared?	Yes
	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	Top Mount
	Antenna position in stack	Bottom
	Polarization	Elliptical
	Type	Broadband Panel
	Number of Stations Supported	5
	Number of Panels/Bays	56
	Lower Limit	470.00 MHz
	Upper Limit	608.00 MHz
	Design power capacity in use	99.0 %
	Other Antenna Type	N/A
	ERP: (Effective Radiated Power)	740.0 kW
	Manufacturer	
	Model	TUM-AP-O4-14/56H-2-T

	Year	2018
	Justification for New Antenna	Required for shared use by five stations at interim site. See Exhibit 4 for interim site justification.

Interim Antenna

Other Antenna Costs

Section	Question	Response
Combiner for Shared Antenna	Do you need a Combiner for a Shared Antenna?	Yes
	Type	New
	Number of channels supported	5
	Frequencies of channels supported	Upper and lower frequency
	Frequency	470.0 MHz - 608.0 MHz
	Do you need a combiner output splitter /switcher for dual feed lines?	No
Elbow Complex	Do you require the separate purchase of the Elbow Complex?	Yes
	Broadband or Single Channel?	B
	Feed Line Size	8 3/16 inches
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?	Yes

Interim Antenna

Other Antenna Cost Not Listed

Name	Description
Combiner Installation	Installation of combiner; Single chain of 5 high power constant impedance waveguide modules, and/or dual chains of 5 directional filter modules per Dielectric layout. required for broadband antenna system. See Exhibit 16.

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	Utilize Existing
	Use	Primary (Main)
	Description of Use	N/A
	Ownership	Leased
	Owner	American Tower Corporation
	Site	N/A
	Is the existing transmission line shared with another station or stations?	Yes
	Is Transmission Line in operating condition?	Yes
Existing Transmission Line Manufacturer and Type	Manufacturer	Dielectric
	Type	Rigid
	Diameter	8 3/16 inches
	Other Diameter	N/A
	Segment Length	Broadband
	Other Segment Length	N/A
	Number of parallel runs	1
	Length	1440 feet per run

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

Facility ID	Call Sign
72098	WGBX-TV
65684	WCVB-TV
73982	WSBK-TV

Primary Transmission Line

Other Transmission Line Expenses Not Listed

Name	Description
Refurbish Main Transmission Line	Refurbish Transmission Line. See Exhibit 5.
Nitrogen Generator	Nitrogen Generator Upgrade. See Exhibit 15, Line 1-B-1.

Interim Transmission Line

New Transmission Line

Section	Question	Response
New Transmission Line Costs	Use	Interim
	Description of Use	N/A
	Change Type	Lease New
	Type	Rigid
	Diameter	8 3/16 inches
	Segment Length	Broadband
	Other Segment Length	
	Number of parallel runs	2
	Length	1250 feet per run
	Justification for New Transmission Line	Two (2) 8-3/16" Broadband rigid transmission lines, six (6)

		elbows (3 each line) and a nitrogen generator for pressurization. Required for Interim antenna. See Exhibit 16.

Interim Transmission Line

Other Transmission Line Expenses Not Listed

Name	Description
Nitrogen Generator	Nitrogen Generator Upgrade. See Exhibit 16, Line 1-B-1.

Tower Equipment And Rigging Costs

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

Auxiliary Tower

Add Tower

Section	Question	Response
Existing Tower Description	Type of change	Modify Existing
	Tower Use	Auxiliary (Backup)
	Description of Use	Interim Use
	Ownership	Leased
	Is this tower consider Complex?	Candelabra
	Is this tower currently shared with any other stations?	Yes
	One or more FM, AM or TV radio broadcaster(s)	Yes
	Others Types of Users	No
	Is tower documented for structural analysis?	Unknown
	Is tower compliant with Rev G?	Unknown
Existing Tower Structure Registration	Do you have a tower registration number?	Yes
	ASR Number	1004233
Coordinates (NAD83 (North American Datum of 1983))	Latitude (NAD83)	42° 18' 10.7" N-
	Longitude (NAD83)	071° 13' 04.9" W-
	Overall Structure Height	1200.77 feet
	Support Structure Height	1101.04 feet
	Ground Elevation Above Mean Sea Level (AMSL)	150.92 feet
	Structure Type	GTOWER - Guyed

		Structure Used for Communication Purposes
	Tower Owner	American Towers, LLC
	Date Constructed	04/19/2005

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

Facility ID	Call Sign	Service
9639	WODS	FM
6463	WFXT	DTV
73238	WLVI	DTV
23439	WBOS	FM
1901	WBZ-FM	FM
26897	WWBX	FM

Auxiliary 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:	Minor Reinforcements needed

Auxiliary Tower

Tower Rigging Costs

Section	Question	Response
Tower Rigging Costs	Complex Tower	Candelabra

Helicopter Services Required	Are helicopter services required?	No

Auxiliary Tower

Other Tower Expenses Not Listed

Name	Description
Construction Management	Nine hours on Modification project management and fifteen hours for RF installation project management for a total of twenty days. See Exhibit 6.
Tower Permit Packages	Tower and ground equipment drawing package. Required for local approvals. See Exhibit 6.

Primary Tower

Existing Tower

Section	Question	Response
Existing Tower Description	Type of change	Modify Existing
	Tower Use	Primary (Main)
	Description of Use	N/A
	Ownership	Leased
	Is this tower consider Complex?	Candelabra
	Is this tower currently shared with any other stations?	Yes
	One or more FM, AM or TV radio broadcaster(s)	Yes
	Others Types of Users	No
	Is tower documented for structural analysis?	Yes
	Is tower compliant with Rev G?	Unknown
Existing Tower Structure Registration	Do you have a tower registration number?	Yes
	ASR Number	1003433
Coordinates (NAD83 (North American Datum of 1983))	Latitude (NAD83)	42° 18' 37.0" N-
	Longitude (NAD83)	071° 14' 12.0" W-
	Overall Structure Height	1296.24 feet
	Support Structure Height	1192.24 feet
	Ground Elevation Above Mean Sea Level (AMSL)	152.89 feet
	Structure Type	GTOWER - Guyed Structure Used for Communication Purposes
	Tower Owner	American Tower, LLC
	Date Constructed	01/01/1957

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

Facility ID	Call Sign	Service
68241	WBUR-FM	FM
65684	WCVB-TV	DTV
18783	WYDN	DTV
72098	WGBX-TV	DTV
10542	WKLB-FM	FM
73982	WSBK-TV	DTV
72099	WGBH-TV	DTV

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:	Minor Reinforcements needed

Primary Tower

Tower Rigging Costs

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

Primary Tower

Other Tower Expenses Not Listed

Name	Description
Tower Permit Packages	The generation of a construction drawing package for one (1) broadcasters /customers. See Exhibit 5.
Tower Project Management	(44) hours on Modification project management and RF installation project management.

Outside Professional Services Costs

Section	Question	Response
Outside Project Management Services	Do you require outside project management services?	Yes
	Number of Hours	250
	Explanation	Company lacks sufficient resources.
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	No
	For Auxiliary Facility	N/A
	For Main Facility	N/A
	Prepare and file Form FCC License to Cover Application	No
	For Auxiliary Facility	N/A

	For Main Facility	N/A
	Prepare request for Special Temporary Authority	No
	Quantity	N/A
	NEPA Section 106 environmental review	No
	Environmental Assessment	No
	ASR Modification	No
	FAA Consultation (including preparation of FAA Form 7460)	No
	Negotiation of Lease and other Matter for Shared Locations	Yes
	Prepare or Review FCC Form 399 for Reimbursement	No
	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

Outside Professional Services Costs

Other Professional Services Expenses Not Listed

Name	Description
LocalPermits	Prepare and submit forms for necessary electrical, building and other permits.
RF System Test	Testing of the combiners to ensure one frequency is tuned for optimal patterns. See Exhibits 5 and 6.

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	Yes
	BLM or NFS Coordination	No
	FCC Construction Permit Minor Change	No
	FCC License to Cover Application	No
	FCC Special Temporary Authority Application	Yes
Other Miscellaneous Expenses	Does this relocation require paying Disposal Costs (for equipment and other waste, net of any salvage value)?	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?	No
	Does this relocation require MVPD Notification of a Channel Change?	Yes

Other Expenses

Other Expenses Not Listed

Name	Description
Asbestos and Lead Paint Testing	Asbestos testing, removal and abatement for walls which could contain lead paint and /or the flooring may contain asbestos, because of the age of the facility and the era when the original construction took place. (See Exhibit 3.)
Building Partition	This cost is to provide permitting for building partition and electrical service installation in the shared space. This install is to provide security for broadcasters and sufficient power for transmitters. See Exhibit 3.
Ice Shield for HVAC	Ice protection for HVAC compressor units near tower in areas prone to ice and snow. See Exhibit 3.
Public Hearing	Public hearing to alter height of primary tower by changing top antenna. See Exhibit 2.
Site Coordination Meeting	Site coordination meetings with all broadcasters, contractors and vendors involved with the site deliveries and construction. This cost is for travel and logistics expenses accrued. See Exhibits 2 and 3.
Site Security	Site security for installation and storage of Transmission line and materials for 30 days X 12 hours. These materials are a high risk of theft due to the material makeup such as copper, brass and aluminum. (See Exhibit 3.)
Disconnect Transmitters	Labor and expenses for disconnect and removal of existing transmitters. See Exhibit 3 Item F and Exhibit 9 Item F.

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 Cos Justificatio
Interim Transmitter ULXTE-72	**$1,631,918.82**	**$1,352,186.24**		**$865,844.16**	
New Sub Panels	***$10,000.00***	$10,000.00	Provide proper voltage and current for each additional transmitter, house power, HVAC, and ancillary equipment. See Exhibit 6.	N/A	N/A
100 Feet 4-Inch Conduit	***$1,920.00***	$1,920.00	100' L/F of 4" conduit and larger conductor. Brings in an additional 500 KVA for new transmitters, HVAC, Air handlers and house power. The existing power supply is is inadequate for the new repack equipment. See Exhibit 6.	N/A	N/A
Other -- Building Addition Size: 1500.0	***$1,800.00***	$1,800.00	This cost is to provide permitting for building partition and electrical service installation in the shared space. This install is to provide security for broadcasters	N/A	N/A

			and sufficient power for transmitters. See Exhibit 6.		
Other -- HVAC Service Type: C Size:20 (Other)	***$22,000.00***	$22,000.00	20 ton HVAC split units to maintain operational temperatures. This is to supplement existing HVAC. Calculation for the HVAC size is calculated using the power of the three transmitters at 30% efficiency. See Exhibit 6.	N/A	N/A
Other Electrical Service: Various Electrical Service from attached GatesAir Estimate (see Exhibit 3).	***$12,998.82***	$12,998.82	Transformer and surge suppressor required to support interim transmitter. See Exhibit 8, Item D.	N/A	N/A
UHF - Liquid Cooled Solid State Transmitter 35 - 50 kW	$1,473,000.00	$1,279,267.42	Please see Exhibit 8, Items A, B, D, and E.	$865,844.16	N/A
Service entrance 3 phase/800 amp/208 volt	$14,400.00	$2,740.00	Install 3 phase, 800 amp, 480 VAC in existing common area of the building being changed to a shared space for one transmitter which	N/A	N/A

			currently does not support the required power capacity. See Exhibit 6.		
Switchgear - industrial 800 amp	$38,200.00	$7,260.00	New Switchgear required accommodate the repack equipment and new 500 KVA transformer. The existing service does not have sufficient capacity to support transmitters. See Exhibit 6.	N/A	N/A
Transformer 3 phase /480v - 500 KVA	$48,400.00	$9,200.00	Install additional 500 KVA transformer for new tenant space to operate transmitter, heat exchangers and other equipment on the new repack frequency into the broadband antenna. See Exhibit 6.	N/A	N/A
2" Rigid Conduit and Wiring (Cost per foot)	$5,200.00	$1,000.00	This cost includes 200 L/F of 2" conduit and conductor to supply HVAC, Air handlers and House power. The existing power supply is inadequate for the additional power demands of the new	N/A	N/A

			repack equipment. See Exhibit 6.		
Ice Shield	***$4,000.00***	$4,000.00	Required to proper outdoor HVAC units.	N/A	N/A
Primary Transmitter ULXTE-72	**$1,485,998.82**	**$1,312,554.72**		**$449,676.77**	
UHF - Liquid Cooled Solid State Transmitter 35 - 50 kW	$1,473,000.00	$1,299,555.90	See Exhibit 3, Items A, B, C, and E	$449,676.77	N/A
Other Electrical Service: Transformer and surge suppressor. See Exhibit 3 Item C.	***$12,998.82***	$12,998.82	Transformer and surge suppressor. Required for proper operation of transmitter. See Exhibit 3, Item D.	N/A	N/A
Auxiliary Transmitter UAXTE-24	**$418,050.00**	**$416,800.00**		**$175,003.77**	
UHF - Air Cooled Solid State Transmitter 14.4 kW	***$392,500.00***	$392,500.00	Widelity Catalog Pricing for 15 kW. Actual replacement transmitter is an upgrade. An estimate is provided as Exhibit 9.	$175,003.77	N/A
Transformer 3 phase /480v - 150 KVA	$25,550.00	$24,300.00	N/A	N/A	N/A
Sub-total	$3,535,967.64	$3,081,540.96	N/A	$1,490,524.70	N/A
Total for all systems	$7,375,743.54	$4,072,006.86	N/A	$1,493,524.70	N/A

Components

Actual Information Description	File Name
New Sub Panels	Information not provided.
100 Feet 4-Inch Conduit	Information not provided.
Other -- Building Addition Size: 1500.0	Information not provided.
Other -- HVAC Service Type: C Size:20 (Other)	Information not provided.
Other Electrical Service: Various Electrical Service from attached GatesAir Estimate (see Exhibit 3).	Information not provided.
UHF - Liquid Cooled Solid State Transmitter 35 - 50 kW	**Component Description:** Interim Transmitter Down Payment **Amount:** $435,088.75 **Component Description:** Interim Transmitter Progress Payment. **Amount:** $430,755.41
Service entrance 3 phase /800 amp/208 volt	Information not provided.
Switchgear - industrial 800 amp	Information not provided.
Transformer 3 phase/480v - 500 KVA	Information not provided.
2" Rigid Conduit and Wiring (Cost per foot)	Information not provided.
Ice Shield	Information not provided.
UHF - Liquid Cooled Solid State Transmitter 35 - 50 kW	

	Component Description: **Amount:**	Primary Transmitter Down Payment $449,676.77
Other Electrical Service: Transformer and surge suppressor. See Exhibit 3 Item C.	Information not provided.	
UHF - Air Cooled Solid State Transmitter 14.4 kW	**Component Description:** **Amount:**	Auxiliary Transmitter Down Payment $175,003.77
Transformer 3 phase/480v - 150 KVA	Information not provided.	

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 TUM-AP-O4-14/56H-2-T	**$196,667.00**	**$231,787.00**		**$0.00**	
Combiner Installation	***$10,000.00***	$10,000.00	Installation of dual chain combiner. See Exhibit 16 Line 3-C-2 for this cost estimate.	N/A	N/A
Elbow complex, broadband, at antenna input, per 8 3/16. feedline (if needed)	$18,950.00	$6,600.00	Two (2) Elbow complex for the input of the new Broadband antenna. See Exhibit 16.	N/A	N/A
New combiner, cost per channel (without antenna)	$84,200.00	$135,400.00	Dual chains of mask filter /combiner modules per Dielectric layout. Includes input power dividers and output switching to allow transmitter alignment /testing not otherwise available. Eliminates need for	N/A	N/A

			mask filter. See Exhibit 16 Line 3-C-1.		
Sweep test of existing antenna	$6,730.00	$3,000.00	See Exhibit 6.	N/A	N/A
UHF - High Power Top Mount Five Station broadband panel antenna elliptically or circularly polarized	***$76,787.00***	$76,787.00	New Dielectric 14 bay, 56 elements total, 1 assembly mast. See Exhibit 16.	N/A	N/A
Primary Antenna TUM-AP-O4-14/56H-2-T	**$1,211,130.00**	**$244,000.00**		**$0.00**	
New combiner, cost per channel (without antenna)	$84,200.00	$91,500.00	Constant impedance waveguide modules, and /or dual chains of 4 directional filter modules per Dielectric layout. Eliminates need for transmitter mask filter. See Exhibit 15.	N/A	N/A
Sweep test of existing antenna	$6,730.00	$5,000.00	N/A	N/A	N/A
UHF - High Power Top Mount (200-1000	$1,090,000.00	$126,250.00	TUM-AP-O4-14/56H-2-T Top Mount 14 bay	N/A	N/A

kW), Four Station broadband panel antenna, elliptically or circularly polarized			Broadband antenna, with 56 elements total, required to accommodate the new repack frequencies. This antenna will be a four-sided assembly mast. See Exhibit 15.		
Elbow complex, broadband, at antenna input, per 8 3/16. feedline (if needed)	$18,950.00	$10,000.00	Elbow complex for top mount antenna being used for repacked stations. See Exhibit 15.	N/A	N/A
Install Combiner	***$11,250.00***	$11,250.00	Installation cost of the new combiner. Required to replace existing combiner and support required multi-station antenna. See Exhibit 15.	N/A	N/A
Sub-total	$1,407,797.00	$475,787.00	N/A	$0.00	N/A
Total for all systems	$7,375,743.54	$4,072,006.86	N/A	$1,493,524.70	N/A

Components

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
Interim Transmission Line	**$1,000,500.00**	**$87,900.00**		**$0.00**	
Nitrogen Generator	***$3,000.00***	$3,000.00	Nitrogen Generator Upgrade. See Exhibit 16, Line 1-B-1.	N/A	N/A
Rigid Transmission Line - copper, 8 3 /16" broadband	$997,500.00	$84,900.00	Material cost for two (2) 83 /16" Broadband rigid transmission lines, six (6) elbows (3 each line) and a nitrogen generator for pressurization control on the dual lines. Cost shared with other stations. See Exhibit 16.	N/A	N/A
Primary Transmission Line	**$51,750.00**	**$51,750.00**		**$0.00**	
Refurbish Main Transmission Line	***$48,750.00***	$48,750.00	This cost is to refurbish two (2) existing 8-3/16" transmission lines to be utilized by both the new	N/A	N/A

			top mount antenna & side mounted antennas. See Exhibit 15.		
Nitrogen Generator	***$3,000.00***	$3,000.00	Nitrogen Generator Upgrade. See Exhibit 15, Line 1-B-1.	N/A	N/A
Sub-total	$1,052,250.00	$139,650.00	N/A	$0.00	N/A
Total for all systems	$7,375,743.54	$4,072,006.86	N/A	$1,493,524.70	N/A

Components

Information not provided.

Cost Information

Tower Equipment and Rigging Costs

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

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actual Cost Justificatior
Primary Tower GTOWER	**$606,250.00**	**$122,660.00**		**$0.00**	
Tower Permit Packages	***$9,400.00***	$9,400.00	Construction drawing packages for tower and ground construction. Required for local permits. See Exhibit 5.	N/A	N/A
Tower Project Management	***$5,250.00***	$5,250.00	(44) hours on tower modification project management and RF installation project management. See Exhibit 15.	N/A	N/A
Complex Tower (includes, for example, those with candelabras and/or stacked antennas)	$421,000.00	$74,250.00	This tower has stacked antennas and is classified as a complex structure. The cost includes the installation of the new antenna, refurbishing of two (2) transmission Lines, any required transmission	N/A	N/A

			brackets. See Exhibit 15.		
Minor tower reinforcement /modifications	$158,000.00	$25,000.00	It is expected that the additional loads imposed on the tower by the new appurtenances required for the repack project will cause the tower to fail. The structural failure is expected to be in the minor category. See Exhibit 5.	N/A	N/A
Structural engineering tower load study for well documented tower	$12,600.00	$8,760.00	Structural tower mapping to ensure the proper structural information is relayed to engineering for proposed repack equipment. Rigorous Structural analysis to access the structural capacity and modifications needed. See Exhibit 15 3-A-1.	N/A	N/A
Auxiliary Tower GTOWER	**$604,000.00**	**$90,180.00**		**$0.00**	
Minor tower reinforcement /modifications	$158,000.00	$17,500.00	It is expected that the additional loads imposed	N/A	N/A

			on the tower by new repack equipment will cause the tower to fail. Minor reinforcement is necessary. See Exhibit 16.		
Structural engineering tower load study for well documented tower	$12,600.00	$4,380.00	Mapping and Rigorous Structural analysis to access the structural capacity and modifications needed to accommodate the repacked equipment. See Exhibit 16.	N/A	N/A
Complex Tower (includes, for example, those with candelabras and/or stacked antennas)	$421,000.00	$55,900.00	This candelabra is classified as complex structure. The cost includes the installation of the new antenna, two transmission lines and tower brackets for additional transmission lines. See Exhibit 16.	N/A	N/A
Construction Management	***$3,000.00***	$3,000.00	(9) hours on Modification project management and (15) hours for RF installation project	N/A	N/A

			management for a total of twenty (20) days. See Exhibit 6.		
Tower Permit Packages	***$9,400.00***	$9,400.00	Prepare tower, building, and ground drawings for local permits and approvals. Required to support required modifications needed for repack. See Exhibit 6.	N/A	N/A
Sub-total	$1,210,250.00	$212,840.00	N/A	$0.00	N/A
Total for all systems	$7,375,743.54	$4,072,006.86	N/A	$1,493,524.70	N/A

Components

Information not provided.

Cost Information

Outside Professional Services

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

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actual Cost Justification
Outside Professional Services	**$69,985.00**	**$69,000.00**		**$3,000.00**	
Project management of the transition	$39,500.00	$37,500.00	Company lacks internal resources.	N/A	N/A
Address transition timing and coordination issues w/ other stations and wireless	$2,630.00	$5,000.00	Transition timing is necessary at two sites. See quotes provided as Exhibits 5 and 6.	N/A	N/A
Perform engineering study for new channel assignment and antenna development	$7,360.00	$7,000.00	N/A	N/A	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
Prepare engineering section of FCC Form 2100 (main), License to	$1,580.00	$1,500.00	N/A	N/A	N/A

Cover Application					
Prepare request for Special Temporary Authorization	$2,050.00	$1,500.00	N/A	N/A	N/A
Attorney Fees - Negotiation of lease and other matters for shared locations	$4,210.00	$4,000.00	N/A	N/A	N/A
LocalPermits	***$1,500.00***	$1,500.00	Prepare and submit applications for electrical, building and other required permits required for installation of repack equipment. See Exhibits 5 and 6.	N/A	N/A
RF System Test	***$8,000.00***	$8,000.00	Testing of the combiner to ensure one frequency is tuned for optimal patterns. See Exhibits 5 and 6.	N/A	N/A
Sub-total	$69,985.00	$69,000.00	N/A	$3,000.00	N/A
Total for all systems	$7,375,743.54	$4,072,006.86	N/A	$1,493,524.70	N/A

Components

Actual Information Description	File Name
Project management of the transition	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	Information not provided.
Prepare engineering section of FCC Form 2100 (main), Construction Permit Application	**Component Description:** Preliminary Engineering and CP Application, Engineering Section. **Amount:** $2,450.00 **Component Description:** Coordinate "work around" to solve concerns regarding Canadian coordination. **Amount:** $550.00
Prepare engineering section of FCC Form 2100 (main), License to Cover Application	Information not provided.
Prepare request for Special Temporary Authorization	Information not provided.
Attorney Fees - Negotiation of lease and other matters for shared locations	Information not provided.
LocalPermits	Information not provided.
RF System Test	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 Justification
Other Expenses	**$99,493.90**	**$93,188.90**		**$0.00**	
Disconnect Transmitters	***$37,908.90***	$37,908.90	Disconnect and Remove to Staging Area the WBZ-TV Main and Auxiliary Transmitters. See Exhibit 3 Item F and Exhibit 9 Item F.	N/A	N/A
Site Security	***$3,600.00***	$3,600.00	Site security for installation and storage of Transmission line and materials for 30 days X 12 hours. These materials are a high risk of theft due to the material makeup such as copper, brass and aluminum. (See Exhibit 6.)	N/A	N/A
Site Coordination Meeting	***$2,000.00***	$2,000.00	Site coordination meeting with other broadcasters,	N/A	N/A

			contractors, vendors, and tower landlord. See Exhibit 15.		
Ice Shield for HVAC	***$4,000.00***	$4,000.00	Ice protection for HVAC compressor split units placed in close proximity of tower in areas prone to ice and snow. (See Exhibit 6)	N/A	N/A
Building Partition	***$1,800.00***	$1,800.00	This cost is to provide permitting for building partition and electrical service installation in the shared space. This install is to provide security for broadcasters and sufficient power for transmitters. (See Exhibit 6.)	N/A	N/A
Public Hearing	***$440.00***	$440.00	Public hearing cost (See Exhibit 6.)	N/A	N/A
DTV Medical Facility Notification	$11,550.00	$5,250.00	See Exhibit 7.	N/A	N/A
FCC Filing Fees - Special Temporary	$195.00	$190.00	N/A	N/A	N/A

Authorization request					
Non-zoning permits	***$1,500.00***	$1,500.00	Per estimates. See Exhibits 5 and 6.	N/A	N/A
Equipment Delivery and Handling Charges	***$33,700.00***	$33,700.00	Delivery of three transmitters required for repack. See Exhibits 3, 8, and 9.	N/A	N/A
MVPD Notification of Channel Change	***$1,000.00***	$1,000.00	N/A	N/A	N/A
Asbestos and Lead Paint Testing	***$1,800.00***	$1,800.00	Asbestos testing, removal and abatement for walls which could contain lead paint and/or the flooring may contain asbestos, because of the age of the facility and the era when the original construction took place. (See Exhibit 6.)	N/A	N/A
Sub-total	$99,493.90	$93,188.90	N/A	$0.00	N/A
Total for all systems	$7,375,743.54	$4,072,006.86	N/A	$1,493,524.70	N/A

Components

Information not provided.

Cost Information

Grand Total

	Predetermined Cost Estimate	Estimated Cost	Actual Cost
Total for all systems	$7,375,743.54	$4,072,006.86	$1,493,524.70

Reimbursement Status

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

Certification

Section	Question	Response
Submission of Estimated Expenses Statements	WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND /OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a)(1), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503), AND ANY FALSE STATEMENTS COULD SUBJECT THIS ENTITY TO LIABILITY UNDER THE FALSE CLAIMS ACT.	
	1. The Authorized Person signing below certifies that he /she is authorized to submit this TV Broadcaster Relocation Fund Reimbursement Form on behalf of the above-named entity. 2. The above-named entity acknowledges that all certifications and attached documentation are considered material representations. 3. The above-named entity acknowledges the submission of the information herein creates no obligation on the part of the government to pay any amount. 4. The above-named entity certifies that the equipment and services paid for with money from the TV Broadcaster Relocation Fund are necessary to change channels (broadcasters) or to continue to carry the	

	signal of a broadcaster that changes channels (MVPD). 5. The above-named entity certifies that all payments from the TV Broadcaster Relocation Fund (Fund) received by the entity listed on this form will be used only for expenses that are eligible for reimbursement from the Fund. 6. The above-named entity certifies that it will maintain and provide to the Commission detailed records, including receipts, of all costs eligible for reimbursement actually incurred. 7. The above-named entity acknowledges that overpayments or payments in error must be promptly refunded to the Commission. 8. The above-named entity certifies that it is in full compliance with all statutes, rules, regulations and governmental requirements for which compliance is a pre-requisite for obtaining the payments herein requested.	
	I declare, under penalty of perjury, that I am an authorized representative of the above-named applicant for the Authorization(s) specified above.	**Andrew J Siegel** *Assistant Secretary* 08/14/2018

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.	**Andrew J Siegel** *Assistant Secretary* 08/14/2018

Attachments